Apollo Lunar Surface Experiments Package Status Reports

1972

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APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

7 January 1972
G.m.t.: 1300

This report covers the presently operating ALSEP's activity and data from the previous two weeks.

Apollo 15 ALSEP

The Apollo 15 ALSEP experiments and central station are functioning, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within expected limits. The moon is in interplanetary space and data of this region is being gathered by the lunar station's instruments.

Central station telemetry downlink data indicates that the temperatures of all experiments and data subsystem components are decreasing since lunar noon, January 1. The station's radioisotope thermoelectric generator is supplying an output of 74.1 watts of power to the experiments package. The signal strength from the station's transmitter, as reported from the MSFN tracking stations, was -137.0 ± 2.0 dbm. The operational procedure, implemented on 14 October, of eliminating the data subsystem's 18-hour timer outputs by uplinking the timer's reset command, octal 150, was terminated at the last sunrise, December 25. Per agreement the 18-hour timer was configured to function after lunar sunrise, and will be eliminated at lunar sunset. On 6 January, the effects of the 133rd 18-hour timer pulse was correctly verified in the systems telemetry functions, during phase II support, confirming consistent timer pulse execution since initialization of the timer.

No lunar seismic events have been observed by the seismometer during the intermittent phase II support periods of the past two weeks. The experiment's thermally generated seismic disturbances diminished with lunar noon, as the instrument was fully illuminated and the thermal gradients across the seismometer's thermal shroud are at a minimum. The instrument's thermal control mode is auto ON, and the feedback loop filter is commanded OUT. On 31 December, it was noted at the beginning of real-time support that the instrument's internal temperature sensor (DL-07) was reading off scale high. This had been anticipated and is due to the increased solar energy being received by the experiment as the earth/moon system approaches perihelion. DL-07 returned on scale, 4 January.

The magnetometer's sensors are currently in the 100 gamma range, as the moon passes through the free-streaming solar wind region. On 31 December, the instrument's Y axis sensor output dropped off scale LOW, coincident with the first cal raster of a scheduled flip calibration sequence, and returned on scale, 4 January, coincident with the second cal raster of a scheduled flip calibration sequence. This anomaly also occurred during

the last two lunations. The experiment's Y axis sensor head also remains fixed at a 180 degree position, not having responded to a flip cal command since 29 October. The X and Z sensors are returned to the 180 degree positions following each flip cal sequence to maintain sensor head synchronization. Presently the instrument's flip cal inhibit command is IN, precluding the experiment's responding to the data subsystem's timer initiating an automatic flip cal sequence and causing loss of sensor head synchronization. Investigation of these anomalies is continuing. Currently the experiment has executed 264 flip calibration sequences since activation.

The solar wind spectrometer continues to record data in the normal range mode. The experiment continues to indicate an intermittently faulty output at the two highest energy steps (levels 13 and 14), as discussed previously. It should be noted that this anomaly affects only two of the 21 total steps of the instrument's operation. There is a suspicion that a similar problem exists on the spectrometer of the Apollo 12 ALSEP, but range tape data has not yet been investigated to confirm or refute this suspicion. It is planned to leave both instruments in normal range until investigation of this abnormal operation is concluded.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instrument's Channeltron high voltages were commanded OFF from 30 December to 4 January to preclude instrument mode changes at internal temperatures above 85°C (176°F).

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F), with probe 2 indicating a temperature of 250.7°K (-8.1°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 301.7°K (83.7°F).

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 23 December 1971, - G.m.t., to 7 January 1971, 1300 G.m.t.

Central station

Lunar sunset will occur on 9 January; power output of the radioisotope source is unvarying; and transmitter "A" signal strength was reported as -140.9 ± 2.7 dbm. The central station, DSS-1 heater, was commanded OFF at 2355 G.m.t., 26 December, when the average thermal plate temperature reached 69.7°F. The Apollo 14 ALSEP executed its 16th spurious functional command at 1051 G.m.t., 24 December, when the Carnavon, Australia, tracking station noted an octal 052, Charged Particle Lunar Environment Experiment ON, in the downlink. The CPLEE was commanded back to standby, at 1753 G.m.t. No data out-of-tolerances were noted from the spurious command.

Passive seismic experiment

Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.

Active seismic experiment

Instrument currently in standby. On 24 December, experiment commanded ON at 1820 G.m.t., and to high bit rate ON at 1845 G.m.t., for 25 minute listening mode operation. High bit rate terminated at 1910 G.m.t., and the instrument commanded to standby at 1912 G.m.t. The instrument was again commanded ON 31 December at 1516 G.m.t., and to high bit rate at 1545 G.m.t., for a 30 minute listening mode. High bit rate terminated at 1615 G.m.t., and the instrument commanded to standby at 1619 G.m.t. Data output of geophone 1 and 2 appeared normal; geophone 3 data was continuously erratic. No geophone calibration pulses were sent during either listening mode operation. Next listening mode operation is scheduled for 7 January.

Suprathermal ion detector/cold cathode gauge experiment

The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The experiment high voltage power supplies are to remain on continuously during all subsequent lunar day periods per the agreed operational procedure. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter is having no adverse effect on the scientific outputs of the experiments.

Charged particle lunar environmental experiment

Presently in standby. On 24 December, the instrument was ON from 1051 G.m.t. to 1432 G.m.t. (spurious function command) and from 1753 G.m.t. to 1932 G.m.t. (experiment check) with all science and engineering data nominal. On 9 January, the CPLEE will be commanded to standby OFF for a short cooling period (all heaters OFF) and then to operate select to monitor the 12th lunar sunset at the Apollo 14 ALSEP site. For the duration of the 12th lunar night, the experiment will be commanded ON at the beginning and standby at the end of each regularly scheduled support period.

Apollo 12 ALSEP

Operational status from 23 December 1971, 1200 G.m.t., to 7 January 1972, 1300 G.m.t.

Central station	Lunar noon occurred on 3 January; RTG power output is constant; and transmitter "B" signal strength was reported as -140.1 ± 2.3 dbm. The central station heater (DSS-1) was commanded OFF at 0015 G.m.t., 27 December, when the average thermal plate temperature increased to 39.0°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON. No lunar seismic signals have been observed during the limited real time support for the Apollo 12 station, The instrument's Z axis drive motor was commanded OFF at 0004 G.m.t., 27 December, as the instrument's sensor temperature (DL-07) increased to 126.2°F.
Lunar surface magnetometer experiment	Scientific and engineering data outputs are currently invalid. During the previous lunar day's phase II support, a momentary sporadic amount of scientific data was observed. Science data have essentially been invalid since 12 October 1971, and engineering data since 11 December 1971. Also, since 22 December 1971, the Z axis sensor head has not consistently responded to a flip calibration sequence command. The Z axis sensor head has at various times, indicated a 90 degree position, instead of the 0 degree position. On receipt of the required second flip cal sequence command, the Z sensor has consistently indicated sensor head synchronization (180 degree position).
Suprathermal ion detector experiment	The instrument's Channeltron high voltage has been commanded ON in the full automatic stepping sequence, during each scheduled support period for two hours. The instrument experienced three X10 mode changes on 1, 3 and 4 January, during phase II operations. The instrument's internal temperature was 55.5°C (132.0°F) at the time of each unexpected mode change.
Solar wind spectrometer experiment	Normal operation in the normal range mode.

Status as of 1700 G.m.t., 6 January, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	778	335	159
Total Commands to Date	11,742	4441	4871
Sun Angle	133°	139°	160°
Input Power	70.6 W	71.0 W	74.1 W
Heater and Power Dumps	Off	Off	Off
Experiment Status	SIDE Off	CPLEE & ASE Standby	All On
Avg Thermal Plate Temp	89.8° F	95.1° F	85.4° F
PSE Sensor Assembly Temp	Off Scale HIGH	127.8° F	125.8° F
LSM Internal Temp	Invalid	N/A	61.0°C (141.8°F)
SWS Module 300 Temp	61.7°C (143.1°F)	N/A	40.2°C (104.4°F)
SIDE Temp	48.3°C (118.9°F)	Invalid	64.5°C (148.1°F)
CCGE Temp	Off Scale HIGH	Invalid	316.2°K (109.8°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	75.7°C (168.3°F)	N/A
HFE Temp Ref Junction	N/A	N/A	300.8°K (82.0°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

14 January 1972
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning as planned with the following exceptions, as all the experiments and central station components continue to experience a negative temperature excursion in the lunar night environment. Sunset at the Hadley Rille site occurred on 8 January.

The signal strength from transmitter "A", as reported by the network tracking stations, has varied over the past week between -138.5 dbm and -135.0 dbm. The operational procedure of eliminating the data subsystems' 18-hour timer outputs by uplinking the timer's reset command, octal 150, twice daily was re-initiated on 9 January, and will remain in effect throughout lunar night.

On 6 January, an unexpected functional change occurred on this ALSEP. The passive seismometer responded to a spurious functional change at 2235 G.m.t. The supporting MSFN station Canarvon, Australia, observed a command verification word of octal 063 (passive seismic experiment long period gain change in the "x" and "y" axis from 0 db to -10 db). The experiment was commanded back to the 0 db range during Phase II support at 1825 G.m.t., on 7 January. The passive seismic experiment's science data appears to be normal as determined from the brief periods of phase II operations in mission control. The pattern of noise sensed during the terminator crossing by the passive seismometer experiment at the Apollo 15 site is similar to that observed during previous operations of the seismic instrument. The operation of the experiment is as planned; thermal control mode is auto ON; sensor's z-axis drive motor commanded OFF; uncage circuitry configured to the OT state to deliver maximum heat into the sensor assembly; and, the feedback loop filter commanded OUT in order to match seismic response at the three ALSEP stations in operation.

The lunar surface magnetometer experiment's sensors are presently operating in the 50 gamma range, indicating the moon's passage through the free-streaming solar wind region. In accordance with the instrument's revised operations schedule, the experiment was commanded to the 50 gamma range at 1235 G.m.t., 10 January. Currently the experiment has executed 280 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not having responded to a flip cal command since October 29, 1971. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Investigation of the magnetomer's anomalous y axis sensor head operation is continuing by the principal investigator.

The solar wind spectrometer was commanded to the high-gain (extended range) mode at 1516 G.m.t., 12 January. The principal investigator has indicated that the cup modulation voltages in proton energy levels 13 and 14 are identical with those in level 12, and the voltages in all other levels are correct. The problem is due to a temperature induced intermittent open circuit in either the test connector or in the cable between it and the electronics module. The principal investigator concludes that the anomoly is not

voltage dependent and prefers to have both the Apollo 12 and Apollo 15 solar wind spectrometer instruments in the high-gain mode.

The suprathermal ion detector and cold cathode gauge experiments continues operating per the agreed-to schedule, the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface. The present temperature of probe 1 at the bottom of the lowest probe section is 252.9°K (-4.2°F), with probe 2 indicating a temperature of 250.5°K (-8.5°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 182.2°K (-295.9°F).

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 8 January 1972, 1300 G.m.t., to 14 January 1972, 1300 G.m.t.

Central station	Sunset of the 12th lunar day at the Apollo 14 landing site, occurred January 9; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -138.3 ± 1.3 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 2335 G.m.t., 9 January, when the average thermal plate temperature indicated 51.2°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 7 January, experiment commanded ON at 1639 G.m.t., and to high bit rate ON at 1700 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1732 G.m.t., and the instrument commanded to standby at 1739 G.m.t. Next listening mode operation is scheduled for 14 January. Also, plans are presently being formulated for a special 6-hour high bit rate listening mode operation which will occur on 22 January, around the moon's next perigee.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter is having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. During all phase II support periods this past week (9-14 January), the experiment was or will be commanded to operate select and the instrument heater commanded OFF as per the revised operations plan. Analyzer A Channeltron high voltage (AC-03) remained fairly constant at the 2600 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. The instrument has been commanded to standby at the termination of each scheduled real time support period. Science data from Analyzer A has been valid. This operational procedure will continue during the remainder of lunar night, 20-24 January, per the agreed to operations plan.

Apollo 12 ALSEP

Operational status from 8 January 1972, 1300 G.m.t., to 14 January 1972, 1300 G.m.t.

Central station	Sunset of the 27th lunar day occurred 10 January; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.4 + 1.5 dbm. The station's DSS-1 heater was commanded ON 10 January, 1152 G.m.t., when the average thermal plate temperature indicated 31.3°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and the feedback loop filter commanded OUT. The z-axis drive motor was commanded ON 1158 G.m.t., 10 January. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Magnetometer engineering data were valid at 1530 G.m.t. on 7 January. These data had been static since 11 December 1971. At the same time on 7 January, it was noted that the magnetometer's science data were no longer static, but were still invalid. As a result the magnetometer's digital filter was commanded IN and the science data appeared to become semi-valid. The exception noted was the apparent failure of a sign bit change in the digital logic, causing the data output to remain in one polarity (normal output varies between both positive and negative polarity). On 10 January, engineering and science data again were static as has been characteristic of the instrument during past lunar nights. The digital filter remains commanded IN.
Solar wind spectrometer experiment	On 12 January at 1516 G.m.t. the experiment was commanded to the high gain mode. See comments for Apollo 15 ALSEP solar wind spectrometer.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with Channeltron high voltage ON. The instrument experienced a mode change (X10 mode) on 8 January, at the start of real time support. The instrument was returned to the full automatic stepping sequence by command without any noticable degredation of instrument operation.

Status as of 2000 G.m.t., 13 January, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	784	341	165
Total Commands to Date	11891	4538	5080
Sun Angle	229°	235°	255°
Input Power	71.5w	71.5w	73.5w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	ASE and CPLEE Standby	All ON
Avg Thermal Plate Temp	21.1°F	38.2°F	-2.8°F
PSE Sensor Assembly Temp	126.3°F	124.4°F	124.5°F
LSM Internal Temp	Invalid	N/A	5.6°C(42.1°F)
SWS Module 300 Temp	-14.4°C(6.1°F)	N/A	-18.0°C(0.4°F
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)
COGE Temp	Off scale HIGH	Invalid	112.3°K(-72.3°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-48.5°C(-55.3°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.3°K(50.5°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

21 January 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to function. All the experiments and central station component temperatures have reached thermal equilibrium in the lunar night environment.

A steady output of 72.9 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter "A", as reported from the MSFN tracking stations, was -136.8 + 1.3 dbm. The average thermal plate temperature is stabilized at -4.1°F. The operational procedure of eliminating the data subsystem's 18-hour timer outputs during lunar night is in effect.

The passive seismometer is operating, as planned in the auto ON thermal control mode, and feedback loop filter commanded OUT. The seismometer's arm/fire circuit is being maintained in the out of tolerance state by resetting the timer daily. This procedure adds an additional 0.1 watts of power to the sensor unit's thermal control system for lunar night operations.

The lunar surface magnetometer's science and housekeeping data outputs disclose that the moon is in the free-streaming solar wind region, and that the instrument is operating as scheduled in the 50 gamma range. The instrument's Y-axis sensor has continued to output valid science data since returning December 5. The Y-axis sensor head remains fixed at a 180 degree position, not having responded to a flip cal command since October 29. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 282 flip calibration sequences since activation.

The solar wind spectrometer continues to record plasma data in the extended range mode, having operated in this mode since 12 January.

The suprathermal ion detector and cold cathode gauge experiments continues operating per the agreed-to schedule, the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface. The present temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F), with probe 2 indicating a temperature of 250.5°K (-8.5°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 84.6°K (-307.1°F).

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 14 January 1972, 1300 G.m.t., to 21 January 1972, 1300 G.m.t.

Central station	DSS-1 heater (10 watt) is ON; power output of the RTG is 71.5 watts; and transmitter "A" signal strength was reported as varying between -135.5 dbm and -139.3 dbm. Lunar midnight occurred on 17 January.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 14 January, experiment commanded ON at 1552 G.m.t., and to high bit rate ON at 1603 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erractic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1633 G.m.t., and the instrument commanded to standby at 1638 G.m.t. A special 6-hour high bit rate listening mode operation is planned on 22 January, around the moon's next perigee.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter is having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. The experiment was commanded to operate select and the instrument heater commanded OFF, as per the revised operations plan, on 14 January. Channeltron high voltage (AC-03) remained fairly constant at the 2600 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. The instrument was commanded to standby later that day at the direction of mission control. Science data from Analyzer A were valid. This operational procedure was resumed yesterday, 20 January, per the agreed to operations plan and will continue until lunar sunrise (24 January).

Apollo 12 ALSEP

Operational status from 14 January 1972, 1300 G.m.t., to 21 January 1972, 1300 G.m.t.

Central station	Lunar midnight occurred 17 January; RTG power output is constant and transmitter "B" signal strength was reported at -137.8 ± 1.8 dbm. DSS-1 (10 watt) heater is ON.
Passive seismic experiment	Seismometer operation is as planned; auto thermal control mode; feedback loop filter commanded OUT; and the Z axis drive motor ON. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 10 January. The instrument's digital filter was commanded OUT 14 January. Static data are characteristic of the Apollo 12 instrument's lunar night operation.
Solar wind spectrometer experiment	Operation is in the extended range mode. The instrument continues to display intermittent outputs in the two highest energy steps.
Suprathermal ion detector experiment	The experiment is operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.

Status as of 2200 G.m.t., 19 January, was as follows:

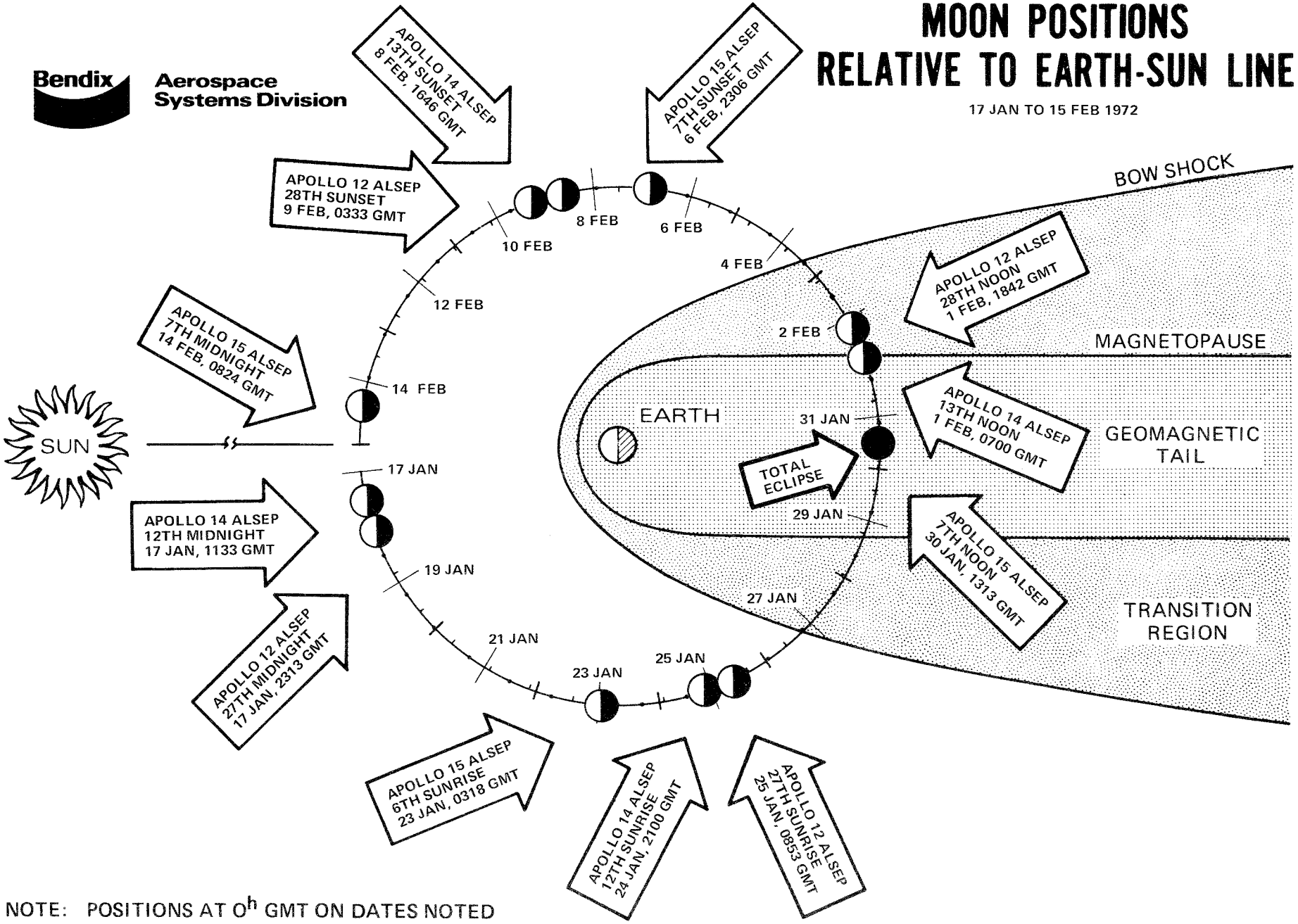
TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	764	321	145
Total Commands to Date	11920	4558	5168
Sun Angle	294°	300°	321°
Input Power	71.0w	71.5w	72.9w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	Off
Experiment Status	All On	CPLEE & ASE Standby*	All On
Avg Thermal Plate Temp	19.4°F	37.3°F	-4.1°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.1°F
LSM Internal Temp	Invalid	N/A	5.6°C (42.1°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	-18.4°C (1.1°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.6°C (43.9°F)
CCGE Temp	Off Scale High	Invalid	108.3°C (226.9°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE CLA Temp	N/A	-65.5°C (-85.9°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.0°K (50.0°F)

*CPLEE ON during scheduled lunar night support periods.

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

17 JAN TO 15 FEB 1972



NOTE: POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

28 January 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning as planned with the following exceptions, as all the experiments and central station component continue to experience a positive temperature excursion; sunrise at Hadley Rille having occurred on 23 January.

A steady output of 73.9 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter "A", as reported from the MSFN tracking stations, was -137.3 ± 3.3 dbm. The average thermal plate temperature is presently 106.2°F and increasing at an approximate average rate of 0.3°F per hour.

On 26 January at 2025 G.m.t. the Madrid, Spain ground station observed a command verification word in the package's downlink indicating a possible spurious command execution of octal 056, heat flow experiment standby power. This unexpected functional change was confirmed by a change in status of parameter AB-05 (experiments standby status). The experiment was returned to operate select by mission control at 2326 G.m.t. that day. No engineering parameters were out of tolerance as a result of the spurious change and science data were not adversely affected.

The passive seismic experiment is operating, as planned, in the auto thermal control mode and feedback loop filter commanded OUT. During terminator passage, the instrument sensed signals of various amplitudes, characteristic of shroud movement from the optical terminator's thermal transients. No lunar seismic signals have been observed during limited real time support for the Apollo 15 stations.

The magnetometer's sensors are currently in the 100 gamma range, as the moon passes through the earth's magnetosheath. The instrument's Y-axis sensor continues to output valid science data. The Y-axis sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 294 flip calibration sequences since activation.

The solar wind spectrometer continues to record plasma data in the extended range mode.

The suprathermal ion detector and cold cathode gauge experiments continues operating per the agreed-to schedule, in the full automatic stepping sequence with the Channeltron high voltages commanded ON. On 24 January the instrument's command register contained a command load of octals 105 and 107 (low energy curved plate analyzer high voltage OFF) at the beginning of real-time support. No operational mode changes had occurred. The command register was cleared by command without incident.

28 January 1972
G.m.t.: 1300

The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface. The present temperature of probe 1 at the bottom of the lowest probe section is 253.0°K(-4.0°F) , with probe 2 indicating a temperature of 250.6°K (-8.4°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 360.5°K (189.5°F).

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 21 January 1972, 1300 G.m.t., to 28 January 1972, 1300 G.m.t.

Central station	DSS-1 heater (10 watt) is OFF; power output of the RTG is 71.0 watts; and transmitter "A" signal strength was reported as varying between -139.0 dbm and -143.5 dbm. Lunar sunrise occurred on 24 January.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 22 January, experiment commanded ON at 0210 G.m.t., and to high bit rate ON at 0225 G.m.t., for a special 5-hour listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. Two events were observed during this special session; one large and one small. Neither was characteristic of the slow energy build-up associated with true seismic activity. Two geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 0725 G.m.t., and the instrument commanded to standby at 0728 G.m.t. Next high bit rate listening mode operation is planned for today, 28 January.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. The experiment was commanded to operate select and the instrument heater commanded OFF, as per the revised operations plan, each day, 21 through 25 January. Channeltron high voltage (AC-03) remained fairly constant at the 2600 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. The instrument was commanded to standby later each day at the direction of mission control. Science data from Analyzer A were valid. This operational procedure was suspended after 25 January, per the agreed to operations plan and will resume next lunar night.

Apollo 12 ALSEP

Operational status from 21 January 1972, 1300 G.m.t., to 28 January 1972, 1300 G.m.t.

Central station	Lunar sunrise occurred 25 January; RTG power output is constant and transmitter "B" signal strength was reported at -138.8 ± 1.8 dbm. DSS-1 (10 watt) heater is OFF.
Passive seismic experiment	Seismometer operation is as planned; auto thermal control mode; feedback loop filter commanded OUT. The Z axis drive motor was commanded OFF at 1815 G.m.t., 25 January when the instrument's internal electronics temperature (DL07) reached 126.2°F. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 10 January. Static data are characteristic of the Apollo 12 instrument's lunar night operation. The instrument's digital filter remains OUT. The magnetometer's Z axis sensor head failed to flip to the 0° position during an instrument flip calibration sequence earlier this month. This anomaly had been observed previously but subsequent flip calibration commands had succeeded in unlocking the head from the 180° position. It now appears that the Z head may be permanently locked, similar to the Y axis sensor head, in the 180° position. The x axis sensor head is returned to the 180° position by a second flip calibration command after the initial sequence in order to maintain all three heads in 180° synchronization.
Solar wind spectrometer experiment	Operation is in the extended range mode. The instrument continues to display intermittent outputs in the two highest energy steps.
Suprathermal ion detector experiment	The experiment is presently OFF. The experiment is commanded to operate select in the full automatic stepping sequence with its Channeltron high voltage ON during each scheduled support period throughout lunar day.

Status as of 2100 G.m.t., 27 January, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	772	329	153
Total Commands to Date	11981	4593	5375
Sun Angle	30°	36°	58°
Input Power	71.0w	71.0w	73.9w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	Side OFF	*CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	81.1°F	91.6°F	106.2°F
PSE Sensor Assembly Temp	126.4°F	125.4°F	134.8°
LSM Internal Temp	Invalid	N/A	61.0°C(141.8°F)
SWS Module 300 Temp	51.9°C (125.4°F)	N/A	56.7°C(134.1°F)
SIDE Temp	OFF	Invalid	81.7°C(179.1°F)
COGE Temp	Off Scale High	Invalid	364.0°K (195.8°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	37.1°C(98.8°F)	N/A
HFE Temp Ref Junction	N/A	N/A	321.2°K (118.8°F)

*CPLEE ON during scheduled lunar night support periods.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 January 1972
G.m.t.: 1400

The lunar laboratory emplaced on the lunar surface by the crew of Apollo 12 was the first of the three presently operating ALSEP's to experience the extreme temperature transients resulting from the 30 January total eclipse of the moon. The eclipse reached the other two ALSEP's some twelve minutes later. Today's event was the fifth such eclipse, partial or total, experienced by the Apollo 12 station. Based on experience during the previous eclipses, no unusual scientific data resulting from the total eclipse was noted in real time analyses.

Apollo 15 ALSEP

The eclipse seen by the Apollo 15 ALSEP resulted in a considerable thermal shock to the equipment. During the 4.8 hours of the eclipse, the sunshield temperature excursion was 289.7 degrees F, and then returned to normal. The temperature controlled electronics of the data subsystem experienced a 36.6 degree F temperature transient in this same time frame. An additional effect of this thermal shock was a temporary increase of 4.1 watts in RTG power output.

The heat flow experiment was commanded from its full operational sequence mode to the experiment's thermocouple only mode to allow more accurate and higher density measurements of the lunar surface brightness temperature. In addition during the eclipse umbra experiment gradient and ring bridge survey measurements were made to be used for a detailed analysis of the downward radiation of heat from the upper parts of the bore stems to the heat flow probes. The experiment's thermocouple temperature, TC12, decreased from a temperature of 355°K (179.6°F) to a minimum value of 142°K (-203.8°F), or an equivalent lunar surface temperature of approximately 175°K (-144.4°F).

The other four experiments, the passive seismometer, the lunar surface magnetometer, the solar wind spectrometer, and the suprathermal ion detector and cold cathode gauge indicated no unexpected science output resulting from the total eclipse. The suprathermal ion detector and cold cathode gauge experiments Channeltron high voltages remained ON during the eclipse, with the suprathermal ion detector experiment sensing flux data in the one and two Kv range of the experiment's total ion detector at various intervals of the eclipse.

Apollo 14 ALSEP

The charged particle lunar environment experiment was commanded to operate select during various phases of the eclipse, resulting in a total operate time of 98 minutes. Particle flux data were correlated simultaneously by the charged particle lunar environment experiment, the suprathermal ion detector experiments, and two revolutions of the particles and fields subsatellite.

All four Apollo 14 ALSEP experiments operated as expected and within the predicted temperature response bands, having experienced the extreme temperature changes of the lunar eclipse. The active seismic experiment remained in standby select mode during the eclipse.

Apollo 12 ALSEP

The 12 central station, seismometer, and field particle experiment sensors indicated the extreme temperature changes recorded by the other ALSEP's, and the scientific instruments recorded data during the eclipse. The magnetometer field sensor outputs which have been static since 10 January have not recovered.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

TM POINT	PENUMBRA ENTRY(1)(3) Apollo 14 ALSEP	PENUMBRA ENTRY(1)(3) Apollo 15 ALSEP	UMBRA EXIT(2)(3) Apollo 14 ALSEP	UMBRA EXIT(2)(3) Apollo 15 ALSEP	MAXIMUM TEMP CHANGE Apollo 14 ALSEP	MAXIMUM TEMP CHANGE Apollo 15 ALSEP
C/S SUNSHIELD(AT-01)	179.6°F	151.3°F	-138.4°F	-138.4°F	318.0°F	289.7°F
AVG THERMAL PLATE	118.0°F	116.7°F	79.3°F	80.1°F	38.7°F	36.6°F
PSE DL-07 TEMP	125.5°F	HIGH	122.4°F	139.9°F	3.1°F	Unknown
LSM INT TEMP	N/A	160.5°F	N/A	128.3°F	N/A	32.2°F
SWS MOD 300 TEMP	N/A	144.1°F	N/A	108.5°F	N/A	35.6°F
SIDE TEMP 2	Unknown	188.3°F	Unknown	161.9°F	Unknown	26.4°F
CCGE TEMP	Unknown	185.8°F	Unknown	-10.8°F	Unknown	196.6°F
ASE GLA TEMP	170.9°F	N/A	154.9°F	N/A	26.0°F	N/A
HFE TC22 TEMP	N/A	209.5°F	N/A	-199.2°F	N/A	408.7°F

NOTE: (1) Apollo 14 ALSEP site, first indications of penumbra entry 0823 G.m.t., umbra exit 1151 G.m.t., 30 January.

(2) Apollo 15 ALSEP site, first indications of penumbra entry 0832 G.m.t., umbra exit 1212 G.m.t., 30 January.

(3) Experiment temperatures listed are taken at various times, limited by real time readout constraints, and may not reflect the lowest actual values.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 February 1972
G.m.t.: 1300

This report covers the ALSEP's activity and data following the lunar eclipse on 30 January.

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning as planned with the following exceptions, as all the experiments and central station components continue to experience a negative temperature excursion as lunar night approaches. The station's radioisotope thermoelectric generator is supplying an output of 73.5 watts of power to the experiments package. The signal strength from the station's transmitter, as reported from the MSFN tracking stations, was 136.4 ± 2.4 dbm. On February 3 the effects of the 153 rd 18-hour timer pulse were correctly verified by the systems telemetry functions, during phase II support, confirming consistent timer pulse execution since initialization of the timer. On 30 January at 0631 G.m.t. the Goldstone MSFN tracking station observed a command verification word in the downlink signal, indicating a possible spurious command execution of octal 132, magnetometer filter IN. This unexpected functional change was confirmed during phase II support on 31 January and at 1548 G.m.t. the filter was commanded OUT by mission control.

The passive seismic experiment is operating, as planned in the auto ON thermal control mode and feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 15 station.

The magnetometer's sensors are currently in the 100 gamma range. On 30 January during phase II support "Y" axis data became invalid coincident with the first raster of the flip calibration sequence. On 31 January the data became valid again coincident with the first raster of the flip calibration sequence, and has remained valid for the rest of this reporting period. The sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 310 flip calibration sequences since activation.

The solar wind spectrometer continues to record data in the extended range mode. The previously reported anomalous cup modulation voltages in the protron energy levels 13 and 14 were again noted during this reporting period.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 252.9°K (-4.2°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 340.3°K (153.1°F).

Apollo 12 ALSEP

Operational status from 30 January 1972, 1400 G.m.t., to 4 February 1972, 1300 G.m.t.

Central station	Lunar noon occurred on February 1; RTG power output is constant; and, transmitter "B" signal strength was reported at 139.8 ± 3.2 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON. No lunar seismic signals have been observed during the limited real time support for the Apollo 12 station. On February 2, it was observed at the beginning of real time support that the following unexpected functional changes had occurred within the instrument: The long period X and Y gain was at -20 db and the short period calibration status was ON. These changes occurred on February 2 at 0132 G.m.t. No command verification words relating to these changes were observed in the telemetry downlink from the package. Mission control subsequently commanded the X and Y gain back to 0 db (normal) and the short period calibration OFF. There is no explanation at this time as to the precise cause of this occurrence.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since January 10. Experiment operation similar to this has been previously observed during past lunations. Continuing to double flip cal the experiment during scheduled support periods. The Z and Y axis sensor heads have not responded to flip cal commands during this reporting period.
Suprathermal ion detector experiment	The instrument's Channeltron high voltage has been commanded ON in the full automatic stepping sequence, during each scheduled support period for two hours. The instrument experienced a X10 mode change during phase II operations on February 1, 2 and 3. The internal temperatures were 56.5°C (133.7°F) and 55.6°C (132.1°F) respectively, at the time of the unexpected mode changes. After each occurrence the instrument was commanded OFF.

Apollo 14 ALSEP

Operational status from 30 January 1972, 1400 G.m.t., to 4 February 1972, 1300 G.m.t.

Central station	Lunar noon at the Apollo 14 landing site, occurred on February 1; power output of the radioisotope source in unvarying; and, transmitter "A" signal strength was reported as 139.2 ± 2.2 dbm.
Passive seismic experiment	Operation is in the forced OFF thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 28 January, experiment commanded ON at 1550 G.m.t., and to high bit rate ON at 1612 G.m.t., for 30 minute listening mode operation. Data output of geophone 1 and 2 appeared normal; geophone 3 data was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated 1640 G.m.t., and the instrument commanded to standby at 1642 G.m.t. Next listening mode operation is schedule for February 4.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter continue and is having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently in standby.

Status as of 1800 G.m.t., 3 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	806	363	187
Total Commands to Date	12067	4647	5645
Sun Angle	114°	120°	141°
Input Power	70.6w	70.9w	73.5w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	Side OFF	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	93.1°F	110.5°F	106.5°F
PSE Sensor Assembly Temp	Off scale HIGH	131.8°F	130.6°F
LSM Internal Temp	Invalid	N/A	59.4°C (138.9°F)
SWS Module 300 Temp	66.2°C (141.2°F)	N/A	56.7°C (134.1°F)
SIDE Temp	48.3°C (118.9°F)	Invalid	79.2°C (174.6°F)
CCGE Temp	Off scale HIGH	Invalid	347.4°K (165.9°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	87.1°C (188.8°F)	N/A
HFE Temp Ref Junction	N/A	N/A	318.5°K (113.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 February 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to function. Experiments and central station component temperatures have reached thermal equilibrium in the lunar night environment; sunset at Hadley Rille having occurred on 6 February.

A steady output of 72.9 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter "A", as reported from the MSFN tracking stations, was -137.2 ± 2.2 dbm. The average thermal plate temperature is stabilized at -2.8°F. The operational procedure of eliminating the data subsystem's 18-hour timer outputs during lunar night is in effect.

The passive seismometer is operating, as planned in the auto ON thermal control mode, and feedback loop filter commanded OUT. The seismometer's arm/fire circuit is being maintained in the out of tolerance state by resetting the timer daily. This procedure adds an additional 0.1 watts of power to the sensor unit's thermal control system for lunar night operations.

The lunar surface magnetometer's science and housekeeping data outputs disclose that the moon is in the free-streaming solar wind region, and that the instrument is operating as scheduled in the 50 gamma range. The instrument's Y-axis sensor has continued to output valid science data since 31 January. The Y-axis sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 324 flip calibration sequences since activation.

The solar wind spectrometer continues to record data in the extended range mode. The previously reported anomalous cup modulation voltages in the protron energy levels 13 and 14 were again noted during this reporting period.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F) with probe 2 indicating a temperature of 250.6°K (-8.4°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 91.6°K (-294.5°F). A heat flow mode 2 experiment at the probe 1 heater location H12 will be initiated on 14 February, for a 36-hour period.

It is requested that any organization having comments, questions, or suggestions concerning this report contract R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 4 February 1972, 1300 G.m.t., to 11 February 1972, 1300 G.m.t.

Central station	DSS-1 heater (10 watt) is ON; power output of the RTG is 71.9 watts; and transmitter "A" signal strength was reported as varying between -135.5 dbm and -140.0 dbm. Lunar sunset occurred on 8 February.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. On 9 February the passive seismometer unexpectedly implemented a feedback loop filter IN mode change. No command verification word was received to indicate this was a function of a spurious command. The filter was removed by command from mission control with no resultant problems. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 4 February, experiment commanded ON at 1431 G.m.t., and to high bit rate ON at 1445 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 output was erratic. One small seismic event of very short duration was observed. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1515 G.m.t., and the instrument commanded to standby at 1517 G.m.t. Next high bit rate listening mode operation is planned for today, 11 February.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment was commanded to operate select and the instrument heater commanded OFF, as per the revised operations plan, on 9 February. Channeltron high voltage (AC-03) remained above the 2500 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. It was planned to leave the instrument in operate select throughout lunar night. However, after 21 hours of continuous operation the instrument began to exhibit erroneous science data in analyzer A. As a result the experiment was commanded to standby for one hour and then back to operate select. The science data appeared to be valid. After 30 minutes of operation the instrument was again commanded to standby prior to suspension of real time support. At no time did the Channeltron high voltage (AC03) show signs of serious degradation during the operational periods. At the resumption of support the next morning, the experiment was again placed in operate select and continues in that mode at this time. Further analysis of science data validity is planned early today.

Apollo 12 ALSEP

Operational status from 4 February 1972, 1300 G.m.t., to 11 February 1972, 1300 G.m.t.

Central station	Lunar sunset occurred 9 February; RTG power output is constant and transmitter "B" signal strength was reported at -139.6 ± 2.1 dbm. DSS-1 (10 watt) heater is ON. On 6 February an unexpected functional change occurred when the central station's data processor began processing data in the low-bit-rate mode. Since no valid command verification word is received when a bit-rate change takes place, it cannot be definitely determined whether or not the change was due to a spurious command. However, it is generally assumed this was the case. The data processor was commanded back to normal-bit-rate by the Carnarvon ground station at the direction of mission control approximately two hours later.
Passive seismic experiment	Seismometer operation is as planned; auto thermal control mode; feedback loop filter commanded OUT; and the Z axis drive motor ON. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs were valid 6 February and were static again on 9 February. Static data are characteristic of the Apollo 12 instrument's lunar night operation. The experiment's digital filter was commanded IN 6 February and has remained IN since that time.
Solar wind spectrometer experiment	Operation is in the extended range mode. The instrument continues to display anomalous cup modulation voltages in proton energy levels 13 and 14 as previously reported.
Suprathermal ion detector experiment	The experiment is operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.

Status as of 1700 G.m.t., 10 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	813	370	194
Total Commands to Date	12,187	4709	5702
Sun Angle	199°	205°	226°
Input Power	71.5w	71.9w	72.9w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	Off
Experiment Status	All On	ASE Standby	All On
Avg Thermal Plate Temp	21.3°F	38.4°F	-2.8°F
PSE Sensor Assembly Temp	126.4°F	124.4°F	124.5°F
LSM Internal Temp	Invalid	N/A	5.6°C (42.1°F)
SWS Module 300 Temp	-13.1°C (8.4°F)	N/A	-18.0°C (-0.4°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.6°C (43.9°F)
CCGE Temp	Off Scale High	Invalid	112.3°K (-257.3°F)
CPLEE Electronic Temp	N/A	-38.4°C (-37.1°F)	N/A
ASE GLA Temp	N/A	-48.5°C (-55.3°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.5°K (50.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

18 February 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to function. All the experiments and central station component temperatures have reached thermal equilibrium in the lunar night environment; the seventh sunrise for the Apollo 15 ALSEP will occur 21 February.

A steady output of 72.9 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter "A", as reported from the MSFN tracking stations, was -137.3 ± 1.8 dbm. The average thermal plate temperature is stabilized at -4.1°F. The operational procedure of eliminating the data subsystem's 18-hour timer outputs during lunar night is in effect.

The passive seismometer is operating, as planned in the auto ON thermal control mode, and feedback loop filter commanded OUT. The seismometer's arm/fire circuit is being maintained in the out of tolerance state by resetting the timer daily. This procedure adds an additional 0.1 watts of power to the sensor unit's thermal control system for lunar night operations.

The lunar surface magnetometer's science and housekeeping data outputs disclose that the moon is in the free-streaming solar wind region, and that the instrument is operating as scheduled in the 50 gamma range. The instrument's Y-axis sensor has continued to output valid science data since returning 31 January. The Y-axis sensor head remains fixed at a 180 degree position, not having responded to a flip cal command since October 29. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 334 flip calibration sequences since activation.

The solar wind spectrometer continues to record data in the extended range mode. The previously reported anomalous cup modulation voltages in the protron energy levels 13 and 14 were again noted during this reporting period.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F) with probe 2 indicating a temperature of 250.6°K (-8.4°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 91.6°K (-294.5°F). A heat flow mode 2 experiment at the probe 1 heater location H12 was conducted on 14 February, for a 36-hour period.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 11 February 1972, 1300 G.m.t., to 18 February 1972, 1300 G.m.t.

Central station	DSS-1 heater (10 watt) is ON; power output of the RTG is 71.5 watts; and transmitter "A" signal strength was reported as varying between -136.0 dbm and -140.0 dbm. Lunar midnight occurred on 16 February.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 11 February, experiment commanded ON at 1550 G.m.t., and to high bit rate ON at 1605 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1635 G.m.t., and the instrument commanded to standby at 1637 G.m.t.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter is having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. The experiment was commanded to operate select and the instrument heater commanded OFF, as per the revised operations plan, during each scheduled support period. Channeltron high voltage (AC-03) has remained fairly constant at the 2600 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. This operational procedure will continue until lunar sunrise, 23 February.

Apollo 12 ALSEP

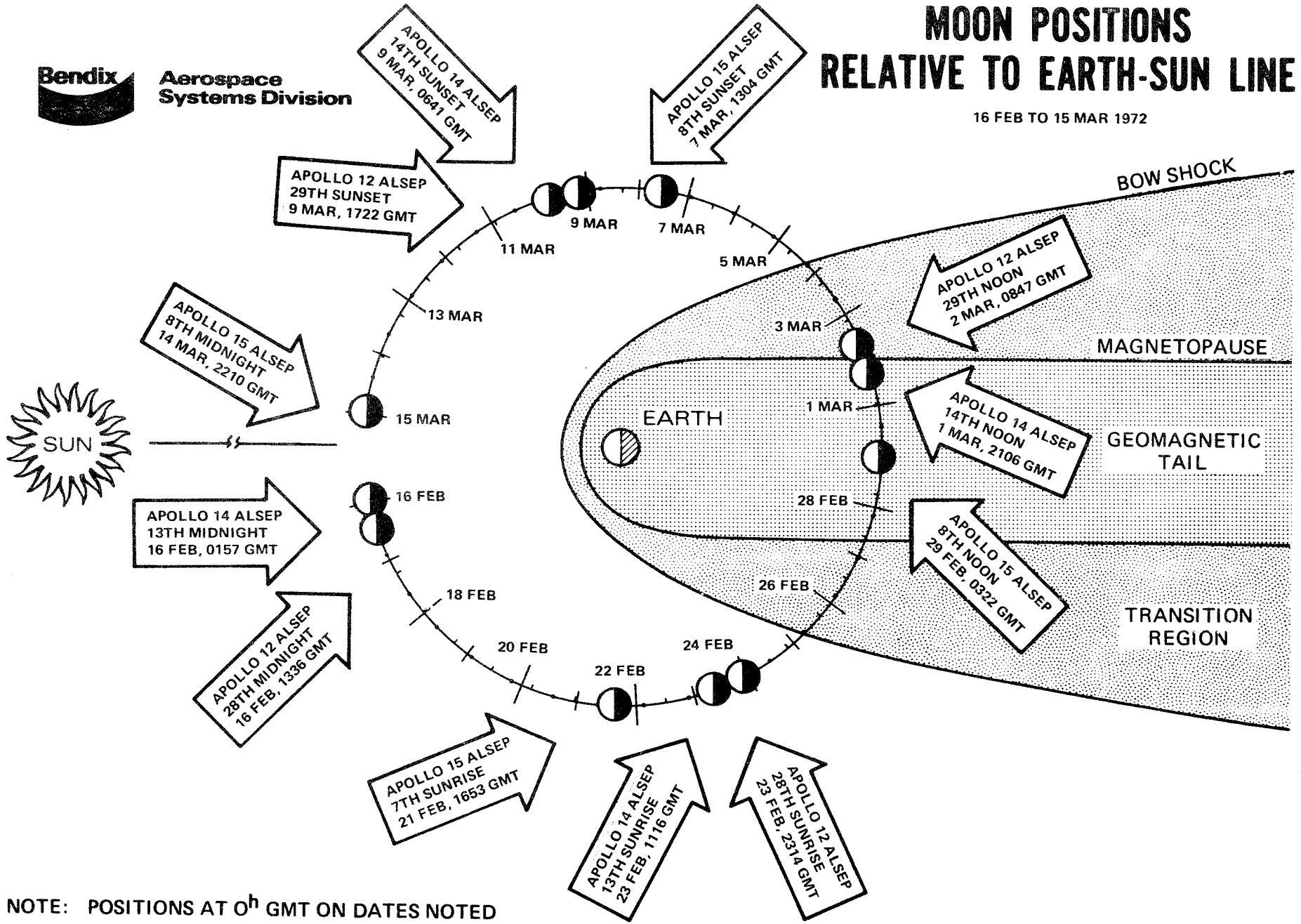
Operational status from 11 February 1972, 1300 G.m.t., to 18 February 1972, 1300 G.m.t.

Central station	Lunar midnight occurred 16 February; RTG power output is constant and transmitter "B" signal strength was reported at -138.7 ± 1.3 dbm. DSS-1 (10 watt) heater is ON.
Passive seismic experiment	Seismometer operation is as planned; auto thermal control mode; feedback loop filter commanded OUT; and the Z axis drive motor ON. No lunar signals have been observed during the limited real time support for the Apollo 12 station. On 11 February, 2202 G.m.t. the passive seismometer unexpectedly implemented a manual leveling mode change. Since the Z axis drive motor is commanded ON, for thermal control during lunar night, the Z axis motor drove the Z tidal data off-scale. The leveling mode was commanded back to the auto mode at 2243 G.m.t. and the Z tidal data recentered with no resultant problems. No command verification word was received to indicate this was a function of a spurious command.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 8 February. The instrument's digital filter remains IN. Static data are characteristic of the Apollo 12 instrument's lunar night operation.
Solar wind spectrometer experiment	Operation is in the extended range mode.
Suprathermal ion detector experiment	The experiment is operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.

Status as of 1600 G.m.t., 17 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	820	377	201
Total Commands to Date	12235	4746	5771
Sun Angle	283°	289°	310°
Input Power	71.0w	71.5w	72.9w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	Off
Experiment Status	All On	CPLEE & ASE Standby*	All On
Avg Thermal Plate Temp	19.4°F	37.1°F	-4.1°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.1°F
LSM Internal Temp	Invalid	N/A	5.6°C (42.1°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	-18.4°C (1.1°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.6°C (43.9°F)
CCGE Temp	Off Scale High	Invalid	108.3°C (226.9°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-65.5°C (-85.9°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.0°K (50.0°F)

*CPLEE ON during scheduled lunar night support periods.



NOTE: POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 February 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar ALSEP station, continues transmitting science data with the following exceptions, as all the experiments and central station components continue to experience a positive temperature excursion; sunrise at Hadley Rille occurred on 21 February.

A steady output of 73.5 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter "A", as reported from the MSFN tracking stations, was -137.0 ± 1 dbm. The average thermal plate temperature is presently 89.7°F and increasing at an approximate average rate of 0.6°F per hour.

The passive seismic experiment is operating, in the auto thermal control mode and feedback loop filter commanded OUT. During terminator passage, the instrument sensed signals of various amplitudes, characteristic of shroud movement from the optical terminator's thermal transients. No lunar seismic signals have been observed during limited real time support for the Apollo 15 stations.

The magnetometer's sensors are currently in the 100 gamma range, as the moon passes through the earth's magnetosheath. The instrument's Y-axis sensor continues to output valid science data. The Y-axis sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 342 flip calibration sequences since activation.

The solar wind spectrometer continues to record plasma data in the extended range mode.

The suprathermal ion detector and cold cathode gauge experiments continues operating per the agreed-to schedule, in the full automatic stepping sequence with the Channeltron high voltages commanded ON. No operational mode changes have occurred during this reporting period.

The heat flow instrument continues to sense subsurface and surface temperature data from all probe sensors. Presently the instrument's cable thermocouples indicate a temperature of approximately 333.4 K (140°F) with the temperature of probe 1 at the bottom of the lowest probe section as 252.9°K (-4.1°F), and probe 2 indicating a temperature of 250.6°K (-8.4°F) at its lowermost point.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 12 ALSEP

Operational status from 18 February 1972, 1300 G.m.t., to 25 February 1972, 1300 G.m.t.

Central station	Lunar sunrise for the 28th lunation occurred 23 February. DSS-1 heater (10 watt) was commanded OFF at 0617 G.m.t., 4 February, at an average thermal plate temperature of 52.3°F. Power output of the radioisotope power source is unvarying, and transmitter "B" signal strength was reported as -138 ± 1 dbm.
Passive seismic experiment	Seismometer operation is as planned; auto thermal control mode; feedback loop filter commanded OUT. The Z axis drive motor was commanded OFF at 0458 G.m.t., 24 February at an instrument temperature of 125.9°F. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 8 February. The instrument's digital filter is IN. Static data are characteristic of the Apollo 12 instrument's lunar night operation.
Solar wind spectrometer experiment	Operation is in the extended range mode.
Suprathermal ion detector experiment	The experiment is operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.

Apollo 14 ALSEP

Operational status from 18 February 1972, 1300 G.m.t., to 25 February 1972, 1300 G.m.t.

Central station	Lunar sunrise for the 13th lunation occurred 23 February. DSS-1 heater (10 watt) was commanded OFF at 0450 G.m.t., 24 February, at an average thermal plate temperature of 65.8°F. Power output of the RTG is 72.9 watts; and, transmitter "A" signal strength was reported as varying between -140 dbm and -142.5 dbm.
Passive seismic experiment	Operation is in the auto thermal control mode, feedback loop filter OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Instrument currently in standby. On 18 February there was no "listening mode" conducted because of the revised operations plan limiting ASE turn ON when the grenade launch assembly temperature (AS-03) is -60°C (-76°F) or below. During ensuing lunar nights it is anticipated the "listening mode" will also be curtailed because of this revised operations plan. The next listening mode is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter continue, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. The experiment was commanded to operate select and the instrument heater commanded OFF, as per the revised operations plan, during each scheduled support period. Channeltron high voltage (AC-03) has remained fairly constant at the 2600 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. This operational procedure continued until 22 February, one day prior to lunar sunrise, when the experiment was commanded to operate select and continued in this mode until 24 February when mission control commanded it to standby.

Status as of 1800 G.m.t., 24 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	827	384	208
Total Commands to Date	12286	4789	5917
Sun Angle	10°	16°	37°
Input Power	70.6w	70.6w	73.5w
Heater and Power Dumps	Off	Off	Off
Experiment Status	All On	CPLEE & ASE Standby	All On
Avg Thermal Plate Temp	52.3°F	65.8°F	89.7°F
PSE Sensor Assembly Temp	125.6°F	124.6°F	126.1°F
LSM Internal Temp	Invalid	N/A	49.5°C (121.1°F)
SWS Module 300 Temp	20.7°C (69.3°F)	N/A	45.6°C (114.1°F)
SIDE Temp	21.4°C (70.5°F)	Invalid	66.7°C (152.0°F)
CCGE Temp	Off Scale High	Invalid	347.4°K (165.9°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-9.6°C (14.7°F)	N/A
HFE Temp Ref Junction	N/A	N/A	305.1°K (89.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 March 1972
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to transmit science and engineering data to Earth. Central station operation is nominal and experiments performance is as planned with the exceptions noted in this report. The Hadley Rille site passed through lunar noon 29 February.

A steady output of 73.5 watts from the RTG is being received by the experiments package. Signal strength from the station's A transmitter, as reported by the MSFN tracking stations, was between -135.5 dbm and -138.0 dbm. Average thermal plate temperature is presently 115.4°F.

The passive seismic experiment is operating in the auto thermal control mode with feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support periods for the Apollo 15 station.

The magnetometer's sensors remain in the 100 gamma range. The instrument's Y-axis sensor output dropped off scale low during a flip calibration sequence on 29 February. This is consistent with observed performance during past lunar days. The sensor's output returned on scale 2 March. The Y-axis sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

The solar wind spectrometer continues to record plasma data in the extended range mode.

The suprathermal ion detector and cold cathode gauge experiments continue operating per the agreed-to schedule. On 26 February at 1857 G.m.t., the Madrid, Spain ground station observed a command verification word (octal 053) in the package's downlink, indicating a possible unexpected functional change placing the instrument in standby mode. This change was confirmed when parameter AB05 (experiments standby status), also monitored by the remote sites, indicated the experiment was in standby. Mission control was not notified by the Madrid station of this change to standby power, since current Network Operations Procedures (NOP) require notification to MCC of this change in AB05 only during lunar night. The experiment remained in standby for approximately 18 hours until the next scheduled real time support period on 27 February, when the instrument was commanded to operate select at 1252 G.m.t. It has been requested that the NOP be amended to require notification to MCC on a continuous basis in the event of a change in either of parameters AB04 or AB05. The instruments' high voltages were commanded OFF on 28 February to preclude mode changes when the internal temperature is above 85°C (176°F). The high voltages will be commanded back on 3 March.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 March 1972
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to transmit science and engineering data to Earth. Central station operation is nominal and experiments performance is as planned with the exceptions noted in this report. The Hadley Rille site passed through lunar noon 29 February.

A steady output of 73.5 watts from the RTG is being received by the experiments package. Signal strength from the station's A transmitter, as reported by the MSFN tracking stations, was between -135.5 dbm and -138.0 dbm. Average thermal plate temperature is presently 115.4°F.

The passive seismic experiment is operating in the auto thermal control mode with feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support periods for the Apollo 15 station.

The magnetometer's sensors remain in the 100 gamma range. The instrument's Y-axis sensor output dropped off scale low during a flip calibration sequence on 29 February. This is consistent with observed performance during past lunar days. The sensor's output returned on scale 2 March. The Y-axis sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

The solar wind spectrometer continues to record plasma data in the extended range mode.

The suprathermal ion detector and cold cathode gauge experiments continue operating per the agreed-to schedule. On 26 February at 1857 G.m.t., the Madrid, Spain ground station observed a command verification word (octal 053) in the package's downlink, indicating a possible unexpected functional change placing the instrument in standby mode. This change was confirmed when parameter AB05 (experiments standby status), also monitored by the remote sites, indicated the experiment was in standby. Mission control was not notified by the Madrid station of this change to standby power, since current Network Operations Procedures (NOP) require notification to MCC of this change in AB05 only during lunar night. The experiment remained in standby for approximately 18 hours until the next scheduled real time support period on 27 February, when the instrument was commanded to operate select at 1252 G.m.t. It has been requested that the NOP be amended to require notification to MCC on a continuous basis in the event of a change in either of parameters AB04 or AB05. The instruments' high voltages were commanded OFF on 28 February to preclude mode changes when the internal temperature is above 85°C (176°F). The high voltages will be commanded back on 3 March.

3 March 1972
G.m.t.: 1400

The heat flow experiment continues to provide subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F) with probe 2 indicating a temperature of 250.6°K (-8.4°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 360.3°K (189.1°F). A heat flow mode 2 experiment at the probe 1 heater location H11 will be requested to be conducted on 13 March for a 48 hour period.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 25 February 1972, 1300 G.m.t., to 3 March 1972, 1400 G.m.t.

Central station	Lunar noon of the 14th lunation occurred 1 March. Power output of the RTG is 71.0 watts; and transmitter A signal strength was reported as varying between -142.0 dbm and -137.5 dbm.
Passive seismic experiment	Operation is in the forced OFF thermal control mode, feedback loop filter OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 25 February, experiment commanded ON at 1615 G.m.t., and to high bit rate ON at 1635 G.m.t., for 30 minute listening mode operation. Data output of geophone 1 and 2 appeared normal; geophone 3 data was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. A large seismic arrival was observed at 1702 G.m.t. Approximate event duration was 3 minutes. Maximum amplitudes in all three geophone channels attained full-scale for a short duration. High bit rate terminated 1710 G.m.t., and the instrument commanded to standby at 1715 G.m.t. Next listening mode operation is scheduled for today, 3 March.
Suprathermal ion detector/cold cathode gauge	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter continue, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently in standby. The experiment was commanded to operate select on 27 February for a non-scheduled operational period of short duration in order to obtain photo electron data during lunar day. These data are necessary as a calibration device for the data obtained by the instrument over its entire operational range. Experiment ON time totaled 28 minutes. Channeltron high voltage (AC-03) degraded slightly, falling below 2400 VDC near the end of the period. Analyzer B Channeltron high voltage remained below nominal levels.

Apollo 12 ALSEP

Operational status from 25 February 1972, 1300 G.m.t., to 3 March 1972, 1400 G.m.t.

Central station	Lunar noon for the 29th lunation occurred 2 March. Power output of the radioisotope power source is unvarying, and transmitter B signal strength was reported at -139.5 ± 2.0 dbm.
Passive seismic experiment	Operation is in the auto thermal control mode; feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 9 February. The instrument's digital filter is IN.
Solar wind spectrometer experiment	Operation is in the extended range mode.
Suprathermal ion detector experiment	The experiment is presently OFF. The experiment is commanded to operate select in the full automatic stepping sequence with its Channeltron high voltage ON during each scheduled support period throughout lunar day. The instrument experienced spurious internal mode changes to the X10 mode on three successive days: 29 February, 1 March, and 2 March.
Cold cathode gauge experiment	Failure of the high voltage switching transistor has precluded instrument operation since the fourteenth hour of lunar operation.

Status as of 1800 G.m.t., 2 March was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	834	391	215
Total Commands to Date	12545	5316	6321
Sun Angle	93°	99°	120°
Input Power	71.0w	71.0w	73.5w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	Side OFF	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	92.9	116.5°F	115.4°F
PSE Sensor Assembly Temp	Off Scale HIGH	130.9°F	141.9°F
LSM Internal Temp	Invalid	N/A	62.6°C (144.7°F)
SWS Module 300 Temp	67.1°C (152.8°F)	N/A	61.5°C (142.7°F)
SIDE Temp	49.1°C (120.4°F)	Invalid	85.5°C (185.9°F)
CCGE Temp	Off Scale HIGH	Invalid	355.6°K (180.7°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	88.8°C (191.8°F)	N/A
HFE Temp Ref Junction	N/A	N/A	326.6°K (128.5°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 March 1972
G.m.t.: 1400

Apollo 15 ALSEP

This ALSEP has operated 223 days on the lunar surface, having passed through its eighth lunar sunset March 7. Sunrise will occur on 22 March at Hadley Rille. Presently the central station components continue to experience a negative temperature excursion in the lunar night environment. The signal strength from transmitter "A", as reported by the network tracking stations, over the past week was -137.3 ± 1.8 dbm. The solid state timer of the central station continues to produce output pulses, on schedule, whenever it is not inhibited to satisfy other operational requirements. The timer's output pulses have been inhibited since 9 March.

No unusual science events were observed during the sunset terminator crossing which occurred since the last reporting period. Operation of the passive seismic experiment, heat flow experiment, solar wind spectrometer, suprathermal ion detector and cold cathode gage continue unchanged from the preceding week. The lunar surface magnetometer was reconfigured to its 50 gamma range on 8 March for the remainder of this lunar night.

An unexpected functional change of the heat flow experiment occurred between the termination of real time operations on 5 March, and the start of phase II operations the next day, March 6, bringing the total functional changes having occurred in the central station and/or experiments with no commands transmitted to 23. The heat flow experiment's high conductivity mode was corrected by ground command with no further problems.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 3 March 1972, 1400 G.m.t., to 10 March 1972, 1400 G.m.t.

Central station

Sunset of the 14th lunar day at the Apollo 14 landing site, occurred March 9; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -138.8 ± 1.8 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 1150 G.m.t., 9 March, when the average thermal plate temperature indicated 40.8°F.

Passive seismic experiment

Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station. The seismometer responded to an unexpected functional change at 1217 G.m.t., 6 March, placing the instrument in standby. The supporting MSFN station observed a command verification word of octal 037. The experiment was commanded back to operate select, without problem, at 1435 G.m.t., March 6. Another functional change occurred at 0836 G.m.t., on 9 March, placing the instrument from the auto leveling mode to forced leveling mode. The Bermuda tracking station observed a command verification word. The seismometer was commanded back to auto leveling mode at 1149 G.m.t., March 9, without any resultant problem.

Active seismic experiment

Currently in standby. On 3 March, experiment commanded ON at 1519 G.m.t., and to high bit rate ON at 1545 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1615 G.m.t., and the instrument commanded to standby at 1616 G.m.t. The next high bit rate listening mode operation is planned for today.

Suprathermal ion detector/cold cathode gauge experiment

The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.

Charged particle lunar environmental experiment

The experiment was commanded to operate select on 6 and 7 March for scheduled operational periods of short duration in order to obtain photo electron data during lunar day. These data are used to calibrate the data obtained by the instrument over its entire operational range. Experiment ON time totaled 126 minutes. Channeltron high voltage (AC-03) degraded slightly, falling below 2400 VCD near the end of each period. Analyzer B Channeltron high voltage remained below nominal levels.

Apollo 14 ALSEP

Operational status from 3 March 1972, 1400 G.m.t., to 10 March 1972, 1400 G.m.t.

Charged particle lunar environmental experiment	Based on recent lunar night operational experience it has been determined that the instrument can be operated without Analyzer A high voltage degradation for periods up to 14 hours. Per a revised operational procedure the experiment was commanded to operate select on March 9. Experiment ON time totaled 9 hours. Per the operational procedure the experiment was then commanded to standby. A minimum of 12 hours in standby between operating periods for instrument warm up is required. The experiment will be cycled for the remainder of lunar night in this manner, and during non-operating periods the instrument will be commanded to standby.

Apollo 12 ALSEP

Operational status from 3 March 1972, 1400 G.m.t., to 10 March 1972, 1400 G.m.t.

Central station	Sunset of the 29th lunar day occurred 9 March; RTG power output is constant; and, transmitter "B" signal strength was reported at -141.6 ± 1.4 dbm. The station's DSS-1 heater was commanded ON 9 March, 1552 G.m.t., when the average thermal plate temperature indicated 27.3° F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and the feedback loop filter commanded OUT. The z-axis drive motor was commanded ON 1519 G.m.t., 9 March. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Magnetometer engineering data were valid at 1402 G.m.t. on 7 March. These data had been static since 9 February 1972. At the same time on 7 March, it was noted that the magnetometer's science data were no longer static, but were still invalid. The magnetometer's digital filter was commanded IN and the science data appeared to become semi-valid. The exception noted was the apparent failure of a sign bit change in the digital logic, causing the data output to remain in one polarity (normal output varies between both positive and negative polarity. On 8 March, engineering and science data again were static as has been characteristic of the instrument during past lunar nights. The digital filter remains commanded IN.
Solar wind spectrometer experiment	Currently operating in the extended range mode.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations at 1405 G.m.t., 7 March. The instrument experienced a mode change (X10 mode) on March 4, during real time support. The instrument was returned to the full automatic stepping sequence by command without any noticable degradation of instrument operation.

Status as of 1500 G.m.t., 9 March was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	841	398	222
Total Commands to Date	12661	5393	6562
Sun Angle	179°	185°	206°
Input Power	70.6w	71.4w	72.9w
Heater and Power Dumps	DSS-1 ON	DSS-1 ON	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	27.8°F	31.8°F	-1.1°F
PSE Sensor Assembly Temp	127.2°F	124.5°F	124.6°F
LSM Internal Temp	Invalid	N/A	6.4°C (43.5°F)
SWS Module 300 Temp	25.1°C (77.2°F)	N/A	-17.2°C (-1.1°F)
SIDE Temp	28.1°C (82.6°F)	Invalid	7.2°C (44.9°F)
CCGE Temp	Off Scale HIGH	Invalid	118.7°K (-235.7°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-30.0°C (86.0°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.4°K (50.7°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 March 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to transmit science and engineering data to Earth. Central station operation is nominal and experiments performance is as planned with the exceptions noted in this report. Lunar midnight at the Hadley Rille site occurred theoretically on 14 March. Experiments and central station component temperatures are sustaining equilibrium in the lunar night environment.

A steady output of 72.9 watts from the RTG is being received by the experiments package. Signal strength from the station's A transmitter, as reported by the MSFN tracking stations, was between -135.0 dbm and -138.0 dbm. The average thermal plate temperature is stabilized at -5°F. The operational procedure of eliminating the data subsystem's 18-hour timer outputs during lunar night is in effect.

The passive seismometer is operating, as planned in the auto ON thermal control mode, and feedback loop filter commanded OUT. The seismometer's arm/fire circuit is being maintained in the out of tolerance state by resetting the timer daily. This procedure adds an additional 0.1 watts of power to the sensor unit's thermal control system for lunar night operations.

The lunar surface magnetometer is in the free-streaming solar wind region and operating as scheduled in the 50 gamma range. The instrument's Y-axis sensor has remained on scale since 2 March. The Y-axis sensor head remains fixed in the 180 degree position. Flip calibration sequences are commanded in pairs, in order to maintain sensor head synchronization.

The solar wind spectrometer continues operation in the extended range mode. The previously reported anomalous cup modulation voltages in proton energy levels 13 and 14 were again noted during this reporting period.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F) with probe 2 indicating a temperature of 250.6°K (-8.4°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 87.0°K (-302.8°F). A 48 hour heat flow mode 2 experiment at the probe 1 heater location H11 was concluded on 15 March.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 10 March 1972, 1400 G.m.t., to 17 March 1972, 1300 G.m.t.

Central station	Midnight of the 14th lunation occurred 16 March. Power output of the RTG is 71.0 watts; and transmitter A signal strength was reported as varying between -137.8 dbm and -140.0 dbm.
Passive seismic experiment	Operation is in the Auto ON thermal control mode, feedback loop filter OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 10 March, experiment commanded ON at 1439 G.m.t., and to high bit rate ON at 1455 G.m.t., for 30 minute listening mode operation. Data output of geophone 1 and 2 appeared normal; geophone 3 data was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. One small seismic event was observed in the geophone 1 channel only. High bit rate terminated 1525 G.m.t., and the instrument commanded to standby at 1528 G.m.t. Next listening mode operation is scheduled for today, 17 March.
Suprathermal ion detector/cold cathode gauge	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter continue, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently in standby. The experiment was commanded to operate select on 10, 13 and 15 March at 1500 G.m.t. for a 9 hour operative period each day. The Channeltron A voltage remained within the limits of the revised operation plan (SMEAR #70) as monitored by the MSFN remoted sites. The instrument was commanded to standby at the conclusion each 9 hour period by the remote site via his Mode 1 computer uplink capability.

Apollo 12 ALSEP

Operational status from 10 March 1972, 1400 G.m.t., to 17 March 1972, 1300 G.m.t.

Central station	Midnight of the 29th lunation occurred yesterday, 16 March, Houston time. Power output of the radioisotope power source is unvarying, and transmitter B signal strength was reported at -138.7 ± 1.7 dbm.
Passive seismic experiment	Operation is in the auto thermal control mode; feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been static since 9 March. The instrument's digital filter remains IN. Static data are characteristic of the Apollo 12 instrument's lunar night operation.
Solar wind spectrometer experiment	Operation is in the extended range mode.
Suprathermal ion detector experiment	The experiment is operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.
Cold cathode gauge experiment	Failure of the high voltage switching transistor has precluded instrument operation since the fourteenth hour of lunar operation.

Status as of 1700 G.m.t., 15 March, was as follows:

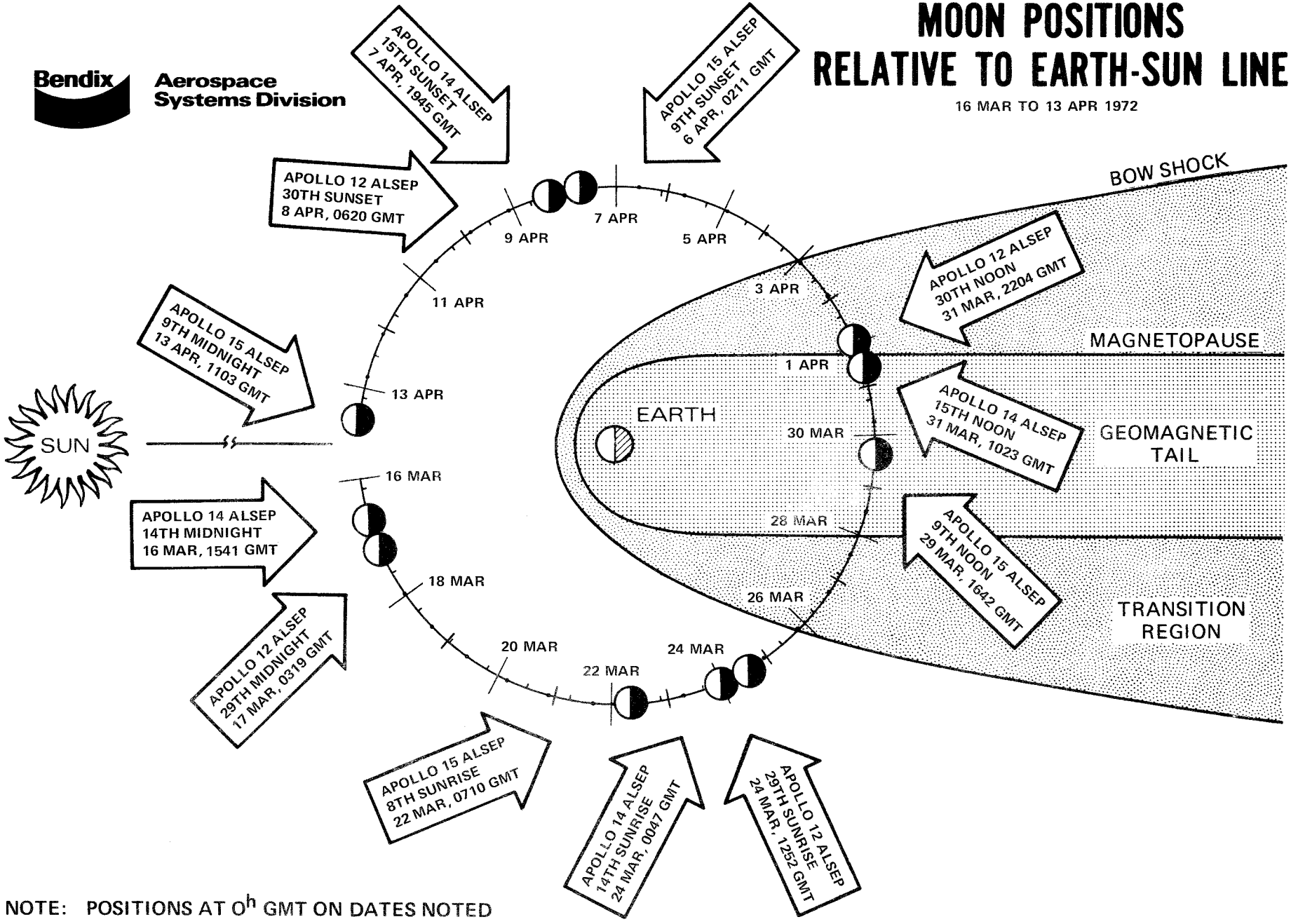
TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	847	404	228
Total Commands to Date	12705	5471	6609
Sun Angle	251°	257°	278°
Input Power	71.0w	71.0w	72.9w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	OFF
Experiment Status	All ON	CPLEE & ASE Standby*	All ON
Avg Thermal Plate Temp	19.4°F	37.3°F	-5.1°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.3°F
LSM Internal Temp	Invalid	N/A	5.6°C (42.1°F)
SWS Module 300 Temp	-15.2°C (4.6°F)	N/A	-18.4°C (1.1°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.6°C (43.9°F)
CCGE Temp	Off Scale HIGH	Invalid	110.2°K (-261.0°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-65.0°C (-85.0°F)	N/A
HFE Temp Ref Junction	N/A	N/A	285.5°K (54.5°F)

*CPLEE ON during scheduled lunar night support periods.

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

16 MAR TO 13 APR 1972



NOTE: POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

24 March 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to transmit science and engineering data to Earth. Central station operation is nominal and experiments performance is as planned with the exceptions noted in this report. Lunar sunrise at the Hadley Rille site occurred on 22 March. Experiments and central station component temperatures have continued to rise steadily with the increasing sun elevation.

A steady output of 72.9 watts from the RTG is being received by the experiments package. Signal strength from the station's A transmitter, as reported by the MFSN tracking stations, was between -135.0 dbm and -138.9 dbm. The average thermal plate temperature is presently 66.5°F.

The passive seismometer is operating, as planned in the auto ON thermal control mode, and feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support periods for the Apollo 15 station.

The lunar surface magnetometer is indicating passage of the moon through the bow shock created as the solar wind passes the Earth's magnetic field. The instrument is now operating in the 100 gamma range. The Y-axis sensor head remains fixed in the 180 degree position. Flip calibration sequences are commanded in pairs, in order to maintain sensor head synchronization.

The solar wind spectrometer continues operation in the extended range mode.

The suprathermal ion detector and cold cathode gauge experiments continue operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F) with probe 2 indicating a temperature of 250.6°K (-8.4°F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 302.0°K (84.1°F).

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 17 March 1972, 1300 G.m.t., to 24 March 1972, 1300 G.m.t.

Central station	Sunrise of the 15th lunation occurred today, 24 March. Power output of the RTG is 71.5 watts and transmitter A signal strength was reported as varying between -139.0 dbm and -142.4 dbm. DSS-1 heater (10 watt) was commanded OFF earlier today.
Passive seismic experiment	Operation is in the auto ON thermal control mode, feedback loop filter OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 17 March the scheduled "listening mode" operation was not conducted because of the revised operations procedure limiting ASE turn ON when the grenade launch assembly temperature (AS-03) is -60°C (-76°F) or below. Next listening mode operation is scheduled for today, 24 March.
Suprathermal ion detector/cold cathode gauge	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter continue, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently in standby. The experiment was commanded to operate select on 17, 21, 22, and 23 March with operational periods scheduled for 24 and 25 March. The Channeltron A voltage remained within the limits of the revised operation plan (SMEAR #70) as monitored by the MSFN remoted sites. The instrument is commanded to standby at the conclusion of each operational period by the remote site or by mission control.

Apollo 12 ALSEP

Operational status from 17 March 1972, 1300 G.m.t., to 24 March 1972, 1300 G.m.t.

Central station	Sunrise of the 30th lunation occurs today, 24 March. Power output of the radioisotope power source is steady and transmitter B signal strength was reported as varying between -136.0 dbm and -140.2 dbm.
Passive seismic experiment	Operation is in the auto thermal control mode, feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been static since 9 March. The instrument's digital filter remains IN. Static data are characteristic of the Apollo 12 instrument's lunar night operation.
Solar wind spectrometer experiment	Operation is in the extended range mode.
Suprathermal ion detector experiment	The experiment is operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.
Cold cathode gauge experiment	Failure of the high voltage switching transistor has precluded instrument operation since the fourteenth hour of lunar operation.

Status as of 1600 G.m.t., 22 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	854	411	235
Total Commands to Date	12753	5449	6750
Sun Angle	337°	343°	5°
Input Power	71.0w	71.5w	72.3w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	OFF
Experiment Status	All ON	ASE Standby	All ON
Avg Thermal Plate Temp	18.2°F	36.9°F	-5.5°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.1°F
LSM Internal Temp	Invalid	N/A	4.7°C (40.5°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	-18.4°C (1.1°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.0°C (42.8°F)
CCGE Temp	Off Scale HIGH	Invalid	108.3°K (-264.5°F)
CPLEE Electronic Temp	N/A	-36.2°C (-33.2°F)	N/A
ASE GLA Temp	N/A	-66.0°C (-86.8°F)	N/A
HFE Temp Ref Junction	N/A	N/A	282.9°K (49.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

31 March 1972
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 ALSEP, now in its ninth lunar day, is continuing to transmit a steady stream of data to earth. The temperature of all experiments and central station components have stabilized from the effects of passing through lunar noon, March 29. Central station operation is nominal and experiments performance is as planned with the exceptions noted in this report.

A steady output of 73.5 watts from the RTG is being received by the experiments package. Signal strength from the station's A transmitter, as reported by the MSFN tracking stations, was between -135.0 dbm and -137.5 dbm. Average thermal plate temperature is presently 116.4°F.

The passive seismic experiment is operating in the auto thermal control mode with feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support periods for the Apollo 15 station.

The magnetometer's sensors remain in the 100 gamma range. The Y-axis sensor head remains fixed in the 180 degree position. The X-axis and Z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. Currently the experiment has executed 398 flip calibration sequences since activation.

The solar wind spectrometer continues to record plasma data in the extended range mode.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in the full automatic stepping sequence with the Channeltron high voltages commanded OFF. The instruments' high voltages were commanded OFF on 28 March to preclude mode changes when the internal temperature is above 85°C (176°F).

The heat flow instrument continues to sense subsurface and surface temperature data from all probe sensors. Presently the instrument's cable thermocouples indicate a temperature of approximately 368.5 K (203.9°F) with the temperature of probe 1 at the bottom of the lowest probe section as 252.7°K (-4.2°F), and probe 2 indicating a temperature of 250.6°K (-8.4°F) at its lowermost point.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 12 ALSEP

Operational status from 24 March 1972, 1300 G.m.t., to 31 March 1972, 1300 G.m.t.

Central station	Lunar noon for the 30th lunation occurs today. Power output of the radioisotope power source is unvarying, and transmitter B signal strength was reported at -139.3 ±2.3 dbm. The 50th spurious command (octal 063) with a command verification word was reported from the Honeysuckle MSFN tracking station on 28 March at 0848 G.m.t. The passive seismic experiment responded to a gain change from 0 db to -10 db. The experiment was returned to the 0 db gain level during phase II support on 28 March, at 1434 G.m.t., with no resultant problems.
Passive seismic experiment	Operation is in the auto thermal control mode; feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 9 March. The instrument's digital filter is IN.
Solar wind spectrometer experiment	Operation is in the extended range mode.
Suprathermal ion detector experiment	The experiment is presently OFF. The experiment is commanded to operate select in the full automatic stepping sequence with its Channeltron high voltage ON during each Phase II support period throughout lunar day.
Cold cathode gauge experiment	Failure of the high voltage switching transistor has precluded instrument operation since the fourteenth hour of lunar operation.

Apollo 14 ALSEP

Operational status from 24 March 1972, 1300 G.m.t., to 31 March 1972, 1300 G.m.t.

Central station	Lunar noon of the 15th lunation occurred today. Power output of the RTG is 71.3 watts, and transmitter A signal strength was reported as varying between 141 dbm and 136 dbm. During phase II support on 29 March at 1620 G.m.t. and 30 March at 1441 G.m.t., the charged particle, suprathermal ion detector, and cold cathode gauge experiments experienced unexpected functional changes from operate select to standby. No command verification word was received by the supporting MSFN tracking stations in either occurrance. The suprathermal ion detector, and cold cathode gauge experiments were returned by command to operate select at 1634 G.m.t., 29 March, and at 1450 G.m.t., 30 March without problem and all instrument data appeared normal. The charged particle experiment was commanded to operate select per schedule at 1448 G.m.t., 29 March, and at 1408 G.m.t., 30 March, and all data were normal prior to the unexpected mode changes. The charged particle experiment remained in the standby select following each functional mode change. This phenomena is under investigation.
Passive seismic experiment	Operation is in the forced OFF thermal control mode, feedback loop filter OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station. The instruments long period Z axis has not displayed valid data and has not responded to a command since 23 March 1972.
Active seismic experiment	Currently in standby. On 24 March, experiment was commanded ON at 1908 G.m.t., and to high bit rate ON at 1930 G.m.t., for a 30 minute listening mode operation. Data output of geophone 1 and 2 appeared normal; geophone 3 data was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate support was terminated at 1945 G.m.t. due to the supporting MSFN tracking station's inability to maintain consistant telemetry down link lock. The next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter continue, having no adverse effect on the scientific outputs of the experiments.

Apollo 14 ALSEP (continued)

Operational status from 24 March 1972, 1300 G.m.t., to 31 March 1972, 1300 G.m.t.

Charged particle lunar environmental experiment	Presently in standby. The experiment was commanded to operate select on 24 through 30 March. Ensuing operational periods this lunar day will only be scheduled per principal investigator request. The Channeltron A voltage remained within the limits of the revised operation plan. The instrument was commanded to standby at the conclusion of each operational period except on 24 and 25 March, when the experiment was commanded OFF for a cool down period (8 hours and 11 hours respectively) prior to terminator support on 26 March.

Status as of 1600 G.m.t., 30 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	862	419	243
Total Commands to Date	12867	5588	6948
Sun Angle	75°	81°	102°
Input Power	70.0w	71.5w	73.5w
Heater and Power Dumps	Off	Off	Off
Experiment Status	All On	CPLEE & ASE Standby	All On
Avg Thermal Plate Temp	92.8°F	116.6°F	116.4°F
PSE Sensor Assembly Temp	133.9°F	127.6°F	Off Scale High
LSM Internal Temp	Invalid	N/A	69.5°C(155.1°F)
SWS Module 300 Temp	66.1°C (150.9°F)	N/A	61.5°C(142.7°F)
SIDE Temp	47.4°C(133.3°F)	Invalid	85.5°C(185.9°F)
CCGE Temp	Off Scale High	Invalid	364.0°K(195.8°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	82.0°C (179.6°F)	N/A
HFE Temp Ref Junction	N/A	N/A	329.9°K(124.4°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

7 April 1972
G.m.t.: 1400

Apollo 15 ALSEP

This ALSEP has operated 250 days on the lunar surface, having passed through its ninth lunar sunset April 6. Sunrise will occur on 20 April at Hadley Rille. Presently the central station components continue to experience a negative temperature excursion in the lunar night environment. The downlink signal strength from transmitter "A" remains within tolerance. The solid state timer of the central station continues to produce output pulses, on schedule, whenever it is not inhibited to satisfy other operational requirements. The timer's output pulses have been inhibited since 6 April.

The 24th and 25th spurious commands were executed by the central station data subsystem during this reporting period. At 0605 G.m.t., 4 April, the Bermuda tracking station noted a command verification word, octal 134, LSM thermal control XYO, in the 15 ALSEP downlink. During real time support, the functional change to thermal control OFF was verified and returned to thermal control Y without incident. At 1654 G.m.t., 4 April, the Hawaii tracking station noted a spurious command octal 037, PSE standby in the downlink with a supporting change in experiment standby status, AB-04. The PSE was commanded to operate select at 1802 G.m.t. without incident.

No unusual science events were observed during the sunset terminator crossing which occurred yesterday. Operation of the passive seismic experiment, heat flow experiment, solar wind spectrometer, suprathermal ion detector and cold cathode gage continue unchanged from the preceding week. The lunar surface magnetometer was reconfigured to its 50 gamma range on 6 April for the remainder of this lunar night.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 31 March 1972, 1400 G.m.t., to 7 April 1972, 1400 G.m.t.

Central station	Sunset of the 15th lunar day at the Apollo 14 landing site will occur today; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength remains steady. The central station's DSS-1 heater (10 watts) will be commanded ON today.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station. The instruments long period Z axis has not displayed valid data or responded to commands during this reporting period. The seismometer responded to an unexpected functional change at 0030 G.m.t., 1 April, turning the Z axis motor ON. The supporting MSFN station observed a command verification word of octal 072. The Z motor was commanded OFF, without problem, at 0214 G.m.t., 1 April. At 1755 G.m.t., 5 April, the PSE responded to its 23rd spurious functional change, short period calibration pulse ON. The Hawaii tracking station verified the command verification word (octal 065) in the downlink telemetry. The short period cal status was returned to OFF during real time support 6 April.
Active seismic experiment	Currently in standby. On 31 March, experiment commanded ON at 1423 G.m.t., and to high bit rate ON at 1445 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1515 G.m.t., and the instrument commanded to standby at 1518 G.m.t. The next high bit rate listening mode operation is planned for today.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	No CPLEE operations this week. Operations will commence today per the revised operations plan.

Apollo 12 ALSEP

Operational status from 31 March 1972, 0600 G.m.t., to 7 April 1972, 1400 G.m.t.

Central station	Sunset of the 30th lunar day occurs tomorrow; RTG power output is constant; and, transmitter "B" signal strength was reported at -141.0 ± 1.5 dbm. The 51st spurious functional command was executed by the central station. Command verification word octal 022, power dump resistor #1 ON, was noted by the Texas tracking station at 0651 G.m.t., 31 March. The function change was verified by mission control center and the PDR #1 commanded OFF at 1354 G.m.t., 31 March. No detrimental effects to the central station have been noted resulting from this spurious change.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and the feedback loop filter commanded OUT. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Magnetometer engineering data were valid 5 April. These data had been static since 8 March 1972. Science data has not been valid this lunation.
Solar wind spectrometer experiment	Currently operating in the extended range mode.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations, 5 April.

Status as of 1400 G.m.t., 6 April was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	869	426	250
Total Commands to Date	12942	5662	7182
Sun Angle	159°	165°	186°
Input Power	70.4w	71.1w	73.5w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	62.6°F	64.2°F	11.6°F
PSE Sensor Assembly Temp	140.4°F	125.0°F	124.7°F
LSM Internal Temp	43.5°C (110.3°F)	N/A	20.0°C (68.0°F)
SWS Module 300 Temp	45.8°C (114.4°F)	N/A	-4.9°C (23.2°F)
SIDE Temp	53.7°C (128.7°F)	Invalid	7.2°C (45.0°F)
CCGE Temp	Off Scale HIGH	Invalid	142.7°K (-202.5°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	45.6°C (114.1°F)	N/A
HFE Temp Ref Junction	N/A	N/A	285.4°K (54.3°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

14 April 1972
G.m.t.: 1400

This status report will continue to be published each Friday, with the exception of 21 April due to the Apollo 16 mission. A daily status report for the Apollo 16 ALSEP will be provided for its initial 45 days of operation.

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning, as all the experiments and central station components have stabilized in the lunar night environment. Midnight at the Hadley Rille site occurred on 13 April.

The signal strength from transmitter "A", as reported by the network tracking stations, has varied over the past week between -138.5 dbm and -136.0 dbm. The operational procedure during lunar night of eliminating the data subsystem's 18-hour timer outputs by uplinking the timer's reset command, octal 150, twice daily continues in effect.

The operation of the passive seismic experiment is as planned; thermal control mode is auto ON; uncage circuitry configured to the OT state to deliver maximum heat into the sensor assembly; and, the feedback loop filter commanded OUT in order to match seismic response at the three ALSEP stations in operation. No seismic events have been recorded during limited real time support this week.

The lunar surface magnetometer experiment's sensors are presently operating in the 50 gamma range, indicating the moon's passage through the free-streaming solar wind region. Currently the experiment has executed 418 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

The solar wind spectrometer continues to record plasma data in the normal range mode for the investigation of long term statistical effects. The ALSEP 12 solar wind spectrometer also is operating in the normal range mode, in order to match the solar plasma response of the two instruments.

14 April 1972
G.m.t.: 1400

Apollo 15 ALSEP (continued)

The suprathermal ion detector and cold cathode gauge experiments are operating per the agreed to schedule, in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperatures. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F), with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 88.2°K (-300.6°F)

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 14 ALSEP

Operational status from 7 April, 1400 G.m.t., to 14 April, 1400 G.m.t.

Central station	Sunset of the fifteenth lunar day at the Apollo 14 landing site, occurred 7 April; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -140.0 ± 1.2 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 1739 G.m.t., 7 April, when the average thermal plate temperature indicated 41.2°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. On 7 April, experiment commanded ON at 1645 G.m.t., and to high bit rate ON at 1700 G.m.t., for 30 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continucusly erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1730 G.m.t., and the instrument commanded to standby at 1733 G.m.t. On 10 April, experiment commanded ON at 1719 G.m.t., and to high bit rate ON at 1720 G.m.t., for 8 minute listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1728 G.m.t., and the instrument commanded to standby at 1729 G.m.t.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Per the agreed operational procedure the experiment has been commanded to operate select each day for a 12 hour operation period. Analyzer A Channeltron high voltage (AC-03) remains substantially constant at the 2500 Vdc level. Analyzer B Channeltron high voltage remains below nominal levels. It is planned to command the experiment to operate select for the Apollo 16 SIVB impact 19 April.

Apollo 12 ALSEP

Operational status from 7 April 1972, 1400 G.m.t., to 14 April 1972, 1400 G.m.t.

Central station	Sunset of the 30th lunar day occurred 8 April; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.1 ± 1.9 dbm. The 52nd spurious functional command was executed by the central station. Command verification word octal 017, 7 watt power dump resistor ON, was noted by the Goldstone tracking station at 1903 G.m.t., 12 April. The function change was verified by mission control center and the PDR commanded OFF at 2155 G.m.t., 12 April. No detrimental effects to the central station have been noted resulting from this spurious change.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and the feedback loop filter commanded OUT. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Magnetometer engineering and science data have been static since 6 April, 1972. Static data is characteristic of instrument lunar night operation.
Solar wind spectrometer experiment	Currently operating in the extended range mode.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations, 5 April.

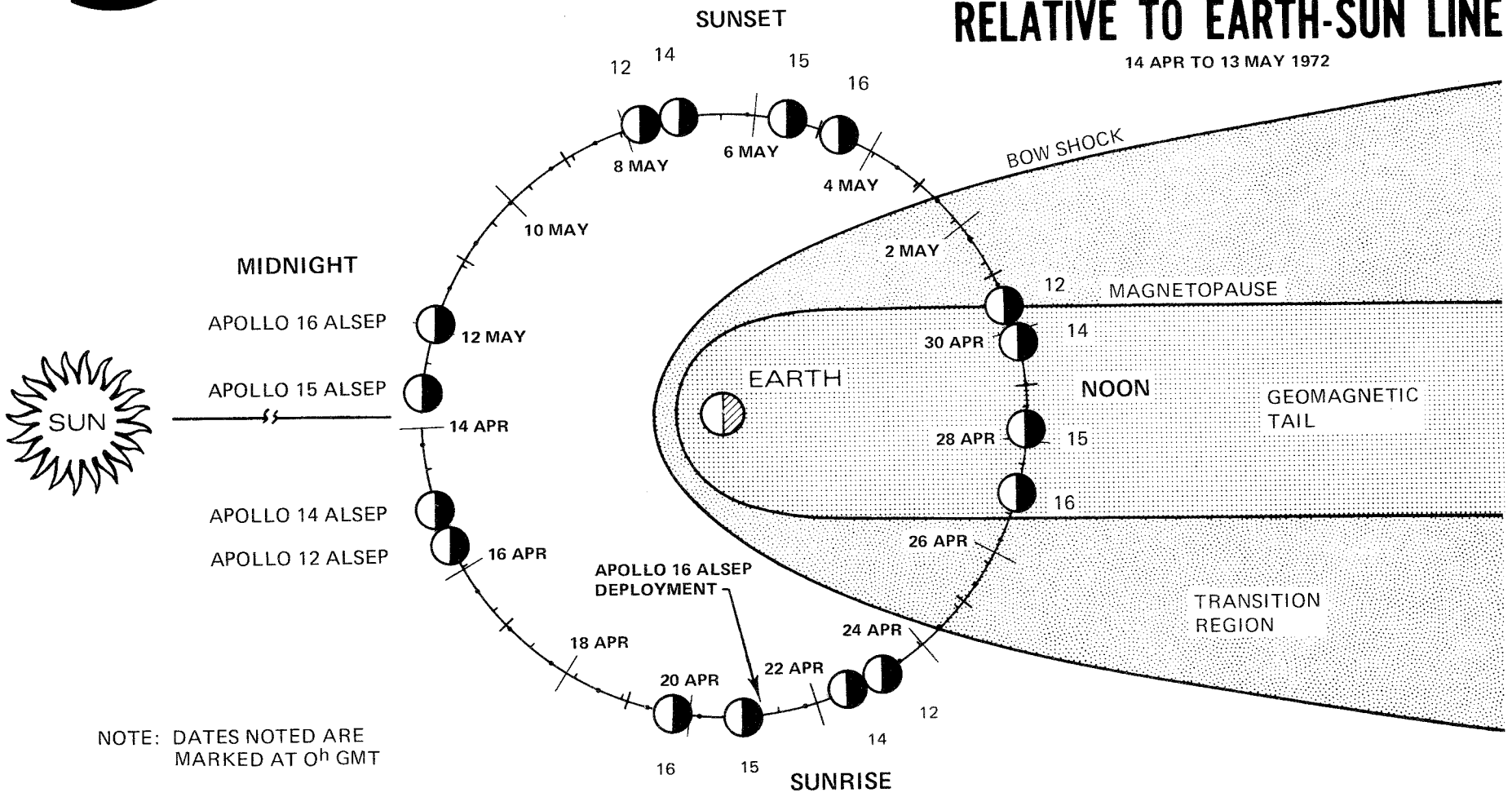
Status as of 1600 G.m.t., 12 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	875	432	256
Total Commands to Date	12981	5682	7207
Sun Angle	233°	239°	260°
Input Power	71.0w	71.4w	72.9w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	ASE Standby	All ON
Avg Thermal Plate Temp	19.4°F	37.3°F	-0.4°F
PSE Sensor Assembly Temp	126.1°F	124.4°F	124.5°F
LSM Internal Temp	Invalid	N/A	4.7°C (40.5°F)
SWS Module 300 Temp	-15.2°C (4.6°F)	N/A	-18.0°C (-0.4°F)
SIDE Temp	4.2°C (39.6°F)	Invalid	6.6°C (43.9°F)
CCGE Temp	Off scale HIGH	Invalid	110.2°K (-271.8°F)
CPLEE Electronic Temp	N/A	-34.0°C (-29.2°F)	N/A
ASE GLA Temp	N/A	-63.5°C (-82.3°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.2°K (50.4°F)

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

14 APR TO 13 MAY 1972



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR, GMT					
	MIDNIGHT	SUNRISE	NOON		SUNSET	MIDNIGHT
16		19 APR/2032	(1ST)	27 APR/0546	4 MAY/1504	11 MAY/2348
15		20 APR/1950	(10TH)	28 APR/0506	5 MAY/1422	12 MAY/2301
14	15 APR/0430	22 APR/1323	(16TH)	29 APR/2244	7 MAY/0753	
12	15 APR/1607	23 APR/0132	(31ST)	30 APR/1024	7 MAY/1827	

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

22 April 1972
G.m.t.: 1400

Apollo 16 ALSEP

The Apollo 16 ALSEP was deployed on the moon on 21 April at approximately 110 meters WSW of the Orion's location (LM-16 coordinates on the EVA 1 timeline map are CA.9 and 80.3). Initial acquisition of a downlink signal was reported by the Canary Islands (-139.0 dbm) and Texas (-140.0 dbm) ground stations at 1938 G.m.t., following activation of the central station's shorting switch. Acquisition occurred 72 minutes after fueling of the radioisotope thermoelectric generator. Initial conditions of the central station were normal. Power output of the RTG was 51.4 watts, and the central station's thermal plate temperature averaged 76.7°F initially. ALSEP was commanded to high bit rate mode at 1954 G.m.t., and the active seismic/thumper experiment mode of operations continued until 2016 G.m.t. The thumper was used by the crew to fire 19 of 19 explosive initiators. Enclosure 1 is a detailed timeline of the thumper fire sequence history.

Experiments were initially turned on at the following times: lunar surface magnetometer experiment, 2021 G.m.t.; and, passive seismic experiment, 2043 G.m.t.

The passive seismic experiment was uncaged by command, with initial leveling of the instrument completed at 0033 G.m.t., 22 April. Releveling of the long period axes has been repeated successfully, with the sensor's heater in auto ON. The experiment is currently operating with the feedback loop filter commanded IN. At 0524 G.m.t., 22 April, sensor temperature, DL-07, indicated 107.3°F (first temperature output since deployment).

The lunar surface magnetometer has recorded data from turn-on. The instrument is presently operating with the digital filter commanded IN, and in the 200 gamma range.

The active seismic experiment is operating in standby select.

The heat flow experiment's central station cable was separated by the crew on the lunar surface at 1916 G.m.t., 21 April, during the deployment sequence of ALSEP.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

ENCLOSURE 1

Apollo 16 ALSEP Thumper Fire History

ASI Number	Time(G.m.t.)	Event Results
1	20:01:52	Fire
2	20:02:22	No Fire
	20:02:38	Fire
3	20:03:17	"
4	20:03:53	"
5	20:04:49	"
6	20:05:27	"
7	20:06:13	"
8	20:06:49	"
9	20:07:30	"
10	20:08:14	"
11	20:09:42	"
12	20:10:29	"
13	20:11:06	"
14	20:12:14	"
15	20:12:45	"
16	20:13:23	"
17	20:14:12	"
18	20:14:52	"
19	20:15:51	"

Status as of 0600 G.m.t., 22 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	883	440	264	1
Total Commands to Date	13,033	5705	7306	123
Sun Angle	350°	356°	17°	29°
Input Power	70.9w	71.4w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	All OFF
Experiment Status	All ON	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	17.9°F	36.9°F	61.2°F	79.0°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	125.8°F	120.9°F
LSM Internal Temp	Invalid	N/A	36.4°C(97.5°F)	32.8°C(91.0°F)
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A	27.6°C(81.7°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	39.2°C(102.6°F)	N/A
CCGE Temp	OFF	Invalid	323.8°K(123.4°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	-66.0°C(-86.8°F)	N/A	19.7°C(67.5°F)
HFE Temp Ref Junction	N/A	N/A	299.8°K(80.2°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

The experiments and central station are functioning as planned, with measurements from each of the experiments package subsystem's indicating operational status within expected levels. Power output from the radioisotope source remains constant at 70.4 watts. Average temperature of the central station electronic thermal plate was 91.1°F with a sun angle of 43 degrees at the deployment site; temperature rise of approximately 0.4°F per hour. Downlink signal strength is constant at -139.0 dbm, plus or minus 0.5 dbm. A status change in the timer's hour counter telemetry point, AZ-01, the seismometer's short period cal status(AL-07) and uncage status(AL-08), verified output of the first and second timer pulses, at 1355 G.m.t., 22 April, and again at 0813 G.m.t., 23 April.

The passive seismic experiment continues operating normally with all channels leveled. The instrument recorded short period Z axis signal levels strong enough during EVA 2 rover traverse to establish rover range to within approximately $\frac{1}{2}$km. The seismometer's temperature transducer continues to reflect an increase, prior to obtaining thermal equilibrium.

The lunar surface magnetometer is operating as expected in the 200 gamma range as the moon approachs the earth's bowshock. The experiment performed its first flip calibration operation, by command, at 2051 G.m.t., 22 April, while the moon was in interplanetary space. The instrument's internal electronic temperature has remained stabilized at 33.7°C for the preceding 20 hours.

The active seismic experiment is in standby.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 23 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	886	443	267	2
Total Commands to Date	13,080	5469	7476	168
Sun Angle	4°	10°	31°	43°
Input Power	70.0w	71.0w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	25.7°F	56.9°F	82.6°F	91.2°F
PSE Sensor Assembly Temp	125.8°F	124.5°F	126.0°F	127.1°F
LSM Internal Temp	Invalid	N/A	45.8°C(114.4°F)	33.7°C(92.7°F)
SWS Module 300 Temp	-11.0°C(12.2°F)	N/A	41.0°C(105.8°F)	N/A
SIDE Temp	9.6°C(49.3°F)	Invalid	60.4°C(140.7°F)	N/A
CCGE Temp	OFF	Invalid	339.4°K(151.5°F)	N/A
CPLEE Electronic Temp	N/A	-6.7°C(-19.9°F)	N/A	N/A
ASE GLA Temp	N/A	-21.1°C(-6.0°F)	N/A	25.5°C(77.9°F)
HFE Temp Ref Junction	N/A	N/A	300.1°K(80.8°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

24 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 scientific station measured the crew activities during EVA 3 over essentially the full traverse range; the effects of LM EVA equipment jettison; and, the Orion's lunar surface lift-off.

The central station's engineering measurements continue to provide data on the solar intensity throughout the approach of lunar noon. The RTG output continues steady at 70.4 watts. Downlink signal strength is solid at -139.0 ± 0.5 dbm. The station's solid-state timer telemetry status, AZ-01, changed at approximately 0229 G.m.t., 24 April, signalling the arrival of the third 18-hour pulse.

The passive seismic experiment detected the effects of the EVA 3 rover traverse, and EVA equipment jettison. Along with these artifical disurbances, the seismometer is also recording characteristic wobbling as the instrument settles and thermally stabilizes. The instrument's housekeeping status also verified arrival of the timer's third 18-hour pulse.

The lunar surface magnetometer is operating normally, and continues to measure magnetic field data as the moon passes through the earth's bow wave. The experiment's sensors are presently operating in the 200 gamma range, with the digital filter commanded IN.

The active seismic experiment was commanded to operate select for two minutes (1126-1128 G.m.t., 23 April) verifying that the mortar package is properly activated (central station telemetry data indicated a delta reserve power of 7.5 watts). The experiment was then commanded ON at 1846 G.m.t., 23 April, and to high bit rate, 1902 G.m.t., during the EVA 3 traverse, as the crew was on its in-bound leg approximately 1 km from the LM. Geophone calibration pulses were transmitted at the start (1906 G.m.t.) and end (1910 G.m.t.) of the experiment's high bit rate mode. High bit rate operation was terminated at 1910 G.m.t., and the instrument commanded to standby at 1911 G.m.t., 23 April. The geophone outputs recorded during the traverse will be used in correlation with the passive seismic data obtained on the out-bound traverse, in order to determine phase velocity of the moon's internal structure.

In an effort to obtain added phase velocity data, the active seismic experiment was commanded ON at 0106 G.m.t., 24 April, as scheduled for LM lunar lift-off. The instrument was commanded to high bit rate ON at 0110 G.m.t., 24 April. The experiment recorded a significant signal at ascent on all three geophones. One cal pulse was sent at the start of the high bit rate mode. High bit rate operation was terminated at 0131 G.m.t., and the instrument commanded to standby at 0136 G.m.t., 24 April. The experiment is currently in standby select.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 24 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	887	444	268	3
Total Commands to Date	13,101	5492	7510	209
Sun Angle	16°	22°	43°	55°
Input Power	70.0w	71.0w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	62.0°F	77.3°F	94.5°F	100.3°F
PSE Sensor Assembly Temp	125.9°F	124.8°F	127.0°F	127.3°F
LSM Internal Temp	Invalid	N/A	49.5°C(121.1°F)	34.6°C(94.3°F)
SWS Module 300 Temp	29.0°C(84.2°F)	N/A	49.5°C(121.1°F)	N/A
SIDE Temp	33.1°C(91.6°F)	Invalid	72.2°C(162.0°F)	N/A
CCGE Temp	OFF	Invalid	355.6°C(180.7°F)	N/A
CPLEE Electronic Temp	N/A	23.2°C(73.8°F)	N/A	N/A
ASE GLA Temp	N/A	9.8°C(49.6°F)	N/A	35.4°C(95.7°F)
HFE Temp Ref Junction	N/A	N/A	309.8°K(98.2°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

Scientific data continues being collected, including the effects of the moon passing through the earth's magnetosheath. The central station and all experiments are operating normally and within the predicted temperature response bands. The downlink signal strength from transmitter "A", and the thermoelectric power source output remains steady. The fourth output pulse of the resettable solid state timer was verified at 2050 G.m.t., 24 April.

The passive seismic experiment continues recording venting in the LM descent stage, and characteristic wobbling as the instrument settles. The seismometer's housekeeping data continues to indicate a gradual temperature increase of 0.19°F per hour, over the preceding 24 hours. The experiment is presently operating with the feedback loop filter commanded IN, and in auto ON thermal control mode.

The lunar surface magnetometer experiment continues to measure magnetic field data as the moon passes through the earth's magnetosheath. The instrument's internal electronic temperature is increasing at approximately 0.2°C per hour, and is currently configured to its 200 gamma operating range with the digital filter commanded IN.

The active seismic experiment is presently in standby. During the instrument's high bit rate operations of 23 April it was noted that the roll sensor telemetry (DS-06) indicated offscale high. PCM count from the tracking stations verified that the roll sensor circuit was inoperative and reading offscale at all one's. The pitch sensor indicated a stable reading of -2.3 degrees (plus or minus one PCM count) throughout the three high bit rate operating periods. The transducer's mode of failure is under investigation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 25 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	888	445	269	4
Total Commands to Date	13,130	5507	7536	229
Sun Angle	28°	34°	55°	67°
Input Power	70.4w	71.6w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	79.2°F	87.6°F	106.4°F	105.3°F
PSE Sensor Assembly Temp	126.3°F	125.2°F	131.6°F	131.9°F
LSM Internal Temp	Invalid	N/A	56.4°C(133.5°F)	39.3°C(102.7°F)
SWS Module 300 Temp	45.1°C(113.2°F)	N/A	54.3°C(129.7°F)	N/A
SIDE Temp	50.9°C(123.6°F)	Invalid	79.2°C(174.6°F)	N/A
CCGE Temp	OFF	Invalid	355.6°K(180.7°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	27.7°C(81.8°F)	N/A	45.6°C(116.1°F)
HFE Temp Ref Junction	N/A	N/A	316.0°K(109.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

26 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

The experiments and central station are functioning as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within limits.

Power from the radioisotope source remains stable at 70.9 watts. The average temperature of the central station electronics thermal plate continues increasing at 0.13°F per hour. Downlink signal strength is steady at -140.5 dbm, plus or minus 2.0 dbm. A status change in the timer's hour counter telemetry point, AZ-01, the seismometer's short period cal status (AL-07) and uncage status (AL-08), verified output of the fifth and sixth timer pulses, at 1503 G.m.t., 25 April, and again at 0928 G.m.t., 26 April.

The passive seismic experiment continues recording venting in the LM descent stage, and characteristic wobbling as the instrument settles. These disturbances are steadily decreasing in amplitude. The instrument's feedback loop filter was commanded OUT, and the long period and short period components commanded for peak response (amplifier circuit attenuators to 0 db) on 24 April. The seismic network now has congruity, as all seismic instruments are configured identically. The experiment's sensor temperature is continuing to rise at a rate of 0.26°F per hour. At the current average rate of temperature increase per hour, the sensor's transducer (DL-07) will indicate offscale high at approximately 0500 G.m.t., 27 April (sun angle of 90 degrees).

The lunar surface magnetometer experiment is operating normally, and continues to measure magnetic fields as the moon passes in and out of the tail of the magnetopause. Engineering data indicates that the instrument's electronics temperature is increasing at the average rate of 0.18°C per hour, over the preceding 24 hours.

The active seismic experiment is currently in standby, with a 30 minute passive listening mode operation planned for April 28.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 26 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	889	446	270	5
Total Commands to Date	13,146	5513	7563	247
Sun Angle	41°	47°	68°	80°
Input Power	70.4w	71.0w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	86.2°F	101.7°F	108.2°F	108.5°F
PSE Sensor Assembly Temp	126.7°F	125.7°F	137.2°F	138.1°F
LSM Internal Temp	Invalid	N/A	61.0°C(141.8°F)	43.5°C(110.3°F)
SWS Module 300 Temp	55.1°C(131.2°F)	N/A	57.5°C(135.5°F)	N/A
SIDE Temp	53.3°C(128.3°F)	Invalid	83.0°C(181.4°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	53.1°C(127.6°F)	N/A	53.1°C(127.6°F)
HFE Temp Ref Junction	N/A	N/A	322.2°K(120.6°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

27 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

The station is in its sixth day of operation with the moon in the earth's magnetic tail. Data of this region is being gathered by the lunar surface magnetometer experiment. The central station's data subsystem components apparently achieved a maximum temperature value, as the average thermal plate temperature leveled off at 109.1°F near 1500 G.m.t., 26 April, and stabilizing at that value for a minimum of nine hours. The central station's average thermal plate temperature is currently indicating a 0.05°F per hour average decrease (0900 G.m.t., today). The thermoelectric power source output remains steady. The reported signal strength of transmitter "A" at the various 30-foot antennas is -139.0 ± 1.0 dbm. Telemetry data indicated that the seventh 18-hour timer pulse executed at 0346 G.m.t., April 27.

The passive seismic experiment has sensed four natural seismic signals through April 26. These types of signals are most effectively detected on the instrument's long period components (LPX, 3 events; and, LPY, 4 events). The average duration of each signal recorded was evaluated to be 20 minutes in length. The sensor continued to experience a continuous temperature increase until reaching 142.6°F at 0200 G.m.t., 27 April, at which time DL-07 indicated offscale HIGH (sun angle of 88 degrees). Due to the offscale temperature condition the seismometer's tidal data is invalidated, but has minimal effect on the instrument's seismic data outputs. Present configuration is thermal control forced OFF, and 0 db gain on all axes.

The lunar surface magnetometer is operating normally in the 200 gamma range as the moon passes through the earth's magnetic tail. The instrument's second pre-site survey sequence flip calibration operation was completed at 1452 G.m.t., 26 April. The instrument's internal electronics temperature has stabilized at 44.7°C on 26 April, near 1800 G.m.t. (sun angle of 84 degrees).

The active seismic experiment is currently in standby.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 27 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	890	447	271	6
Total Commands to Date	13,173	5535	7599	281
Sun Angle	53°	57°	80°	92°
Input Power	70.0w	71.0w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	90.6°F	109.0°F	111.7°F	108.6°F
PSE Sensor Assembly Temp	127.3°F	123.9°F	140.2°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	64.2°C(147.6°F)	44.7°C(112.5°F)
SWS Module 300 Temp	60.9°C(141.6°F)	N/A	59.9°C(139.8°F)	N/A
SIDE Temp	55.6°C(132.1°F)	Invalid	84.3°C(183.7°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	68.3°C(154.9°F)	N/A	56.6°C(133.9°F)
HFE Temp Ref Junction	N/A	N/A	327.1°K(129.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

28 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

Currently, the central station's electronics plate temperature is 107.5°F with a corresponding temperature decrease of approximately 0.05°F per hour. RTG output power remains constant at 70.9 watts. Downlink signal strength is steady at -140.0, plus or minus one dbm. A status change in the timer's hour counter telemetry point, AZ-01, and the seismometer's short period cal status (AL-07) and uncage status (AL-08), verified output of the timer's eighth pulse at 2205 G.m.t., 27 April.

On 27 April, at 2211 G.m.t., an unexpected functional change occurred in the system's experiment's telemetry status word, AB-05, indicating that the PCM count of experiment 4, heat flow experiment, decreased from 069 PCM counts to 000 PCM counts. No command verification word relating to this functional change was observed in the station's downlink. At 2227 G.m.t., the power distribution unit logic was reset by command, octal 053, heat flow experiment standby power ON. No detrimental effects to the central station have been noted resulting from this spurious change.

The LM produced background noise recorded by the passive seismometer at the Apollo 16 site is comparable to that observed during initial operations of seismic instruments on previous missions. In the preceding 24 hours, several small natural seismic events have been sensed by the 16 station's instrument. These small events were not detected simultaneously by the other stations in the seismic network. The sensor's temperature (DL-07) continues offscale HIGH. The moon's May perigee will occur on 12 May, at approximately 1700 G.m.t.

The lunar surface magnetometer experiment is operating normally, and continues to measure magnetic fields as the moon passes through the center of the earth's magnetotail. Engineering data indicates that the instrument's internal electronics temperature is decreasing at an average rate of 0.09°C per hour.

The active seismic experiment is currently in standby. The instrument's grenade launch assembly temperature stabilized at 57.8°C on 27 April, near 1200 G.m.t. (sun angle of 93 degrees). A 30 minute passive listening mode operation is planned for today.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 14 April, 1400 G.m.t., to 28 April, 1300 G.m.t.

Central station	Lunar noon at the Apollo 15 landing site, occurred today; power from the RTG is steady; and, transmitter "A" signal strength was reported as -137.5 ± 1.5 dbm. The 212 output pulse of the resettable solid state timer was verified on 28 April. At 1914 G.m.t., 23 April, the station was inadvertently commanded to low bit rate, and returned to normal bit rate at 1918 G.m.t. without incident.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT to match the seismic response on the four seismometers in operation. No lunar seismic signals have been observed during the real time support for the Apollo 15 station. The seismic station sensed the Apollo 16 S-IVB impact energy arrival time at approximately 210435 G.m.t., 19 April.
Lunar surface magnetometer experiment	The experiment's sensors are presently operating in the 100 gamma range. Currently the instrument has executed 423 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Currently operating in the extended range mode.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded OFF. The instruments high voltages were commanded OFF at 0117 G.m.t., 27 April, to preclude mode changes when the internal temperature is above 85°C.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F), with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 368.5°K(203.9°F).

Apollo 14 ALSEP

Operational status from 14 April, 1400 G.m.t., to 28 April, 1300 G.m.t.

Central station	Noon of the 16th lunar day at the Apollo 14 landing site, will occur 29 April; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -138.5 ± 1.5 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF at 0110 G.m.t., 23 April, when the average thermal plate temperature indicated 54.9°F.
Passive seismic experiment	Operation is in the forced OFF thermal control mode, and feedback loop filter commanded OUT. The instruments long period Z axis has not displayed valid data and not responded to a command since 23 March 1972. No lunar seismic signals have been observed during the real time support for the Apollo 14 station. The energy arrival time of the Apollo 16 S-IVB impact was detected at 210246 G.m.t., 19 April.
Active seismic experiment	Currently in standby. On 23 April, experiment commanded ON at 1435 G.m.t., and to high bit rate ON at 1448 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1515 G.m.t., and the instrument commanded to standby at 1516 G.m.t. The next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in standby. The experiment was commanded to operate select on 14 through 26 April for periods of scientific interest. Analyzer A Channeltron high voltage (AC-03) remained sustantially constant at the 2500 Vdc level. Analyzer B Channeltron high voltage remained below nominal levels. Following sunrise operations on 22 April, the instrument experienced five functional changes from operate select to standby. No command verification word was received by the supporting MSFN tracking stations in any occurrance. During three of the occurrances the suprathermal ion detector/cold cathode gauge experiment was adversely affected, changing from operate select to standby. Following each functional mode change, the ion detector/gauge experiment was commanded to operate select, and the charged particle experiment remained in standby select. Because this phenomena has not been fully analyzed, no ensuing operational

Charged particle lunar environmental experiment

periods during this lunar day will be scheduled for the charged particle experiment. Sunset at the Apollo 14 site will occur on 6 May.

Functional Change	Date/Time (G.m.t.)
1. CPLEE Standby	24 Apr/2251
2. CPLEE & SIDE Standby	25 Apr/0516
3. CPLEE & SIDE Standby	26 Apr/0032
4. CPLEE & SIDE Standby	26 Apr/0509
5. CPLEE Standby	26 Apr/1458

Apollo 12 ALSEP

Operational status from 14 April 1972, 1400 G.m.t., to 28 April 1972, 1300 G.m.t.

Central station	Noon of the 31st lunar day will occur 30 April; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.5 ± 3.0 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF at 0319 G.m.t., 23 April, when the station's average thermal plate temperature indicated 25.7°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and the feedback loop filter commanded OUT. The Z axis drive motor was commanded OFF at 0319 G.m.t., 23 April, when the instruments sensor temperature (DL-07) reached 125.8°F. No lunar signals have been observed during the real time support for the Apollo 12 station. The Apollo 16 S-IVB impact energy arrival was detected by the experiment at 210232 G.m.t., 19 April.
Lunar surface magnetometer experiment	Magnetometer engineering and science data have not been valid since 7 April 1972. The experiment's y & z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Currently operating in the extended range mode.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with Channeltron high voltage ON. Cyclic commanding of the instrument's high voltage power supply during the current lunar day will be unchanged from the previous operational procedure, and started at 1105 G.m.t., 25 April, when electronics temperature T2 indicated 56.5°C.

Status as of 0600 G.m.t., 28 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	891	448	272	7
Total Commands to Date	13,176	5543	7613	291
Sun Angle	65°	71°	92°	104°
Input Power	70.0w	71.0w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	91.3°F	112.9°F	114.2°F	107.5°F
PSE Sensor Assembly Temp	129.1°F	123.3°F	142.2°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	67.7°C(153.9°F)	43.5°C(110.3°F)
SWS Module 300 Temp	63.5°C(146.3°F)	N/A	60.7°C(141.3°F)	N/A
SIDE Temp	OFF	Invalid	84.3°C(183.7°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	75.7°C(168.3°F)	N/A	57.8°C(136.0°F)
HFE Temp Ref Junction	N/A	N/A	328.7°K(132.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

29 April 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 lunar science station continues normal operations, with the moon in the earth's magnetic tail and approaching the magnetopause. The electronics and structural temperatures of each of the experiments package components, except the seismometer, continue to indicate a gradual temperature decrease. The signal strength from transmitter "A" is steady; and, the thermoelectric power source output remains stable.

The spurious heat flow experiment status change noted in the 28 April, 1300 G.m.t., ALSEP status report was in error. At initial power ON of the central station, the 18-hour counter in the command decoder's delayed command sequencer will initialize with a count of one or zero. If a count of one is reset then the timer's output pulses will be 18-hours early. A count of zero would mean that the 18-hour pulses are as scheduled. Empirical test data indicates that with a power reset the 18-hour timer has a ambiguous inherent design history of resetting with a count of one or zero. Therefore, what appeared to be the eighth timer pulse (144 hour pulse) of the 16 station was in reality the 162 hour pulse (ninth pulse) and correctly initiated all of its delayed command functions, as well as the 18-hour repetitive commands. The timer's 10th and 11th pulses were verified at 1623 G.m.t., 28 April, and at 1041 G.m.t., today, by the timer's hour counter telemetry point, the seismometer's short period cal status and uncage status, and the experiments status word, AB-05.

The passive seismometer continues to return signals due to venting of the lunar module descent stage. A significant seismic event was sensed simultaneously by the Apollo 16 station and 15 station instrument's starting at 1125 G.m.t., 27 April (80 minute duration). The signal recorded a peak amplitude of 4 mm on the mission control drum recorders, and indicated a long rise time of greater than 20 minutes. The sensor's temperature (DL-07) continues offscale HIGH.

The lunar surface magnetometer performed its third and fourth flip calibration sequences, by command, on 28 April, at 2053 G.m.t. and 2103 G.m.t., respectively. On completion of the fourth cal sequence the experiment's one-time only site survey was initiated (x axis site survey command, 2116 G.m.t.; y axis site survey command, 2127 G.m.t.; and, z axis site survey command, 2139 G.m.t.), and completed without incident. Data recorded during the site survey sequence are currently being analyzed. Current instrument configuration is 200 gamma range, digital filter IN, and flip cal inhibit IN (2159 G.m.t., 28 April).

The active seismic experiment is currently in standby. The experiment was commanded to operate select a 0035 G.m.t., 29 April, and to high bit rate ON at 0045 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. No geophone calibration pulses were sent to the instrument. High bit rate operations were terminated at 0115 G.m.t., and the experiment commanded to standby at 0117 G.m.t., 29 April. No significant seismic signals were noted in real time.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 29 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	892	449	273	8
Total Commands to Date	13,185	5549	7647	314
Sun Angle	77°	83°	104°	116°
Input Power	70.0w	71.0w	73.5w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	92.7°F	115.8°F	115.3°F	105.5°F
PSE Sensor Assembly Temp	133.4°F	125.3°F	Offscale HIGH	Offscale HIGH
LSM Internal Temp	Invalid	N/A	67.7°C(153.9°F)	42.4°C(108.3°F)
SWS Module 300 Temp	65.2°C(149.4°F)	N/A	61.5°C(142.7°F)	N/A
SIDE Temp	OFF	Invalid	85.5°C(185.9°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	82.0°C(179.6°F)	N/A	56.6°C(133.9°F)
HFE Temp Ref Junction	N/A	N/A	328.7°K(132.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

This report covers the Apollo 16 ALSEP activity and data for the previous 48 hours. Operations during this period were essentially unchanged, with the exception of a gradual experiments package temperature decrease as a function of sun elevation at the Descartes site.

Central station housekeeping data indicates that the data subsystem electronics are experiencing an average temperature decrease of 0.3°F per hour. The RTG power is steady at 70.9 watts, and signal strength at the 30-foot antennas is -139.0 ± 0.1 dbm. Telemetry data indicated that the 12th and 13th 18-hour timer pulses were executed at 0459 G.m.t. and 2317 G.m.t., 30 April, respectively.

The passive seismometer continues to sense signals due to creaking and popping of the lunar module descent stage. These signals appear to be in the terminal phase of the most vigorous stage of LM venting, which normally lasts about eight days. The seismometer's temperature transducer output (DL-07) remains offscale HIGH. Currently, instrument operation is in the forced OFF thermal control mode with the uncaged status uncaged to provide minimum internal generated thermal transients.

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through the center of the earth's magnetosheath. Engineering data indicates that the instrument's internal electronics temperature is decreasing at an average rate of 0.06°C per hour.

The active seismic experiment is in standby. The instrument's grenade launch assembly is experiencing a temperature decrease of 0.4°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 1 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	894	451	275	10
Total Commands to Date	13,202	5557	7699	339
Sun Angle	101°	107°	128°	140°
Input Power	70.0w	71.0w	73.5w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	89.6°F	112.5°F	110.5°F	93.2°F
PSE Sensor Assembly Temp	142.2°F	128.8°F	136.1°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	57.8°C(136.0°F)	39.3°C(102.7°F)
SWS Module 300 Temp	65.2°C(149.4°F)	N/A	59.1°C(138.4°F)	N/A
SIDE Temp	OFF	Invalid	83.0°C(181.4°F)	N/A
CCGE Temp	OFF	Invalid	347.4°K(165.9°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	85.3°C(206.6°F)	N/A	47.6°C(117.7°F)
HFE Temp Ref Junction	N/A	N/A	322.3°K(120.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Currently, the central station's average thermal plate temperature is 84.5°F with a corresponding temperature decrease of approximately 0.3°F per hour. Power output from the radioisotope source remains constant at 70.6 watts. Transmitter "A" downlink signal strength is steady at -139.0, plus or minus one dbm. The central station's timer telemetry points, timer counter status (AZ-01), the seismometer's short period cal status (AL-07) and uncage status (AL-08), and the experiments status word (AB-05) verified output of the 14th timer pulse at 1735 G.m.t., 1 May. The 15th 18-hour timer pulse also executed correctly at 1136 G.m.t., today. Timer pulses have executed consistently at 18 hours and 17 minutes since initialization of the timer.

The passive seismometer continues to function normally, with the instrument's components sensing occasional lunar module descent stage venting and/or signals typical of settling. The sensor's temperature transducer output returned onscale at 0920 G.m.t., 2 May (sun angle of 153 degrees). Currently, the experiment's housekeeping data reflects that the sensor's temperature is 142.6°F.

The lunar surface magnetometer, functioning as planned, continues to sense data pertaining to the earth's magnetosheath. The experiment's fifth flip cal sequence was executed correctly, by command, at 1311 G.m.t., 1 May. The instrument's flip cal inhibit logic remains IN, inhibiting the flip cal command pulse from the automatic delayed command sequencer.

The active seismic experiment is in standby. The instrument's grenade launch assembly is experiencing a temperature decrease of approximately 0.6°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0500 G.m.t., 2 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	895	452	276	11
Total Commands to Date	13,209	5565	7729	351
Sun Angle	112°	118°	139°	151°
Input Power	70.0w	71.0w	73.5w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	87.9°F	108.8°F	103.7°F	84.5°F
PSE Sensor Assembly Temp	Offscale HIGH	128.9°F	129.6°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	56.4°C(133.5°F)	41.3°C(106.3°F)
SWS Module 300 Temp	64.3°C(147.7°F)	N/A	55.9°C(132.6°F)	N/A
SIDE Temp	OFF	Invalid	78.0°C(172.4°F)	N/A
CCGE Temp	OFF	Invalid	339.4°K(151.5°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	83.7°C(182.7°F)	N/A	38.9°C(102.0°F)
HFE Temp Ref Junction	N/A	N/A	316.5°K(110.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 ALSEP, in its twelfth day of lunar operations, remains essentially unchanged from the preceding 24 hours, with the exception of a gradual temperature decrease as a function of sun elevation at the ALSEP site.

Central station telemetry downlink data indicates that the data subsystem electronics are experiencing an average temperature decrease of 0.6°F per hour. The RTG output continues steady at 70.9 watts. The 16th 18-hour timer pulse was verified at 0610 G.m.t., 3 May. Signal strength of the transmitter is reported as constant.

Preliminary analysis of the passive seismometer's real time data indicates that the instrument continues to sense signals of various characteristics (variable amplitudes, duration times, etc.) untypical of instrument settling and/or LM venting. These types of signals are being most effectively detected on the instrument's long period components, particularly LPX and LPY. The seismometer's housekeeping data reflects that the sensor temperature is decreasing at a rate of 0.4°F per hour (thermal control mode is auto ON).

The lunar surface magnetometer experiment is presently indicating the moon's passage through the bow shock created by the interaction of the earth's magnetic field with the solar wind. The instrument is operating normally with the digital filter commanded IN and the flip cal inhibit logic IN. Engineering data indicates that the y axis sensor's heater thermostat is controlling the instrument's temperature, and that the experiment has currently stabilized at 43.5°C.

The active seismic experiment is in standby. The instrument's grenade launch assembly continues experiencing a temperature decrease of approximately 0.6°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 3 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	896	453	277	12
Total Commands to Date	13,216	5574	7760	378
Sun Angle	126°	132°	153°	165°
Input Power	70.0w	71.0w	73.5w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	85.4°F	99.6°F	92.6°F	69.7°F
PSE Sensor Assembly Temp	Offscale HIGH	127.6°F	126.0°F	132.3°F
LSM Internal Temp	Invalid	N/A	59.4°C(138.9°F)	43.5°C(110.3°F)
SWS Module 300 Temp	61.7°C(143.1°F)	N/A	48.0°C(118.4°F)	N/A
SIDE Temp	OFF	Invalid	71.0°C(159.8°F)	N/A
CCGE Temp	OFF	Invalid	323.7°K(123.3°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	77.2°C(160.9°F)	N/A	25.5°C(77.9°F)
HFE Temp Ref Junction	N/A	N/A	307.2°K(93.6°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 lunar science station is functioning properly, as all the experiments and central station components continue to experience a negative temperatrure excursion with the approach of lunar night. Theoretical sunset at the Descartes site will occur today at 1504 G.m.t.

Signal strength from transmitter "A", as reported by the various tracking stations, is unchanging; and, the thermoelectric power source output remains constant. System telemetry data indicated that the 17th 18-hour timer pulse executed correctly at 0029 G.m.t., 4 May.

The pattern of noise sensed before terminator crossing by the passive seismometer experiment at the Apollo 16 site is similar to that observed during the initial operations of the seismic instruments on previous missions. The operation of the experiment is with the feedback loop filter commanded OUT in order to match seismic response at the four ALSEP stations in operation. The instrument's heater is configured to auto ON in an effort to minimized the sensor's temperature decrease (average rate of decrease is 0.3°F per hour).

The lunar surface magnetometer's scientific data output discloses that the moon is in the free-streaming solar wind region, and will remain so until approximately 23 May. Engineering data indicates that the y axis sensor's heater thermostat is controlling the instrument's internal electronics temperature, and that the experiment is experiencing a minimal temperature decrease of 0.4°C per hour. The experiment's sixth flip cal sequence was executed correctly, by command, at 1827 G.m.t., 3 May. The instrument's flip cal inhibit logic remains IN, inhibiting the flip cal command pulse from the automatic delayed command sequencer.

The active seismic experiment is in standby. The instrument's grenade launch assembly continues experiencing a temperature decrease of approximately 0.7°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 4 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	897	454	278	13
Total Commands to Date	13,227	5578	7792	401
Sun Angle	138°	144°	165°	177°
Input Power	70.0w	71.0w	73.5w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	80.7°F	91.5°F	78.2°F	51.3°F
PSE Sensor Assembly Temp	Offscale HIGH	130.3°F	125.6°F	126.1°F
LSM Internal Temp	Invalid	N/A	57.6°C(135.7°F)	35.5°C(96.9°F)
SWS Module 300 Temp	58.3°C(141.9°F)	N/A	35.7°C(97.3°F)	N/A
SIDE Temp	OFF	Invalid	59.4°C(138.9°F)	N/A
CCGE Temp	OFF	Invalid	308.8°K(95.4°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	71.2°C(160.2°F)	N/A	11.9°C(53.4°F)
HFE Temp Ref Junction	N/A	N/A	299.3°K(79.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

5 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The experiments package is presently 22 hours into its first lunar night and continues to function normally. It is estimated that sunset occurred near 1500 G.m.t., 4 May (sunset time primarily based on the decisive temperature decrease noted from the central station's sunshield transducer, AT-01).

The central station is operating satisfactorily at the lowest temperatures it has experienced thus far since lunar activation. The station's temperatures continued to drop rapidly after sunset with the lowest reading being the sunshield sensor (AT-01) at -265.4°F. The central station's 10 watt heater, DSS-1, was commanded on at 0645 G.m.t., 5 May, when the average thermal plate temperature decreased to 22.5°F (reference ALSEP mission rule 32-1-N). Currently the average thermal plate temperature appears to be equilibrating. RTG output power is steady at 70.4 watts following slight fluctuations noted during lunar sunset. The downlink signal strength remains at -140.0 ± 1.0 dbm. The effects of the 18th timer pulse were seen in the central station's telemetry data at 1842 G.m.t., 4 May.

The passive seismic experiment is continuing to sense signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. The instrument's housekeeping status also verified arrival of the timer's May 4 18-hour pulse. Sensor telemetry data presently indicates a stabilized temperature of 125.8°F, instrument's thermal control mode is auto ON.

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through interplanetary space. The experiment's seventh flip cal sequence was executed correctly, by command, at 1326 G.m.t., 4 May. The experiment's internal electronics continue to experience a temperature decrease of approximately 1.2°C per hour. The magnetometer's sensors are presently operating in the 200 gamma range, with the flip cal inhibit logic and the digital filter commanded IN.

The active seismic experiment is currently in standby, with a 30 minute passive listening mode operation planned for today. The instrument's grenade launch assembly continues experiencing a temperature decrease of approximately 0.8°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 28 April, 1300 G.m.t., to 5 May, 1200 G.m.t.

Central station	Sunset of the station's 10th lunation occurred today; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -136.2 ± 1.2 dbm. The 221 output pulse of the resettable solid state timer was verified on 4 May.
Passive seismic experiment	Operation is in the auto ON thermal control mode, gain on sensors is 0 db, and the feedback loop filter commanded OUT to match the seismic response on the four seismometers in operation. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's temperature output, DL-07, was noted offscale HIGH at 0136 G.m.t., 29 April (100 degree sun angle), and returned onscale near 1900 G.m.t., 29 April (sun angle of 109 degrees).
Lunar surface magnetometer experiment	The experiment's sensors are presently operating in the 100 gamma range. Currently the instrument has executed 433 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Currently operating in the extended range mode. Commanded to the extended range mode 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The instruments high voltages were commanded ON at 2133 G.m.t., 1 May, per the agreed to operations schedule. Experiment Channeltron high voltages are cycled OFF to preclude instrument mode changes at internal temperatures above 85°C.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-4.0°F), with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 277.8°K (40.6 °F). Since 0750 G.m.t., 25 April, the probe 2 sequence indicated offscale HIGH for the four relevant voltage measurements. A duplicate measurement, which is performed during the probe 1 sequence, is operating normally so that no data are lost. The TREF 2 measurement has been intermittent offscale HIGH since August 1971. TREF 2 returned onscale at 1859 G.m.t., 4 May (sun angle of 170 degrees) outputting valid data. At 0113 G.m.t., 5 May (sun angle of 173 degrees) TREF 2 data again indicated a offscale HIGH condition. Currently TREF 2 is outputting erroneous data.

Apollo 14 ALSEP

Operational status from 28 April, 1300 G.m.t., to 5 May, 1200 G.m.t.

Central station	Sunset of the 16th lunar day at the Apollo 14 landing site, will occur 7 May; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -138.5 ± 3.5 dbm.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and feedback loop filter commanded OUT. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 instrument.
Active seismic experiment	Currently in standby. On 28 April, experiment commanded ON at 1750 G.m.t., and to high bit rate ON at 1805 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1830 G.m.t., and the instrument commanded to standby at 1832 G.m.t. The next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in standby. No experiment operational periods have occurred since the April 26 functional mode change. It is planned to operate the instrument per the revised lunar night operations procedure (reference Apollo 14 ALSEP SMEAR #70) that has worked effectively since 9 March 1972.

Apollo 12 ALSEP

Operational status from 28 April 1972, 1300 G.m.t., to 5 May 1972, 1200 G.m.t.

Central station	Sunset of the 31st lunar day will occur 7 May; RTG power output is constant; and, transmitter "B" signal strength was reported at -141.0 ± 2.5 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The seismometer's temperature readout, DL-07, was noted offscale HIGH near 1102 G.m.t., 1 May (sun angle of 102 degrees). DL-07 returned onscale at 0316 G.m.t., 5 May.
Lunar surface magnetometer experiment	Magnetometer engineering and science data have not been valid since 7 April 1972. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Currently operating in the extended range mode. Commanded to the extended range mode 12 January 1972.
Suprathermal ion detector experiment	Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 25 April, in an effort to preclude instrument mode changes at internal temperatures above 55°C. However, the experiment experienced two mode changes to X10 mode at 1401 G.m.t., 28 April (T2 = 57.5°C), and again at 1542 G.m.t., 1 May (T2 = 49.2°C). In each case the instrument was returned to operate select without incident.

Status as of 0900 G.m.t., 5 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	898	455	279	14
Total Commands to Date	13,223	5599	7829	421
Sun Angle	150°	156°	177°	189°
Input Power	70.0w	70.6w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	71.6°F	73.3°F	24.2°F	27.6°F
PSE Sensor Assembly Temp	142.7°F	125.8°F	125.1°F	125.8°F
LSM Internal Temp	Invalid	N/A	48.2°C(118.7°F)	4.7°C(40.4°F)
SWS Module 300 Temp	52.7°C(126.8°F)	N/A	24.1°C(75.4°F)	N/A
SIDE Temp	28.1°C(82.6°F)	Invalid	41.6°C(106.8°F)	N/A
CCGE Temp	OFF	Invalid	274.2°K(34.1°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	56.6°C(133.8°F)	N/A	-25.4°C(-13.7°F)
HFE Temp Ref Junction	N/A	N/A	290.2°K(62.9°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

6 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Central station telemetry data indicates that the average thermal plate attained thermal equilibrium near 0300 G.m.t., 6 May, at 38.8°F, some 18 hours after activation of the data subsystem's heater, DSS-1. Power from the radioisotope source remains stable at 70.9 watts. Downlink signal strength is steady at -139.0 dbm, plus or minus one dbm. A status change in the timer's hour counter telemetry point, AZ-01, and the seismometer's short period cal status (AL-07) and uncage status (AL-08), verified output of the 19th and 20th 18-hour timer pulses, at 1255 G.m.t., 5 May, and again at 0710 G.m.t., 6 May. In an effort to minimize perturbations to the passive seismometer's thermal stability the 18-hour timer inhibit command was transmitted at 0955 G.m.t., 6 May. The timer inhibit command inhibits the 18-hour and the 1-minute timer output pulses which in turn will disable the repetitive commands generated in the delayed command sequencer, affecting the seismometer's uncage circuity. This operational procedure of eliminating the timer outputs will remain in effect throughout lunar night (sunrise will occur 19 May).

The passive seismic experiment's long period horizontal components continue to sense settling of the instrument into the lunar surface. The indications of instrument settling or thermal shroud movement from the thermal gradient effects are normally coincident in time, but not in amplitude. Occasionally the long period & short period vertical components will sense a signal typical of settling and/or lunar module descent stage venting. The instrument's sensor temperature remains stabilized at 125.8°F. The instrument is configured with its thermal control mode to auto ON, and the uncage circuitry configured to the OT state to deliver maximum heat into the sensor assembly. It is also planned that as soon as the sensor's temperature, DL-07, indicates loss of thermal stability, the experiment's z axis drive motor will be commanded to auto ON continuously in an effort to maximize the heat input to the sensor assembly. Seismometer data indicated that sunset at the Apollo 16 deployment site occurred near 1620 G.m.t., 4 May (the central station's sunshield transducer, AT-01, reflected a decisive temperature decrease at 1500 G.m.t., 4 May).

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through interplanetary space. The experiment's eighth and ninth flip cal sequences were executed correctly, by command, at 1309 G.m.t. and 1324 G.m.t., 5 May, respectively. The experiment's internal electronics continue to experience a temperature decrease of approximately 0.3°C per hour. The magnetometer's sensors are presently operating in the 200 gamma range, with the flip cal inhibit logic and the digital filter commanded IN.

The active seismic experiment is currently in standby. The experiment was commanded to operate select at 1438 G.m.t., 5 May, and to high bit rate ON at 1450 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1520 G.m.t., and the experiment commanded to standby at 1522 G.m.t., 5 May. Nine significant signals of various characteristics were noted in real time. The instrument's grenade launch assembly continues experiencing a temperature decrease of approximately 0.9°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 6 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	899	456	280	15
Total Commands to Date	13,250	5615	7879	467
Sun Angle	162°	168°	189°	201°
Input Power	70.4w	70.6w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	59.8°F	58.4°F	5.6°F	38.8°F
PSE Sensor Assembly Temp	131.1°F	124.9°F	124.7°F	125.8°F
LSM Internal Temp	Invalid	N/A	15.0°C(59.0°F)	-3.2°C(26.2°F)
SWS Module 300 Temp	44.3°C(111.7°F)	N/A	-9.2°C(15.4°F)	N/A
SIDE Temp	50.9°C(123.6°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	133.9°K(-218.4°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	39.8°C(103.6°F)	N/A	-47.3°C(-53.1°F)
HFE Temp Ref Junction	N/A	N/A	285.9°K(55.2°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

This report covers the science station's activity and data for the previous 48 hours. The central station's data subsystem components achieved thermal equilibrium near 0300 G.m.t., 6 May, at 38.8°F, following a temperature increase with activation of the data subsystem's DSS-1 heater. The RTG power output is steady at 70.9 watts, and the signal strength at the 30-foot antennas is -139.5 ± 1.0 dbm. The operational procedure of eliminating the output pulses of the resettable solid stat timer remains in effect (timer inhibit command transmitted at 0955 G.m.t., 6 May).

The experiments are functioning as planned, continuing to sense data associated with the free-streaming solar wind region. Each experiment appears to be either thermally stabilized or approaching thermal equilibrium. The passive seismometer's temperature remains stabilized at 125.7°F, initially achieving this temperature near 1600 G.m.t., 5 May (sun angle of 192 degrees). The magnetometer's internal electronics reached a stable temperature of -5.4°C, near 0300 G.m.t., 7 May (210 degree sun angle). The magnetometer correctly performed its 10th through 14th flip calibration sequences, by command, at various times on May 6 (1313 G.m.t., 2051 G.m.t., 2058 G.m.t., and, 2130 G.m.t.), and at 1534 G.m.t., 7 May. The active seismic experiment is in standby. The instrument's grenade launch assembly continues experiencing a temperature decrease of approximately 0.2 C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 8 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	901	458	282	17
Total Commands to Date	13,302	5639	7940	533
Sun Angle	187°	193°	214°	226°
Input Power	70.9w	71.4w	72.9w	70.9w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	19.9°F	38.6°F	-3.1°F	38.4°F
PSE Sensor Assembly Temp	126.5°F	124.4°F	124.6°F	125.7°F
LSM Internal Temp	Invalid	N/A	5.6°C(42.1°F)	-5.4°C(22.3°F)
SWS Module 300 Temp	0.1°C(32.1°F)	N/A	-17.6°C(0.3°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	7.2°C(45.0°F)	N/A
CCGE Temp	OFF	Invalid	116.5°K(-249.7°F)	N/A
CPLEE Electronic Temp	N/A	-37.7°C(-35.9°F)	N/A	N/A
ASE GLA Temp	N/A	-31.5°C(-25.3°F)	N/A	-64.5°C(-84.1°F)
HFE Temp Ref Junction	N/A	N/A	283.4°K(50.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

9 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The engineering data being received and processed from the Apollo 16 ALSEP indicates continued stable operation in RTG output power, radiated power, and temperature characteristics. Theoretically lunar midnight at the Descartes site will occur on May 11.

The passive seismometer experiment continues to function normally with the instrument's components sensing occasional signals typical of lunar module origin. Instrument housekeeping data continues to indicate a stabilized sensor assembly temperature of 125.7°F (auto ON thermal control mode). The experiment continues operating with the feedback loop filter commanded OUT, and the sensor gains of all components commanded to 0 db.

The lunar surface magnetometer, functioning as planned, continues to sense the effects of the moon passing through interplanetary space. The instrument's 15th flip cal sequence was executed correctly, by command, at 1311 G.m.t., 8 May. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, and the sensors in the 200 gamma range. Near 0600 G.m.t., 9 May, the instrument's internal electronics temperature indicated a -1.2°C temperature decrease to -6.6°C, and is presently stable at the lower temperature. The experiment was stabilized for approximately 54 hours at -5.4°C, prior to the electronics temperature change.

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature continues a gradual temperature decrease of 0.1°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0600 G.m.t., 9 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	902	459	283	18
Total Commands to Date	13,333	5647	7974	551
Sun Angle	199°	205°	226°	238°
Input Power	70.9w	71.4w	72.9w	70.9w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	19.9°F	38.0°F	-3.1°F	38.2°F
PSE Sensor Assembly Temp	126.4°F	124.4°F	124.6°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-13.1°C(8.4°F)	N/A	-17.6°C(0.3°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	7.2°C(45.0°F)	N/A
CCGE Temp	OFF	Invalid	114.3°K(-253.7°F)	N/A
CPLEE Electronic Temp	N/A	-36.2°C(-33.2°F)	N/A	N/A
ASE GLA Temp	N/A	-46.7°C(-52.1°F)	N/A	-66.4°C(-87.5°F)
HFE Temp Ref Junction	N/A	N/A	283.3°K(50.5°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 lunar science station, functioning as planned, experienced no unusual scientific events during the previous 24 hours of lunar night operations. The moon's May perigee will occur on 12 May, at approximately 1700 G.m.t.

Central station downlink data indicates that the power output of the RTG is constant at 70.9 watts. Signal strength of the ALSEP transmitter, as measured at the ground stations, is generally unchanged since activation of the experiments package. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect. The central station's average thermal plate temperature has decreased to 37.9°F.

The three experiments, passive seismometer, lunar surface magnetometer, and active seismic continue to provide uninterrupted science and engineering data. All data, 24 hours per day, are being recorded on magnetic tape at the MSFN tracking stations for subsequent detailed analysis. In general, the experiments package telemetry data continues to indicate stabilized temperature characteristics. The passive seismic instrument's sensor temperature, DL-07, continues stabilized at 125.7°F. The magnetometer's internal electronics temperature remains stable at -6.6°C, having decreased to this temperature near 0600 G.m.t., 9 May. The active seismic experiment's grenade launch assembly continues experiencing a gradual temperature decrease of approximately 0.1°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 10 May was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	903	460	284	19
Total Commands to Date	13,341	5656	8007	555
Sun Angle	211°	217°	238°	250°
Input Power	70.9w	71.5w	72.9w	70.9w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	19.6°F	37.7°F	-4.1°F	37.9°F
PSE Sensor Assembly Temp	126.2°F	124.4°F	124.5°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-14.8°C(5.4°F)	N/A	-18.0°C(-0.4°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	7.2°C(45.0°F)	N/A
CCGE Temp	OFF	Invalid	112.3°K(-257.3°F)	N/A
CPLEE Electronic Temp	N/A	-36.2°C(-33.2°F)	N/A	N/A
ASE GLA Temp	N/A	-57.1°C(-70.8°F)	N/A	-67.8°C(-90.0°F)
HFE Temp Ref Junction	N/A	N/A	283.4°K(50.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Lunar midnight at the Descartes site will theoretically occur today at 2348 G.m.t. The Apollo 16 science station is functioning properly, as the experiments and central station components continue to maintain thermal equilibrium.

The central station's average thermal plate temperature remains stabilized at 37.9°F. The signal strength from transmitter "A", as reported by the various tracking stations, is -139.0 ± 1.0 dbm; and, the thermoelectric power source output remains constant. Inhibiting of the 18-hour timer output pulses remains in effect.

Seismic events continue to be sensed by the short period vertical seismometer in episodes of small signals. These are believed to be generated by thermal fracturing of rocks in the near vicinity of ALSEP. The first definite moonquake was sensed at stations 12 and 16 simultaneously (data from the other seismic stations not yet available) at 1331 G.m.t., 8 May. A smaller moonquake was also recorded by the Apollo 14 seismic instrument at 0925 G.m.t., 8 May. Presently instrument housekeeping data indicates a sensor assembly temperature of 125.7°F (auto ON thermal control mode). At 1645 G.m.t., 10 May, the seismometer's housekeeping data indicated a rapid change in the sensor assembly temperature and all three tidal data channel outputs. The instrument temperature decreased, while the tidal data output become unstable for a period of approximately 1.3 hours. Sensor temperature has decreased as low as 125.3 F, and recovered to the current temperature of 125.7°F. Approximately 5.5 hours later this unexpected rapid change of sensor temperature and tidal data output occurred again, lasting approximately 1.3 hours before instrument stabilization was noted in the telemetry data. This phenomemon has occurred three times in total, cycling at approximately 5.5 hours, and having a duration of unstability for 1.3 hours. The instrument's erratic data outputs are under investigation. Presently experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components commanded to 0 db, and the uncage/arm fire circuit commanded to the OT status.

The lunar surface magnetometer's science and housekeeping data output discloses that the moon is in interplanetary space, and that the instrument is operating normally. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, the sensors in the 200 gamma range, and the internal electronics temperature stabilized at -6.6°C.

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature appears to have stabilized near 1800 G.m.t., 10 May, at -68.2°C.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 11 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	904	461	285	20
Total Commands to Date	13,343	5659	8037	573
Sun Angle	224°	230°	251°	263°
Input Power	70.4w	71.9w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	19.4°F	37.3°F	-4.1°F	37.9°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	124.5°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-15.2°C(4.6°F)	N/A	-18.0°C(-0.4°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	112.3°K(-257.3°F)	N/A
CPLEE Electronic Temp	N/A	-36.2°C(-33.2°F)	N/A	N/A
ASE GLA Temp	N/A	-61.5°C(-78.7°F)	N/A	-68.2°C(-90.8°F)
HFE Temp Ref Junction	N/A	N/A	283.2°K(50.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

12 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The central station and all experiments continue to indicate thermal stability in the lunar night environment, with the instruments continuing to provide an uninterrupted flow of scientific and engineering data. The radiated power of the package's transmitter remains steady. The RTG is supplying a constant source of power to the system. The procedure of inhibiting the 18-hour timer outputs generated in the delayed command sequencer will remain in effect throughout lunar night.

A seismic signal of large magnitude was sensed on all seismic stations on May 11, with the signal being recorded on all axes of each instrument. The event was initially sensed at the Apollo 14 and 16 stations simultaneously at 1333 G.m.t., 11 May. Data tape playback of the 12 and 15 passive seismometers confirmed that the event had also been recorded at those stations. The moon's May perigee will occur today. Presently the Apollo 16 instrument's housekeeping data indicates a sensor assembly temperature of 125.7°F (auto ON thermal control mode). The temperature and tidal data instability phenomemon, first displayed by the instrument on 10 May, continues cycling at approximately 5.5 hour intervals. The instrument's erratic data outputs continue under investigation. Presently the Apollo 16 station instrument is configured identically to the other passive seismometers to achieve network congruity.

The lunar surface magnetometer is operating normally, and continues to measure lunar night time field data. The experiment's 16th and 17th flip cal sequences were executed correctly, by command, at 0332 G.m.t. and 0343 G.m.t., 12 May.

The active seismic experiment is in standby. The experiment's grenade launch assembly temperature remains stabilized at -68.7°C. Today's scheduled listening mode operations will not be conducted because of the mission rule (32-3-A) limiting experiment activation when the grenade launch assembly temperature is -60°C or below, prior to grenade firing. The next listening mode operation is consequently planned for 19 May.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 5 May, 1200 G.m.t., to 12 May, 1200 G.m.t.

Central station	Midnight of the station's 10th lunation will occur today; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -137.2 ± 1.6 dbm. After verification of the 18-hour timer's 223rd output pulse on 6 May, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 0100 G.m.t. and 1300 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at -4.1°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage circuitry was configured to the OT state at 0828 G.m.t., 6 May, in an effort to maximize the heat input to the sensor assembly. Seismic signals have been noted in conjunction with the Apollo 16 seismometer.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 50 gamma range at 2207 G.m.t., 5 May for the duration of lunar night. Currently the instrument has executed 447 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The instruments high voltages were commanded ON at 2133 G.m.t., 1 May, for the duration of lunar night operations per the planned operational procedure.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F), with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 89.3°K (-298.6°F). Since 0113 G.m.t., 5 May (173 degree sun angle), TREF 2 measurements have indicated offscale HIGH. A duplicate measurement, which is performed during the probe 1 sequence, is operating normally so that no data are lost. The TREF 2 measurement has been intermittent offscale HIGH since August 1971. Presently TREF 2 is outputting erroneous data.

Apollo 14 ALSEP

Operational status from 5 May, 1200 G.m.t., to 12 May, 1200 G.m.t.

Central station	The 16th lunar midnight of the 14 station will occur 14 May; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -139.2 ± 1.2 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 0802 G.m.t., 7 May, when the average thermal plate temperature indicated 30.5°F. On 11 May, at 0258 G.m.t., it was noted that the following unexpected functional change had occurred within the passive seismometer; the instrument's level speed had changed from low to high. No command verification word relating to this change was observed in the telemetry downlink from the package. The seismometer was subsequently commanded back to level speed low without any problems (functional change #29).
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. Events have been noted in conjunction with the 16 experiment
Active seismic experiment	Currently is standby. On 5 May, experiment commanded ON at 1525 G.m.t., and to high bit rate ON at 1530 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1600 G.m.t., and the instrument commanded to standby at 1602 G.m.t. Two significant signals of various characteristics were noted in real time. The next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in operate. Per the agreed operational procedure, the experiment has been commanded to operate select each earth day for a minimum operational period of 10 hours (instrument is commanded to standby select during the non-data collecting periods). Initial instrument operations for this lunar night were initiated at 0437 G.m.t., 7 May. At 0329 G.m.t., 11 May, the experiment was commanded to operate select (electronics heater ON) for continual data collecting, which presently continues. The experiment's analyzer A high voltage (AC-03) remained substantially constant at the 2500 vdc level. Analyzer B high voltage remains below nominal levels.

Apollo 12 ALSEP

Operational status from 5 May 1972, 1200 G.m.t., to 12 May 1972, 1200 G.m.t.

Central station	Midnight of the package's 31st lunar night will occur 15 May; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.4± 2.4 dbm. The central station's DSS-1 heater (10 watts) was commanded ON, when the average thermal plate temperatures decreased to 13°F at 2144 G.m.t., 7 May.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded ON at 2145 G.m.t., 7 May, in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicated 125.9°F at z motor ON. Seismic singals have been sensed simultaneously with the Apollo 16 passive seismic experiment.
Lunar surface magnetometer experiment	Magnetometer engineering data were valid at 1701 G.m.t., 5 May (154 degree sun angle). These data had been static since 7 April 1972. On 6 May, at 1700 G.m.t., the engineering data again were static. No valid science data was noted in real time. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations at 0718 G.m.t., 5 May (T2 = 28.1°C), and a sun angle of 149 degrees.

Status as of 0600 G.m.t., 12 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	905	462	286	21
Total Commands to Date	13,358	5666	8076	5888
Sun Angle	234°	240°	261°	273°
Input Power	70.9w	71.4w	72.5w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	18.8°F	35.6°F	-4.1°F	37.9°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	124.5°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-15.2°C(4.6°F)	N/A	-18.0°C(-0.4°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	112.3°K(-257.3°F)	N/A
CPLEE Electronic Temp	N/A	-28.2°C(-18.7°F)	N/A	N/A
ASE GLA Temp	N/A	-61.5°C(-78.7°F)	N/A	-68.7°C(-91.6°F)
HFE Temp Ref Junction	N/A	N/A	283.2°K(50.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

13 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

All experiments and the central station continue to operate as planned in the lunar night environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate equilibrated temperature characteristics. A steady output of 70.4 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter is reported at -138.2 $\pm$ 0.2 dbm. The 18-hour timer pulse outputs are inhibited.

A significant seismic event was sensed simultaneously by the Apollo 16 station and 14 station seismometers at 0849 G.m.t., 13 May. A data tape playback of the Apollo 12 and 15 passive seismometers has not yet been completed to confirm recording of this event at those seismic stations. The magnitude of this event was so large that it was recorded on all axes of each instrument. Instrument housekeeping data continues to indicate a stabilized sensor assembly temperature of 125.7^{o}F (auto ON thermal control mode). The experiment continues operating with the feedback loop filter commanded OUT, the sensor gains of all components commanded to 0 db, and the uncage/arm fire circuit commanded to the OT state.

The lunar surface magnetometer, functioning as planned, continues to sense the effects of the moon passing through interplanetary space. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, the sensors in the 200 gamma range, and the internal electronics temperature stabilized.

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature continues experiencing a gradual temperature decrease of approximately 0.01^{o}C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0630 G.m.t., 13 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	906	463	287	22
Total Commands to Date	13,362	5668	8128	601
Sun Angle	248°	253°	275°	287°
Input Power	70.9w	71.4w	72.5w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	18.5°F	35.6°F	-4.1°F	37.9°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	124.3°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-15.2°C(4.6°F)	N/A	-18.0°C(-0.4°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.5°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-64.5°C(-84.1°F)	N/A	-69.1°C(-92.4°F)
HFE Temp Ref Junction	N/A	N/A	283.2°K(50.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

15 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

This report covers the 16 station's activity and data for the previous 48 hours. The science station is functioning as planned, as the experiments and central station components continue to maintain thermal equilibrium.

Following the largest seismic event recorded to date, the passive seismic experiment's feedback loop filter was commanded IN (1408 G.m.t., 13 May) in an effort to sense any free oscillations of the moon's interior structure that may have been induced. Filter IN configures the instrument into a flat response mode of operation (feedback filter OUT is peak response). On 14 May, at 0945 G.m.t., the 16 station seismometer sensed an impact event on all components (data from the other seismic stations not yet available). Seismic signals of the 14 May event lasted about one hour, with the instrument's filter IN. At 1447 G.m.t., 14 May, the instrument's feedback loop filter was commanded OUT, returning the experiment to peak response and the seismic network congruity. Also, the data tapes pertinent to the seismic event of 13 May were shipped immediately to facilitate detailed analysis, and no data tape playback of the Apollo 12 and 15 station seismometers was initiated. Currently the instrument's temperature remains stabilized at 125.7°F. The temperature and tidal data instability phenomemon, initially displayed on 10 May, continues cycling at approximately 4 hour intervals. This phenomemon is presently not understood, but does not appear to be degrading the experiment's seismic data.

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through interplanetary space. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, the sensors in the 200 gamma range, and the internal electronics temperature stabilized.

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature remains stabilized at -69.1°C.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 15 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	908	465	289	24
Total Commands to Date	13,370	5689	8183	608
Sun Angle	272°	278°	299°	311°
Input Power	70.9w	71.4w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	18.2°F	35.2°F	-5.5°F	37.8°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	124.3°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-15.2°C(4.6°F)	N/A	-18.0°C(-0.4°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.5°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-65.5°C(-85.9°F)	N/A	-69.1°C(-92.4°F)
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The central station's average thermal plate temperature remains stabilized at 37.8°F, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is -138.1 ± 1.3 dbm. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, the uncage/arm fire circuit commanded to the OT state, and the sensor assembly temperature stabilized.

The lunar surface magnetometer is presently indicating the moon's passage through interplanetary space. The instrument is operating normally with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. The instrument's 18th and 19th flip cal sequences were executed correctly, by command, at 1322 G.m.t. and 1333 G.m.t., 15 May.

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature remains stabilized at -69.5°C.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 16 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	909	466	290	25
Total Commands to Date	13,372	5695	8208	618
Sun Angle	285°	291°	312°	324°
Input Power	70.1w	71.4w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	17.9°F	34.9°F	-5.5°F	37.8°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.2°F	125.1°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	15.6°C(3.9°F)	N/A	-18.4°C(-1.1°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.5°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-65.5°C(-85.9°F)	N/A	-69.5°C(-93.1°F)
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Lunar sunrise at the Descartes site will occur on 19 May. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar night operations.

Central station downlink data indicates continued stable operation in operating power and radiated power, and equilibrated thermal characteristics. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect.

The three experiments, passive seismometer, lunar surface magnetometer, and active seismic continue to provide uninterrupted science and engineering data. All data, 24 hours per day, are being recorded on magnetic tape at the MSFN tracking stations for subsequent detailed analysis. In general, the experiments package telemetry data continues to indicate stabilized temperature characteristics. The passive seismic instrument's sensor temperature, DL-07, continues stabilized at 125.7°F. The magnetometer's internal electronics temperature remains stable at -6.6°C. The active seismic experiment's grenade launch assembly is holding basically constant at -69.5°C.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 17 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	910	467	291	26
Total Commands to Date	13,378	5699	8237	630
Sun Angle	297°	303°	324°	336°
Input Power	70.9w	71.4w	72.5w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	18.2°F	35.2°F	-5.5°F	37.4°F
PSE Sensor Assembly Temp	126.0°F	124.8°F	124.2°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	15.6°C(3.9°F)	N/A	-18.4°C(-1.1°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.5°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-65.5°C(-85.9°F)	N/A	-69.5°C(-93.1°F)
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

18 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 ALSEP central station and all experiments continue to function, with the instruments continuing to provide an uninterrupted flow of scientific and engineering data.

Currently the average thermal plate temperature of the central station is 37.4°F, with the DSS-1 heater ON. The temperature swing of the central station's data subsystem thermal plate has been controlled at 72 degrees (maximum temperature value of the average thermal plate equalled 109.1°F during lunar day operations; and, the minimum average thermal plate temperature decreased to 37.4°F during lunar night support with the data subsystem's 10 watt heater on-line). The RTG is supplying a constant output of power to the system. The radiated power of the package's transmitter is reported at -139.0 ± 3.0 dbm. Inhibiting the effects of the 18-hour timer output pulses continues.

The pattern of minimum noise currently being sensed by the passive seismometer is similar to that observed during lunar night operations of seismic instruments on previous missions. The instrument's sensor assembly has experienced a thermal swing of approximately 22 degrees over a lunar cycle (sensor assembly temperature indicated offscale HIGH during the lunar noon period, with the maximum temperature reached projected at 147°F). Experiment's sensor assembly night-time temperature is holding basically constant 125.7°F (auto ON thermal control mode). Seismometer's operation continues with the feedback commanded OUT, 0 db gain on all sensors, and the uncage/arm fire circuit commanded to the OT state. The temperature and tidal data instability phenomenon initially displayed on 10 May, continues cycling at approximately 4 hour intervals. This phenomenon is presently not understood, but does not appear to be degrading the experiment's seismic data.

The lunar surface magnetometer is operating normally, continuing to measure magnetic fields as the moon passes through interplanetary space. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, and the flux gate sensors configured to the 200 gamma range. The experiment's internal electronics temperature presently is stable at -6.6°C. During lunar day operations the instrument's internal electronics increased to a peak temperature of 44.7°C (a thermal cycle of 51°C).

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature remains stabilized at -69.5°C. The maximum day-time temperature experienced by the grenade launch assembly was 57.8°C (a temperature gradient of 127°C over a lunation). Plans are being formulated to fire the Apollo 16 ALSEP active seismic grenades on May 23.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 18 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	911	468	292	27
Total Commands to Date	13,382	5708	8276	632
Sun Angle	309°	315°	336°	348°
Input Power	70.9w	70.9w	72.3w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	17.9°F	34.9°F	-5.5°F	37.4°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.2°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°(20.1°F)
SWS Module 300 Temp	15.6°C(3.9°F)	N/A	-18.4°C(-1.1°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	106.5°K(-267.7°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-66.0°C(-86.8°F)	N/A	-69.5°C(-93.1°F)
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

19 May 1972
G.m.t.: 1000

Apollo 16 ALSEP

Lunar sunrise at the Descartes site will occur today. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day to maintain minimum heat input to the sensor assembly.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. The instrument's 20th and 21st flip cal sequences were executed correctly, by command, at 0820 G.m.t. and 0830 G.m.t., today.

The active seismic experiment is in standby as planned. The experiment's grenade launch assembly temperature remains stabilized at -69.5°C.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 12 May, 1200 G.m.t., to 19 May, 1200 G.m.t.

Central station	Sunrise of the station's 11th lunation will occur 20 May; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -136.2 ± 2.2 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 0100 G.m.t. and 1300 G.m.t. continues in effect. The data subsystem's average thermal plate temperature is presently stabilized at -5.5°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage circuitry was configured to the OT state 6 May in an effort to maximize the heat input to the sensor assembly. Seismic signals have been noted in conjunction with the Apollo 16 seismometer.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 50 gamma range 5 May for the duration of lunar night. Currently the instrument has executed 463 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages were commanded ON 1 May for the duration of lunar night operations per the planned operational procedure.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 84.2°K (-307.8°F). Since 5 May (173 degree sun angle) TREF 2 measurements have indicated offscale HIGH. A duplicate measurement, which is performed during the probe 1 sequence, is operating normally so that no data are lost. The TREF 2 measurement has been intermittent offscale HIGH since August 1971. Presently TREF 2 is outputting erroneous data.

Apollo 14 ALSEP

Operational status from 12 May, 1200 G.m.t., to 19 May, 1200 G.m.t.

Central station	The 17th lunar sunrise of the 14 station will occur 22 May; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -139.7 ± 1.7 dbm. The central station's DSS-1 heater (10 watts) was commanded ON May 7. At 1050 G.m.t., 17 May, the Guam tracking station experienced computer loss of lock on the Apollo 14 ALSEP. Subsequent real time analysis revealed no experiments package anomalies preceding the loss of decom lock. The ALSEP package was returned to normal bit rate by command, mode 1 from the Carnarvon ground station at 1058 G.m.t., 17 May, octal 005 (high bit rate OFF). There were no temperature, engineering or data out of tolerances as a result of this functional change.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. Events have been noted in conjunction with the 16 station's passive seismometer.
Active seismic experiment	Currently in standby. On 12 May the scheduled listening mode operation was not conducted because of the revised operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Next listening mode operation is scheduled for today, 19 May.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the automatic sequence (electronics heater ON) since 0329 G.m.t., 11 May, collecting science data in the six voltage ranges of analyzer A. The experiment's analyzer A high voltage (AC-03) remained substantially constant at the 2600 vdc level. Analyzer B high voltage remains below nominal levels. The current plan is to operate the instrument in the automatic sequence, with the electronics heater ON, through the station's ephemris sunrise. A revised lunar day operations procedure (22 May - 5 June) is presently being formulated.

Apollo 12 ALSEP

Operational status from 12 May 1972, 1200 G.m.t., to 19 May 1972, 1200 G.m.t.

Central station	Sunrise of the package's 32nd lunar day will occur 22 May; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.8 ± 2.0 dbm. The central station's DSS-1 heater was commanded ON May 7. On 18 May, at 1207 G.m.t., it was noted by the Madrid tracking station that the following unexpected functional change had occurred within the passive seismometer; the instrument's level speed had changed from low to high. A command verification word (octal 075) relating to this change was observed in the telemetry downlink from the package. The seismometer was subsequently commanded back to level speed low without any problems.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded ON May 7 in an effort to maximize the heat input to the sensor assembly during lunar night operations. Seismic signals have been sensed simultaneously with the Apollo 16 passive seismic experiment.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 6 May. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations 5 May.

Status as of 0900 G.m.t., 19 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	912	469	293	28
Total Commands to Date	13,387	5714	8307	642
Sun Angle	321°	327°	348°	360°
Input Power	70.4w	71.4w	72.3w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	17.9°F	34.9°F	-5.5°F	37.2°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.2°F	125.2°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	15.6°C(3.9°F)	N/A	-18.4°C(-1.1°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	106.5°K(-267.7°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-66.0°C(-86.8°F)	N/A	-69.5°C(-93.1°F)
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

20 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The experiments package is presently 26 hours into its second lunar day, and continues to function normally. It is estimated that sunrise occurred near 1037 G.m.t., 19 May (sunrise time primarily based on decisive change in the seismometer's data outputs).

The average temperature of the central station's electronics thermal plate is currently 48.3°F, at a sun angle of 13 degrees at the deployment site with a corresponding temperature increase of 0.5°F per hour. The data subsystem's 10-watt heater was commanded OFF at 1331 G.m.t., 19 May, when the station's average thermal plate temperature increased to 40.7°F. RTG output power is steady at 70.1 watts following slight fluctuations noted during lunar sunrise. Downlink signal strength is constant at -139.2 dbm, plus or minus 0.2 dbm. The data subsystem's timer reset command, octal 150, was transmitted at 1329 G.m.t., 19 May, to reset the timer counters to a zero count (clear). The 1-minute and the 18-hour output pulses and the timer transmitter turnoff function is referenced to the timer reset (reset command precludes automatic transmitter turnoff at 97 ± 5 days). Inhibiting the effects of the 18-hour timer output pulses continues.

Two significant seismic events were sensed by the Apollo 16 passive seismometer beginning at 2328 G.m.t., 18 May, and at 0716 G.m.t., 19 May, respectively. The seismic signal of May 18 was sensed by the long period horizontal components on the station 16 instrument, along with the Apollo 14 and 15 seismometers (ringing of the event lasted approximately 50 minutes). The 19 May seismic activity (recorded by the long period horizontal and the short period vertical component of the Apollo 16 instrument) was of a lesser duration. Smaller seismic events were sensed by the Apollo 14 seismic experiment at 0157 G.m.t., 18 May, and 1826 G.m.t., 19 May. Sensor telemetry data presently indicates a positive temperature increase of approximately 0.04°F per hour. The 16 instrument's temperature and tidal data instability phenomemon has disappeared, as the sensor assembly temperature is seeking thermal equilibrium.

The lunar surface magnetometer is operating normally and correctly performed its 22nd through 33rd flip calibration sequences, by command, at various time on May 19 and today (1232, 1241, 1429, 1438, 1847, 1855, 2139, and 2147 G.m.t., 19 May; and, 0100, 0107, 0454 and 0507 G.m.t., 20 May). It is requested by the principal investigator that a set of flip cals (two calibration sequences) be commanded at each optical terminator (sunrise and sunset) at the following intervals; 2-hours preceding; 2-hours after; 6-hours after; 12-hours after; and, 24-hours after. Also, that a set of flip cals be commanded every 2-days during lunar day-time operations, and every 3-days during lunar night-time operations.

The active seismic experiment is in standby as planned. The instrument's grenade launch assembly continues experiencing a temperature increase of approximately 1.8°C per hour. On 19 May the scheduled passive listening mode operation was not conducted because of the operations mission rule limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Plans are being formulated to fire the Apollo 16 ALSEP active seismic grenades on May 23.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 20 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	913	470	294	29
Total Commands to Date	13,391	5722	8340	705
Sun Angle	334°	340°	1°	13°
Input Power	70.4w	71.4w	72.3w	70.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	17.9°F	34.9°F	-5.5°F	48.3°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.1°F	126.1°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	25.7°C(78.3°F)
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A	-18.4°C(-1.1°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	106.5°K(-267.7°F)	N/A
CPLEE Electronic Temp	N/A	-28.2°C(-18.8°F)	N/A	N/A
ASE GLA Temp	N/A	-66.0°C(-86.8°F)	N/A	-22.2°C(-8.0°F)
HFE Temp Ref Junction	N/A	N/A	282.9°K(49.8°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

22 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

This report covers the Apollo 16 ALSEP activity and data for the previous 48 hours. Operations during this period were essentially unchanged, with the exception of a continual experiments package temperature increase as a function of sun elevation at the Descartes site.

Central station housekeeping data indicates that the data subsystem electronics are experiencing an average temperature increase of approximately 0.8°F per hour. The downlink signal strength from transmitter "A", and the thermoelectric power source output remains steady. The procedure of inhibiting the 18-hour timer outputs generated in the delayed command sequencer will remain in effect throughout lunar day.

The passive seismic experiment is continuing to sense signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. These thermally generated disturbances will continue to diminish with the approach of lunar noon, as the seismometer is fully illuminated and the thermal gradients across the instrument's thermal shroud are at a minimum. The operation of the experiment is with the feedback loop filter commanded OUT and the sensor gains of all components configured to 0 db. The instrument's heater is configured to auto ON and the uncage/arm fire circuit to the UNCAGE state in an effort to minimize the sensor's temperature increase (average rate of increase is 0.02°F per hour).

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through interplanetary space. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, and the flux gate sensors configured to the 200 gamma range. The instrument's 34th and 35th flip cal sequences were executed correctly, by command, at 1217 G.m.t. and 1225 G.m.t., 20 May.

The active seismic experiment is currently in standby following a non-scheduled passive listening mode operations of 30 minutes today. The experiment was commanded to operate select at 0519 G.m.t., 22 May, and to high bit rate ON at 0532 G.m.t., for the passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. The instrument's roll angle sensor indicated offscale HIGH, and the pitch angle sensor indicated -3.49 degrees. No significant signals were noted in real time. The instrument's grenade launch assembly continues experiencing a temperature increase of approximately 1.3°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 22 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	915	472	296	31
Total Commands to Date	13,399	5740	8443	774
Sun Angle	358°	4°	25°	37°
Input Power	70.4w	70.5w	72.9w	70.6w
Heater and Power Dumps	DSS-1 ON(10w)	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	17.6°F	40.8°F	73.1°F	84.2°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	126.0°F	126.9°F
LSM Internal Temp	Invalid	N/A	43.5°C(110.3°F)	32.0°C(89.6°F)
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A	34.9°C(94.8°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	51.8°C(125.2°F)	N/A
CCGE Temp	OFF	Invalid	331.5°K(137.3°F)	N/A
CPLEE Electronic Temp	N/A	-31.8°C(-25.2°F)	N/A	N/A
ASE GLA Temp	N/A	-57.1°C(-70.8°F)	N/A	15.1°C(59.2°F)
HFE Temp Ref Junction	N/A	N/A	299.5°K(79.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 May 1972
G.m.t.: 1100 G.m.t.

Apollo 16 ALSEP

On May 23 a command sequence was initiated resulting in the successful launching of three of the four high explosive grenades contained in the mortar package component of the active seismic experiment. The decision was made not to launch grenade number 1 due to the fact that the previously launched grenade (number 3) caused the instrument's pitch angle sensor (telemetry point DS-07) within the grenade launch assembly to read offscale HIGH. The offscale HIGH indication rendered the pitch position of the launch assembly uncertain. Further data analysis may or may not permit the launching of grenade number 1 in the future. The previously planned sequential firing order was adhered to for the launching of the three grenades; numbers 2, 4, and 3. Significant seismic energy arrivals were noted by all three geophones for each grenade launched. Pertinent command times are noted:

Active seismic experiment ON	- 0520 G.m.t.
High bit rate ON	- 0530 G.m.t.
Geophone cal pulse	- 0532 G.m.t.
Grenade #2 launch	- 0548 G.m.t.
High bit rate OFF	- 0558 G.m.t.
High bit rate ON	- 0627 G.m.t.
Grenade #4 launch	- 0632 G.m.t.
Grenade #3 launch	- 0640 G.m.t.
High bit rate OFF	- 0644 G.m.t.
Active seismic experiment standby	- 0832 G.m.t.

The central station downlink data indicates continued stable operation in operating power and radiated power, and a continuing temperature increase due to sun elevation. The other two experiments, passive seismometer, and lunar surface magnetometer continue to provide uninterrupted science and engineering data. In general, the experiments are indicating a continuing temperature increase. The magnetometer's 36th and 37th flip cal sequences were executed correctly, by command, at 2307 G.m.t. and 2314 G.m.t., 22 May.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0700 G.m.t., 23 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	916	473	297	32
Total Commands to Date	13,431	5763	8477	793
Sun Angle	11°	17°	38°	50°
Input Power	70.0w	71.0w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	51.3°F	66.6°F	88.6°F	97.6°F
PSE Sensor Assembly Temp	125.2°F	124.7°F	126.0°F	127.3°F
LSM Internal Temp	Invalid	N/A	47.0°C(116.6°F)	32.8°C(91.0°F)
SWS Module 300 Temp	23.9°C(75.0°F)	N/A	44.8°C(112.6°F)	N/A
SIDE Temp	23.4°C(74.1°F)	Invalid	66.7°C(152.1°F)	N/A
CCGE Temp	OFF	Invalid	347.4°K(165.9°F)	N/A
CPLEE Electronic Temp	N/A	10.8°C(51.4°F)	N/A	N/A
ASE GLA Temp	N/A	-4.0°C(24.8°F)	N/A	56.6°C(133.9°F)
HFE Temp Ref Junction	N/A	N/A	304.6°K(88.9°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

24 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The experiments and central station are functioning as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within limits. No adverse effects from the launching of the active seismic experiment grenades have been noted in the Apollo 16 stations downlink telemetry.

Power from the radioisotope source remains stable at 70.9 watts. The average temperature of the central station electronics thermal plate continues increasing at 0.15°F per hour. Downlink signal strength is steady at -139.0 dbm, plus or minus 1.0 dbm. The procedure of inhibiting the 18-hour timer outputs generated in the delayed command sequencer will remain in effect throughout lunar day.

The passive seismic experiment is continuing to sense signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. These thermally generated disturbances will continue to diminish with the approach of lunar noon, as the seismometer is fully illuminated and the thermal gradients across the instrument's thermal shroud are at a minimum. The operation of the experiment is with the feedback loop filter commanded OUT amd the sensor gains of all components configured to 0 db. The instrument's heater is configured to auto ON and the uncage/arm fire circuit to the UNCAGE state in an effort to minimize the sensor's temperature increase (average rate of increase is 0.4°F per hour).

The lunar surface magnetometer experiment is presently indicating the moon's passage through the bow shock created by the interaction of the earth's magnetic field with the solar wind. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, and the flux gate sensors configured to the 200 gamma range. The instrument's internal electronics temperature is increasing at a rate of approximately 0.2°C per hour.

The active seismic experiment is currently in standby. The instrument's grenade launch assembly continues experiencing a temperature increase of approximately 0.3°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0740 G.m.t., 24 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	917	474	298	33
Total Commands to Date	13,473	5796	8501	834
Sun Angle	22°	28°	49°	61°
Input Power	70.4w	71.0w	72.9w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	72.7°F	83.0°F	98.5°F	100.0°F
PSE Sensor Assembly Temp	126.1°F	125.0°F	129.2°F	133.8°F
LSM Internal Temp	Invalid	N/A	52.1°C(125.8°F)	36.4°C(97.5°F)
SWS Module 300 Temp	38.6°C(101.5°F)	N/A	51.9°C(125.4°F)	N/A
SIDE Temp	45.7°C(114.3°F)	Invalid	75.6°C(168.1°F)	N/A
CCGE Temp	OFF	Invalid	355.6°K(180.7°F)	N/A
CPLEE Electronic Temp	N/A	32.9°C(91.2°F)	N/A	N/A
ASE GLA Temp	N/A	19.7°C(67.5°F)	N/A	69.8°C(157.6°F)
HFE Temp Ref Junction	N/A	N/A	313.8°K(105.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Scientific data continues being collected, including the effects of passing through the earth's magnetosheath. The central station and all experiments are experiencing a positive temperature excursion.

The average temperature of the central station electronics thermal plate continues increasing at approximately 0.2°F per hour. The thermoelectric power source output remains steady. Inhibiting the effects of the 18-hour timer output pulses continues. Over the past 24 hour period, the reported signal strength from transmitter "A" has varied, depending on the supporting MSFN sites' characteristics as follows:

Canary Islands, 30 foot antenna	: -139.6 dbm
Carnarvon, 30 foot cooled antenna	: -138.5 dbm
Hawaii, 30 foot cooled antenna	: -140.5 dbm

The passive seismic experiment continues recording venting in the LM descent stage, and characteristic wobbling as the instrument settles. These disturbances are steadily decreasing in amplitude. The instrument's feedback loop filter is commanded OUT, and the long period and short period components commanded for peak response (amplifier circuit attenuators to 0 db). The seismic network has steady congruity, as all seismic instruments are configured identically. The experiment's sensor temperature, DL-07, indicated offscale HIGH at approximately 0650 G.m.t., 25 May (sun angle of 72 degrees). The experiment's sensor temperature went offscale HIGH during the first lunation at 88 degrees sun angle. Presently the instrument's thermal control mode is auto ON.

The lunar surface magnetometer experiment is operating normally, and continues to measure magnetic fields as the moon passes through the earth's magnetosheath, approaching the magnetopause. Engineering data indicates that the instrument's electrionics temperature is increasing at the average rate of 0.15°C per hour, over the preceding 24 hours.

The active seismic experiment is currently in standby as planned. The instrument's telemetry data presently indicates that the grenade launch assembly temperature (AS-03) is stabilized at 69.8°C, having reached this temperature near 0300 G.m.t., 24 May (sun angle of 58 degrees). The mortar package assembly (AS-02) indicated a stable temperature of 73.4°C from near 0600 G.m.t., 24 May, to 0600 G.m.t., 25 May. At 0600 G.m.t., 25 May, the mortar package temperature increased to 75.0°C (73 degree sun angle), and at this point in time appears stabilized.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 25 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	918	475	299	34
Total Commands to Date	13,492	5826	8530	852
Sun Angle	35°	41°	62°	74°
Input Power	70.4w	71.0w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	82.7°F	97.8°F	104.9°F	104.7°F
PSE Sensor Assembly Temp	126.4°F	125.4°F	133.3°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	57.8°C(136.0°F)	40.3°C(104.5°F)
SWS Module 300 Temp	51.1°C(124.0°F)	N/A	55.9°C(132.6°F)	N/A
SIDE Temp	OFF	Invalid	80.5°C(176.9°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	46.0°C(114.8°F)	N/A	N/A
ASE GLA Temp	N/A	43.6°C(110.5°F)	N/A	69.8°C(157.6°F)
HFE Temp Ref Junction	N/A	N/A	320.2°K(116.9°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

26 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

The station is in its 35th day of operation with the moon passing in and out of the earth's geomagnetic tail. Data of this region are being gathered by the lunar surface magnetometer experiment. The central station's data subsystem components continue to seek thermal equilibrium. The central station's average thermal plate temperature continues indicating a lower temperature of approximately 2.0°F when compared with identical sun angles of the station's first lunar day operations. The data subsystem's thermal plate currently continues to experience a average temperature increase of 0.1°F per hour. The thermoelectric power source output remains steady. The reported signal strength of transmitter "A" at the various 30-foot antennas is -140.3 ± 0.8 dbm.

The passive seismometer's short period vertical component sensed a large local event at 0713 G.m.t., 20 May. A smaller natural event was also recorded by the passive seismic experiment's long period horizontal components and the short period vertical component on May 24 at 0845 G.m.t. The duration of the signal was evaluated to be 20 minutes. Due to the offscale temperature condition the seismometer's tidal data is degraded, but has minimal effect on the instrument's seismic data outputs. Present configuration is thermal control auto ON, and 0 db gain on all axes.

The lunar surface magnetometer is operating normally in the 200 gamma range as the moon passes into the earth's magnetic tail. The instrument's internal electronics temperature continues to increase at a rate of 0.2°C per hour, precisely tracking the instrument's first lunar day temperature.

The active seismic experiment is currently in standby, with a 30 minute passive listening mode operation planned for today. The grenade launch assembly (AS-03) and the mortar package assembly (AS-02) temperatures continue to indicate a stable temperature of 68.3°C (AS-03 decreased from the previous temperatue of 69.8°C near 2100 G.m.t., 25 May) and 75.0°C, respectively.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSE.

Operational status from 19 May, 1200 G.m.t., to 26 May, 1200 G.m.t.

Central station	Sunrise of the station's 11th lunation occurred near 2158 G.m.t., 20 May; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -136.3 ±1.5 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, was terminated at 0518 G.m.t., 21 May.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage/arm fire circuit was configured to the UNCAGED state in an effort to minimize the heat input to the sensor assembly. Seismic signals have been noted in conjunction with the Apollo 16 seismometer.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 100 gamma range 2147 G.m.t., 20 May for lunar day-time operations. It is requested by the principal investigator that a set of flip cals (two calibration sequences) be commanded at each optical terminator (sunrise and sunset) at the following intervals; 2-hours preceding; 2-hours after; 6-hours after; 12-hours after; and, 24-hours after. Also, that a set of flip cals be commanded every day during lunar day-time and lunar night-time operations. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages will be commanded OFF to preclude mode changes when the internal electronics temperature is above 85°C.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 362.1°K (159.4°F). Since 5 May the instrument's measurement TREF 2 has continually displayed erroneous data. TREF 2 returned onscale at 0747 G.m.t., 24 May (sun angle of 49 degrees) outputting valid data. At 1335 G.m.t., 24 May (51 degree sun angle) TREF 2 data again indicated a offscale HIGH condition. Currently TREF 2 is outputting erroneous data.

Apollo 14 ALSEP

Operational status from 19 May, 1200 G.m.t., to 26 May, 1200 G.m.t.

Central station	The 17th lunar sunrise of the 14 station occurred near 0622 G.m.t., 22 May; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.5 ± 1.5 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF at 0838 G.m.t., 22 May, at an average thermal plate temperature of 41.4°F. On 21 May the 31st unexpected functional change occurred on this ALSEP. The passive seismometer responded to a spurious functional change at 2049 G.m.t. The supporting ground station was unable to locate a command verification word for the command, octal 076 (seismometer's thermal control mode to auto OFF). The status of the experiment was reset by command with no problems. This spurious command was attributed to RF noise effects.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. Events have been noted in conjunction with the 16 station's passive seismometer.
Active seismic experiment	Currently in standby. On 19 May the scheduled listening mode operation was not conducted because of the revised operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. In an effort to obtain data to correlate natural seismic events, a passive listening mode operation was performed on 24 May. Experiment commanded ON at 1745 G.m.t., and to high bit rate ON at 1810 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 2200 G.m.t., and the instrument commanded to standby at 2203 G.m.t. No significant seismic events were noted in real time. Next listening mode operation is scheduled for today, 26 May.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.

Apollo 14 ALSEP

Operational status from 19 May, 1200 G.m.t., to 26 May, 1200 G.m.t.

Charged particle lunar environmental experiment	Uninterrupted operations in the automatic sequence (electronics heater ON) since 0329 G.m.t., 11 May through 0148 G.m.t., 22 May, collecting science data in the six voltage ranges of analyzer A. Following the station's ephemeris sunrise the experiment's electronics heater was commanded OFF and the instrument continued uninterrupted operations in the automatic sequence until 1928 G.m.t., 22 May. Since 22 May the experiment has operated continually under a revised lunar day operations procedure. At 0835 G.m.t., 26 May, the experiment was commanded to standby select when the analyzer A voltage dropped to 2084 volts. Instrument temperatures at the time of decrease were AC-05 = 53.7°C, and AC-06 = 57.5°C. Presently the instrument remains in standby select. It is planned that the experiment will continue to operate under the revised lunar day operations procedure until 5 June.

Apollo 12 ALSEP

Operational status from 19 May 1972, 1200 G.m.t., to 26 May 1972, 1200 G.m.t.

Central station	Sunrise of the package's 32nd lunar day occurred 22 May; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.0 ± 2.5 dbm. The central station's DSS-1 heater was commanded OFF at 1521 G.m.t., 22 May, when the station's average thermal plate temperature increased to 30.2°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded OFF at 1518 G.m.t., 22 May, as the sensor assembly temperature increased to 126.0°F. Seismic signals have been sensed simultaneously with the Apollo 16 passive seismic experiment.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 6 May. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment's high voltage will be commanded OFF to preclude mode changes when the internal temperature is above 55°C. Cyclic commanding of the instrument's high voltage power supply during the current lunar day will be unchanged from the previous operational procedure, and was started at 1724 G.m.t., 24 May, when electronics temperature T2 indicated 52.8°C.

Status as of 0900 G.m.t., 26 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	919	476	300	35
Total Commands to Date	13,505	5857	8556	864
Sun Angle	47°	53°	74°	86°
Input Power	70.4w	71.0w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	87.3°F	106.2°F	109.5°F	106.8°F
PSE Sensor Assembly Temp	127.1°F	127.0°F	137.3°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	62.6°C(144.7°F)	43.6°C(110.3°F)
SWS Module 300 Temp	58.3°C(136.9°F)	N/A	58.3°C(136.9°F)	N/A
SIDE Temp	OFF	Invalid	84.2°C(183.6°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	60.3°C(140.5°F)	N/A	68.3°C(155.9°F)
HFE Temp Ref Junction	N/A	N/A	323.2°K(122.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

29 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

This report covers the Apollo 16 ALSEP activity and data for the previous 72 hours, including a scheduled temporary suspension of ALSEP mission control real time operations from 0500 G.m.t., 27 May, through 0000 G.m.t., 28 May, due to major maintenance service to the MSC central heating and cooling plant. Operations during this period were essentially unchanged, with the exception of a continual experiments package temperature decrease as a function of sun elevation angle at the Descartes site.

Central station housekeeping data indicates that the data subsystem electronics thermal plate is currently experiencing an average temperature decrease of approximately 0.2°F per hour. The central station's average thermal plate temperature achieved a maximum second lunar day value of 107.6°F near 1802 G.m.t., 26 May (sun angle of 90.3 degrees), as compared to a maximum value of 109.1°F during the first lunar day operations. The thermoelectric power source output, and the downlink signal strength from transmitter "A" remains steady. The procedure of inhibiting the 18-hour timer output events generated in the delayed command sequencer remains in effect.

The background noise presently being sensed by the passive seismic experiment at the Apollo 16 site is comparable to that observed during operations of seismic instruments on previous missions. The operation of the experiment is with the feedback loop filter commanded OUT and the sensor gains of all components configured to 0 db. The instrument's heater is configured to auto ON and the uncage/arm fire circuit to the UNCAGED state. The sensor assembly temperature remains offscale HIGH. The moon's June perigee will occur on 10 June, at approximately 0000 G.m.t.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. Presently the moon is passing into the transition region. The instrument's internal electronics are currently experiencing a negative temperature excursion of 0.1°C per hour. The experiment continues to operate with the flip cal inhibit logic and the digital filter commanded IN, and the flux gate sensors configured to the 200 gamma range. The instrument's 42nd and 43rd flip cal sequences were executed correctly, by command, at 0121 G.m.t. and 0128 G.m.t., 28 May.

The active seismic experiment is currently in standby. The experiment was commanded to operate select at 1445 G.m.t., 26 May, and to high bit rate ON at 1500 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1530 G.m.t., and the experiment commanded to standby at 1532 G.m.t., 26 May. Two significant events were observed simultaneously on all three geophones in real time. The instrument's grenade launch assembly (AS-03), and the mortar package assembly (AS-02) temperatures continue experiencing a decrease of approximately 0.2 °C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 29 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	922	479	303	38
Total Commands to Date	13,538	5933	8646	932
Sun Angle	83°	89°	110°	122°
Input Power	70.0w	71.0w	73.5w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	90.6°F	114.6°F	113.9°F	101.2°F
PSE Sensor Assembly Temp	134.8°F	126.1°F	140.1°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	64.2°C(147.6°F)	40.3°C(104.5°F)
SWS Module 300 Temp	64.3°C(147.7°F)	N/A	60.7°C(141.3°F)	N/A
SIDE Temp	OFF	Invalid	86.8°C(188.2°F)	N/A
CCGE Temp	OFF	Invalid	355.6°K(180.7°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	83.7°C(182.7°F)	N/A	61.6°C(142.9°F)
HFE Temp Ref Junction	N/A	N/A	326.9°K(129.0°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Lunar sunset at the Descartes site will occur on 3 June. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar day-time operation.

Central station downlink data indicates continued stable operation in operating voltages and radiated power, and diminishing thermal characteristics. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect.

The three experiments, passive seismometer, lunar surface magnetometer, and active seismic continue to provide uninterrupted science and engineering data. All data, 24 hours per day, are being recorded on magnetic tape at the MSFN tracking stations for subsequent detailed analysis. In general, the experiments package telemetry data continues to indicate normal operations with decreasing temperature characteristics. The passive seismic instrument's sensor temperature, DL-07, remains offscale HIGH. The magnetometer's internal electronics temperature is dropping at a average rate of 0.3°C per hour. The active seismic experiment's grenade launch assembly and mortar package assembly temperatures continue decreasing at 0.5°C (AS-03) and 0.4°C (AS-02) per hour, respectively.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 30 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	923	480	304	39
Total Commands to Date	13,548	5937	8670	938
Sun Angle	95°	101°	122°	134°
Input Power	70.0w	71.0w	73.5w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	89.5°F	112.9°F	111.4°F	95.5°F
PSE Sensor Assembly Temp	139.4°F	127.5°F	137.5°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	59.4°C(138.9°F)	37.3°C(99.1°F)
SWS Module 300 Temp	64.3°C(147.7°F)	N/A	59.8°C(139.6°F)	N/A
SIDE Temp	OFF	Invalid	85.5°C(185.9°F)	N/A
CCGE Temp	OFF	Invalid	355.6°K(180.7°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	85.3°C(185.5°F)	N/A	53.1°C(127.6°F)
HFE Temp Ref Junction	N/A	N/A	323.7°K(123.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

31 May 1972
G.m.t.: 1200

Apollo 16 ALSEP

Central station housekeeping data indicates that the data subsystem electronics thermal plate continues experiencing an average temperature decrease of 0.5°F per hour. The RTG power is steady at 70.6 watts, and signal strength at the 30-foot antennas is -139.0 ± 1.0 dbm. Inhibiting the effects of the 18-hour timer output pulses continues.

A seismic event was sensed simultaneously by the Apollo 16 station and 15 station instrument's starting at about 2125 G.m.t. to 2127 G.m.t., 29 May. The signal is very emergent with rise times of about 9-10 minutes at both stations, and the event was sensed by only the long period horizontal components of each seismometer. The seismometer's temperature transducer output (DL-07) remains offscale HIGH. Currently, instrument operation is in the auto ON thermal control mode with the uncaged status UNCAGED.

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through the center of the earth's magnetosheath.

The active seismic experiment is in standby as planned. The instrument's grenade launch assembly is experiencing a temperature decrease of 0.4°C per hour, while the experiment's mortar package assembly temperature is decreasing at a rate of 0.3°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 31 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	924	481	305	40
Total Commands to Date	13,558	5941	8710	942
Sun Angle	108°	114°	135°	147°
Input Power	70.0w	71.0w	72.9w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	88.2°F	108.6°F	106.4°F	86.3°F
PSE Sensor Assembly Temp	142.3°F	128.0°F	131.0°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	54.9°C(130.8°F)	39.3°C(102.7°F)
SWS Module 300 Temp	64.3°C(147.7°F)	N/A	56.7°C(134.1°F)	N/A
SIDE Temp	OFF	Invalid	81.7°C(179.1°F)	N/A
CCGE Temp	OFF	Invalid	347.4°K(165.9°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	83.7°C(182.7°F)	N/A	40.7°C(105.3°F)
HFE Temp Ref Junction	N/A	N/A	318.7°K(114.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 June 1972
G.m.t.: 1200

Apollo 16 ALSEP

Currently, the central station's average thermal plate temperature is 75.0°F and decreasing at approximately 0.6°F per hour. Power output from the radioisotope source remains constant at 70.6 watts. Transmitter "A" downlink signal strength is steady at -139.0, plus or minus one dbm. The data subsystem's timer output pulses continue to be inhibited to prevent change of the passive seismometer's uncage status.

The passive seismometer continues to function as planned, with the instrument's components sensing occasional lunar module descent stage venting and/or signals typical of settling. The seismometer's temperature transducer output, DL-07, remains offscale HIGH.

The lunar surface magnetometer, functioning as planned, continues to sense data pertaining to the earth's bow wave. The experiment's 44th and 45th flip cal sequences were executed correctly, by command, at 2250 G.m.t. and 2309 G.m.t., 31 May. The instrument's flip cal inhibit logic remains IN, inhibiting the flip cal command pulse from the automatic delayed command sequencer.

The active seismic experiment is in standby. The instrument's grenade launch assembly (AS-03) and mortar package assembly (AS-02) are experiencing a temperature decrease of approximately 1.0°C per hour and 0.9°C per hour, respectively.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 1 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	925	482	306	41
Total Commands to Date	13,577	5955	8732	973
Sun Angle	120°	126°	148°	159°
Input Power	70.0w	71.0w	73.5w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	87.8°F	102.1°F	97.4°F	75.0°F
PSE Sensor Assembly Temp	Offscale HIGH	126.7°F	126.0°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	57.8°C(136.0°F)	41.4°C(106.5°F)
SWS Module 300 Temp	62.3°C(144.1°C)	N/A	51.1°C(124.0°F)	N/A
SIDE Temp	OFF	Invalid	74.5°C(166.1°F)	N/A
CCGE Temp	OFF	Invalid	331.5°K(137.3°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	80.4°C(176.7°F)	N/A	24.9°C(76.8°F)
HFE Temp Ref Junction	N/A	N/A	311.5°K(101.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 June 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 ALSEP, in its 42nd day of lunar operations, remains essentially unchanged from the preceding 24 hours, with the exception of a continual temperature decrease as a function of sun elevation angle at the ALSEP site. Lunar sunset at the Descartes site will occur on 3 June.

Central station telemetry downlink data indicates that the data subsystem electronics thermal plate is experiencing an average temperature decrease of 0.7°F per hour. The RTG output and transmitter downlink signal remain unchanged. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismometer's real time data indicates that the instrument continues to sense signals of various characteristics (variable amplitudes, duration times, etc.) typical of thermal gradients preceding the impending optical terminator. These types of signals are being most effectively detected on the instrument's long period components, particularly LPX and LPY. The sensor's temperature transducer output returned onscale at 0740 G.m.t., 2 June (sun angle of 170 degrees). Currently, the experiment's housekeeping data reflects that the sensor's temperature is 141.2°F and decreasing at a average rate of 1.1°F per hour (instrument's thermal control mode is auto ON).

The lunar surface magnetometer experiment is presently indicating the moon's passage through the free-streaming solar wind region. The instrument is operating normally with the digital filter commanded IN and the flip cal inhibit logic IN. Engineering data indicates that the y axis sensor's heater thermostat is controlling the instrument's temperature, and the temperature history of the magnetometer electronics is precisely tracking that of the first lunar day.

The active seismic experiment is currently in standby, with a 30 minute passive listening mode operation planned for today. The instrument's grenade launch assembly (AS-03) and mortar package assembly (AS-02) are experiencing a temperature decrease of approximately 1.0°C per hour and 1.1°C per hour, respectively.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALK

Operational status from 26 May 1972, 1200 G.m.t., to 2 June 1972, 1200 G.m.t.

Central station	Noon of the station's 11th lunation occurred 26 May; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -135.5 ± 0.5 dbm. The data subsystem's timer continues to function normally, having executed timer pulses consistently at 18 hours and 17 minutes since initialization of the timer (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. Seismic signals have been noted in conjunction with the Apollo 16 seismometer.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 100 gamma range on May 20 for lunar day-time operations. It is requested by the principal investigator that commanding flip calibration sequences be terminated whenever the experiment's internal electronics temperature increases above 62°C. Because of the temperature restriction no instrument flip cals were executed from May 25 through May 29. Currently the instrument has executed 488 flip calibration sequences since activation. The experiment's Y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages were not commanded OFF when the internal electronics temperature increased above 85°C. The experiments have operated continuously in the automatic stepping sequence throughout the lunar day-time with no mode changes observed during real time support.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 302.6°K (85.3°F). Since 24 May the instrument's measurement TREF 2 continually displayed erroneous data. TREF 2 returned onscale at 0113 G.m.t., 28 May (sun angle of 82 degrees) outputting valid data. At 0700 G.m.t., 29 May (109 degree sun angle) TREF 2 data again indicated an offscale HIGH condition. Currently TREF 2 is outputting erroneous data.

Apollo 14 ALSEP

Operational status from 26 May 1972, 1200 G.m.t., to 2 June 1972, 1200 G.m.t.

Central station	The 17th lunar noon of the 14 station occurred 29 May; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -139.5 ± 0.5 dbm.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. Events have been noted in conjunction with the 16 station's passive seismometer.
Active seismic experiment	Currently in standby. On 26 May, experiment commanded ON at 1545 G.m.t., and to high bit rate ON at 1600 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1630 G.m.t., and the instrument commanded to standby at 1632 G.m.t., 26 May. One significant seismic event was noted in real time. Next listening mode operation is scheduled for today, 2 June.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently the experiment is in standby. Since May 26 the experiment's analyzer A high voltage (AC-03) has failed to hold a substantial operating level, and has continually dropped below the agreed to nominal operating level of 2200 volts. The instrument operated intermittently from 0835 G.m.t., 26 May (sun angle of 52 degrees) through 0139 G.m.t., 28 May (73 degree sun angle). The experiment was commanded to standby select on 28 May, and remained in standby select until 1801 G.m.t., 1 June (130 degree sun angle). After 2 hours and 26 minutes of operation on 1 June, the experiment was again commanded to standby select (2027 G.m.t.) due to Channeltron under voltage condition. Since 0306 G.m.t., 2 June through 0953 G.m.t., 2 June, the experiment has operated continually under the revised lunar day operations procedure. The experiment was commanded to standby 2 June during a mission control computer ALERT time (1000 G.m.t. - 1200 G.m.t., 2 June).

Apollo 12 ALSEP

Operational status from 26 May 1972, 1200 G.m.t., to 2 June 1972, 1200 G.m.t.

Central station	Noon of the package's 32nd lunar day occurred 29 May; RTG power output is constant; and, transmitter "B" signal strength was reported at -142.5 ± 0.5 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. The seismometer's temperature readout, DL-07, was noted offscale HIGH near 1059 G.m.t., 31 May (sun angle of 109 degrees). Seismic signals have been sensed simultaneously with the Apollo 16 passive seismic experiment.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 6 May. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 24 May, in an effort to preclude instrument mode changes at internal temperatures above 55°C. However, the experiment experienced three mode changes to X10 mode at 1731 G.m.t., 26 May (T2 = 50.9°C), 1642 G.m.t., 29 May (T2 = 56.5°C) and again at 0729 G.m.t., 31 May (T2 = 55.5°C). In each case the instrument was returned to operate select without incident.

Status as of 0900 G.m.t., 2 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	926	483	307	42
Total Commands to Date	13,585	5970	8765	1000
Sun Angle	133°	139°	160°	172°
Input Power	70.0w	71.0w	73.5w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	83.2°F	94.0°F	84.8°F	58.9°F
PSE Sensor Assembly Temp	Offscale HIGH	129.1°F	125.7°F	141.2°F
LSM Internal Temp	Invalid	N/A	57.8°C(136.0°F)	37.2°C(99.0°F)
SWS Module 300 Temp	60.1°C(140.2°C)	N/A	41.7°C(107.1°F)	N/A
SIDE Temp	OFF	Invalid	65.5°C(149.9°F)	N/A
CCGE Temp	OFF	Invalid	316.2°K(109.8°F)	N/A
CPLEE Electronic Temp	N/A	46.4°C(115.5°F)	N/A	N/A
ASE GLA Temp	N/A	72.7°C(162.8°F)	N/A	5.4°C(41.7°F)
HFE Temp Ref Junction	N/A	N/A	300.4°K(63.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 June 1972
G.m.t.: 1200

Apollo 16 ALSEP

The experiments package is approximately 10 hours into its second lunar night and continues to function normally. It is estimated that sunset occurred near 0200 G.m.t., 3 June (sunset time primarily based on the decisive temperature decreases noted from the central station's sunshield transducer, AT-01, and the active seismic grenade launch assembly and mortar package assembly temperatures, AS-03 and AS-02).

The temperature history of the central station's electronics thermal plate continues to track that of the first lunation. The central station's 10 watt heater, DSS-1, was commanded ON at 0217 G.m.t., 3 June, when the average thermal plate temperature decreased to 37.3°F (reference ALSEP mission rule 32-1-N). RTG output power is steady at 70.9 watts following slight fluctuations noted during lunar sunset. The downlink signal strength remains at -139.0 ± 1.0 dbm. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismic experiment is continuing to sense signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. The instrument's feedback loop filter is commanded OUT, and the long period and short period components commanded for peak response (amplifier circuit attenuators to 0 db). Sensor telemetry data presently indicates a decreasing temperature of 0.01°F per hour from 126.08°F following sunset (instrument's thermal control mode is auto ON).

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through interplanetary space. The experiment correctly performed its 46th through 51st flip calibration sequences, by command, at various times today (0018, 0025, 0400, 0408, 0800 and 0807 G.m.t.). The principal investigator had requested that a set of flip cals be commanded at specific intervals at each optical terminator (sunset and sunrise), reference ALSEP status report dated 20 May 1972 for further detail. The experiment's internal electronics continue to experience a temperature decrease of approximately 1.2°C per hour. The magnetometer's sensors are presently operating in the 200 gamma range, with the flip cal inhibit logic and the digital filter commanded IN.

The active seismic experiment is currently in standby. The experiment was commanded to operate select at 1344 G.m.t., 2 June, and to high bit rate ON at 1400 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. One geophone calibration pulse was sent to the instrument during the passive listening mode operation. High bit rate operations were terminated at 1430 G.m.t., and the experiment commanded to standby at 1431 G.m.t., 2 June. One significant event was observed simultaneously on all three geophones in real time. The experiment's pitch and roll sensor indicator's continue to read off-scale HIGH. The instrument's grenade launch assembly and mortar package assembly are experiencing a temperature decrease of approximately 4.0°C per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 3 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	927	484	308	43
Total Commands to Date	13,595	5997	8797	1064
Sun Angle	144°	150°	171°	183°
Input Power	70.0w	71.0w	73.5w	70.9w
Heater and Power Dumps	All OFF	All OFF	All OFF	DSS-1 ON(10w)
Experiment Status	SIDE OFF	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	76.3°F	81.8°F	67.1°F	43.4°F
PSE Sensor Assembly Temp	142.6°F	127.3°F	125.4°F	125.9°F
LSM Internal Temp	Invalid	N/A	53.5°C(128.3°F)	12.1°C(53.8°F)
SWS Module 300 Temp	55.9°C(132.6°F)	N/A	25.5°C(77.9°F)	N/A
SIDE Temp	OFF	Invalid	50.0°C(122.0°F)	N/A
CCGE Temp	OFF	Invalid	294.5°K(70.7°F)	N/A
CPLEE Electronic Temp	N/A	36.9°C(98.4°F)	N/A	N/A
ASE GLA Temp	N/A	61.6°C(142.9°F)	N/A	-66.9°C(-88.4°F)
HFE Temp Ref Junction	N/A	N/A	298.8°K(78.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

5 June 1972
G.m.t.: 1200

Apollo 16 ALSEP

This report covers the science station's activity and data for the previous 48 hours. The central station's electronics thermal plate attained thermal equilibrium near 0000 G.m.t., 5 June, at an average thermal plate temperature of 39.2°F. Thermal equilibrium was reached following a 3.5 degree temperature fluctuation with activation of the station's DSS-1 heater some 46 hours earlier. The RTG power is steady at 70.4 watts, and the signal strength at the 30-foot antennas is -139.0 ± 1.0 dbm. The operational procedure of eliminating the output pulses of the resettable solid state timer remains in effect (timer inhibit command transmitted at 0955 G.m.t., 6 May 1972).

The passive seismometer continues to provide uninterrupted science and engineering data. The signals of various amplitudes sensed by the experiment from the optical terminator continue to diminish with time. The sensor assembly's temperature (DL-07) is stabilized at 125.8°F, initially achieving this temperature near 0900 G.m.t., 4 June (sun angle of 196 degrees). The instrument is configured with its thermal control mode to auto ON, and the uncage/arm fire circuitry configured to the OT state to deliver maximum heat into the sensor assembly. It is also planned that as soon as the sensor's temperature indicates loss of thermal stability, the experiment's z axis drive motor will be commanded to auto ON, continuously during lunar night, in an effort to maximize the heat input to the sensor assembly.

The lunar surface magnetometer's internal electronics stabilized at a temperature of -4.3°C. Stabilization occurred at approximately 0300 G.m.t., 5 June (205 degree sun angle). The instrument continues to correctly execute, by command, the sets of flip calibration sequences being performed under the experiment's operational plan.

Flip cal sequence	Time/Date
#52	1400 G.m.t./3 June
#53	1406 G.m.t./3 June
#54	0200 G.m.t./4 June
#55	0206 G.m.t./4 June
#56	2245 G.m.t./5 June
#57	2251 G.m.t./5 June

The active seismic experiment is in standby select as planned. The temperature transducer outputs of the grenade launch assembly (AS-03) and the mortar package assembly (AS-02) each indicate an offscale LOW readout.

Component	Preceding temperature	Offscale LOW
Grenade launch assembly	-66.9°C, 0900 G.m.t., 3 June, 183° sun angle	LOW, 1200 G.m.t., 3 June, 184° sun angle
Mortar package assembly	-73.5°C, 1200 G.m.t., 3 June, 184° sun angle	LOW, 1500 G.m.t., 3 June, 186° sun angle

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 0900 G.m.t., 5 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	929	486	310	45
Total Commands to Date	13,613	6013	8878	1095
Sun Angle	169°	175°	196°	208°
Input Power	70.0w	71.5w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	51.1°F	46.7°F	0.8°F	39.2°F
PSE Sensor Assembly Temp	133.1°F	124.7°F	124.7°F	125.8°F
LSM Internal Temp	Invalid	N/A	8.9°C(48.0°F)	-4.3°C(24.2°F)
SWS Module 300 Temp	37.2°C(99.0°F)	N/A	-15.0°C(5.0°F)	N/A
SIDE Temp	43.2°C(109.8°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	123.5°K(-237.1°F)	N/A
CPLEE Electronic Temp	N/A	-12.2°C(10.0°F)	N/A	N/A
ASE GLA Temp	N/A	29.9°C(85.8°F)	N/A	Offscale LOW
HFE Temp Ref Junction	N/A	N/A	283.7°K(51.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

5 June 1972
G.m.t.: 2100

Apollo 16 ALSEP

The Apollo 16 ALSEP forty-five day phase II operations were terminated at 2100 G.m.t., 5 June, when mission control's 24-hour real time support was suspended and the Manned Space Flight Network shifted to phase III operations in support of the ALSEP 12, 14, 15 and 16 stations. Phase III operations require that all ALSEP scientific and engineering data be recorded continuously at the tracking stations for subsequent analysis. Intermittent periods of real time data monitoring, phase II operations, at mission control are basically scheduled at a minimum of three hours every other day during lunar night, and three hours per day during lunar day-time. Additional periods are scheduled at optical terminator crossings of lunar sunrise and sunset. Also, as of today, the daily ALSEP status report is suspended, and will be published in the future on Friday of each week.

This report covers the 16 station activity and data from the previous nine hours of operations. All experiments and the central station continue to operate properly in the lunar night environment, sunset having occurred on June 3, with the electronics and structural temperatures of the experiments package components equilibrated.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Status as of 2030 G.m.t., 5 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	929	486	310	45
Total Commands to Date	13,617	6030	9010	1103
Sun Angle	174°	180°	201°	214°
Input Power	70.0w	71.5w	72.9w	70.4w
Heater and Power Dumps	All OFF	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby
Avg Thermal Plate Temp	40.3°F	44.5°F	-1.2°F	39.0°F
PSE Sensor Assembly Temp	128.3°F	124.5°F	124.7°F	125.8°F
LSM Internal Temp	Invalid	N/A	6.4°C(43.5°F)	-4.3°C(24.2°F)
SWS Module 300 Temp	27.7°C(81.9°F)	N/A	-16.3°C(2.7°F)	N/A
SIDE Temp	35.3°C(95.5°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	118.7°K(-245.7°F)	N/A
CPLEE Electronic Temp	N/A	-28.2°C(-18.8°F)	N/A	N/A
ASE GLA Temp	N/A	8.8°C(47.8°F)	N/A	Offscale LOW
HFE Temp Ref Junction	N/A	N/A	283.7°K(51.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

9 June 1972
G.m.t.: 2100

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations, following the discontinuation of around the clock operations in mission control. Lunar midnight at the Descartes site will occur 10 June. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occassional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the OT state maximizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar night to maintain maximum heat input to the sensor assembly. The moon's June perigee will occur on 10 June, at approximately 0000 G.m.t.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. The instrument's 58th through 61st flip calibration sequences were executed correctly, by command, at various times on June 6 (1554 G.m.t., and 1601 G.m.t.) and on June 8 (1332 G.m.t., and 1339 G.m.t.).

The active seismic experiment was commanded to standby OFF at 0659 G.m.t., 7 June, per ALSEP mission rule 32-3-I, following grenade firings. The experiment will remain OFF except during passive listening mode operations. The next listening mode operation is planned for today, 9 June.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 17 ALSEP

Operational status from 2 June 1972, 1200 G.m.t., to 9 June 1972, 1200 G.m.t.

Central station	Sunset of the station's 11th lunation occurred 4 June; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -136.0 ± 2.5 dbm. After verification of the 18-hour timer's 242nd output pulse on 3 June, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystems's average thermal plate temperature is presently stabilized at -3.7°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensor were commanded to the 50 gamma range at 2358 G.m.t., 3 June for lunar night-time operations. Currently the instrument has executed 508 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages were not commanded OFF when the internal electronics temperature increased above 85°C. The experiments have operated continuously in the automatic stepping sequence since 1 May 1972 with no mode changes observed during real time support.

Apollo 15 ALSEP

Operational status from 2 June 1972, 1200 G.m.t., to 9 June 1972, 1200 G.m.t.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 90.6°K (-296.3°F). Since 0700 G.m.t., 29 May, TREF 2 measurements have indicated offscale HIGH. A duplicate measurement, which is performed during the probe 1 sequence, is operating normally so that no data are lost. The TREF 2 measurement has been intermittent offscale HIGH since August 1971. Presently TREF 2 is outputting erroneous data. An unexpected functional change of the heat flow experiment occurred at 1453 G.m.t., 6 June, when the Hawaii tracking station noted a command verification word of octal 140 in the downlink. The heat flow experiment's high conductivity mode was corrected by ground command with no further problems.

Apollo 14 ALSEP

Operational status from 2 June 1972, 1200 G.m.t., to 9 June 1972, 1200 G.m.t.

Central station	Sunset of the 17th lunar day at the Apollo 14 landing site occurred 5 June; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -136.7 ± 4.2 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 1516 G.m.t., 5 June, when the average thermal plate temperature indicated 40.8°F. Currently the central station's average thermal plate temperature is stable at 35.6°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby. On 2 June, experiment commanded ON at 1445 G.m.t., and to high bit rate ON at 1500 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1530 G.m.t., and the instrument commanded to standby at 1531 G.m.t., 2 June. No significant events were noted in real time. Next listening mode operation is scheduled for today, 9 June.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the manual mode (electronics heater ON) since 1140 G.m.t., 2 June through 1400 G.m.t., 5 June, collecting science data in the -35 voltage range of analyzer A. Preceding the station's ephemeris sunrise the experiment was commanded to the automatic sequence (heater ON) and has continued uninterrupted operations in the automatic sequence to date. The experiment's analyzer A high voltage remains substantially constant at the 2500 vdc level. Analyzer B high voltage remains below nominal levels. It is planned that the experiment will continue to operate in this configuration throughout the lunar night.

Apollo 12 ALSEP

Operational status from 2 June 1972, 1200 G.m.t., to 9 June 1972, 1200 G.m.t.

Central station

Sunset of the 32nd lunar day occurred 6 June; RTG power output is constant; and, transmitter "B" signal strength was reported at -136.0 ± 5.5 dbm. The central station's DSS-1 heater (10 watts) was commanded ON, when the average thermal plate temperatures decreased to 27.2°F at 0347 G.m.t., 6 June.

Passive seismic experiment

The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded ON at 0348 G.m.t., 6 June, in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicated 126.4°F at z motor ON.

Lunar surface magnetometer experiment

Magnetometer science and engineering data were valid at 1100 G.m.t., 4 June (154 degree sun angle). These data had been static since 6 May 1972. On 4 June, at 1700 G.m.t., the experiment's data again were static. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

Solar wind spectrometer experiment

Uninterrupted operations in the extended range mode since 12 January 1972.

Suprathermal ion detector experiment

The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations at 0718 G.m.t., 5 May (T2 = 28.1°C), and a sun angle of 149 degrees. The experiment experienced a mode change to X10 mode at 1618 G.m.t., 3 June (T2 = 54.6°C). The instrument was returned to operate select without incident.

Status as of 1318 G.m.t., 8 June 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	932	489	313	48
Total Commands to Date	13,688	6045	8984	1127
Sun Angle	207°	213°	234°	247°
Input Power	70.4w	71.4w	72.9w	70.9w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	All ON	ASE OFF
Avg Thermal Plate Temp	19.4°F	35.6°F	-3.7°F	40.3°F
PSE Sensor Assembly Temp	126.3°F	124.4°F	124.5°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.4°F)	-5.4°C(22.3°F)
SWS Module 300 Temp	14.8°C(58.7°F)	N/A	-18.0°C(-0.4°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	112.3°K(-257.3°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-56.6°C(-69.9°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.2°K(50.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 June 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar sunrise at the Descartes site will occur on 17 June. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar night operations.

Central station downlink data indicates continued stable operation in operating power and radiated power, and equilibrated thermal characteristics. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect.

The passive seismometer experiment and lunar surface magnetometer experiment continue to provide uninterrupted science and engineering data. All data, 24 hours per day, are being recorded on magnetic tape at the MSFN tracking stations for subsequent detailed analysis. In general, the experiments package telemetry data continues to indicate stabilized temperature characteristics. The passive seismic instrument's sensor temperature, DL-07, continues stabilized at 125.7°F. The magnetometer's internal electronics temperature remains stable at -54.4°C. Currently the 16 LSM has executed 65 flip calibration sequences since activation.

The active seismic experiment is in standby OFF. A 30 minute listening period is scheduled for today.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 9 June, 1200 G.m.t., to 16 June, 1300 G.m.t.

Central station	Sunrise of the station's 12th lunation will occur 18 June; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -137.0 ± 2.1 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 0100 G.m.t., and 1300 G.m.t. continues in effect. The data subsystem's average thermal plate temperature is presently stabilized at -5.5°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage circuitry was configured to the OT state 4 June in an effort to maximize the heat input to the sensor assembly. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors are in the 50 gamma range for the duration of lunar night. Currently the instrument has executed 512 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages will remain ON for the duration of lunar night operations per the planned operational procedure.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 84.2°K (-307.8°F). The TREF 2 measurement has been intermittent offscale HIGH since August 1971. Presently TREF 2 is outputting erroneous data. A duplicate measurement TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 9 June 1200 G.m.t., to 16 June, 1300 G.m.t.

Central station	The 18th lunar sunrise of the 14 station will occur 20 June; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -139.5 ± 1.8 dbm. The central station's DSS-1 heater (10 watts) is ON.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No events have been noted during limited realtime support.
Active seismic experiment	Currently in standby. On 9 June the scheduled listening mode operation was not conducted because of the revised operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Next listening mode operation is scheduled for 23 June.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the automatic sequence (electronics heater ON) since 1140 G.m.t., 2 June, collecting science data in the six voltage ranges of analyzer A. The experiment's analyzer A high voltage (AC-03) remained substantially constant at the 2600 vdc level. Analyzer B high voltage remains below nominal levels. The current plan is to operate the instrument in the automatic sequence, with the electronics heater ON, through the station's ephemris sunrise. A revised lunar day operations procedure (20 June - 4 July) is presently being formulated.

Apollo 12 ALSEP

Operational status from 9 June 1972, 1200 G.m.t., to 16 June 1972, 1300 G.m.t.

Central station	Sunrise of the package's 33nd lunar day will occur 21 June; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.8 ± 2.0 dbm. The central station's DSS-1 heater remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded ON 6 June in an effort to maximize the heat input to the sensor assembly during lunar night operations.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations 4 June.

Status as of 1500 G.m.t., 14 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	938	495	319	54
Total Commands to Date	13,718	6057	9163	1170
Sun Angle	282°	288°	309°	321°
Input Power	70.4w	71.4w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON (10w)
Experiment Status	All ON	ASE Stby	All ON	ASE Stby OFF
Avg Thermal Plate Temp	17.9°F	34.7°F	-5.5°F	40.1°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.2°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-5.4°C(22.3°F)
SWS Module 300 Temp	15.6°C(3.9°F)	N/A	-18.4°C(-1.1°F)	N/A
SIDE Temp	4.3°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.4°F)	N/A
CPLEE Electronic Temp	N/A	-22.0°C(-7.6°F)	N/A	N/A
ASE GLA Temp	N/A	-66.0°C(-86.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 June 1972
G.m.t.: 1200

Apollo 16 ALSEP

The station is in its 63rd day of operation with the moon passing through the earth's transition region. Data of this region are being gathered by the lunar surface magnetometer experiment. The central station's data subsystem components continue to seek thermal equilibrium. The central station's average thermal plate temperature continues to track precisely when compared with identical sun angles of the station's second lunar day operations. The data subsystem's thermal plate currently continues to experience an average temperature increase of 0.2°F per hour. The thermoelectric power source output remains steady. The reported signal strength of transmitter "A" at the various 30-foot antennas is -139.2 ± 1.2 dbm. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect.

The passive seismic experiment continues to sense lunar seismic signals associated with impact events and moonquakes, in conjunction with the other ALSEP seismometers that form the seismic network. Listed are seismic events noted during the station's limited real time support.

Time/Date	Sensing Component	Probable Event
0831 G.m.t./8 June	LPX & LPY	Moonquake
1502 G.m.t./9 June	LPX & LPY	Moonquake
1524 G.m.t./9 June	LPX & LPY	Moonquake
1611 G.m.t./15 June	LPX, LPY, & LPZ	Impact

Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature increasing at a rate of 0.2°F per hour (auto ON thermal control mode). The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The experiment's digital filter was commanded OUT on 18 June at 1429 G.m.t., in accordance with the principal investigators operational plan. It is currently planned that the magnetometer's digital filter will be commanded OUT every other lunation. The instrument's internal electronics temperature continues to increase at a rate of 0.1°C per hour, tracking the instrument's

second lunar day temperature. The instrument continues to correctly execute, by command, the sets of flip calibration sequences being performed under the experiment's operational plan. During the past week flip cal sequences #68 through #79 were executed.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 1408 G.m.t., 16 June, and to high bit rate ON at 1415 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. No geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1445 G.m.t., and the experiment commanded to standby at 1446 G.m.t., 16 June. No significant signals were noted in real time. At the start of the listening mode the experiment's roll angle sensor (DS-06) indicated offscale HIGH, and the pitch angle sensor (DS-07) was reading +12.55 degrees. At 1428 G.m.t., DS-06 started reading +26.17 degrees and DS-07 indicated +10.96 degrees. Throughout the remainder of the high bit mode operation both angle sensors slowly decreased. Final data reading of the roll angle sensor was +17.94 degrees, with the pitch angle sensor equaling +7.41 degrees. Both temperature sensors, grenade launch assembly and mortar package assembly, indicated offscale LOW.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 16 June 1972, 1300 G.m.t., to 23 June 1972, 1200 G.m.t.

Central station	Sunrise of the station's 12th lunation occurred on June 18; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -137.2 ± 1.2 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, was terminated at 2100 G.m.t., 18 June.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage/arm fire circuit was configured to the UNCAGED state 19 June in an effort to minimize the heat input to the sensor assembly. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 100 gamma range at 1406 G.m.t., 18 June, for lunar day-time operations. Currently the instrument has executed 528 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gague experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages will remain ON for the duration of lunar day operations, based on the fact that no experiment mode changes were observed during the preceding lunar day-time operations of the instruments internal electronics above 85°C.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 343.7°K (159.3°F). The TREF 2 measurement has been offscale HIGH since 29 May 1972. Presently TREF 2 is outputting erroneous data. A duplicate measurement TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 16 June 1972, 1300 G.m.t., to 23 June 1972, 1200 G.m.t.

Central station	The 18th lunar sunrise of the 14 station occurred 20 June; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.2 ± 1.5 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF at 0855 G.m.t., 21 June, at an average thermal plate temperature of 75.3°F. The 32nd unexpected functional change occurred on this ALSEP, when the passive seismometer responded to a spurious functional change between 1700 G.m.t., 16 June and 1400 G.m.t., 18 June (no mission control real time support during this period). The supporting ground stations were unable to locate a command verification word for the command, octal 075 (seismometer's leveling speed to HIGH). The status of the experiment was reset by command with no problems. This spurious command was attributed to RF noise effects.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. On 15 June this instrument sensed an impact event on the two horizontal components, in conjunction with the Apollo 16 seismometer, starting at 1611 G.m.t.
Active seismic experiment	Currently in standby. On 16 June the scheduled listening mode operation was not conducted because of the revised operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Next listening mode operation is scheduled for today, 23 June.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the manual mode (electronics heater OFF) since 0859 G.m.t., 21 June, collecting science data in the -35 voltage range of Analyzer A. Following the station's ephemeris sunrise the experiment's electronics heater was commanded OFF and the instrument continued uninterrupted operations in the automatic sequence until June 21. It is planned that the experiment will continue to operate under the revised lunar day operations procedure.

Apollo 12 ALSEP

Operational status from 16 June 1972, 1300 G.m.t., to 23 June 1972, 1200 G.m.t.

Central station

Sunrise of the package's 33rd lunar day occurred 21 June; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.3 ± 1.3 dbm. The central station's DSS-1 heater was commanded OFF at 0749 G.mt., 21 June, when the station's average thermal plate temperature increased to 45.1°F.

Passive seismic experiment

The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded OFF at 0750 G.m.t., 21 June, as the sensor assembly temperature increased to 126.3°F. No seismic signals have been noted during the limited real time support periods.

Lunar surface magnetometer experiment

Scientific and engineering data have been static since 4 June. The instrument's digital filter remains commanded IN. The experiment's y and z axes sensor heads remain fixed at a 180 degree position, not responding to flip cal commands. The x sensor is returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

Solar wind spectrometer experiment

Uninterrupted operations in the extended range mode since 12 January 1972. On 19 June (2143 G.m.t.) it was noted that the data output of the sum cup levels 1 through 14 during the instrument's ac calibrate measurements (sequence 15) were LOW. Throughout the June 20 support period the experiment's ac calibration measurements appeared intermittently LOW. The instrument's ac calibrate measurements were valid at 0739 G.m.t., 21 June, and have continued valid since. This anomaly continues under investigation.

Suprathermal ion detector experiment

The instrument is currently operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment's high voltage will be commanded OFF to preclude mode changes when the internal electronics temperature is above 55°C.

Status as of 1200 G.m.t., 22 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	946	503	327	62
Total Commands to Date	13,806	6115	9248	1289
Sun Angle	18°	24°	45°	57°
Input Power	70.0w	70.5w	72.9w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	All ON	ASE Stby OFF
Avg Thermal Plate Temp	64.8°F	76.8°F	94.7°F	97.4°F
PSE Sensor Assembly Temp	126.0°F	124.9°F	127.4°F	32.0°F
LSM Internal Temp	Invalid	N/A	40.0°C (104.0°F)	34.5°C(94.1°F)
SWS Module 300 Temp	33.0°C(91.4°F)	N/A	49.5°C (121.1°F)	N/A
SIDE Temp	39.2°C(102.6°F)	Invalid	72.2°C (162.0°F)	N/A
CCGE Temp	OFF	Invalid	355.6°K(180.7°F)	N/A
CPLEE Electronic Temp	N/A	28.1°C (82.6°F)	N/A	N/A
ASE GLA Temp	N/A	12.4°C (54.3°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	310.6°K (99.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 June 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 ALSEP lunar operations remain essentially unchanged from the preceding week, with the exception of a continual temperature decrease as a function of sun elevation angle at the ALSEP site. Lunar sunset at the Descartes site will occur on 2 July.

The station's average thermal plate temperature is tracking as expected when compared with identical sun angles of the station's second lunar day operations. Presently the central station's telemetry downlink data indicates that the data subsystem electronics thermal plate is experiencing an average temperature decrease of 0.4°F per hour. The RTG output and transmitter downlink signal remain unchanged. On 29 June, at 0725 G.m.t., the Canary Islands ground station observed a command verification word in the downlink, indicating a possible spurious command execution of octal 032 (central station timer output accept). Execution of this initial spurious change could not be verifield due to the absence of an 18-hour timer output pulse during the six hours that the timer outputs were enabled. The timer output status was returned to output inhibit at 1307 G.m.t., 29 June, by command without problem. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismometer's real time data indicates that the instrument continues to sense signals of various characteristics (variable amplitudes, duration times, etc.) typical of thermal gradients preceding the impending optical terminator. On June 25 this instrument sensed a seismic event on the y axis horizontal component, in conjunction with the Apollo 14 seismometer, starting at 1308 G.m.t. Numberous smaller events have also been sensed by the Apollo 16 station seismometer from June 23 through 27. The sensor's temperature transducer output indicated offscale HIGH at the start of phase II operations on 24 June, at 1200 G.m.t. Prior to indicating offscale HIGH the sensor's assembly temperature tracked its second lunar day thermal profile identically (DL-07 went offscale HIGH between a normalized sun angle of 71-82 degrees). It is projected that the seismometer's temperature will return onscale July 1 (sun angle of 170 degrees).

The lunar surface magnetometer experiment is presently indicating the moon's passage through the earth's magnetosheath. The instrument is operating normally with the digital filter commanded OUT and the flip cal inhibit logic IN. The temperature history of the magnetometer's internal electronics is precisely tracking that of the second lunar day. The instrument continues to correctly execute, by command, the sets of flip calibration sequences being performed under the experiment's operational plan. During the past week flip cal sequences #80 through #89 were executed.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 1306 G.m.t., 23 June, and to high bit rate ON at 1400 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1430 G.m.t., and the experiment commanded to standby OFF at 1434 G.m.t., 23 June. No significant signals were noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation. The instrument's grenade launch assembly (AS-03) indicated a temperature of 60.3°C during the passive listening mode operation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 23 June 1972, 1200 G.m.t., to 30 June 1972, 1200 G.m.t.

Central station	Noon of the station's 12th lunation occurred 26 June; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -136.1 ± 0.6 dbm. The data subsystems's timer continues to function normally, having executed timer pulses consistently at 18 hours and 17 minutes since initialization of the timer (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 100 gamma range on June 18 for lunar day-time operations. It is requested by the principal investigator that commanding flip calibration sequences be terminated whenever the experiment's internal electronics temperature increases above 62°C. Because of the temperature restriction no instrument flip cals were executed from June 23 through June 28. Currently the instrument has executed 530 flip calibration sequences since activation. The experiment's Y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands.
Solar wind spectrometer experiment	Continual operation in the extended range mode since 12 January 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages were not commanded OFF when the internal electronics temperature increased above 85°C. The experiments have operated continuously in the automatic stepping sequence throughout the lunar day-time with no mode changes observed during real time support.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 346.1°K (163.4°F). Since 29 May 1972 the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 23 June 1972, 1200 G.m.t., to 30 June 1972, 1200 G.m.t.

Central station

The 18th lunar noon of the 14 station occurred 27 June; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.5 ± 1.0 dbm. On 28 June the 33rd unexpected functional change occurred on this ALSEP. The active seismic experiment responded to a spurious functional change at 0913 G.m.t. The supporting ground station was unable to locate a command verification word for the command, octal 042 (operational power ON). The experiment was reset to standby select, by command, without problem.

Passive seismic experiment

This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. On 25 June this instrument sensed a seismic event on the y axis horizontal component, in conjunction with the Apollo 16 seismometer, starting at 1308 G.m.t.

Active seismic experiment

Currently in standby. On 23 June, experiment commanded ON at 1245 G.m.t., and to high bit rate ON at 1310 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1340 G.m.t., and the instrument commanded to standby at 1342 G.m.t., 23 June. No seismic events were noted in real time. The next listening mode operation is scheduled for today, 30 June.

Suprathermal ion detector/cold cathode gauge experiment

Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.

Charged particle lunar environmental experiment

Presently the experiment is in standby. Since June 21, the experiment has operated under the revised guidelines (ON during real time support periods only) without experiencing a under voltage condition, collecting science data in the -35 voltage range, -350 voltage range, and +350 voltage range of analyzer A. The instrument will be commanded ON for continuous operations 1 July. It is planned that the experiment will continue to be operated per the redefined guidelines during ensuing lunations.

Apollo 12 ALSEP

Operational status from 23 June 1972, 1200 G.m.t., to 30 June 1972, 1200 G.m.t.

Central station	Noon of the package's 33rd lunar day occurred 28 June; RTG power output is constant; and, transmitter "B" signal strength was reported at -140.5 ± 0.5 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June. The instrument's digital filter remains commanded IN. It is requested by the principal investigator that all flip calibration requirements of the magnetometer be terminated, effective 26 June 1972, until further notice. The flip cal sequences will be instituted again if the experiment's science data indicates the need.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972. The instrument's ac calibrate measurements continue to appear valid, and analysis of the problem is in progress.
Suprathermal ion detector experiment	Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 23 June, in an effort to preclude instrument mode changes at internal temperatures above 55°C.

Status as of 1300 G.m.t., 29 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	953	510	334	69
Total Commands to Date	13901	6524	9354	1400
Sun Angle	104°	110°	131°	143°
Input Power	69.5w	71.0w	72.9w	70.6w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	Side Standby	ASE Standby	All ON	ASE Stby OFF
Avg Thermal Plate Temp	88.3°F	108.4°F	107.3°F	88.3°F
PSE Sensor Assembly Temp	141.5°F	127.0°F	131.3°F	OFF Scale HIGH
LSM Internal Temp	Invalid	N/A	56.4°C (133.5°F)	38.3°C (100.9°F)
SWS Module 300 Temp	64.3°C (147.7°F)	N/A	57.5°C (135.5°F)	N/A
SIDE Temp	Standby	Invalid	81.7°C (179.1°F)	N/A
CCGE Temp	OFF	Invalid	347.4°K (165.9°F)	N/A
CPLEE Electronic Temp	N/A	49.3°C (120.7°F)	N/A	N/A
ASE GLA Temp	N/A	85.3°C (185.5°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	319.8°K (116.2°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

7 July 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations. Sunset at the Descartes site occurred 2 July. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occassional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the OT state maximizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar night to maintain maximum heat input to the sensor assembly.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. During the past week, flip cal sequences #90 through #97 were executed.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 1510 G.m.t., 30 June, and to high bit rate ON at 1525 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1555 G.m.t., and the experiment commanded to standby OFF at 1557 G.m.t. No significant signals were noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation. The instrument's grenade launch assembly (AS-03) indicated a temperature of 60.3°C during the passive listening mode operation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 30 June 1972, 1200 G.m.t., to 7 July 1972, 1200 G.m.t.

Central station	Sunset of the station's 12th lunation occurred 3 July; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -137.0 ± 2.1 dbm. After verification of the 18-hour timer's 264th output pulse on 5 July, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at -3.7°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensor were commanded to the 50 gamma range at 0818 G.m.t., 4 July for lunar night-time operations. Currently the instrument has executed 540 flip calibration sequence since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Presently in standby. At 1815 G.m.t., 30 June, the instruments telemetry data became invalid coincident with a central station reserve power decrease of approximately 7 watts, indicating the instrument was drawing 13 watts (current limited) of power from the central station. During support periods, 1 July and 3 July, the instrument was cycled from operate select to standby, verifying the solar wind experiment was drawing excess power. At 1607 G.m.t., 3 July, the instrument was commanded to standby until further analysis can be performed. Plans are presently being formulated for an instrument data verification, 25 July.

Operational status from 30 June 1972, 1200 G.m.t., to 7 July 1972, 1200 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages were not commanded OFF when the internal electronics temperature increased above 85°C. The experiments have operated continuously in the automatic stepping sequence since 1 May 1972 with no mode changes observed during real time support.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 94.6°K (-289.1°F). Since 29 May, 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 30 June 1972, 1200 G m.t., to 7 July 1972, 1300 G.m.t.

Central station

Sunset of the 18th lunar day at the Apollo 14 landing site occurred 4 July; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.6 ± 3.7 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 1723 G.m.t., 5 July, when the average thermal plate temperature indicated 16.2°F. Currently the central station's average thermal plate temperature is stable at 35.6°F.

Passive seismic experiment

This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No seismic events have been noted during the limited real time support of this experiment.

Active seismic experiment

Currently in standby. On 30 June, experiment commanded ON at 1416 G.m.t., and to high bit rate ON at 1430 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1500 G.m.t., and the instrument commanded to standby at 1501 G.m.t. No significant events were noted in real time.

Suprathermal ion detector/cold cathode gauge experiment

Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.

Charged particle lunar environmental experiment

Uninterrupted operations in the manual mode (electronics heater ON) 1 July through 4 July, collecting science data in the -35 and +350 voltage ranges of analyzer A. Preceding the station's ephemeris sunrise (4 July) the experiment was commanded to the automatic sequence (heater ON) and has continued uninterrupted operations in the automatic sequence to date. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels. It is planned that the experiment will continue to operate in this configuration throughout the lunar night.

Apollo 12 ALSEP

Operational status from 30 June 1972, 1200 G.m.t., to 7 July 1972, 1300 G.m.t.

Central station	Sunset of the 33rd lunar day occurred 5 July; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.0 ± 2.5 dbm. The central station's DSS-1 heater (10 watts) was commanded ON, when the average thermal plate temperatures decreased to 28.2°F at 1648 G.m.t., 5 July.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded ON at 1529 G.m.t. 5 July, in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicated 126.4°F at z motor ON.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June. The instrument's digital filter remains commanded IN. It is requested by the principal investigator that all flip calibration requirements of the magnetometer be terminated, effective 26 June 1972, until further notice. The flip cal sequences will be instituted again if the experiment's science data indicates the need.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations at 1259 G.m.t., 3 July (T2 = 28.1°C), and a sun angle of 153 degrees.

Status as of 2000 G.m.t., 6 June 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	960	517	341	76
Total Commands to Date	13941	6593	9422	1475
Sun Angle	203	209	230	242
Input Power	70.4w	71.4w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	23.9°F	35.6°F	1.4°F	40.7°F
PSE Sensor Assembly Temp	126.9°F	124.4°F	124.6°F	125.8°F
LSM Internal Temp	Invalid	N/A	5.6°C(42.0°F)	-4.3°C(24.3°F)
SWS Module 300 Temp	0.57°C(33.0°F)	N/A	Standby	N/A
SIDE Temp	4.2°C(39.6°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	114.3°K(-253.7°F)	N/A
CPLEE Electronic Temp	N/A	25.4 °C(-13.7°F)	N/A	N/A
ASE GLA Temp	N/A	-27.1°C(-16.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.4°K(50.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

14 July 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar sunrise at the Descartes site will occur on 17 July. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar night operations.

Central station downlink data indicates continued stable operation in operating power and radiated power, and equilibrated thermal characteristics. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect.

The passive seismometer experiment and lunar surface magnetometer experiment continue to provide uninterrupted science and engineering data. All data, 24 hours per day, are being recorded on magnetic tape at the MSFN tracking stations for subsequent detailed analysis. In general, the experiments package telemetry data continues to indicate stabilized temperature characteristics. The passive seismic instrument's sensor temperature, DL-07, continues stabilized at 125.7°F. The magnetometer's internal electronics temperature remains stable at -5.4°C. Currently the 16 LSM has executed 103 flip calibration sequences since activation.

The active seismic experiment is currently in standby OFF. The experiment was commanded to operate select at 0858 G.m.t., 7 July and to high bit rate ON at 0915 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 0945 G.m.t., and the experiment commanded to standby OFF at 0947 G.m.t. No significant signals were noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation. A 30 minute passive listening mode operation is planned for today.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TD5, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 7 July, 1200 G.m.t., to 14 July, 1300 G.m.t.

Central station	Sunrise of the station's 13th lunation will occur 18 July; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -138.0 ± 2.3 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 0100 G.m.t., and 1300 G.m.t. continues in effect. The data subsystem's average thermal plate temperature is presently stabilized at -0.8°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage circuitry is configured to the OT state in an effort to maximize the heat input to the sensor assembly. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors are in the 50 gamma range for the duration of lunar night. Currently the instrument has executed 550 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	The instrument remains in standby. Analysis of instrument's high power demand anomaly continues.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages will remain ON for the duration of lunar night operations per the planned operational procedure.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 86.4°K (-303.8°F). The TREF 2 measurement has been intermittent offscale HIGH since August 1971. Presently TREF 2 is outputting erroneous data. A duplicate measurement TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 7 July, 1200 G.m.t., to 14 July, 1300 G.m.t.

Central station	The 19th lunar sunrise of the 14 station will occur 19 July; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -138.6 ± 1.8 dbm. The central station's DSS-1 heater (10 watts) is ON.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No events have been noted during limited real time support.
Active seismic experiment	Currently in standby. On 7 July the scheduled listening mode operation was not conducted because of the revised operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Next listening mode operation is scheduled for 21 July.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the automatic sequence (electronics heater ON) collecting science data in the six voltage ranges of analyzer A. The experiment's analyzer A high voltage (AC-03) has remained substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels. The current plan is to operate the instrument in the automatic sequence, with the electronics heater ON, through the station's ephemris sunrise.

Apollo 12 ALSEP

Operational status from 7 July 1972, 1200 G.m.t., to 14 July 1972, 1300 G.m.t.

Central station	Sunrise of the package's 34th lunar day will occur 20 July; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.1 ± 2.0 dbm. The central station's DSS-1 heater remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor is commanded ON in an effort to maximize the heat input to the sensor assembly during lunar night operations.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the extended range mode since 12 January 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON.

Status as of 1500 G.m.t., 12 July, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	966	523	347	82
Total Commands to Date	13992	6641	9467	1499
Sun Angle	263°	269°	290°	302°
Input Power	70.4w	71.4w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	All OFF	DSS-1 ON (10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE Stby OFF
Avg Thermal Plate Temp	17.6°F	34.7°F	-0.8°F	40.1°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	124.3°F	125.7°F
LSM Internal Temp	Invalid	N/A	3.8°C (38.8°F)	-5.4°C (22.3°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	Stby	N/A
SIDE Temp	4.2°C (39.6°F)	Invalid	6.6°C (43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.4°F)	N/A
CPLEE Electronic Temp	N/A	-22.0°C (-7.6°F)	N/A	N/A
ASE GLA Temp	N/A	-65.5°C (-85.9°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.1°K (50.3°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

21 July 1972
G.m.t.: 1200

Apollo 16 ALSEP

The station is in its 91st day of operation with the moon approaching the earth's bowshock. The central station's 10 watt heater, DSS-1, was commanded OFF at 1254 G.m.t., 17 July, when the average thermal plate temperature increased to 46.7°F. The central station's data subsystem components continue to seek thermal equilibrium. The central station's average thermal plate temperature continues to track precisely when compared with identical sun angles of the station's preceding lunar day operations. The data subsystem's thermal plate currently continues to experience an average temperature increase of 0.4°F per hour. The thermoelectric power source output remains steady. The reported signal strength of transmitter "A" at the various 30-foot antennas is -138.9 ± 0.9 dbm. The procedure of inhibiting the 18-hour timer output pulses generated in the delayed command sequencer remains in effect.

The passive seismic experiment's operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature increasing at a rate of 0.1°F per hour (auto ON thermal control mode). The seismometer's temperature (DL-07) is tracking previously observed temperatures with identical sun angle. The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day.

The lunar surface magnetometer is operating normally, and continues to measure magnetic fields as the moon passes through interplanetary space. The experiment correctly performed its 106th through 112th flip calibration sequences, by command, at various times during the past week. The experiment's internal electronics continue to experience a temperature increase of approximately 0.1°C per hour. The experiment's internal electronics temperature is precisely tracking previously recorded temperatures at the identical sun angles. The magnetometer's sensors are presently operating in the 200 gamma range, with the flip cal inhibit logic and the digital filter commanded IN (1316 G.m.t., 17 July).

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 1338 G.m.t., 14 July, and to high bit rate ON at 1400 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. No geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1430 G.m.t., and the experiment commanded to standby OFF at 1432 G.m.t., 14 July. No significant signals were noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TN , telephone 483-5067.

Apollo 15 ALSEP

Operational status from 14 July 1972, 1300 G.m.t., to 21 July 1972, 1200 G.m.t.

Central station

Sunrise of the station's 13th lunation occurred on July 18; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -135.6 ± 1.6 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, was terminated at 1439 G.m.t., 18 July.

Passive seismic experiment

Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. The instrument's uncage/arm fire circuit was configured to the UNCAGED state 19 July in an effort to minimize the heat input to the sensor assembly. No seismic signals have been noted during the limited real time support periods.

Lunar surface magnetometer experiment

The experiment's sensors were commanded to the 100 gamma range at 1448 G.m.t. 18 July, for lunar day-time operations. Currently the instrument has executed 558 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

Solar Wind spectrometer experiment

At 1943 G.m.t., 20 July, the experiment was commanded to operate select (two hours) in order to provide data required in analysis of the instrument's high power demand anomaly. On 21 July, at 0723 G.m.t., the experiment was again commanded to operate select for 95 minutes. During each operate select period the experiment continued to demand excessive power (9.0 - 10.6 watts), while the instrument's telemetry data continuously indicated all zero's. Following each operate select period the instrument was commanded back to standby select. It is currently planned to cycle the experiment to operate select only during real time support periods, while investigation of the instrument's anomaly continues.

Apollo 15 ALSEP

Operational status from 14 July 1972, 1300 G.m.t., to 21 July 1972, 1200 G.m.t.

Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 332.0°K (138.2°F). The TREF 2 measurement has been intermittent offscale HIGH since August 1971. Presently TREF 2 is outputting erroneous data. A duplicate measurement TREF 1, is operating normally so that no data are lost.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages will remain ON for the duration of lunar day operations, based on the fact that no experiment mode changes or command register loads were noted during real time operations of the instruments internal electronics above 85°C, since 24 January 1972.

Apollo 14 ALSEP

Operational status from 14 July 1972, 1300 G.m.t., to 21 July 1972, 1200 G.m.t.

Central station	The 19th lunar sunrise of the 14 station occurred 19 July; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.2 ± 2.2 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF at 1922 G.m.t., 20 July, at an average thermal plate temperature of 73.3°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby. On 14 July the scheduled listening mode operation was not conducted because of the revised operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Next listening mode operation is scheduled for today, 21 July.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations from 2 June 1972 under a revised operations procedure to avoid degradation of the instrument's analyzer's high voltage to hold a substantial operating level. The instrument operated in the automatic sequence (July 4 through July 20) collecting science data in the six voltage ranges of analyzer A. The experiment was commanded to the manual mode (electronics heater OFF) at 0859 G.m.t., 20 July, collecting science data in the -35 voltage range of analyzer A. It is planned that the experiment will continue to operate under the revised lunar day operations procedure that was implemented during the station's 18th lunation.

Apollo 12 ALSEP

Operational status from 14 July 1972, 1300 G.m.t., to 21 July 1972, 1200 G.m.t.

Central station	Sunrise of the package's 34th lunar day occurred 20 July; RTG power output is constant; and, transmitter "B" signal strength was reported at -140.0 ± 1.0 dbm. The central station's DSS-1 heater was commanded OFF at 1902 G.m.t., 20 July, when the station's average thermal plate temperature increased to 44.3 °F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded OFF at 1912 G.m.t., 20 July, as the sensor assembly temperature increased to 126.3 °F. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	At 1327 G.m.t., 14 July, the experiment was commanded to the normal range mode. The principal investigator prefers to have the instrument in the normal range mode, as the anomalous operation of the Apollo 15 ALSEP experiment's high power demand is not sufficiently analysed.
Suprathermal ion detector experiment	The instrument is currently operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment's high voltage will be commanded OFF to preclude mode changes when the internal electronics temperature is above 55 °C.

Status as of 0708 G.m.t., 21 July, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	975	532	356	91
Total Commands to Date	14,083	6674	9755	1643
Sun Angle	10°	16°	37°	49°
Input Power	69.5w	70.5w	72.9w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	49.8°F	66.2°F	88.4°F	93.0°F
PSE Sensor Assembly Temp	125.7°F	124.7°F	126.0°F	128.5°F
LSM Internal Temp	Invalid	N/A	48.2°C(118.8°F)	33.7°C(92.7°F)
SWS Module 300 Temp	28.4°C(83.1°F)	N/A	Standby	N/A
SIDE Temp	24.0°C(75.2°F)	Invalid	66.7°C(152.1°F)	N/A
CCGE Temp	OFF	Invalid	347.4°K(165.9°F)	N/A
CPLEE Electronic Temp	N/A	9.9°C(49.8°F)	N/A	N/A
ASE GLA Temp	N/A	-4.0°C(24.4°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	304.5°K(88.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

28 July 1972
G.m.t.: 1300

All lunar science stations emplaced on the moon's surface by the Apollo astronauts experienced a partial eclipse of the moon on 26 July. This event was the sixth such eclipse, partial or total, experienced by the Apollo 12 station. As in previous eclipses, no unusual scientific data resulting from the effects of this eclipse was noted in real time analyses from the ALSEP stations. A table of eclipse event times and a table of ALSEP temperature deviations during the eclipse are included in this report.

Apollo 16 ALSEP

The Apollo 16 ALSEP lunar operations remain essentially unchanged from the preceding week, with the exception of a continual temperature decrease as a function of sun elevation angle at the ALSEP site. Lunar sunset at the Descartes site will occur on 1 August.

The station's average thermal plate temperature is tracking as expected when compared with identical sun angles of the station's second lunar day operations. Presently the central station's telemetry downlink data indicates that the data subsystem electronics thermal plate is experiencing an average temperature decrease of 0.1°F per hour. The RTG output and transmitter downlink signal remain unchanged. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismometer's real time data indicates that the instrument continues to sense signals of various characteristics (variable amplitudes, duration times, etc.) typical of thermal gradients preceding the impending optical terminator. The sensor's temperature transducer output indicated offscale HIGH at the start of phase II operations on 23 July. Prior to indicating offscale HIGH the sensor's assembly temperature tracked its second lunar day thermal profile identically (DL-07 went offscale HIGH between a normalized sun angle of 72 degrees). It is projected that the seismometer's temperature will return onscale 31 July (sun angle of 170 degrees).

The lunar surface magnetometer experiment is presently indicating the moon's passage through the earth's magnetosheath. The instrument is operating normally in the 200 gamma range with the digital filter and the flip cal inhibit logic IN. The temperature history of the magnetometer's internal electronics is precisely tracking that of the second lunar day. The instrument contines to correctly execute, by command, the sets of flip calibration sequences being performed under the experiment's operational plan. The instrument was inadvertently turned OFF from 2203 G.m.t. till 2258 G.m.t. on 21 July.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 2114 G.m.t., 21 July and to high bit rate ON at 2130 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 2200 G.m.t., and the experiment commanded to standby OFF at 2300 G.m.t., 21 July. One significant signal was noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TN, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 21 July 1972, 1200 G.m.t., to 28 July 1972, 1300 G.m.t.

Central station	Noon of the station's 13th lunation occurred 25 July; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -140.5 ± 1.5 dbm. The data subsystem's timer continues to function normally, having generated output pulses consistently since initialization (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day-time operations. It is requested by the principal investigator that commanding flip calibration sequences be terminated whenever the experiment's internal electronics temperature increases above 62°C. Because of the temperature restriction no instrument flip cals have been executed since July 23. Currently the instrument has executed 560 flip calibration sequences since activation. The experiment's Y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The next flip calibration sequence is planned for today.
Solar wind spectrometer experiment	Presently in standby. The instrument has been commanded to operate select only during real time support periods continuing to demand excessive power, while the instrument's telemetry data continuously indicated all zeros. The instrument was returned to standby after each data check.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. At the start of real time support on 22 July the instrument's command register was observed to contain SIDE command Load 15 (reset command register). The command register was not cleared by mission control, as command Load 15 causes no detrimental effect on the instrument's science output or electronic component operations. At the start of real time support on 23 July, the experiment's command register was clear (all zeros). Again, at the start of phase II operations on 24 July the instrument's command register exhibited a SIDE Load 15. Currently the experiment's command register contains command Load 15.

Apollo 15 ALSEP

Operational status from 21 July 1972, 1200 G.m.t., to 28 July 1972, 1300 G.m.t.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.4°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 360.1°K (205.6°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost. At the start of phase II support on 25 July, TREF 2 exhibited valid data for approximately five hours.

Apollo 14 ALSEP

Operational status from 21 July 1972, 1200 G.m.t., to 28 July 1972, 1300 G.m.t.

Central station	The 18th lunar noon of the 14 station occurred 27 July; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as 139.7 ± 1.7 dbm. On 22 July the passive seismometer responded to a spurious feedback filter IN command at 1732 G.m.t. The supporting ground station noted a command verification word for the command (octal 101). The instrument's filter was reset, by command, without problem.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No seismic events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby. On 21 July experiment commanded ON at 2203 G.m.t., and to high bit rate ON at 2225 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 2255 G.m.t., and the instrument commanded to standby at 2257 G.m.t. No seismic events were noted in real time. Next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently the experiment is in standby. The instrument was commanded to operate select in the automatic mode with heater OFF during the partial eclipse of 26 July. Medium energy electrons from the plasma sheet were detected during both penumbral phases. The boundary effects of photo electrons were not as pronounced as had been expected, but were present in the data recorded. During the remainder of this reporting period, operation of the experiment has been per the revised lunar day operations plan.

Apollo 12 ALSEP

Operational status from 21 July 1972, 1200 G.m.t., to 28 July 1972, 1300 G.m.t.

Central station	Noon of the package's 34th lunar day occurred 27 July; RTG power output is constant; and, transmitter "B" signal strength was reported at -140.5 ± 1.5 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June, 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 14 July 1972. The principal investigator prefers to have the instrument in the normal range mode, as the anomalous operation of the Apollo 15 ALSEP experiment's high power demand is not sufficiently analysed.
Suprathermal ion detector experiment	Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 22 July. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures above 55°C.

ALSEP TEMPERATURES
PARTIAL LUNAR ECLIPSE, 26 JULY 1972

TM Point	Penumbra Entry				Umbra Exit			
	Apollo 12 ALSEP	Apollo 14 ALSEP	Apollo 15 ALSEP	Apollo 16 ALSEP	Apollo 12 ALSEP	Apollo 14 ALSEP	Apollo 15 ALSEP	Apollo 16 ALSEP
C/S Sunshield (^{o}F)	173.9	188.1	145.6	142.8	-89.2	-99.1	106.2	-84.2
AVG Thermal Plate (^{o}F)	89.3	111.1	113.4	103.8	67.4	85.1	93.7	83.7
PSE DL-07 Temp (^{o}F)	130.6	121.1	139.4	HIGH	130.1	119.9	136.1	HIGH
LSM Internal Temp (^{o}C)	Unknown	N/A	67.7	42.4	Unknown	N/A	57.8	34.6
SWS Mod 300 Temp (^{o}C)	62.6	N/A	Standby	N/A	51.1	N/A	Standby	N/A
SIDE Temp 2 (^{o}C)	44.0	Unknown	85.5	N/A	44.9	Unknown	75.6	N/A
CCGE Temp (^{o}K)	HIGH	Unknown	364.0	N/A	HIGH	Unknown	323.8	N/A
ASE GLA Temp (^{o}K)	N/A	78.8	N/A	OFF	N/A	72.7	N/A	OFF
HFE TC22 Temp (^{o}K)	N/A	N/A	366.0	OFF	N/A	N/A	362.4	OFF

Note: Experiment temperatures listed are taken at various times, limited by real time readout constraints, and may not reflect the lowest actual values.

JULY 26, 1972 (ALL TIMES IN G.m.t.)

LUNAR EVENTS

Moon enters penumbra	0438
Moon enters umbra	0555
Middle of eclipse	0716
Moon exits umbra	0836
Moon exits penumbra	0954
Duration of eclipse:	5h 16m
Magnitude of eclipse:	0.548

ALSEP EVENTS (TIMES ARE APPROXIMATE)

	ALSEP 1	ALSEP 4	ALSEP A2	ALSEP A3
ALSEP enters penumbra	0501	0504	0526	0521
ALSEP enters umbra	0634	0637	-	0653
ALSEP at maximum phase	0704	0707	-	0725
ALSEP exits umbra	0733	0736	-	0756
ALSEP exits penumbra	0905	0908	0905	0927
Duration of eclipse at ALSEP sites:	4h 4m	4h 4m	3h 39m	4h 6m
Duration of total phase at ALSEP sites:	59m	59m	-	63m

Status as of 1330 G.m.t., 27 July, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	981	538	362	97
Total Commands to Date	14137	6783	9822	1731
Sun Angle	87°	93°	114°	126°
Input Power	69.5w	70.9w	72.9w	70.2w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	89.3°F	111.7°F	112.4°F	99°F
PSE Sensor Assembly Temp	133.2°F	121.4°F	135.4°F	Off scale High
LSM Internal Temp	Invalid	N/A	62.6°C (144.7°F)	38.3°C (100.9°F)
SWS Module 300 Temp	62.6°C (144.7°F)	N/A	Standby	N/A
SIDE Temp	OFF	Invalid	86.9°C (187.4°F)	N/A
CCGE Temp	OFF	Invalid	355.6°K (178.9°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	82.0°C (179.6°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	325.6°K (124.9°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 August 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations. Sunset at the Descartes site occurred 1 August. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occassional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the OT state maximizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar night to maintain maximum heat input to the sensor assembly.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. During the past week, flip cal sequences #121 through #128 were executed.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 1633 G.m.t., 28 July, and to high bit rate ON at 1645 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1715 G.m.t., and the experiment commanded to standby OFF at 1717 G.m.t. One significant signal was noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements and Operations Branch, TN, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 28 July 1972, 1300 G.m.t., to 4 August 1972, 1300 G.m.t.

Central station	Sunset of the station's 13th lunation occurred 1 August; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at 135.7 ± 1.7 dbm. After verification of the 18-hour timer's 283rd output pulse on 2 August, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at -3.7°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensor was commanded to the 50 gamma range at 1510 G.m.t., 2 August for lunar night-time operations. Currently the instrument has executed 569 flip calibration sequence since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Presently in standby. The instrument has been commanded to operate select only during real time support periods continuing to demand excessive power, while the instrument's telemetry data continuously indicated all zeros. The instrument was returned to standby after each data check.

Operational status from 28 July 1972, 1300 G.m.t., to 4 August 1972, 1300 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The instruments high voltages were not commanded OFF when the internal electronics temperature increased above 85°C. The experiments have operated continuously in the automatic sequence since 1 May 1972. For a 12 hour period 3 August, the instrument was commanded to the reset frame counter at 79 mode to record a solar flare event.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 94.6°K (-289.1°F). Since 29 May, 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost. An unexpected functional change of the heat flow instrument occurred between the termination of real time operations on 1 August and the start of phase II operations the next day, 2 August bring the total functional changes having occurred in the central station and/or experiments with no commands transmitted to 27. The heat flow experiment's high conductivity mode was corrected to gradient mode by command, 2 August without problem.

Apollo 14 ALSEP

Operational status from 28 July 1972, 1300 G.m.t., to 4 August 1972, 1300 G.m.t.

Central station	Sunset of the 19th lunar day at the Apollo 14 landing site occurred 3 August; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -140.7 ± 2.2 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 1527 G.m.t., 2 August, when the average thermal plate temperature indicated 65.7°F. Currently the central station's average thermal plate temperature is stable at 35.6°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby. On 28 August, experiment commanded ON at 1545 G.m.t., and to high bit rate ON at 1600 G.m.t., for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1630 G.m.t., and the instrument commanded to standby at 1632 G.m.t. No significant events were noted in real time.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments. For a 12 hour period 3 August, the instrument was commanded to the reset frame counter at 79 mode to record a solar flare event.
Charged particle lunar environmental experiment	Uninterrupted operations during real time support, in the manual mode (electronics heater ON) 28 July through 30 July, collecting science data in the -35 and +350 voltage ranges of analyzer A. Preceding the station's ephemeris sunset (3 August) the experiment was commanded to the automatic sequence (heater ON) and has continued uninterrupted operations in the automatic sequence to date. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels. It is planned that the experiment will continue to operate in this configuration throughout the lunar night.

Apollo 12 ALSEP

Operational status from 28 July 1972, 1300 G.m.t., to 4 August 1972, 1300 G.m.t.

Central station	Sunset of the 34th lunar day occurred 4 August; RTG power output is constant; and, transmitter "B" signal strength was reported at -140.0 ± 2.0 dbm. The central station's DSS-1 heater (10 watts) was commanded ON, when the average thermal plate temperatures decreased to 45.8°F at 1355 G.m.t., 3 August.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded ON at 0400 G.m.t. 4 August, in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicated 126.4°F at z motor ON.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June, 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 14 July 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations at 1346 G.m.t., 1 August (T2 = 24.0°C), and a sun angle of 148 degrees. For a 12 hour period 3 August, the instrument was commanded to the reset frame counter at 79 mode to record a solar flare event.

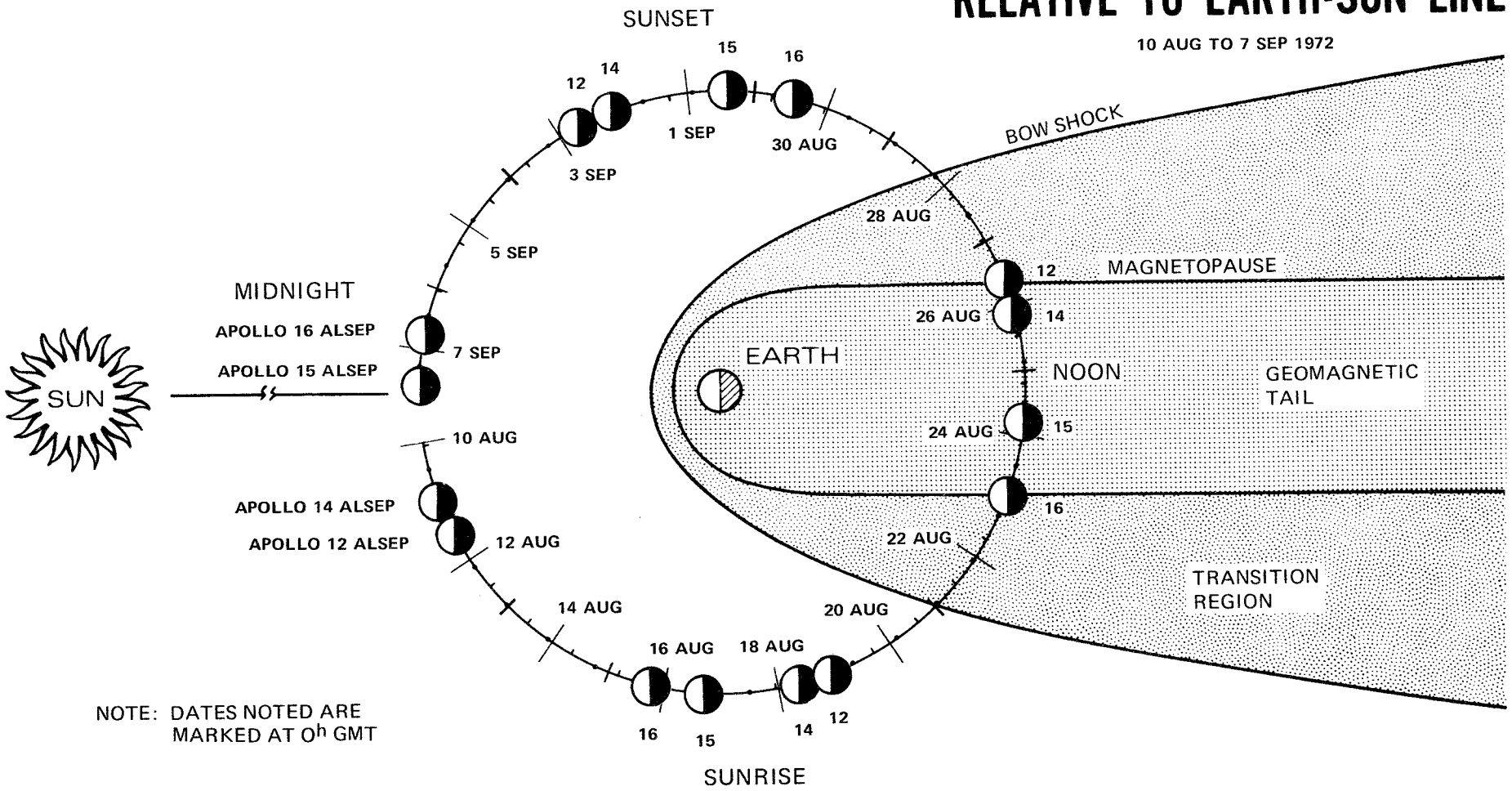
Status as of 1400 G.m.t., 3 August 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	988	545	369	104
Total Commands to Date	14188	6778	9927	1859
Sun Angle	172°	178°	199°	211
Input Power	70.0w	71.4w	72.6w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	45.8°F	60.7°F	2.6°F	40.8°F
PSE Sensor Assembly Temp	129.0°F	124.6°F	125.7°F	125.8°F
LSM Internal Temp	Invalid	N/A	6.4°C(43.5°F)	-4.3°C(24.3°F)
SWS Module 300 Temp	27.7°C(81.8°F)	N/A	Standby	N/A
SIDE Temp	37.6°C(99.7°F)	Invalid	7.2°C(44.9°F)	N/A
CCGE Temp	OFF	Invalid	118.7°K(-245.7°F)	N/A
CPLEE Electronic Temp	N/A	-21.3°C(-6.3°F)	N/A	N/A
ASE GLA Temp	N/A	25.5°C(77.9°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.5°K(50.6°F)	OFF

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

10 AUG TO 7 SEP 1972



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR, GMT				
	MIDNIGHT	SUNRISE	NOON	SUNSET	MIDNIGHT
16		15 AUG/1724	(5TH) 23 AUG/0226	30 AUG/1142	6 SEP/2026
15		16 AUG/1639	(14TH) 24 AUG/0145	31 AUG/1059	7 SEP/1940
14	11 AUG/0132	18 AUG/1010	(20TH) 25 AUG/1922	2 SEP/0430	
12	11 AUG/1308	18 AUG/2205	(35TH) 26 AUG/0702	2 SEP/1519	

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 August 1972
G.m.t.: 1200

Three major solar flares have been experienced by all the operating ALSEP's this past week, with particularly significant data observed in the supra-thermal ion detectors, solar wind spectrometer, charged particle and mag-netometer experiments science cutputs.

Apollo 16 ALSEP

The Apollo 16 ALSEP continues functioning as planned during the limited phase II operations. Midnight at the Descartes site occurred 8 August. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is between -137.5 dbm and -140.7 dbm. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occassional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncage state. The instru-ment will be configured in this manner through the remainder of lunar night.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. During the past week, flip cal sequences #127 through #130 were executed.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was not commanded to the high bit rate ON during 4 August so as not to lose data from the experiments recording the solar flare activity.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Require-ments and Operations Branch, TN, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 4 August 1972, 1300 G.m.t., to 11 August 1972, 1200 G.m.t.

Central station

Midnight of the station's 13th lunation occurred 9 August; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -139.0 ± 2.0 dbm. After verification of the 18-hour timer's 284th output pulse on 3 August, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at -0.3°F. An unexpected functional change (high bit rate select) occurred between the termination of real time operations on 5 August and the start of phase II operations the next day, 6 August, bringing the total functional changes having occurred in the central station and/or experiments with no commands transmitted to 28. The central station was corrected to normal bit rate by command, 6 August without problem.

Passive seismic experiment

Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.

Lunar surface magnetometer experiment

The experiment's sensors were commanded to the 200 gamma range at 0947 G.m.t. 5 August for solar flare activity. The experiment was commanded back to the 50 gamma range at 1313 G.m.t., 9 August 1972. Currently the instrument has executed 573 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

Solar wind spectrometer experiment

Presently in standby. The instrument has not been commanded to operate select during real time support since the occurrence of sunset on 1 August 1972.

Operational status from 4 August 1972, 1300 G.m.t., to 11 August 1972, 1200 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The experiments have operated continuously in the automatic sequence since 1 May 1972. At 1459 G.m.t., 3 August, the instrument was commanded to the reset frame counter at 79 mode to record a solar flare event and remained in that mode until 1356 G.m.t., 7 August 1972.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 87.5°K (-301.9°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 4 August 1972, 1300 G.m.t., to 11 August 1972, 1200 G.m.t.

Central station	Midnight of the 19th lunar day at the Apollo 14 landing site occurred 3 August, power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -135.5 ± 1.5 dbm. The central station's DSS-1 heater (10 watts) remains ON during lunar night operations. Currently the central station's average thermal plate temperature is stable at 34.4°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby without a 30 minute passive listening mode operation planned for today as the AS-03 temperature is below -60°C. The experiment was not commanded to high bit rate on during 4 August so as not to lose data from the experiments recording the solar flare activity.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments. At 1504 G.m.t., 3 August, the instrument was commanded to the reset frame counter at 79 mode to record a solar flare event and remained in that mode until 1347 G.m.t., 7 August 1972.
Charged particle lunar environmental experiment	Uninterrupted operations in the auto mode (electronics heater ON) 4 August to 11 August collecting science data in all voltage ranges of analyzer A. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels. It is planned that the experiment will continue to operate in this configuration throughout the lunar night.

Apollo 12 ALSEP

Operational status from 4 August 1972, 1300 G.m.t., to 11 August 1972, 1200 G.m.t.

Central station	Midnight of the 34th lunar day occurred 11 August; RTG power output is constant; and, transmitter "B" signal strength was reported at -137.6 ± 1.6 dbm. The central station's DSS-1 heater (10 watts) remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor remains ON in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicates 126.1°F z motor ON.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	The instrument was commanded to the extended range for the solar flare activity at 0602 G.m.t., 4 August 1972 and remained in this range until 1328 G.m.t., 7 August 1972. The instrument is presently operating in the normal range mode.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment remains ON for continuous lunar night operations. On 3 August, the instrument was commanded to the reset frame counter at 79 mode to record the solar flare activity. The instrument was commanded to normal range at 1322 G.m.t., 7 August 1972.

Status as of 1400 G.m.t., 9 August 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	994	551	375	110
Total Commands to Date	14274	6802	10044	1892
Sun Angle	245	251	272	285
Input Power	69.9w	71.4w	73.0w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	17.6°F	34.4°F	-0.3°F	39.9°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	124.4°F	125.7°F
LSM Internal Temp	Invalid	N/A	3.7°C(38.8°F)	-5.4°C(22.3°F)
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A	Standby	N/A
SIDE Temp	17.6°C(0.3°F)	Invalid	6.5°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	110.3°K(-260.9°F)	N/A
CPLEE Electronic Temp	N/A	-22.0°C(-7.6°F)	N/A	N/A
ASE GLA Temp	N/A	-64.5°C(-84.1°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.0°K(50.0°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

18 August 1972
G.m.t.: 1300

Lunar sunrise at the Descartes site occurred on 15 August. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar operations. The station is in its 119th day of operation with the moon, approaching the earth's transition region. The central station's average thermal plate temperature continues to track precisely when compared with identical sun angles of the station's previous lunar day operations.

The passive seismic experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature increasing at a rate of 0.03°F per hour (auto ON thermal control mode). The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. As planned, the digital filter was commanded OUT for this lunation, on 16 August at 1317 G.m.t. The instrument's internal electronics temperature continues to increase at a rate of 0.7°C per hour, tracking the instrument's second lunar day temperature profile.

The active seismic experiment is in standby OFF. A 30 minute listening period is scheduled for today. The experiment was commanded to operate select at 1403 G.m.t., 11 August, and to high bit rate ON at 1415 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1445 G.m.t., and the experiment commanded to standby at 1448 G.m.t., 11 August. No significant signals were noted in real time.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 11 August 1972, 1200 G.m.t., to 18 August 1972, 1300 G.m.t.

Central station	Sunrise of the station's 14th lunation occurred on 16 August; power from the RTG continues steady and transmitter "A" downlink signal strength is solid at -136.5 ± 2.5 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, was terminated at 1304 G.m.t., 16 August.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 100 gamma range at 1856 G.m.t., 17 August, for lunar day-time operations. Currently the instrument has executed 579 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x axis and z axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	At 1833 G.m.t., 17 August, the experiment was commanded to operate select (80 minutes) in order to provide data required in analysis of the instrument's high power demand anomaly. During the operate select period the experiment continued to demand excessive power (9.0 - 10.6 watts), while the instrument's telemetry data continuously indicated out of sync data. While in operate select the solar wind instrument was a steady source of interference to the passive seismometer's operation. Following the operate select period the instrument was commanded back to standby select. It is currently planned to cycle the experiment to operate select only during real time support periods, while investigation of the instrument's anomaly continues.

Apollo 15 ALSEP

Operational status from 11 August 1972, 1200 G.m.t., to 18 August 1972, 1300 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. At the start of support on 17 August the instrument's command register was observed to contain SIDE command Load 15 (reset command register). The command register was not cleared by mission control, as command Load 15 causes no detrimental effect on the instrument's science output or electronic component operations. Currently the experiment's command register contains command Load 15.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.4°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 279.0°K (42.8°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 11 August, 1200 G.m.t., to 18 August, 1300 G.m.t.

Central station	The 20th lunar sunrise of the 14 station will occur today 18 August; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.7 ± 1.7 dbm. The central station's DSS-1 heater (10 watts) is ON.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. During phase II support, 14 August, the instrument's long period z axis displayed valid data. At the start of phase II support, 16 August, the long period z data was again invalid. This anomaly was first detected on 23 March, 1972. No events have been noted during limited real time support. On 14 August at 0502 G.m.t. the instrument experienced a spurious command (octal 067) placing the experiment's short period z axis gain to the -10 db range. The experiment was commanded back to the 0 db gain at 1308 G.m.t., 14 August, 1972 with no adverse effects.
Active seismic experiment	Currently in standby. On 11 August 1972 the scheduled listening mode operation was not conducted because operations procedure limiting experiment turn ON when the grenade launch assembly temperature (AS-03) is -60°C or below. Next listening mode operation is scheduled for 19 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the automatic sequence (electronics heater ON) collecting science data in the six voltage ranges of analyzer A. The experiment's analyzer A high voltage (AC-03) remained substantially constant at the 2600 vdc level. Analyzer B high voltage remains below nominal levels. The current plan is to operate the instrument in the automatic sequence, with the electronics heater ON, through the station's ephemris sunrise.

Apollo 12 ALSEP

Operational status from 11 August 1972, 1200 G.m.t., to 18 August 1972, 1300 G.m.t.

Central station	Sunrise of the instrument's 35th lunar day will occur today 18 August; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.5 ± 1.5 dbm. The central station's DSS-1 heater remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db and the feedback loop filter commanded OUT, identical to the other seismic instruments. The instrument's z axis drive motor was commanded ON 4 August in an effort to maximize the heat input to the sensor assembly during lunar night operations. No events have been noted during limited realtime support.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Operation is in the normal range mode.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations 7 August.

Status as of 1800 G.m.t., 17 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1002	559	383	118
Total Commands to Date	14298	6627	10172	1965
Sun Angle	346°	352°	13°	25°
Input Power	69.9w	71.4w	72.3w	70.1w
Heater and Power Dumps	DSS-1 ON	DSS-1 ON	All OFF	All OFF
Experiment Status	All ON	ASE Stby	SWS Stby	ASE Stby
Avg Thermal Plate Temp	16.7°F	33.5°F	37.8°F	70.7°F
PSE Sensor Assembly Temp	125.9°F	124.2°F	125.4°F	126.6°F
LSM Internal Temp	Invalid	N/A	22.8°C(73.0°F)	35.5°C(95.9°F)
SWS Module 300 Temp	-16.1°C(3.0°F)	N/A	N/A	N/A
SIDE Temp	4.25°C(37.7°F)	Invalid	20.08°C(68.1°F)	N/A
CCGE Temp	OFF	Invalid	308.8°K(96.4°F)	N/A
CPLEE Electronic Temp	N/A	-27.5°C(-17.5°F)	N/A	N/A
ASE GLA Temp	N/A	-66.4°C(-87.5°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	295.5°K(72.5°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 August 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar noon occurred on 23 August at the Descartes site. The station is in its 126th day of operation with the moon in the earth's geomagnetic tail. The central station's average thermal plate temperature compares exactly with the temperatures for identical sun angles of the station's preceding lunar day operations. The thermoelectric power output remains steady. Inhibiting the 18-hour timer output pulses continues. The signal strength, as reported by the 30-foot antenna tracking stations, of transmitter "A" is between -138.0 dbm and -141.5 dbm.

The passive seismometer is configured for lunar day operation with the feedback loop filter commanded OUT, the sensor gains of all components to 0 db, auto ON thermal control mode and the uncage/arm fire circuit to the UNCAGE state. The sensor's temperature transducer output (DL-07) indicated offscale HIGH during phase II operations on 21 August at a normalized sun angle of 72°. It is projected that the temperature will return onscale on 29 August (sun angle of 170°).

The lunar surface magnetometer continues normal operation and is presently indicating the moon's passage through the earth's geomagnetic tail. The instrument is operating in the 200 gamma range and with the digital filter commanded OUT and the flip cal inhibit logic commanded IN. The experiment's internal electronics continue tracking previously recorded temperatures at the identical sun angles. The experiment correctly performed its 139th through 144th flip calibration sequences during the past week.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 19 August the experiment was commanded to operate select at 0727 G.m.t., and to high bit rate ON at 0745 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real time. High bit rate operations were terminated at 0815 G.m.t. and the experiment commanded to standby at 0819 G.m.t., 19 August.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 18 August 1972, 1200 G.m.t., to 25 August 1972, 1300 G.m.t.

Central station	Noon of the station's 14th lunation occurred 24 August; power from the RTG continues steady and transmitter "A" downlink signal strength is between -134.5 dbm and -138.0 dbm. The data subsystem's timer continues to function normally, having generated output pulses consistently since initialization (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day-time operations. The experiment's internal electronics temperature exceeded 62°C on 23 August 1972. Flip calibration sequences have been suspended by request of the principal investigator whenever the internal electronics temperature increases above 62°C. Currently the instrument has executed 589 flip calibration sequences since activation. The experiment's Y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The next flip calibration sequence is projected for 26 August 1972.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972. The instrument will remain in standby pending further analysis per SMEAR #45.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.0°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 328.4°K (131.7°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 18 August 1972, 1200 G.m.t., to 25 August 1972, 1300 G.m.t.

Central station	The 20th lunar noon of the 14 station will occur 25 August; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -137.5 ± 2.0 dbm.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data since 14 August 1972 or responded to a command since 14 August 1972. No seismic events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby. On 19 August experiment commanded ON at 0638 G.m.t., and to high bit rate ON at 0645 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 0725 G.m.t., and the instrument commanded to standby at 0726 G.m.t. No seismic events were noted in real time. Next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently the experiment is in standby. At 1445 G.m.t., 22 August 1972 the experiment was placed in the manual mode (-35V) during real time support and returned to standby during Phase IV support at 0500 G.m.t., 23 August 1972. The experiment was turned ON at 1627 G.m.t., 23 August 1972 and placed in manual mode (-350 V). During real time support on 24 August 1972, the experiment was turned to STANDBY at 1450 G.m.t.

Apollo 12 ALSEP

Operational status from 18 August 1972, 1200 G.m.t., to 25 August 1972, 1300 G.m.t.

Central station	Noon of the package's 35th lunar day will occur 26 August; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.5 ± 2.0 dbm. The central station's DSS-1 heater was commanded OFF at 0619 G.m.t., 19 August, when the station's average thermal plate temperature increased to 43.4°F.
Passive seimsic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods. The instrument's z axis motor was commanded OFF, at 0616 G.m.t., 19 August, as the sensor assembly temperature increased to 126.3°F.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June, 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 21 August. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures above 55°C.

Status as of 1400 G.m.t., 24 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1009	566	390	125
Total Commands to Date	14370	6738	10315	2091
Sun Angle	69°	75°	96°	108°
Input Power	69.5w	70.5w	72.9w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	89.0°F	112.1°F	113.3°F	105.1°F
PSE Sensor Assembly Temp	130.7°F	123.5°F	140.1°F	Off scale High
LSM Internal Temp	Invalid	N/A	69.5°C(157.1°F)	42.4°C(108.3°F)
SWS Module 300 Temp	63.5°C(146.3°F)	N/A	Standby	N/A
SIDE Temp	OFF	Invalid	86.9°C(188.4°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	78.8°C (173.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	328.4°K(131.7°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 September, 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations. Sunset at the Descartes site occurred 30 August. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output remains constant. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occassional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the OT state maximizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar night to maintain maximum heat input to the sensor assembly.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. Engineering data indicates that the y axis sensor's heater thermostat is maintaining the experiment's internal thermal equilibrium. During the past week, flip cal sequences #144 through #152 were executed.

The active seismic experiment is currently in standby OFF, with a 30 minute passive listening mode operation planned for today. The experiment was commanded to operate select at 1420 G.m.t., 25 August, and to high bit rate ON at 1435 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1505 G.m.t., and the experiment commanded to standby OFF at 1507 G.m.t. No significant signals were noted in real time. The experiment's roll angle sensor (DS-06) and pitch angle sensor (DS-07) indicated offscale HIGH throughout the high bit mode operation.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 25 August 1972, 1300 G.m.t., to 1 September 1972, 1300 G.m.t.

Central station	Sunset of the station's 14th lunation occurred 31 August; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -137.6 ± 1.8 dbm. The data subsystem's timer continues to function normally, having generated output pulses consistently since initialization (31 July 1971).
Passive seimsic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry is commanded to OT state to deliver maximum heat into the sensor assembly. On 28 August at 1348 G.m.t. the instrument experienced a spurious command (octal 063) placing the experiment's long period xy axes gain to the -10 db range. The experiment was commanded back to the 0 db gain at 1653 G.m.t., 28 August, 1972 with no adverse effects. On 29 August at 0721 G.m.t. the instrument again experienced a spurious command (octal 072) turning the experiment's z axis leveling motor ON. The motor was commanded OFF at 1308 G.m.t., 29 August, 1972 with no adverse effects.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day-time operations. Currently the instrument has executed 597 flip calibration sequence since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972. The instrument will remain in standby pending further analysis per SMEAR #45.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.0°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 121.8°K (-240.1°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

Apoll .+ ALSEP

Operational status from 25 August 1972, 1300 G.m.t., to 1 September 1972, 1300 G.m.t.

Central station	The 20th lunar sunset of the 14 station will occur 2 September; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as 141.5 ± 1.5 dbm.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data since 14 August 1972 or responded to a command since 14 August 1972. No seismic events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby. On 25 August experiment commanded ON at 1328 G.m.t., and to high bit rate ON at 1345 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1418 G.m.t., and the instrument commanded to standby at 1419 G.m.t. No seismic events were noted in real time. Next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	On 29 August, the experiment was commanded to the automatic sequence (heater ON) and has continued uninterrupted operations in the automatic sequence to date. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels. It is planned that the experiment will continue to operate in this configuration throughout the lunar night. From 26 August through 28 August, the instrument was commanded on for limited periods of manual operation, collecting science data in the -35 and +350 voltage ranges of analyzer A.

Apollo 12 ALSEP

Operational status from 25 August 1972, 1300 G.m.t., to 1 September 1972, 1300 G.m.t.

Central station	Sunset of the package's 35th lunar day will occur 2 September; RTG power output is constant; and, transmitter "A" signal strength was reported at -140.5 ± 1.5 dbm. At 0619 G.m.t., 26 August, the Texas ground station noted a momentary drop in the downlink and then a three db improvement in signal strength indicating a transmitter switch. At the resumption of real time support at 1400 G.m.t., 26 August it was verified that the central station transmitters had switched from "B" to "A". Transmitter "A" has a history of data dropouts due to frequency shifts as the transmitter cools down near sunset. It is planned to operate with transmitter "A" until the dropout problem reappears.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June, 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 14 July 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltage ON. The experiment was commanded ON for continuous lunar night operations at 1500 G.m.t., 31 August, and a sun angle of 155 degrees.

Status as of 1600 G.m.t., 31 August 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1016	573	397	132
Total Commands to Date	14416	6837	10558	2240
Sun Angle	155	161	181	193
Input Power	69.5w	70.5w	73.5w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	67.9°F	73.2°F	25.9°F	41.9°F
PSE Sensor Assembly Temp	140.3°F	125.1°F	124.8°F	125.8°F
LSM Internal Temp	Invalid	N/A	28.0°C(82.4°F)	0.0°C(32.0°F)
SWS Module 300 Temp	36.1°C(97.0°F)	N/A	Standby	N/A
SIDE Temp	16.9°C(62.4°F)	Invalid	14.4°C(57.9°F)	N/A
CCGE Temp	OFF	Invalid	170.8°K(-151.9°F)	N/A
CPLEE Electronic Temp	N/A	23.9°C(75.0°F)	N/A	N/A
ASE GLA Temp	N/A	50.9°C(123.6°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	121.8°K(-240.2°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 September 1972
G.m.t.: 1200

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past week. Lunar midnight at the Descartes site occurred 6 September 1972. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar night. No significant seismic events were noted during the limited real time support of this instrument.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 156th flip calibration sequence was executed correctly by command, on 6 September 1972.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 1 September 1972 the experiment was commanded to operate select at 1508 G.m.t., and to high bit rate ON at 1615 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real time. High bit rate operations were terminated at 1645 G.m.t. and the experiment commanded to standby at 1647 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 1 September 1972, 1300 G.m.t., to 8 September 1972, 1200 G.m.t.

Central station	Midnight of the station's 14th lunation occurred 7 September 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -139 ± 2.0 dbm. After verification of the 18-hour timer's 305th output pulse on 1 September 1972, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate termperature is presently stabilized at 0.8°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 50 gamma range at 1420 G.m.t., 1 September 1972. Currently the instrument has executed 605 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Presently in standby. The instrument has not been commanded to operate select since 17 August 1972.
Supratheral ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 88.3°K (-305.0°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 1 September 1972, 1300 G.m.t., to 8 September 1972, 1200 G.m.t.

Central station	Midnight of the 20th lunar day at the Apollo 14 landing site will occur 9 September 1972. Power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -139.7 ± 2.2 dbm. The central station's DSS-1 heater (10 watts) remains ON during lunar night operations. Currently the central station's average thermal plate temperature is stable at 34.4°F. On 6 September 1972 the passive seismometer responded to a spurious forced level mode command (octal 130) at 0410 G.m.t. A command verification word was noted by the supporting ground station. The instrument was reset to the auto mode, by command, without problem.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 14 August 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby. On 1 September 1972 experiment commanded ON at 1507 G.m.t., and to high bit rate ON at 1540 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1610 G.m.t., and the instrument commanded to standby at 1612 G.m.t. No seismic events were noted in real time. Next listening mode is scheduled for 22 September 1972 following sunrise of this package.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the auto mode (electronics heater ON) collecting science data in all voltage ranges of analyzer A. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels. It is planned that the experiment will continue to operate in this configuration throughout the lunar night.

Apollo 12 ALSEP

Operational status from 1 September 1972, 1300 G.m.t., to 8 September 1972, 1200 G.m.t.

Central station	Midnight of the 35th lunar day will occur 10 September 1972; RTG power output is constant; and, transmitter "B" signal strength was reported at -136.5 ± 2.5 dbm. The central station's DSS-1 heater (10 watts) remains ON. On 31 August 1972 the ALSEP transmitter "A" started to experience occasional dropouts of the downlink. No site or network operational problems were discovered that could be attributed to causing intermittent losses of downlink. Due to a significant amount of downlink dropouts, and interpreted as a repeat of previous transmitter "A" operations, ALSEP transmitter "B" was selected. The command to change transmitters was sent at 1459 G.m.t., 1 September 1972. Transmitter "A" had operated without interruption since 26 August 1972 when an automatic switch-over from transmitter "B" to transmitter "A" was experienced. Transmitter "B" has not experienced signal dropouts since its implementation.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor remains ON in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicates 126.2°F with the z motor ON.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON.

Status as of 1600 G.m.t., 6 September 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1023	600	404	139
Total Commands to Date	14601	6880	10594	2308
Sun Angle	227	234	254	267
Input Power	69.9w	71.0w	72.5	70.4w
Heater and Power Dumps	ON	ON	All OFF	ON
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	17.6°F	34.4°F	0.8°F	40.1°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	124.5°F	125.7°F
LSM Internal Temp	Invalid	N/A	3.8°C(38.8°F)	5.4°C(41.7°F)
SWS Module 300 Temp	-15.2°C(4.5°F)	N/A	Standby	N/A
SIDE Temp	4.25°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	110.3°K (-260.9°F)	N/A
CPLEE Electronic Temp	N/A	-22.0°C(-7.6°F)	N/A	N/A
ASE GLA Temp	N/A	-63.0°C(-81.4°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	88.3°K(-300.5°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

15 September 1972
G.m.t.: 1300

Lunar sunrise at the Descartes site occurred on 14 September. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar operations. The station is in its 148th day of operation with the moon approaching the earth's transition region. The central station's average thermal plate temperature continues to track previous lunar day operations at comparable sun angles. The DSS-1 heater (10 watts) was commanded OFF at sunrise. The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is between -138.0 dbm and -139.9 dbm. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismic experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature increasing at a rate of 0.01°F per hour (auto ON thermal control mode). The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's internal electronics temperature continues to increase at a rate of 0.7°C per hour, tracking the instrument's second lunar day temperature profile. During the past week, flip cal sequences #159 through #164 were executed.

The active seismic experiment is in standby OFF. A 30 minute listening period is scheduled for today. The experiment was commanded to operate select at 1409 G.m.t., 8 September and to high bit rate ON at 1430 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1500 G.m.t., and the experiment commanded to OFF at 1503 G.m.t., 8 September. No significant signals were noted in real time.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 8 September 1972, 1200 G.m.t., to 15 September 1972, 1300 G.m.t.

Central station	Sunrise of the station's 15th lunation will occur today, power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -135.5 ± 1.5 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t., will be suspended today. The data subsystem's average thermal plate temperature is presently stabilized at -0.8°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No natural seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 100 gamma range at 1443 G.m.t., 13 September, due to increased science activity. Currently the instrument has executed 613 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972. The instrument will remain in standby pending further analysis per SMEAR #45.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. The experiments have operated continuously in the automatic sequence since 1 May 1972.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 83.7°K (-308.7°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 8 September 1972, 1200 G.m.t., to 15 September 1972, 1300 G.m.t.

Central station	Sunrise of the 21st lunar day at the Apollo 14 landing site will occur 16 September, power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -136.7 ± 2.7 dbm. The central station's DSS-1 heater (10 watts) remains ON during lunar night operations. Currently the central station's average thermal plate temperature is stable at 33.3°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 23 March 1972. No seismic events have been noted during the limited real time support of this experiment. A the start of real-time support, 1315 G.m.t.; 8 September, it was noted that the seismometer had responded to a spurious level speed HIGH command (octal 075). No command verification word had been reported by the remote stations between 1700 G.m.t., 6 September and the start of real-time support. The instrument was reset to the LOW speed mode, by command, without problem.
Active seismic experiment	Currently in standby without a 30 minute passive listening mode operation planned for today as the AS-03 temperature is below -60°C. The experiment was not commanded to high bit rate on 8 September due to this same temperature restraint.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Uninterrupted operations in the auto mode (electronics heater ON), collecting science data in all voltage ranges of analyzer A. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains below nominal levels.

Apollo 12 ALSEP

Operational status from 8 September 1972, 1200 G.m.t., to 15 September 1972, 1300 G.m.t.

Central station	Sunrise of the 36th lunar day will occur 17 September; RTG power output is constant; and, transmitter "B" signal strength was reported at -137.9 ± 1.9 dbm. The central station's DSS-1 heater (10 watts) remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor remains ON in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicates 126.0°F (Z motor ON).
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON. At 1314 G.m.t., 9 September, the digital electronics of the instrument ceased to process data (all 0's in the downlink). Two analog parameters, AI-01, (low energy counts) and AI-02, (high energy counts), continue to be processed and downlinked through the ALSEP 90 channel multiplexer. This anomaly is presently under investigation.

Status as of 1400 G.m.t., 14 September 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1031	608	412	147
Total Commands to Date	14655	6897	10683	2351
Sun Angle	325	331	352	5
Input Power	69.9w	70.8w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	All OFF
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	16.2°F	33.5°F	-0.8°F	61.7°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.4°F	125.9°F
LSM Internal Temp	Invalid	N/A	3.7°C(38.8°F)	10.5°C(50.9°F)
SWS Module 300 Temp	-16.1°C(3.0°F)	N/A	Standby	N/A
SIDE Temp	Invalid	Invalid	6.5°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	106.5°K(-267.7°F)	N/A
CPLEE Electronic Temp	N/A	-22.0°C(-7.6°F)	N/A	N/A
ASE GLA Temp	N/A	-66.4°C(-87.5°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	88.3°K(-300.5°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

22 September 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar noon occurred on 21 September at the Descartes site. The station is in its 155th day of operation with the moon in the earth's geomagnetic tail. The central station's average thermal plate temperature compares exactly with the temperatures for identical sun angles of the station's preceding lunar day operations. The thermoelectric power output remains steady. Inhibiting the 18-hour timer output pulses continues. The signal strength, as reported by the 30-foot antenna tracking stations, of transmitter "A" is between -139.0 dbm and -140.0 dbm.

The passive seismometer is configured for lunar day operation with the feedback loop filter commanded OUT, the sensor gains of all components to 0 db, auto ON thermal control mode and the uncage/arm fire circuit to the UNCAGE state. The sensor's temperature transducer output (DL-07) indicated offscale HIGH during phase II operations on 20 September at a normalized sun angle of 79°. It is projected that the temperature will return onscale on 28 September (sun angle of 170°).

The lunar surface magnetometer continues normal operation and is presently indicating the moon's passage through the earth's geomagnetic tail. The instrument is operating in the 200 gamma range and with the digital filter commanded IN and the flip cal inhibit logic commanded IN. The experiment's internal electronics continue tracking previously recorded temperatures at the identical sun angles. The experiment correctly performed its 165th through 170th flip calibration sequences during the past week.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 15 September the experiment was commanded to operate select at 1357 G.m.t., and to high bit rate ON at 1415 G.m.t. for a passive listening period. Three geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and one significant signal was noted in real time. High bit rate operations were terminated at 1445 G.m.t. and the experiment commanded to standby at 1448 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 15 September 1972, 1300 G.m.t., to 22 September 1972, 1300 G.m.t.

Central station	Noon of the station's 15th lunation will occur today; power from the RTG continues steady and transmitter "A" downlink signal strength is between -135.0 dbm and -137.5 dbm. The data subsystem's timer continues to function normally, having generated output pulses consistently since initialization (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day-time operations. The experiment's internal electronics temperature exceeded 62°C on 19 September. Flip calibration sequences have been suspended by request of the principal investigator whenever the internal electronics temperature increases above 62°C. Currently the instrument has executed 623 flip calibration sequences since activation. The experiment's Y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The next flip calibration sequence is projected for 25 September 1972. At 1637 G.m.t., 20 September, the y axis sensor indicated off-scale LOW (static). This anomaly is presently under investigation.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972. The instrument will remain in standby pending further analysis per SMEAR #45.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.0°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 367.0°K (201.2°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 15 September 1972, 1300 G.m.t., to 22 September 1972, 1300 G.m.t.

Central station	The 21st lunar noon of the 14 station will occur 24 September; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -136.8 ± 2.8 dbm.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data since 14 August 1972 or responded to a command since 14 August 1972. No seismic events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby with a 30 minute passive listening mode operation planned for today. The experiment was not commanded to high bit rate on 15 September due to the temperature restraint of -60°C.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently operating in the manual mode (-350 volt range) since 18 September. The present plan is to operate continuously through this lunation if the analyzer A high voltage remains above 2300 vdc. At the start of support, 17 September, it was noted that the instrument had changed from auto sequence mode to manual (-0 vdc) with no CVW activity reported by the supporting MSFN stations. The instrument was commanded back to auto sequence without incident.

Apollo 12 ALSEP

Operational status from 15 September 1972, 1300 G.m.t., to 22 September 1972, 1300 G.m.t.

Central station	Noon of the package's 36th lunar day will occur 24 September, RTG power output is constant; and, transmitter "B" signal strength was reported at -137.5 ± 2.5 dbm. The central station's DSS-1 heater was commanded OFF at 0351 G.m.t., 18 September, when the station's average thermal plate temperature increased to 63.1°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods. The instrument's z axis motor was commanded OFF, at 1558 G.m.t., 17 September, as the sensor assembly temperature increased to 126.2°F.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	At 0547 G.m.t., 16 September, the instruments digital data returned. This anomaly, which occurred 1314 G.m.t., 9 September, is still under investigation. Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 19 September. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures above 55°C.

Status as of 1700 G.m.t., 21 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1038	615	419	154
Total Commands to Date	14744	6976	10831	2472
Sun Angle	50°	56°	77°	90°
Input Power	69.4w	70.5w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	86.1°F	106.1°F	111.5°F	108.2°F
PSE Sensor Assembly Temp	127.3°F	129.8°F	139.3°F	Off scale High
LSM Internal Temp	Invalid	N/A	69.5°C(157.1°F)	44.6°C(112.3°F)
SWS Module 300 Temp	62.6°C(144.7°F)	N/A	Standby	N/A
SIDE Temp	OFF	Invalid	85.5°C(185.9°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	64.1°C(147.4°F)	N/A	N/A
ASE GLA Temp	N/A	66.9°C(152.4°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	327.1°K(129.4°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

29 September 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar sunset occurred 28 September at the Descartes site. The station is in its 162nd day of operation. The central station's DSS-1 heater (10 watts) was commanded ON at 1342 G.m.t., 28 September when the average thermal plate temperature dropped to 52°F. The thermoelectric power output remains steady. Inhibiting the 18-hour timer output pulses continues. The signal strength, as reported by the 30-foot antenna tracking stations, of transmitter "A" is between -138.5 dbm and -141.0 dbm.

The passive seismometer is configured for lunar night operation with the feedback loop filter commanded OUT, the sensor gains of all components to 0 db, auto ON thermal control mode and the uncage/arm fire circuit to the UNCAGE state. The sensor's temperature transducer output (DL-07) is projected to returned onscale 29 September.

The lunar surface magnetometer continues normal operation. The instrument is operating in the 200 gamma range and with the digital filter commanded IN and the flip cal inhibit logic commanded IN. The experiment's internal electronics continue tracking previously recorded temperatures at the identical sun angles. The experiment correctly performed its 169th through 174th flip calibration sequences during the past week.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 22 September, the experiment was commanded to operate select at 1532 G.m.t., and to high bit rate ON at 1542 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real time. High bit rate operations were terminated at 1612 G.m.t. and the experiment commanded to standby at 1613 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 22 September 1972, 1300 G.m.t., to 29 September 1972, 1300 G.m.t.

Central station	Sunset of the station's 15th lunation will occur today; power from the RTG continues steady and transmitter "A" downlink signal strength is between -135.0 dbm and -137.0 dbm. The data subsystem's timer continues to function normally, having generated output pulses consistently since initialization (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day-time operations. Currently the instrument has executed 631 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The y axis sensor has indicated off-scale LOW (static) since 20 September 1972. This anomaly is presently under investigation.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972. The instrument will remain in standby pending further analysis per SMEAR #45.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.0°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 293.1°K (68.2°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 22 September 1972, 1300 G.m.t., to 29 September 1972, 1300 G.m.t.

Central station	The 21st lunar noon of the 14 station occurred 24 September; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -141.2 ± 0.7 dbm.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 14 August 1972. No seismic events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby. On 22 September, experiment commanded ON at 1455 G.m.t., and to high bit rate ON at 1508 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1527 G.m.t., and the instrument commanded to standby at 1530 G.m.t. No seismic events were noted in real time. Next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently operating in the manual mode (-35 volt range). Continuous operation for this lunar day was terminated at 0521 G.m.t., 24 September, when the instrument analyzer A high voltage (AC-03) dropped below 2200 vdc. The instrument was commanded ON, in the manual mode (+350 volt range), for one hour during support 25 September. Continuous support was resumed 26 September at 1347 G.m.t. with the instrument in manual mode (+350 volt range). At 1400 G.m.t., 27 September, the instrument was commanded to its present state (manual mode, -35 volt range) per the present operational plan.

Apollo 12 ALSEP

Operational status from 22 September 1972, 1300 G.m.t., to 29 September 1972, 1300 G.m.t.

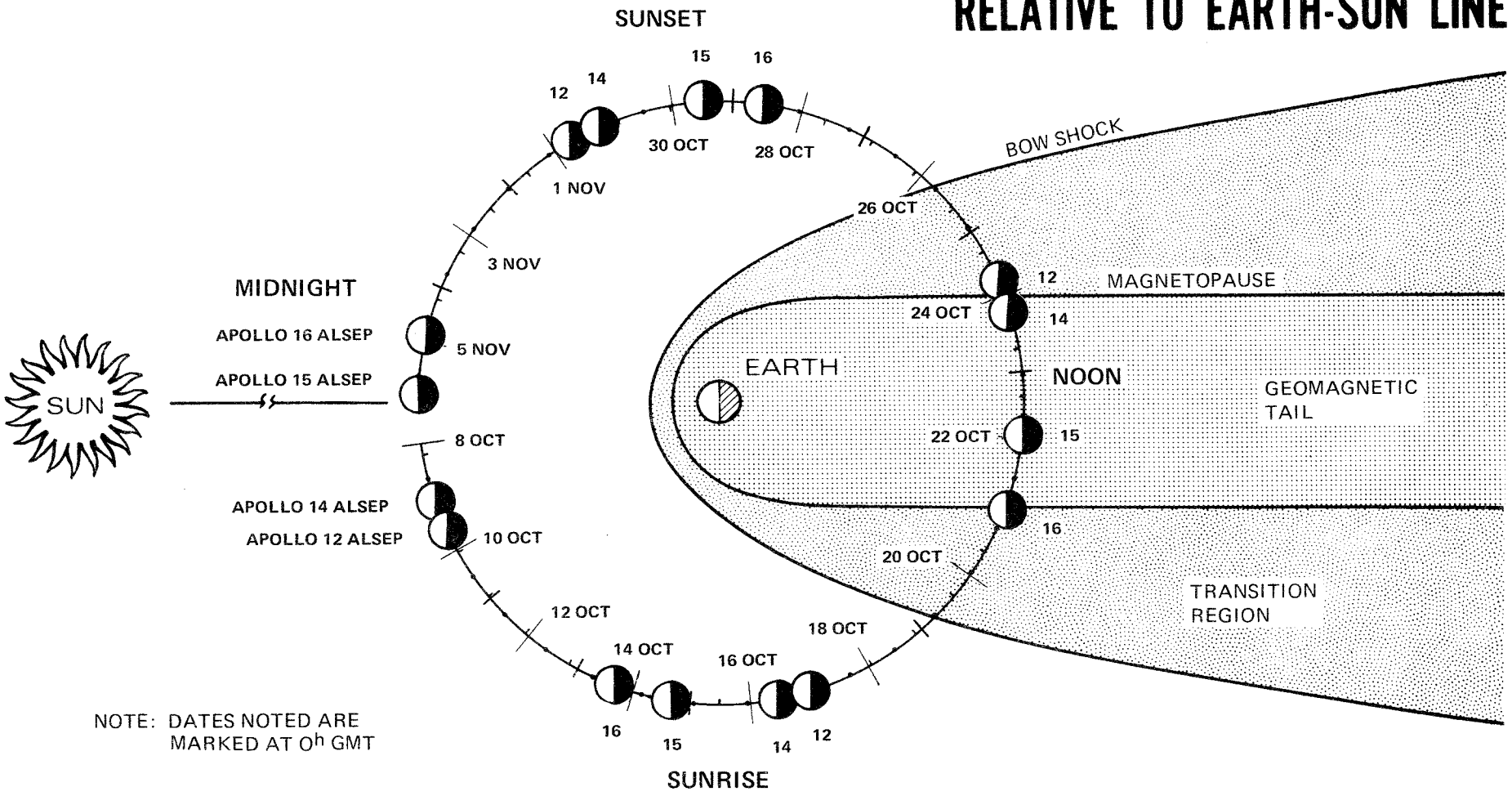
Central station	Noon of the package's 36th lunar day occurred 24 September; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.5 $\pm$ 1.1 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	Cyclic commanding of the instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 19 September. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures about 55°C.

Status as of 1500 G.m.t., 28 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1045	622	426	161
Total Commands to Date	14787	7031	10952	2527
Sun Angle	136°	142°	163°	175°
Input Power	69.0w	70.5w	73.3w	70.0w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	86.5°	93.3°F	79.8°F	52.0°F
PSE Sensor Assembly Temp	Off scale High	128.8°F	125.7°F	Off scale High
LSM Internal Temp	Invalid	N/A	57.8°C(136.0°F)	33.7°C(92.7°F)
SWS Module 300 Temp	59.2°C(138.6°F)	N/A	Standby	N/A
SIDE Temp	OFF	Invalid	61.4°C(142.5°F)	N/A
CCGE Temp	OFF	Invalid	308.8°K(96.4°F)	N/A
CPLEE Electronic Temp	N/A	48.8°C(119.8°F)	N/A	N/A
ASE GLA Temp	N/A	72.7°C(162.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	300.1°K(80.8°F)	OFF

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR, GMT				
	MIDNIGHT	SUNRISE	NOON	SUNSET	MIDNIGHT
16		13 OCT/1739	(7TH) 21 OCT/0307	28 OCT/1251	4 NOV/2203
15		14 OCT/1657	(16TH) 22 OCT/0231	29 OCT/1212	5 NOV/2121
14	9 OCT/0131	16 OCT/1034	(22ND) 23 OCT/2102	31 OCT/0548	
12	9 OCT/1308	16 OCT/2220	(37TH) 24 OCT/0756	31 OCT/1645	

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

6 October 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past week. Lunar midnight at the Descartes site will occur today. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar night. No significant seismic events were noted during the limited real time support of this instrument.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 180th flip calibration sequence was executed correctly by command, on 4 October 1972.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 29 September 1972 the experiment was commanded to operate select at 1758 G.m.t., and to high bit rate ON at 1849 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and one significant signal was noted in real time. High bit rate operations were terminated at 1919 G.m.t. and the experiment commanded to standby at 1921 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 12 ALSEP

Operational status from 29 September 1972, 1300 G.m.t., to 6 October 1972, 1300 G.m.t.

Central station	Midnight of the 36th lunar day will occur 9 October 1972; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.1 ± 1.8 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 0318 G.m.t. 2 October when the central station's average thermal plate temperature decreased to 30.6°F. Presently the average thermal plate has stabilized at 17.9°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded ON at 0316 G.m.t. 2 October when the instrument temperature, DL-07, indicated 126.6°F in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 was stabilized at 126.2°F with the z motor ON.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON.

Apollo 14 ALSEP

Operational status from 29 September 1972, 1300 G.m.t., to 6 October 1972, 1300 G.m.t.

Midnight of the 21st lunar night at the Apollo 14 landing site will occur 9 October. The central station's DSS-1 heater (10 watts) was commanded ON at 1341 G.m.t., 30 September, when the central station's average thermal plate temperature decreased to 68.4°F. Power output of the RTG is unvarying; and, transmitter "A" signal strength was reported at -138.5 ± 1.5 dbm.

The four experiments, the passive seismometer, the active seismic, the suprathermal ion detector/cold cathode gauge and the charged particle continue to provide science and engineering data.

On 5 October at 2300 G.m.t. mission control was notified by the supporting MSFN tracking station (Goldstone) that the experiment status words AB-04 (passive seismometer and active seismic status) and AB-05 (suprathermal ion detector/cold cathode gauge and charged particle status) indicated that all experiments were in standby select. Phase II operations were resumed and research of the tracking station's tape indicated that all experiments went to standby select status at 1415 G.m.t., 5 October. The passive seismic experiment was commanded to operate select at 2327 G.m.t., the charged particle experiment was commanded to operate select at 2329 G.m.t. and then to standby select at 2330 G.m.t., and the suprathermal ion detector/cold cathode gauge experiment commanded to operate select at 2331 G.m.t., 5 October.

Review of the central station's and experiments telemetry data in real time indicates no anomalous operations. Because this phenomena has not been fully analyzed, it is planned to operate the charged particle experiment during phase II operations only based on the previous operating characteristics of the instrument in April 1972. The passive seismometer and suprathermal ion detector/cold cathode gauge experiments were reconfigured to there previous operational modes without problem.

Apollo 15 ALSEP

Operational status from 29 September 1972, 1300 G.m.t., to 6 October 1972, 1300 G.m.t.

Central station	Midnight of the station's 15th lunation will occur 7 October 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -135.5 ± 1.5 dbm. After verification of the 18-hour timer's 327th output pulse on 2 October 1972, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at 0.8°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 50 gamma range at 1259 G.m.t., 30 September 1972. Currently the instrument has executed 643 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. The experiment's y axis sensor has indicated off-scale LOW (static) since 20 September 1972. This anomaly is presently under investigation.
Solar wind spectrometer experiment	Presently in standby. The instrument has not been commanded to operate select since 17 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. At 1001 G.m.t. 29 September, the Hawaii tracking station noted a command octal 105 (SIDE Load 1) in the ALSEP downlink. During support 29 September, the spurious functional was verified and cleared without incident. This was the 31st spurious for this ALSEP package.

Operational status from 29 September 1972, 1300 G.m.t., to 6 October 1972, 1300 G.m.t.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 89.8°K (-297.8°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Status as of 1600 G.m.t., 4 October 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1050	607	431	166
Total Commands to Date	14900	7139	11061	2749
Sun Angle	209°	215°	236°	248°
Input Power	69.9w	71.0w	72.9w	70.0w
Heater and Power Dumps	ON	ON	All OFF	ON
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	17.9°F	34.2°F	0.8°F	40.1°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	124.5°F	125.7°F
LSM Internal Temp	Invalid	N/A	4.7°C(40.5°F)	-6.6°C(20.2°F)
SWS Module 300 Temp	-14.8°C(5.4°F)	N/A	Standby	N/A
SIDE Temp	4.2°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	110.3°K(-260.9°F)	N/A
CPLEE Electronic Temp	N/A	-22.0°C(-7.6°F)	N/A	N/A
ASE GLA Temp	N/A	-57.1°C(-70.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.3°K(50.5°F)	OFF

The attached Apollo 14 ALSEP report supersedes the operational status report you may have recevied on 5 October 1972 prior to notification by the MSFN tracking station at Goldstone that all of the Apollo 14 ALSEP experiments went to standby select.

R. Miley

OCT 05 1972

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

13 October 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past week. Lunar sunrise at the Descartes site will occur 13 October 1972. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is reported at -140 ± 3.0 dbm. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar night. No significant seismic events were noted during the limited real time support of this instrument.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 184th flip calibration sequence was executed correctly by command, on 9 October 1972.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 6 October 1972 the experiment was commanded to operate select at 1342 G.m.t., and to high bit rate ON at 1352 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real time. High bit rate operations were terminated at 1422 G.m.t. and the experiment commanded to standby at 1423 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 12 ALSEP

Operational status from 6 October 1972, 1300 G.m.t., to 13 October 1972, 1300 G.m.t.

Central station	Sunrise of the 37th lunar day will occur 16 October; RTG power output is constant; and, transmitter "B" signal strength was reported at -137.7 to -140.0 dbm. The central station's DSS-1 heater (10 watts) remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor remains ON in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicates 126.1°F (Z motor ON).
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON.

Apollo 14 ALSEP

Operational status from 6 October 1972, 1300 G.m.t., to 13 October 1972, 1300 G.m.t.

Central station	Sunrise of the 22nd lunar day at the Apollo 14 landing site will occur 16 October, power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported between -134.5 and -140.0 dbm. The central stations's DSS-1 heater (10 watts) remains ON during lunar night operations. Currently the central station's average thermal plate temperature is stable at 33.3°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to a command since 14 August 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby without a 30 minute passive listening mode operation planned for today as the AS-03 temperature is below -60°C. The experiment was not commanded to high bit rate on 6 October due to this same temperature restraint.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The charged particle experiment was commanded to the -35v mode at 1320 G.m.t., 6 October 1972 and is currently operating in the -35v mode (electronics heater ON), collecting science data in analyzer A. The experiment's analyzer A high voltage remains substantially constant at the 2700 vdc level. Analyzer B high voltage remains inoperative.

Apollo 15 ALSEP

Operational status from 6 October 1972, 1300 G.m.t., to 13 October 1972, 1300 G.m.t.

Central station	Sunrise of the station's 16th lunation will occur 14 October 1972; power from RTG continues steady and transmitter "A" downlink signal strength is reported at -135.5 ± 1.5 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. will be suspended on 14 October 1972. The data subsystem's average thermal plate temperature is presently stabilized at 0.8°F. At 0351 G.m.t., 10 October 1972 an unexpected functional change occurred when the central station's data processor began processing data in the low-bit-rate mode. Since no valid command verification word is received when a bit-rate change takes place, it cannot be definitely determined whether or not the change was due to a spurious command. However, it is generally assumed this was the case. The data processor was commanded back to normal-bit-rate by the Carnarvon ground station at 0418 G.m.t., 10 October 1972 at the direction of mission control.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded out in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 50 gamma range for lunar night operation. Currently the instrument has executed 647 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Presently in standby. The instrument has not been commanded to operate select since 17 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

Apollo 15 ALSEP (continued)

Operational status from 6 October 1972, 1300 G.m.t., to 13 October 1972, 1300 G.m.t.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 85.6°K (-305.3°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Status as of 1500 G.m.t., 9 October 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1055	612	436	171
Total Commands to Date	15011	7180	11120	2779
Sun Angle	270	276	297	309
Input Power	69.9w	70.5w	72.9	70.0w
Heater and Power Dumps	ON	ON	All OFF	ON
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	17.0°F	33.2°F	-0.8°F	39.8°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	124.3°F	125.7°F
LSM Internal Temp	Invalid	N/A	3.8°C(38.8°F)	-6.6°C(20.1°F)
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A	Standby	N/A
SIDE Temp	4.25°C(39.7°F)	Invalid	6.6°C(43.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K(-264.5°F)	N/A
CPLEE Electronic Temp	N/A	-22.7°C(-8.9°F)	N/A	N/A
ASE GLA Temp	N/A	-65.5°C(-87.9°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	88.1°K(-300.8°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

20 October 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar noon at the Descartes site will occur on 21 October. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar operations. The station is in its 182nd day of operation with the moon, and is in the earth's transition region. The central station's average thermal plate temperature continues to track previous lunar day operations at comparable sun angles. The DSS-1 heater (10 watts) was commanded OFF at sunrise. The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is between -137.0 dbm and -142.0 dbm. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismic experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db. The sensor's temperature transducer output (DL-07) indicated offscale HIGH during phase II operations on 19 October at a normalized sun angle of 73°. It is projected that the temperature will return onscale on 28 October (sun angle 170°). The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day. No significant seismic events were noted during the limited real time support of this instrument.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's internal electronics temperature continues to increase at a rate of 0.7°C per hour, tracking the instrument's second lunar day temperature profile. During the past week, flip cal sequences #187 through #190 were executed.

The active seismic experiment is in standby OFF. A 30 minute listening period is scheduled for today. The experiment was commanded to operate select at 1400 G.m.t., 13 October and to high bit rate ON at 1440 G.m.t., for a passive listening mode operation. Data output of all geophones appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1510 G.m.t., and the experiment commanded to OFF at 1513 G.m.t., 13 October. No significant signals were noted in real time.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 13 October 1972, 1300 G.m.t., to 20 October 1972, 1300 G.m.t.

Central station

Noon of the station's 16th lunation will occur on 22 October, power from the RTG continues steady and transmitter "A" downlink signal strength is reported at between -135.0 dbm and -137.5 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t., was suspended at 1309 G.m.t., 14 October and will remain uninhibited for lunar day operation.

Passive seismic experiment

Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument.

Lunar surface magnetometer experiment

The experiment's sensors were commanded to the 100 gamma range at 1305 G.m.t., 13 October for lunar day operation. Currently the instrument has executed 657 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. On 17 and 18 October, at the request of the P.I., a special sequencing of the experiment was conducted in an attempt to return the y-axis sensor from the off-scale low (static) position. This anomaly occurred at 1637 G.m.t., 20 September 1972. The y-axis sensor oscillates when the filter is commanded IN but returns to off-scale low when the filter is commanded OUT. The y-axis sensor remains in the off-scale low (static) position during all other commands. Investigation of this anomaly is being continued.

Solar wind spectrometer experiment

The instrument has been in standby since 17 August 1972.

Apollo 15 ALSEP (continued)

Operational status from 13 October 1972, 1300 G.m.t., to 20 October 1972, 1300 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Prior to the close of real time support on 15 October the instrument's command register was observed to contain SIDE command Load 15 (reset command register). Mission control cleared the command register by sending octal 053 (SIDE Standby) and octal 153 (SIDE ON). Currently the experiment's command register is clear.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 360.0°K (188.6°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 13 October 1972, 1300 G.m.t., to 20 October 1972, 1300 G.m.t.

Central station	Noon of the 22nd lunar day at the Apollo 14 landing site will occur 23 October; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -140.5 + 1.5 dbm. The central station's DSS-1 heater (10 watts) was turned OFF at 0450 G.m.t., 17 October 1972 for lunar day operations. On 18 October 1972 the 5 watt heater responded to a spurious ON command (octal 056) at 0133 G.m.t. A command verification word was noted by the supporting ground station. The heater was returned to OFF (octal 057), by command, by the supporting ground station at 0336 G.m.t., 18 October 1972, at the instruction of mission control.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis began displaying valid data during real time support on 13 October 1972 and is responding to commands. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby with a 30 minute passive listening mode operation planned for today as the AS-03 temperature is above -60°C. The experiment was not commanded to high bit rate on 13 October due to this same temperature restraint.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in standby. At the start of support, 17 October, it was noted that the instrument had changed from the -35v mode to +0 vdc with no CVW activity reported by the supporting ground station. The instrument was commanded back to the -35v mode without incident ON 17 October. At 1950 G.m.t., 17 October the instrument was commanded to standby. Experiment will remain in standby select until start of continual 45 day support of Apollo 17 ALSEP.

Apollo 12 ALSEP

Operational status from 13 October 1972, 1300 G.m.t., to 20 October 1972, 1300 G.m.t.

Central station	Noon of the 37th lunar day will occur 24 October; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.5 ± 2.5 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF on 17 October for lunar day operations. Command verification word octal 017, 7 watt power dump resistor ON, was noted by the Goldstone tracking station at 2138 G.m.t., 13 October. The function change was verified by mission control center and the PDR commanded OFF at 2210 G.m.t., 13 October. Command verification word (octal 076), thermal control Auto OFF, was noted by the Ascension tracking station at 0015 G.m.t., 19 October. The function change was noted by mission control center and the thermal control was commanded to Auto ON at 1615 G.m.t., 19 October during real time support. No detrimental effects to the central station have been noted resulting from these spurious change.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded OFF on 17 October 1972. During real time support on 13 October it was noted that the sensor's temperature transducer output (DL-07) was offscale low. The instrument's thermal control was commanded to forced ON. DL-07 remained offscale low until real time support on 17 October when it was noted to be offscale high. The instrument's thermal control was returned to auto ON and DL-07 returned to onscale at 1530 G.m.t. 17 October during real time support. Monitoring of DL-07 will continue to see whether this anomaly reoccurs.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.

Apollo 12 ALSEP (continued)

Operational status from 13 October 1972, 1300 G.m.t., to 20 October 1972, 1300 G.m.t.

Suprathermal ion detector experiment	Cyclic commanding of the instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 18 October. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures about 55°C.

Status as of 1730 G.m.t., 19 October 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1065	622	446	181
Total Commands to Date	15093	7236	11285	2902
Sun Angle	33°	39°	60°	73°
Input Power	69.0w	70.0w	72.9w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	CPLEE ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	76.5°F	92.0°F	105.6°F	107.3°F
PSE Sensor Assembly Temp	118.8°F	125.4°F	135.9°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	64.2°C(147.6°F)	43.5°C(110.3°F)
SWS Module 300 Temp	54.2°C(129.6°F)	N/A	Standby	N/A
SIDE Temp	OFF	Invalid	83.0°C(181.4°F)	N/A
CCGE Temp	OFF	Invalid	364.0°K(195.8°F)	N/A
CPLEE Electronic Temp	N/A	Stby	N/A	N/A
ASE GLA Temp	N/A	46.6°C(115.9°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	321.8°K(119.9°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

27 October 1972
G.m.t.: 1300

Apollo 16 ALSEP

Lunar noon occurred on 21 October at the Descartes site. The station is in its 189th day of operation with the moon in the earth's geomagnetic tail. The central station's average thermal plate temperature compares exactly with the temperatures for identical sun angles of the station's preceding lunar day operations. The thermoelectric power output remains steady. Inhibiting the 18-hour timer output pulses continues. The signal strength, as reported by the 30-foot antenna tracking stations, of transmitter "A" is between -138.6 dbm and -142.5 dbm.

The passive seismometer is configured for lunar day operation with the feedback loop filter commanded OUT, the sensor gains of all components to 0 db, auto ON thermal control mode and the uncage/arm fire circuit to the UNCAGE state. The sensor's temperature transducer output (DL-07) indicated offscale HIGH during phase II operations on 19 October at a normalized sun angle of 73°. It is projected that the temperature will return onscale on 28 October (sun angle of 170°).

The lunar surface magnetometer continues normal operation and is presently indicating the moon's passage through the earth's geomagnetic tail. The instrument is operating in the 200 gamma range and with the digital filter commanded OUT and the flip cal inhibit logic commanded IN. The experiment's internal electronics continue tracking previously recorded temperatures at the identical sun angles. The experiment correctly performed its 191st through 196th flip calibration sequences during the past week.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 20 October the experiment was commanded to operate select at 1803 G.m.t., and to high bit rate ON at 1822 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal. High bit rate operations were terminated at 1852 G.m.t. and the experiment commanded to standby at 1854 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Project Support Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 20 October 1972, 1300 G.m.t., to 27 October 1972, 1300 G.m.t.

Central station	Noon of the station's 16th lunation occurred 22 October; power from the RTG continues steady and transmitter "A" downlink signal strength is between -135.0 dbm and -138.2 dbm. The data subsystem's timer continues to function normally, having generated output pulses consistently since initialization (31 July 1971).
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No seismic signals have been noted during the limited real time support periods. On 23 October 1972 the PSE X drive motor responded to a spurious ON commanded (octal 070) at 1303 G.m.t. A command verification word was noted by the Hawaii ground station. The motor was commanded OFF at 1349 G.m.t. without incident.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day-time operations. Currently the instrument has executed 657 flip calibration sequences since activation. The experiment's Y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The Y axis sensor has indicated offscale LOW (static) since 20 September. This anomaly is presently under investigation.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972. The instrument will remain in standby pending further analysis per SMEAR #45.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.7°K (-8.0°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 347.9°K (166.8°F). TREF 2 is currently outputting erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 20 October 1972, 1300 G.m.t., to 27 October 1972, 1300 G.m.t.

Central station	The 22nd lunar noon of the 14 station occurred 23 October; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -141.5 ± 2.5 dbm.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. No seismic events have been noted during the limited real time support periods.
Active seismic experiment	Currently in standby. On 20 October, experiment commanded ON at 1801 G.m.t., and to high bit rate ON at 1857 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1927 G.m.t., and the instrument commanded to standby at 1928 G.m.t. No seismic events were noted in real time. Next listening mode operation is scheduled for today.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in standby. Experiment will remain in standby select until the start of continual 45 day support of Apollo 17 ALSEP.

Status as of 1700 G.m.t., 25 October, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1071	628	452	187
Total Commands to Date	15161	7289	11390	2996
Sun Angle	105°	111°	132°	144°
Input Power	69.0w	70.5w	72.9w	70.0w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	95.9°F	109.1°F	109.3°F	90.7°F
PSE Sensor Assembly Temp	Offscale HIGH	131.9°F	136.0°F	Offscale HIGH
LSM Internal Temp	Invalid	N/A	59.4°C(138.9°F)	40.3°C(104.5°F)
SWS Module 300 Temp	65.2°C(149.4°F)	N/A	Standby	N/A
SIDE Temp	OFF	Invalid	84.3°C	N/A
CCGE Temp	OFF	Invalid	347.4°K(166.5°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	87.1°C(188.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	321.8°K(119.8°F)	OFF

Apollo 12 ALSEP

Operational status from 20 October 1972, 1300 G.m.t., to 27 October 1972, 1300 G.m.t.

Central station	Noon of the package's 37th lunar day occurred 24 October, RTG power output is constant; and, transmitter "B" signal strength was reported at -140.2 ± 2.2 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT, identical to the other seismic instruments. No seismic signals have been noted during the limited real time support periods.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	Cyclic commanding of instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF continues, initiated this lunar day on 18 October. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures above 55°C.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 November 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past week. Lunar midnight at the Descartes site will occur 4 November. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady at 139.5 ± 2.5db. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar night. No significant seismic events were noted during the limited real time support of this instrument.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 202nd flip calibration sequence was executed correctly by command, on 1 November 1972.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 27 October 1972 the experiment was commanded to operate select at 1358 G.m.t., and to high bit rate ON at 1417 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and one significant signal was noted in real time. High bit rate operations were terminated at 1447 G.m.t. and the experiment commanded to standby OFF at 1450 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 15

Operational status from 27 October 1972, 1300 G.m.t., to 3 November 1972, 1300 G.m.t.

Central station	Midnight of the station's 16th lunation will occur 5 November 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -134.0 to -137.5 dbm. After verification of the 18-hour timer's 351st output pulse on 2 November 1972, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at 1.4°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state at 1432 G.m.t., 2 November 1972, to deliver maximum heat into the sensor assembly for lunar night operations.
Lunar surface magnetometer experiment	The experiment's sensors were commanded to the 50 gamma range at 1502 G.m.t., 29 October 1972 for lunar night-time operations. Currently the instrument has executed 673 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. The experiment's y axis sensor has indicated off-scale LOW (static) since 20 September 1972. This anomaly is presently under investigation.
Solar wind spectrometer experiment	Presently in standby pending further analysis per SMEAR #45. The instrument has not been commanded to operate select since 17 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. At 0500 G.m.t., 30 October 1972, the Ascension tracking station noted a command (octal 053) (SIDE Standby Power On) in the ALSEP downlink. The experiment was returned to ON (octal 153), by command, by the supporting ground station at 0946 G.m.t., 30 October 1972, at the instruction of mission control. This was the 33rd spurious for this ALSEP package.

Apollo 15 ALSEP (continued)

Operational status from 27 October 1972, 1300 G.m.t., to 3 November 1972, 1300 G.m.t

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 90.8°K (-296.0°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 27 October 1972, 1300 G.m.t., to 3 November 1972, 1300 G.m.t.

Central station	Midnight of the 22nd lunar day at the Apollo 14 landing site will occur on 7 November 1972. Power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -136.0 to -141.5 dbm. The central station's DSS-1 heater (10 watts) was commanded ON for lunar night operations on 30 October. Currently the central station's average thermal plate temperature is stable at 35.6°F. At 1716 G.m.t., 1 November 1972, an unexpected functional change occurred when the central station's data processor began processing data in the low-bit-rate mode. Since no valid command verification word is received when a bit-rate change takes place, it cannot be definitely determined whether or not the change was due to a spurious command. However, it is generally assumed this was the case. The data processor was commanded back to normal-bit-rate by the Texas ground station at 1738 G.m.t., 1 November 1972, at the direction of mission control.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has displayed valid data and responded to commands since 13 October 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby. On 27 October 1972 the experiment was commanded ON at 1359 G.m.t., and to high bit rate ON at 1452 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1522 G.m.t., and the instrument commanded to standby at 1524 G.m.t. No seismic events were noted in real time. Next listening mode is scheduled for 3 November 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in standby. Experiment will remain in standby select until the start of continual 45 day support of Apollo 17 ALSEP.

Apollo 12 ALSEP

Operational status from 27 October 1972, 1300 G.m.t., to 3 November 1972, 1300 G.m.t.

Central station	Midnight of the 37th lunar day will occur 8 November 1972; RTG power output is constant; and, transmitter "B" signal strength was reported at -139.5 $\pm$ 2.5 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 1743 G.m.t., 31 October, when the central station's average thermal plate temperature decreased to 27.3°F. Presently the average thermal plate has stabilized at 16.2°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded ON at 1737 G.m.t., 31 October, when the instrument temperature, DL-07, indicated 126.8°F in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 was stabilized at 126.3°F with the z motor ON.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON.

Status as of 1700 G.m.t., 2 November 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1079	936	460	195
Total Commands to Date	15271	7351	11558	3185
Sun Angle	203°	209°	230°	242°
Input Power	69.4w	71.0w	72.9w	70.0w
Heater and Power Dumps	ON	ON	ALL OFF	ON
Experiment Status	All ON	CPLEE & ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	16.2°F	35.6°F	1.4°F	40.5°F
PSE Sensor Assembly Temp	126.3°F	124.4°F	124.4°F	124.8°F
LSM Internal Temp	Invalid	N/A	4.7°C (40.5°F)	-7.8°C (18.0°F)
SWS Module 300 Temp	-14.39°C (7.9°F)	N/A	Standby	N/A
SIDE Temp	4.3°C (39.7°F)	Invalid	7.2°C (45.0°F)	N/A
CCGE Temp	OFF	Invalid	112.3°K (-257.3°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	-53.2°C (-63.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	90.7°K (-296.0°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 November 1972
G.m.t.: 1300

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past week. Lunar sunrise at the Descartes site will occur 12 November 1972. The central station's average thermal plate temperature remains stable at 40.0°F with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A" to the 30-foot antenna tracking stations is reported at -139.5 ± 1.5 dbm. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode) at 124.7° F. The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner for the remainder of lunar night. One significant seismic event was noted during the limited real-time support of this instrument at 1900 G.m.t., 8 November 1972.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 208th flip calibration sequence was excuted correctly by command, on 8 November 1972.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 3 November 1972 the experiment was commanded to operate select at 1454 G.m.t., and to high bit rate ON at 1515 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real time. High bit rate operations were terminated at 1545 G.m.t. and the experiment commanded to standby at 1547 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 3 November 1972, 1300 G.m.t., to 10 November 1972, 1300 G.m.t.

Central station	Sunrise of the station's 17th lunation will occur 13 November 1972; power from RTG continues steady and transmitter "A" downlink signal strength is reported between -135.5 dbm and -137.0 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. will be suspended on 13 November 1972. The data subsystem's average thermal plate temperature is presently stabilized at -0.8°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded out in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real-time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state to deliver maximum heat into the sensor assembly.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 50 gamma range for lunar night operation. Currently the instrument has executed 681 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	Presently in standby. The instrument has not been commanded to operate select since 17 August 1972 pending further analysis per SMEAR #45.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

Operational status from 3 November 1972, 1300 G.m.t., to 10 November 1972, 1300 G.m.t.

Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 85.4°K (-302.6°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 3 November 1972, 1300 G.m.t., to 10 November 1972, 1300 G.m.t.

Central station	Sunrise of the 23rd lunar day at the Apollo 14 landing site will occur 15 November, power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported between -136.0 dbm and -139.5 dbm. The central station's DSS-1 heater (10 watts) remains ON during lunar night operations. Currently the central station's average thermal plate temperature is stable at 34.7°F.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has displayed valid data and responded to commands since 13 October 1972. No seismic events have been noted during the limited real-time support of this experiment.
Active seismic experiment	Currently in standby without a 30 minute passive listening mode operation planned for today as the AS-03 temperature is below -60°C. The experiment was not commanded to high bit rate on 3 November due to this same temperature restraint. Next listening mode is scheduled for 17 November 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Positive engineering data interruption occurred on 6 November 1972 in the scientific outputs of the experiments when the analog-to-digital filter readings were static high. The data has remained static high since 6 November 1972.
Charged particle lunar environmental experiment	Currently in standby. Experiment will remain in standby select until the start of continual 45 day support of Apollo 17 ALSEP.

Apollo 12 ALSEP

Operational status from 3 November 1972, 1300 G.m.t., to 10 November 1972, 1300 G.m.t.

Central station	Sunrise of the 38th lunar day will occur 15 November; RTG power output is constant; and, transmitter "B" signal strength was reported at -140.0 ± 2.0 dbm. The central station's DSS-1 heater (10 watts) remains ON.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real-time support for the Apollo 12 experiment. The instrument's z axis drive motor remains ON in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 indicates Offscale Low (z motor ON). The most recent occurrence of this anomaly was on 13 October 1972.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON.

Status as of 2100 G.m.t., 8 November 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1085	642	466	201
Total Commands to Date	15307	7367	11659	3225
Sun Angle	278°	284°	305°	317°
Input Power	69.4w	70.9w	69.7w	70.1w
Heater and Power Dumps	ON	ON	ALL OFF	ON
Experiment Status	ALL ON	CPLEE & ASE Stby	SWS Stby	ASE OFF
Avg. Thermal Plate Temp	16.2°F	34.7°F	-0.8°F	40.1°F
PSE Sensor Assembly Temp	Offscale LOW	124.3°F	124.3°F	124.7°F
LSM Internal Temp	Invalid	N/A	3.8°C (38.7°F)	-7.7°C (18.1°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	Standby	N/A
SIDE Temp	4.25°C (39.7°F)	Invalid	7.2°C (44.9°F)	N/A
CCGE Temp	OFF	Invalid	108.3°K (-264.4°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	-65.5°C (-85.9°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	85.4°K (-302.6°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 November 1972
G.m.t.: 1300

There will be no ALSEP status report published on 24 November, in observance of Thanksgiving. The status report to be published on 1 December will cover the previous two weeks of ALSEP operations.

On November 19, the Apollo 12 ALSEP will have completed three years of uninterrupted lunar operation.

Apollo 16 ALSEP

Lunar noon at the Descartes site will occur on 19 November. The engineering data being received and processed from the Apollo 16 ALSEP indicates continued steady central station and experiments lunar operations. The station is in its 210 th day of operation with the moon approaching the earth's transition region. The central station's average thermal plate temperature continues to track previous lunar day operations at comparable sun angles. The DSS-1 heater (10 watts) was commanded OFF at sunrise. The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is between -138.0 dbm and -141.5 dbm. Inhibiting the effects of the 18-hour timer output pulses continues.

The passive seismic experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature increasing at a rate of 0.01°F per hour (auto ON thermal control mode). The uncage/arm fire circuit is configured to the UNCAGE state minimizing heat into the sensor assembly. The instrument will be configured in this manner throughout lunar day. No significant seismic events were noted during the limited real time support of this instrument.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's internal electronics temperature continues to increase at a rate of 0.7°C per hour, tracking the instrument's second lunar day temperature profile. During the past week, flip cal sequences #209 through #214 were executed.

The active seismic experiment is in standby OFF. A 30 minute listening period is scheduled for tomorrow. The experiment was commanded to operate select at 1901 G.m.t., 10 November and to high bit rate ON at 1925 G.m.t., for a passive listening mode operation. Data output of all geophones

appeared normal. Two geophone calibration pulses were sent to the instrument during the listening mode operation. High bit rate operations were terminated at 1955 G.m.t., and the experiment commanded to OFF at 1959 G.m.t., 10 November. No significant signals were noted in real time.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 15 ALSEP

Operational status from 10 November 1972, 1300 G.m.t., to 17 November 1972, 1300 G.m.t.

Central station	Noon of the station's 17th lunation will occur on 20 November, power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -137.0 ± 1.0 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t., was suspended at 1725 G.m.t., 12 November and will remain uninhibited for lunar day operation. At 1501 G.m.t., 11 November 1972 an unexpected functional change occurred when Transmitter A turned off and loss of signal was noted by Ascension ground station. Since no valid command verification word is received when a transmitter turns off, it cannot be definitely determined whether or not the change was due to a spurious command. However, it is generally assumed this was the case. Transmitter A was commanded back to ON by the Ascension ground station at 1526 G.m.t, 11 November 1972 at the direction of mission control.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument.
Lunar surface	The experiment's sensors were commanded to the 100 gamma range at 1733 G.m.t., 12 November for lunar day operation. Currently the instrument has executed 691 flip calibration sequences since activation. The experiment's y axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.
Solar wind spectrometer experiment	The instrument has been in standby since 17 August 1972.

Apollo 15 ALSEP (continued)

Operational status from 10 November 1972, 1300 G.m.t., to 17 November 1972, 1300 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Prior to the close of real-time support on 14 November the instrument's command register was observed to contain SIDE command Load 008 (Master reset). Mission control cleared the command register by sending octal 053 (SIDE Standby) and octal 153 (SIDE ON). Currently the experiment's command register is clear.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.9°F) with probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 325.5°K (126.5°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1 is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 10 November 1972, 1300 G.m.t., to 17 November 1972, 1300 G.m.t.

Central station

Noon of the 23rd lunar day at the Apollo 14 landing site will occur 22 November; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -138.5 ± 3.5 dbm. The central station's DSS-1 heater (10 watts) was turned OFF at 2017 G.m.t., 15 November 1972 for lunar day operations. At 0819 G.m.t., 14 November 1972 an unexpected functional change occurred when Transmitter A turned off and loss of signal was experienced by Carnarvon ground station. Since no valid command verification word is received when a transmitter turns off it cannot be definitely determined whether or not the change was due to a spurious command. However, it is generally assumed this was the case. Transmitter A was commanded back to ON by the Guam ground station at 0833 G.m.t., 14 November 1972 at the direction of mission control.

Passive seismic experiment

This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response.

Active seismic experiment

Currently in standby. On 16 November 1972 the experiment was commanded ON at 1718 G.m.t., and to high bit rate ON at 1730 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1800 G.m.t., and the instrument commanded to standby at 1802 G.m.t. No seismic events were noted in real time. Next listening mode is scheduled for 24 November 1972.

Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Currently in standby. Experiment will remain in standby select until the start of continual 45 day support of Apollo 17 ALSEP.

Apollo 12 ALSEP

Operational status from 10 November 1972, 1300 G.m.t., to 17 November 1972, 1300 G.m.t.

Central station	Noon of the 38th lunar day will occur 22 November; RTG power output is constant; and, transmitter "B" signal strength was reported at -138.5 $\pm$ 1.5 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF on 15 November for lunar day operations when the central station's average thermal plate temperature increased to 40°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real-time support for the Apollo 12 experiment. The instrument's z axis drive motor was commanded OFF on 15 November 1972, as the sensor assembly temperature increased to 126.3°F.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	Uninterrupted operations in the normal range mode since 7 August 1972.
Suprathermal ion detector experiment	Cyclic commanding of the instrument in the full automatic stepping sequence with Channeltron high voltages ON to experiment power OFF will be initiated today. The experiment is commanded in this manner to preclude instrument mode changes at internal temperatures about 55°C.

Status as of 1800 G.m.t., 16 November 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1093	650	474	209
Total Commands to Date	15344	7390	11800	3321
Sun Angle	15°	21°	42°	54°
Input Power	68.6w	70.0w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	CPLEE & ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	57.5°F	70.2°F	94.7°F	100.6°F
PSE Sensor Assembly Temp	125.9°F	124.8°F	128.8°F	132.8°F
LSM Internal Temp	Invalid	N/A	54.9°C(130.8°F)	38.3°C(100.9°F)
SWS Module 300 Temp	33.1°C(91.6°F)	N/A	Standby	N/A
SIDE Temp	35.3°C(95.5°F)	Invalid	73.3°C(135.1°F)	N/A
CCGE Temp	Offscale HIGH	Invalid	355.6°K(180.7°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	10.8°C(51.4°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	310.9°K(100.2°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 November 1972
G.m.t.: 0600

This report covers the presently operating ALSEP's activity and data from the previous two weeks.

Apollo 12 ALSEP

November 19th, marked the completion of three full years of continuous operation on the lunar surface by the Apollo 12 ALSEP science station. The package, which was deployed by the crew of the Intrepid on 19 November 1969, has thus exceeded by two years its original design life specification. The central station continues its successful operation, showing little sign of degradation. Power output of the RTG remains stable, and the signal strength from the package's transmitter is essentially unchanged from its initial value at the commencement of operation three years ago. To date more than 15,473 commands have been received and executed by the central station and experiments. Currently the Apollo 12 ALSEP is in its 38th lunar night.

The passive seismometer is operating as in past lunar nights, with the thermal control mode in auto ON, and the feedback loop filter OUT. The magnetometer experiment science and engineering data have been invalid since 4 June 1972. The solar wind spectrometer continues to record plasma data in the normal range mode. The suprathermal ion detector is operating with the high voltage commanded ON and is in the full automatic stepping sequence. The cold cathode gauge experiment high voltage remains inoperative, while the temperature sensor continues to read offscale high. No significant scientific events have been detected during the intermittent periods of phase II support this past two weeks.

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past two weeks. Lunar midnight at the Descartes site will occur 4 December. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady at -139.5 ± 1.5 db. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop

filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. No significant seismic events were noted during the limited real-time support of this instrument.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 230th flip calibration sequence was executed correctly by command, on 29 November 1972.

The active seismic experiment is currently in standby. On 23 November 1972 the experiment was commanded to operate select at 1405 G.m.t., and to high bit rate ON at 1420 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal. High bit rate operations were terminated at 1450 G.m.t. and the experiment commanded to standby OFF at 1452 G.m.t. The next listening mode is scheduled for 1 December 1972.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 15

Operational status from 17 November 1972, 1300 G.m.t., to 30 November 1972, 0600 G.m.t.

Central station

Midnight of the station's 17th lunation will occur 5 December 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -136.0 to -138.0 dbm. After verification of the 18-hour timer's 373rd output pulse on 30 November 1972, the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. will be initiated.

Passive seismic experiment

Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real time support of this instrument. The instrument's uncage/arm fire circuitry will be commanded to OT state on 30 November 1972, to deliver maximum heat into the sensor assembly for lunar night operations.

Lunar surface magnetometer experiment

The experiment's sensors were commanded to the 50 gamma range at 1015 G.m.t., 28 November 1972 for lunar night-time operations. Currently the instrument has executed 707 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization.

Solar wind spectrometer experiment

The instrument has been in standby since 17 August 1972.

Suprathermal ion detector/cold cathode gauge experiment

Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 96.6°K (-285.5°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 17 November 1972, 1300 G.m.t., to 30 November 1972, 0600 G.m.t.

Central station	Sunset of the 23rd lunar day at the Apollo 14 landing site occurred on 29 November 1972. Power output of the radioisotope source is unvarying; and, central station's DSS-1 heater (10 watts) was commanded ON for lunar night operations on 29 November.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z axis has not displayed valid data or responded to commands since 19 November 1972. No seismic events have been noted during the limited real time support of this experiment.
Active seismic experiment	Currently in standby. On 23 November 1972 the experiment was commanded ON at 1410 G.m.t., and to high bit rate ON at 1500 G.m.t. for a passive listening mode operation. Data output of geophones 1 and 2 appeared normal; geophone 3 was continuously erratic. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 1530 G.m.t., and the instrument commanded to standby at 1532 G.m.t. No seismic events were noted in real time. Next listening mode is scheduled for 1 December 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental	Currently in standby. At 2000 G.m.t., 17 November, the instrument was commanded ON, with heater off in the fixed mode at the -35 volt step, for 12 minutes of operation. At 1418 G.m.t., 22 November, the instrument was commanded ON, with heater off in the fixed mode at the +350 volt step, for 68 minutes of operation. During both supports, the experiment's analyzer A high voltage remained substantially constant at 2600 Vdc level. Analyzer B high voltage remained below nominal levels.

Status as of 1600 G.m.t., 29 November 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1106	663	487	222
Total Commands to Date	15473	7547	12066	3596
Sun Angle	170°	177°	198°	210°
Input Power	69.0w	71.0w	72.5w	70.4w
Heater and Power Dumps	All OFF	DSS-1 ON (10w)	All OFF	DSS-1 ON (10w)
Experiment Status	All ON	CPLEE & ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	52.9°F	49.1°F	2.6°F	41.5°F
PSE Sensor Assembly Temp	137.0°F	124.7°F	126.7°F	125.9°F
LSM Internal Temp	Invalid	N/A	7.3°C (45.1°F)	-7.7°C (18.1°F)
SWS Module 300 Temp	32.4°C (90.3°F)	N/A	Standby	N/A
SIDE Temp	41.6°C (106.9°F)	Invalid	7.2°C (45.0°F)	N/A
CCGE Temp	Offscale HIGH	Invalid	118.7°K (-245.7°F)	N/A
CPLEE Electronic Temp	N/A	Standby	N/A	N/A
ASE GLA Temp	N/A	33.8°C (92.8°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	285.8°K (55.0°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 December 1972
G.m.t.: 1300

With the deployment of Apollo 17 ALSEP on 11 December 1972, a daily status report will be provided for its initial 45 days of operation. The weekly status report for the other ALSEPs will continue to be published each Friday.

Apollo 16 ALSEP

The Apollo 16 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations of the past week. Lunar midnight at the Descartes site occurred on 4 December. The central station's average thermal plate temperature remains stabilized, with the DSS-1 heater ON (10 watts). The signal strength from transmitter "A", as reported by the 30-foot antenna tracking stations, is steady at -141.0 $\pm$ 2.5 dbm. The thermoelectric power source output is normal. Inhibiting the effects of the 18-hour timer output pulses continues.

The typical night-time pattern of low background noise with occasional small, high frequency signals, is currently being sensed by the passive seismometer. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar night. No significant seismic events were noted during the limited real-time support of this instrument. During real-time support on 4 December 1972 the y-axis would not level in either auto or forced modes. The anomaly is presently under investigation.

The lunar surface magnetometer continues to measure time-dependent solar and induced magnetic lunar fields. The instrument is operating with the digital filter commanded OUT, the flip cal inhibit logic commanded IN, and the sensors configured to the 200 gamma range. The instrument's 234th flip calibration sequence was executed correctly by command, on 4 December 1972.

The active seismic experiment is in standby OFF with a 30 minute passive listening period scheduled for today. On 1 December 1972 the experiment was commanded to operate select at 0907 G.m.t., and to high bit rate ON at 0915 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real-time. High bit rate operations were terminated at 0945 G.m.t. and the experiment commanded to standby OFF at 0948 G.m.t.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 15

Operational status from 30 November 1972, 0600 G.m.t., to 8 December 1972, 1300 G.m.t.

Central station	Midnight of the station's 17th lunation occurred 5 December 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -136.5 ± 3.0 dbm. After verification of the 18-hour timer's 373rd output pulse on 29 November 1972 the lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1300 G.m.t. and 2100 G.m.t. was initiated. The data subsystem's average thermal plate temperature is presently stabilized at 0.7°F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic signals have been noted during the limited real-time support of this instrument. The instrument's uncage/arm fire circuitry was commanded to OT state at 0752 G.m.t., 30 November 1972, to deliver maximum heat into the sensor assembly for lunar night operations.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 50 gamma range for lunar night operation. Currently the instrument has executed 713 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. The experiment's y-axis sensor has indicated off-scale LOW (static) since 20 September 1972.
Solar wind spectrometer experiment	Presently in standby pending further analysis per SMEAR #45. The instrument has not been commanded to operate select since 17 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON.

Operational status from 30 November 1972, 0600 G.m.t., to 8 December 1972, 1300 G.m.t.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 88.1°K (-300.8°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 30 November 1972, 0600 G.m.t., to 8 December 1972, 1300 G.m.t.

Central station	Midnight of the 23rd lunar day at the Apollo 14 landing site occurred on 7 December 1972. Power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -137.5 ± 1.5 dbm. The central station's DSS-1 heater (10 watts) was commanded ON for lunar night operations on 29 November. Currently the central station's average thermal plate temperature is stable at 34.9°F. At 0708 G.m.t., 30 November 1972, an unexpected functional change occurred when the central station's data processor began processing data in the high-bit-rate mode. The change in bit-rate was noted by the Ascension ground station and verified by the Madrid ground station. Since no valid command verification word is received when a bit-rate change takes place, it cannot be definitely determined whether or not the change was due to a spurious command. However, it is generally assumed this was the case. The data processor was commanded back to normal-bit-rate by Mission Control at 0721 G.m.t., 30 November 1972. This was the 44th spurious functional change for this ALSEP.
Passive seismic experiment	This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z-axis has not displayed valid data nor responded to commands since 17 November 1972. No seismic events have been noted during the limited real-time support of this experiment.
Active seismic experiment	Currently in standby without a 30-minute passive listening mode planned for today as the AS-03 temperature is below -60°C. The experiment was not commanded to high bit rate and 1 December due to the same temperature restraint. Next listening mode is scheduled for 15 December 1972.
Suprathermal ion detector/cold cathode gauge experiment	Presently operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental	At the request of the Principal Investigator the experiment was commanded to ON, fixed mode and -35v step, at 1425 G.m.t., 4 December 1972. It is presently planned for the experiment to remain in this step until Apollo SIVB impact.

Apollo 12 ALSEP

Operational status from 30 November 1972, 0600 G.m.t., to 8 December 1972, 1300 G.m.t.

Central station

Midnight of the 38th lunar day occurred 7 December 1972; RTG power output is constant; and transmitter "B" signal strength was reported at -139.1 + 1.9 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 0749 G.m.t., 30 November when the central station's average thermal plate temperature decreased to 22.4°F. Presently the average thermal plate has stabilized at 16.4°F.

Passive seismic experiment

The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No lunar seismic signals have been sensed during the limited real-time support for the Apollo 12 experiment. The instrument's z-axis drive motor was commanded ON at 0729 G.m.t., 30 November, when the instrument temperature, DL-07, indicated 127.5°F in an effort to maximize the heat input to the sensor assembly during lunar night operations. DL-07 was stabilized at 126.2°F with the z motor ON.

Lunar surface magnetometer experiment

Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.

Solar wind spectrometer experiment

This experiment continues to perform its design function well beyond its planned operational period, returning more than three years of scientific data on solar wind plasma, magnetosphere plasma and magnetopause crossings, by sensing the direction and energies of both electrons and positive ions.

Suprathermal ion detector experiment

The instrument is operating in full automatic stepping sequence with the Channeltron high voltages ON. At 0934 G.m.t., 30 November, the digital electronics of the instrument ceased to process data (all 0's in the downlink). Two analog parameters, AI-01, (low energy counts) and AI-02, (high energy counts), continue to be processed and downlinked through the ALSEP 90 channel multiplexer. The anomaly occurred previously on 9 September 1972. The experiment is expected to process data normally at sunrise of the 39th lunar day, 15 December 1972, when the temperature will increase.

Status as of 1700 G.m.t., 4 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ASLEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1111	668	492	227
Total Commands to Date	15576	7580	12174	3672
Sun Angle	232°	238°	259°	271°
Input Power	69.4w	70.9w	72.5w	70.4w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)	ALL OFF	DSS-1 ON (10w)
Experiment Status	ALL ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	16.4°F	34.9°F	0.7°F	40.4°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	124.5°F	125.8°F
LSM Internal Temp	Invalid	N/A	3.8°C (38.8°F)	-7.8°C (19.0°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	Standby	N/A
SIDE Temp	Invalid	Invalid	7.2°C (45.0°F)	N/A
CCGE Temp	Invalid	Invalid	110.3°K (-260.9°F)	N/A
CPLEE Electronic Temp	N/A	-34.0°C (-29.2°F)	N/A	N/A
ASE GLA Temp	N/A	-63.5°C (-82.3°F)	N/A	OFF
HFE Temp Ref Junction	N/A	N/A	283.3°K (50.5°F)	OFF

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

13 December 1972
G.m.t.: 0700

Apollo 17 ALSEP

The Apollo 17 ALSEP was deployed on the moon on 12 December at approximately 155 meters NW of the Challenger's location (LM-17 preliminary coordinates on the EVA timeline map are DN.1 and 83.2). Initial acquisition of a downlink signal was reported by the Goldstone (-133.0 dbm) and Texas (-140.0 dbm) ground stations at 0253 G.m.t., following activation of the central station's shorting switch. Acquisition occurred 72 minutes after reported fueling of the radioisotope thermoelectric generator(RTG). Initial conditions of the central station were normal. Power output of the RTG was 56.8 watts, and the central station's thermal plate temperature averaged 84.9°F initially. Per the planned work schedule the central station electronics were reconfigured to Power Conditioning Unit 2 at 0301 G.m.t., with the Command Decoder Switch Inhibit command executed at 0306 G.m.t.

Experiments were initially turned on at the following times: Heat Flow Experiment, 0302 G.m.t.; Lunar Ejecta and Meteorite Experiment, 0319 G.m.t.; Lunar Seismic Profiling Experiment, 0358 G.m.t.; Lunar Atmospheric Composition Experiment, 0428 G.m.t.; and, the Lunar Surface Gravimeter Experiment, 0523 G.m.t.

The Heat Flow Experiment was emplaced successfully to nominal depths, with all temperature sensors returning data and the probes presently equilibrating with the surrounding lunar soil. About 12 hours after instrument turn-on temperatures of approximately 258°K were observed between 1 and 2½ meters in depth. Thermocouple temperatures indicate a lunar surface temperature of about 340°K.

The Lunar Surface Gravimeter was deployed nominally. Following initial experiment turn-on the instrument's downlink data, science and engineering, indicated normal operations. Set-up of the instrument was then initiated, and during this initial set-up procedure, nulling of the instrument's sensor beam has not been successfully accomplished. Failure to achieve null will limit science output from the experiment. Near the end of EVA 2 the LMP returned to the ALSEP site and confirmed a nominal experiment deployment. The LMP then re-leveled the experiment. Currently nulling operations are continuing. The current condition of the instrument has no adverse effect on the experiment's engineering data.

The Lunar Seismic Profiling Experiment was commanded to operate select to verify instrument operation, but was not commanded to high bit rate. Explosive Packages #6 (1 lb.) and #7 ($\frac{1}{2}$ lb.) were deployed during EVA 1. Explosive Packages #4 (1/8 lb.), #1 (6 lb.), and #8 ($\frac{1}{4}$ lb.) were deployed during the second traverse.

Explosive Package	Deployment Time	Detonation Window
EVA 1 #6 (1 lb.)	12 Dec/0458 G.m.t.	15 Dec/2317 G.m.t.-16 Dec/0011 G.m.t.
EVA 1 #7 (1/2 lb.)	12 Dec/0535 G.m.t.	16 Dec/0154 - 0248 G.m.t.
EVA 2 #4 (1/8 lb.)	13 Dec/0029 G.m.t.	16 Dec/1846 - 1940 G.m.t.
EVA 2 #1 (6 lb.)	13 Dec/0500 G.m.t.	17 Dec/0018 - 0112 G.m.t.
EVA 2 #8 (1/4 lb.)	13 Dec/0556 G.m.t.	17 Dec/0315 - 0409 G.m.t.

The Lunar Atmospheric Composition Experiment electronics have been turned on and verified. The instrument's temperatures were approximately as expected. A low voltage circuit check was made, and the commandable functions verified to be in the appropriate states to allow proper sequence of high voltage operation. The experiment was cycled from operate select to power off on December 12 (operate select 12 December/0428 G.m.t.- power off 12 Dec/0509 G.m.t.; and, operate select 12 Dec/2221 G.m.t.- power off 12 Dec/2238 G.m.t.). The experiment will now remain in the unpowered state until after detonation of the last LSPE explosive package.

The Lunar Ejecta and Metorites Experiment operated for 3 hours and 38 minutes following the intial turn-on command at 0319 G.m.t., 12 December. A software documentation error has prevented proper synchronization of the insturment's digital data to date. Correction of the error is expected to be completed today.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 0600 G.m.t., 13 December, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1120	677	501	236
Total Commands to Date	15585	12270	3836	7629
Sun Angle	335°	340°	358°	13°
Input Power	69.4w	70.5w	72.5w	70.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	All OFF
Experiment Status	All ON	All ON	SWS Stby	ASE OFF
Avg Thermal Plate Temp	73.4°F	28.3°F	-4.2°F	54.0°F
PSE Sensor Temp (DL-07)	Offscale LOW	124.3°F	124.2°F	126.1°F
LSM Internal Temp (DM-05)	Invalid	N/A	3.8°C	22.1°C
SWS Module 300 Temp (DW-13)	-16.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	Static	Invalid	6.6°C	N/A
CCGE Temp (DJ-04)	Static	Invalid	106.5°K	N/A
CPLEE Elect Temp (AC -06)	N/A	-22.0°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	-66.4°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	90.0°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	1
Total Commands to Date	1228
Sun Angle	29°
Input Power	75.4w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	100.1°F
LMS Temp (AM-41)	76.5°F
LEAM Temp (AJ-11)	108.1°F
HFE Temp Ref 1 (DH-13)	300.9°K
LSG Temp (DG-04)	Offscale LOW
LSP Temp (AP-01)	101.2°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

14 December 1972
G.m.t.: 0600

Apollo 17 ALSEP

Near the end of EVA-3 the LMP returned to the ALSEP site to manually excite and re-level the Lunar Surface Gravimeter Experiment, and verify that lunar soil was not blocking the field of view of the central station's power dissipation module panel. Manual freeing of the gravimeter's sensor beam was not successful. The LMP cleared lunar soil that was blocking the field view of the station's power dissipation module panel and the panel's temperature decreased immediately 30 degrees. It is currently indicating a temperature of 249.2°F. While at the central station the LMP re-level the station's antenna, after noting that it was not optimum. Downlink RF signal strength is satisfactory at -137.0 ±1.5 dbm. Power output from the radioisotope source remains constant at 75.4 watts, about 2 watts higher than any other ALSEP generator upon station activation. The central station's Command Decoder Switch Inhibit command was executed at 1807 G.m.t., 12 December. The decoder switch inhibit command sets a one-time inhibit circuit in the command decoder such that the next internally generated 61-hour pulse does not cause automatic switchover to the opposite receiver/decoder. Only one 61-hour pulse can be inhibited at a time. It is planned procedure to maintain the automatic switchover capability of the central station's command decoder to the opposite receiver/decoder inhibited. If command capability were lost to the central station, then the automatic switchover would occur on the second 61-hour pulse following the last inhibit command.

The Heat Flow Experiment continues to perform normally, with all temperature sensors returning data. The transient disturbance to the lunar temperatures, caused by the emplacement of the probes and drill-stems, are dissipating and the temperatures are returning to their undisturbed values. Thermocouple temperatures indicated a lunar surface temperature of approximately 343°K (70°C).

The LMP inspected leveling and verified that the Lunar Surface Gravimeter Experiment is level and the gimbal is swinging freely near the end of EVA-2. Continuous nulling operations of the experiment sensor beam have not been successful. Near the end of EVA-3 the LMP returned to the ALSEP site to manually excite and re-level the gravimeter in an attempt to free the sensor beam. This second re-leveling was not successful. Currently the experiment's sensor beam remains against the upper stop. The instrument's subsystem components continue to operate normally.

The Lunar Seismic Profiling Experiment explosive packages #2 (1/4 lb.), #3 (1/8 lb.) and #5 (3 lb.) were deployed during EVA-3.

Explosive Package	Deployment Time	Detonation Window
EVA 3 #5 (3 lb.)	14 Dec/0332 G.m.t.	17 Dec/2250-2344 G.m.t.
EVA 3 #2 (1/4 lb.)	14 Dec/0405 G.m.t.	18 Dec/0023-0117 G.m.t.
EVA 3 #3 (1/8 lb.)	14 Dec/0517 G.m.t.	18 Dec/0236-0330 G.m.t.

The Lunar Atmospheric Composition Experiment remains in the unpowered state. It will remain off with the dust cover over the optical surface radiator until after the last explosive charge detonation. Bakeout will begin at first lunar noon, followed by mass spectrometer turn-on during the first lunar night.

Correction of the software documentation error was completed and the Lunar Ejecta and Meteoroites Experiment commanded to operate select at 2050 G.m.t., 13 December. Four calibrate commands were also transmitted verifying the overall sensor electronics and data storage system of the experiment. The experiment was commanded off at 2101 G.m.t. The LEAM will remain in the unpowered state with the optical surface radiator and thermal covers in place until after explosive packages detonation.

Status as of 0600 G.m.t., 14 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1121	678	502	237
Total Commands to Date	15587	12335	3837	7638
Sun Angle	341°	351°	15°	22°
Input Power	68.9w	70.8w	72.3w	70.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	All OFF
Experiment Status	All ON	All ON	SWS Stby	ASE OFF
Avg Thermal Plate Temp	14.7°F	32.6°F	49.7°F	68.5°F
PSE Sensor Temp (DL-07)	Offscale LOW	124.3°F	125.6°F	126.7°F
LSM Internal Temp (DM-05)	Invalid	N/A	29.5°C	35.4°C
SWS Module 300 Temp (DW-13)	-16.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	Static	Invalid	29.5°C	N/A
CCGE Temp (DJ-04)	Static	Invalid	316.2°K	N/A
CPLEE Elect Temp (AC-06)	N/A	-22.0°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	-66.4°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	299.4°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	2
Total Commands to Date	2210
Sun Angle	43°
Input Power	75.4w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	110.2°F
IMS Temp (AM-41)	97.6°F
LEAM Temp (AJ-11)	130.7°F
HFE Temp Ref 1 (DH-13)	310.7°K
LSG Temp (DG-04)	Offscale LOW
LSP Temp (AP-01)	111.4°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

15 December 1972
G.m.t.: 0800

Apollo 17 ALSEP

The Apollo 17 scientific station measured the effects of the Challenger's lunar surface liftoff at 2254 G.m.t., 14 December, and the subsequent lunar surface impact of LM-12 at 0650 G.m.t., 15 December.

The central station's average thermal plate temperature continues to increase at a rate of about 0.3°F per hour, within the expected operation level. The RTG output continues steady at 75.4 watts. Since ALSEP activation, network receiving stations have reported downlink signal strength fluctuations which appear and disappear at about 6 minute intervals. When present, the fluctuations are sinusoidal (± 1.5 db around the steady-state value) with a period of about 45 seconds; gradually building up and decaying. At times the period is 75 to 90 seconds per cycle; occasionally it then changes to 22 to 30 seconds per cycle. These changes occur at 6 to 10 hour intervals. There is no frequency shift and the stations are supporting multiple ALSEP's; hence, it is not an atmospheric disturbance. The signal strength, at minimum, is well within the acceptable range for ALSEP normal bit rate. Calculated link margins based on MSFN compatibility tests at KSC indicate that even with present signal strength fluctuations there will be a two db margin with the system in high bit rate. These signal strength fluctuations have no effect on collection of the telemetry data, and the variations continue to be monitored for possible changes.

The Heat Flow Experiment probes and electronics are performing normally. The experiment is operating in the gradient mode (mode 1), with all sensors being sampled in full sequence. In addition to the normal measurements in mode 1, temperature measurements are periodically made at the ring sensors, with the probe heaters not energized (ring bridge survey). The ring sensors are space 29.7 cm apart and 9.9 cm from the end of each probe section.

The Lunar Surface Gravimeter sensor's initial onscale temperature (48.4°C) readout occurred at about 2054 G.m.t., 14 December, some 63 hours after initial turn-on. The sensor's temperature is currently 51.8°C. Nulling operations are continuing. Presently the instrument's sensor beam remains against the upper stop. The experiment's subsystem components continue to operate normally.

The Lunar Seismic Profiling Experiment was commanded ON at 2228 G.m.t., 14 December, and to LSP data rate (3533.3 bps), at 2229 G.m.t., to record the LM-12 lunar lift-off. During the experiment's high bit rate mode two calibration pulses were transmitted and verified, and four instrument high/low gain changes were also executed correctly. At 0000 G.m.t., 15 December, the experiment's transmitter ON command was executed. The instrument's telemetry data displayed a normal LSP transmitter functional readout. The LSP transmitter OFF command was sent at 0002 G.m.t. The four geophone outputs of the instrument were normal. LSP data rate operation was terminated at 0003 G.m.t., and the instrument returned to standby select at 0006 G.m.t., 15 December.

The Lunar Seismic Profiling Experiment was again commanded ON at 0627 G.m.t., 15 December, to record the LM-12 ascent stage impact. The experiment was commanded to high bit rate at 0636 G.m.t. The geophone outputs of the instrument were normal. High bit rate operation was terminated at 0741 G.m.t., and the experiment commanded to standby select at 0743 G.m.t., 15 December.

The LSP geophone data recorded during the LM ascent stage activities will be used in correlation with explosive packages detonation data in order to determine the velocity profile of the near surface structure.

The Lunar Atmospheric Composition Experiment remains powered down. The instrument's current average temperature rise is 0.9°F per hour.

The Lunar Ejecta and Meteorite Experiment remains powered down. Temperature rise of the unpowered electronics will probably require removal of the optical surface reflector dust cover between LM lift-off and explosive package detonation. Current average temperature increase of 1.1°F per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 16 ALSEP

Operational status from 8 December 1972, 1300 G.m.t., to 15 December 1972, 1200 G.m.t.

Central station

Sunrise of the 9th lunar day occurred on 11 December 1972 at the Descartes Site. The DSS-1 (10 watts) heater was commanded OFF at 0848 G.m.t., 12 December, when the average thermal plate temperature was 60.1°F. The thermoelectric power source output is normal. The 18-hour timer output pulses continue to be inhibited. The 30-foot antenna tracking stations report a signal strength of -141.0 ± 3.0 dbm from transmitter "A".

Passive seismic experiment

The experiment recorded the impact of the Apollo 17 S-IVB stage on 10 December during real-time support. The impact occurred at a distance of about 852 km from the Descartes site. At 1137 G.m.t., 13 December 1972, the y-axis responded to leveling commands in the forced mode, and at 1539 G.m.t., 13 December 1972, to auto mode leveling commands. Previous attempts to level the y-axis since 4 December were not successful. On 10 December 1972, at 1912 G.m.t., the y-motor was turned on and remained on for 27 hours and 43 minutes in an attempt to restore leveling capability. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar day.

Lunar surface magnetometer experiment

The experiment continues to measure time-dependent solar and induced magnetic fields with increased activity as the moon approaches the earth's transition region. The instrument's 240th flip calibration sequence was executed correctly by command on 13 December 1972. The experiment is presently configured with the digital filter commanded IN, the flip cal inhibit logic commanded IN and the sensors in the 200 gamma range.

Active seismic experiment

The experiment is in standby OFF with a 30-minute passive listening period scheduled for today. On 8 December 1972 the experiment was commanded to operate select at 0940 G.m.t. and to high bit rate ON at 1020 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real-time. High bit rate operations were terminated at 1050 G.m.t. and the experiment commanded to standby OFF at 1053 G.m.t.

Apollo 15 ALSEP

Operational status from 8 December 1972, 1300 G.m.t., to 15 December 1972, 1200 G.m.t.

Central station	Sunrise of the station's 18th lunation occurred 12 December 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -135.3 ± 1.7dbm. The 18-hour timer was initiated for day operations at 2355 G.m.t., 13 December.
Passive seismic experiment	Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. Apollo 17 S-IVB seismic signals were noted in the playback of data of this instrument at a distance of approximately 1,032 km from ALSEP 15.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day operation. Currently the instrument has executed 727 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. The experiment's y-axis sensor has indicated off-scale LOW (static) since 20 September 1972.
Solar wind spectrometer experiment	Presently in standby pending further analysis per SMEAR #45. The instrument has not been commanded to operate select since 17 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	At 2018 G.m.t., 10 December, the instrument was commanded to master reset and to reset frame counter at frame 39 simultaneously with the Apollo 14 ALSEP SIDE instrument. This places both instruments in synchronization with each other and eliminated cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to get two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period for the Apollo 17 ALSEP. Presently operating in the 0-39 frame stepping sequence with the Channeltron high voltages commanded ON. The instrument apparently recorded the ions emitted by Apollo 17 Challenger. Energy levels which were recorded were in the 50 EV range and both the thermal ion detector and mass analyzer observed the ions. The event lasted for approximately 15 minutes.

Operational status from 8 December 1972, 1300 G.m.t., to 15 December 1972, 1200 G.m.t.

Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1°K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 318.5°K (45.5°C). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 8 December 1972, 1300 G.m.t., to 15 December 1972, 1200 G.m.t.

Central station

Sunrise of the 24th lunar day at the Apollo 14 landing site occurred 14 December 1972. Power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -138.8 ± 3.7 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF for lunar day operations on 14 December, 0236 G.m.t.

Passive seismic experiment

This instrument is configured identically to the other seismometer's (thermal control auto ON, 0 db gain on all sensors, and filter OUT) in order to match seismic response. The instrument's long period z-axis has not displayed valid data nor responded to commands since 17 November 1972. The impact of Apollo 17 S-IVB was noted during the real-time support of this experiment on 10 December 1972. The impact occurred at a distance of about 156 km from the Apollo 14 site.

Active seismic experiment

Currently in standby with a 30-minute passive listening mode planned for today. The experiment was not commanded to high bit rate on 8 December due to the AS-03 temperature restraint of -60°C. Next listening mode is scheduled for 22 December 1972.

Suprathermal ion detector/cold cathode gauge experiment

At 2018 G.m.t., 10 December, the instrument was commanded to master reset and to reset frame counter at frame 39 simultaneously with the Apollo 15 ALSEP SIDE instrument. This places both instruments in synchronization with each other and eliminated cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to get two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period for the Apollo 17 ALSEP. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.

Apollo 14 ALSEP (continued)

Operational status from 8 December 1972, 1300 G.m.t., to 15 December 1972, 1200 G.m.t.

Charged particle lunar environmental	The experiment was commanded to automatic mode at 1839 G.m.t., 11 December 1972. The experiment returned valid data after impact of the Apollo S-IVB. The instrument will remain in this mode under the present operational plan.

Apollo 12 ALSEP

Operational status from 8 December 1972, 1300 G.m.t., to 15 December 1972, 1200 G.m.t.

Central station	Sunrise of the 39th lunar day occurred on 15 December 1972; RTG power output is constant; and transmitter "B" signal strength was reported at -140.3 ± 3.2 dbm. The central station's DSS-1 heater (10 watts) was commanded OFF at 0619 G.m.t., 15 December when the central station's average thermal plate temperature increased to 16.7°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. Impact of the Apollo S-IVB was sensed by the Apollo 12 experiment as playback data corroborated. Impact was at a distance of about 336 km from the Apollo 12 site. The instrument's z-axis drive motor was commanded OFF at 0617 G.m.t., 15 December, for lunar day operation.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	This experiment continues to perform its design function well beyond its planned operational period, returning more than three years of scientific data on solar wind plasma, magnetosphere plasma and magnetopause crossings, by sensing the direction and energies of both electrons and positive ions.
Suprathermal ion detector experiment	At 0613 G.m.t., 15 December, the instruments digital data returned with the start of real time support. At 0623 G.m.t., the instrument was commanded to master reset and to reset frame counter at frame 39. This places all the instruments in synchronization with each other and eliminates cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to attain two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period of Apollo 17 ALSEP.

Status as of 0500 G.m.t., 15 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1122	679	503	236
Total Commands to Date	15593	12404	3899	7694
Sun Angle	359°	3°	21°	40°
Input Power	72.6w	68.5w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	All ON	SWS Stby	ASE OFF
Avg Thermal Plate Temp	14.7°F	33.8°F	69.2°F	89.7°F
PSE Sensor Temp (DL-07)	Offscale LOW	124.3°F	126.0°F	127.2°F
MSM Internal Temp (DM-05)	Invalid	N/A	42.4°C	35.5°C
SWS Module 300 Temp (DW-13)	-16.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	10.8°C	Invalid	47.4°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	331.5°K	N/A
CPLEE Elect Temp (AC-06)	N/A	-22.0°C	N/A	N/A
ASE CIA Temp (AS-03)	N/A	-66.4°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	298.8°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	3
Total Commands to Date	2495
Sun Angle	56°
Input Power	76.2w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	118.1°F
LMS Temp (AM-41)	120.0°F
LEAM Temp (AJ-11)	151.2°F
HFE Temp Ref 1 (DH-13)	318.7°K
ISG Temp (DG-04)	51.8°C
LSP Temp (AP-01)	119.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 December 1972
G.m.t.: 0400

Apollo 17 ALSEP

Power from the radioisotope source remains constant at 76.2 watts. The average temperature of the central station electronics thermal plate continues increasing at a rate of about 0.3°F per hour. Downlink signal strength is adequate at -138.0 dbm, plus or minus 1.5 dbm. A status change in the station's command decoder switch inhibit telemetry point, AB-18, verified that the internally generated 61-hour pulse that would cause automatic switchover to the opposite receiver/decoder if it were not inhibited is occurring every 61h49m35s ±22s. At 0050 G.m.t., 15 December, the command to maintain the automatic switchover capability of the central station's command decoder to the opposite receiver/decoder inhibited was executed as planned.

The Heat Flow Experiment temperature sensors and thermocouples in the cable are continuing to track the temperatures on and below the lunar surface. The experiment electronics continue to operate normally, with periodic ring bridge survey's being accomplished. The experiment's thermocouples, above the surface, are reading 363°K (90°C), and the temperature at the lowermost sensors is about 257°K (-16°C).

Nulling operations of the Lunar Surface Gravimeter's sensor beam have not been successfully accomplished. Investigation of the instrument's mechanical and electrical functions to determine probable failure or propose remedial action continues. The possibility also exists that the experiment does operate to some extent as a vertical seismometer. The instrument's housekeeping data continues to be normal.

The Lunar Surface Profiling Experiment explosive charges, #6 and #7, deployed during the EVA-1 traverse activated normally. The LSPE four geophones responded to the detonation of both explosive packages. Instrument calibrate pulses were executed during the high bit rate operations.

EP	Size	Detonation G.m.t.	LSP ON G.m.t.	HBR ON G.m.t.	HBR OFF G.m.t.	LSP Stby G.m.t.
6	1 lb	15 Dec/2348	2238	2244	-	-
7	1/2 lb	16 Dec/0218	-	-	0226	0228

The Lunar Atmospheric Composition Experiment remains powered down. The instrument's current average temperature rise is about 0.7 °F per hour. Because of the excessive temperature rise of the unpowered electronics it would have probably required removal of the dust cover over the instrument's optical surface radiator prior to detonation of the last LSP explosive package. Therefore, the experiment's mission rule (32-2-B) has been restated to reflect a maximum allowable non-operating temperature of 167°F (reference telemetry point AM-41). The projected non-operating temperature of the LACE is approximately 155°F.

The Lunar Ejecta and Meteorite Experiment remains powered down. Temperature rise of the unpowered electronics would have probably required removal of the optical surface reflector dust cover before the last explosive package detonation. The LEAM upper limit non-operating temperature was increased to 180°F (reference mission rule 32-3-D, and instrument telemetry point AJ-11). The experiment's projected non-operating temperature will probably approach 180°F. The current average temperature increase of the instrument's electronics is about 0.5°F per hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status of 0230 G.m.t., 16 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1123	680	504	237
Total Commands to Date	15635	12422	3923	7712
Sun Angle	12°	19°	36°	51°
Input Power	68.6w	70.0w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	All ON	SWS Stby	ASE OFF
Avg Thermal Plate Temp	55.1°F	68.9°F	90.4°F	99.8°F
PSE Sensor Temp (DL-07)	125.8°F	124.6°F	126.5°F	131.3°F
LSM Internal Temp (DM-05)	Invalid	N/A	52.1°C	38.3°C
SWS Module 300 Temp (DW-13)	29.7°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	31.6°C	Invalid	69.9°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	355.6°K	N/A
CPLEE Elect Temp (AC-06)	N/A	24.7°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	4.9°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	306.9°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	4
Total Commands to Date	2612
Sun Angle	66°
Input Power	76.2w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	123.6°F
LMS Temp (AM-41)	135.0°F
LEAM Temp (AJ-11)	163.0°F
HFE Temp Ref 1 (DH-13)	323.4°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	127.4°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 December 1972
G.m.t.: 0500

Apollo 17 ALSEP

The central station is operating nominally. Over 2600 commands have been sent and executed to date. Radioisotope thermal generator (RTG) power output and downlink signal strength remain steady.

There has been essentially no change in status on the ALSEP experiments. Heat Flow sensors continue to equilibrate. Lunar Ejecta and Meteroites (LEAM) and Lunar Atmospheric Composition (LACE) temperatures continue to rise with the approach of lunar noon. New temperature limitations were established for these experiments before the dust covers which cover the thermal radiation surfaces must be removed.

LEAM $167^{\circ}F$ to $180^{\circ}F$

LACE $160^{\circ}F$ to $167^{\circ}F$

Based on the temperature rises which these experiments are experiencing, it appears that the dust cover will not have to be removed prior to the last EP detonation. The Lunar Surface Gravimeter (LSG) status remains unchanged. It is not planned to exercise the experiment until the results of the studies underway have been evaluated and a new course of action agreed upon. LSG sensor temperature is essentially stabilized at $49.16^{\circ}C$.

The Lunar Surface Profiling Experiment (LSPE) explosive charges, #4, #1 and #8, deployed during the EVA-2 traverse detonated normally. The LSPE four geophones responded to the detonation of each explosive package. Instrument calibrate pulses were executed during the experiment's operating period.

EP	Size	Detonation G.m.t.	LSPE ON G.m.t.	HBR ON G.m.t.	HBR OFF G.m.t.	LSPE Stby G.m.t.
4	1/8 lb	16 Dec/1908	1805	1814	1923	1931
1	6 lb	17 Dec/0042	2342	2344	0057	0102
8	1/4 lb	17 Dec/0346	0239	0241	0351	0353

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status of 0400 G.m.t., 17 December 1972, was as follows

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1124	681	505	238
Total Commands to Date	15653	12434	3938	7732
Sun Angle	24°	30°	51°	64°
Input Power	68.1w	70.0w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	All ON	SWS Stby	ASE OFF
Avg Thermal Plate Temp	74.1°F	84.7°F	102.3°F	106.0°F
PSE Sensor Temp (DL-07)	126.3°F	125.1°F	134.0°F	140.6°F
LSM Internal Temp (DM-05)	Invalid	N/A	59.4°C	41.4°C
SWS Module 300 Temp (DW-13)	44.3°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	51.8°C	Invalid	80.5°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	364.0°K	N/A
CPLEE Elect Temp (AC-06)	N/A	39.0°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	30.6°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	318.4°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	5
Total Commands to Date	2646
Sun Angle	79°
Input Power	75.9w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	127.0°F
LMS Temp (AM-41)	148.0°F
LEAM Temp (AJ-11)	171.7°F
HFE Temp Ref 1 (DH-13)	327.0°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	130.4°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

18 December 1972
G.m.t.: 0430

Apollo 17 ALSEP

All experiments are operating as planned, including the Lunar Surface Gravimeter in its limited mode. Power from the RTG remains constant. The downlink received signal is steady at -137.0 ±1.0 dbm. The central station's command decoder switch inhibit pulse occurred as anticipated, verified by a status change in telemetry point AB-18. The command to inhibit the next interally generated 61-hour pulse was transmitted at 1551 G.m.t., 17 December. The central station's average thermal plate temperature continues to increase at a rate of about 0.06°F/hour.

The Heat Flow Experiment continues to operate nominally. Thermocouple temperature measured at the lunar surface is approximately 388 ±8°K. The temperature at 230 cm depth is 256.6°K at probe #1, and 257.0°K at probe #2. Both heat probes indicate an increase of temperature with depth for depths greater than 65 cm reflecting heat flow from the interior of the moon.

There is no change in the Lunar Surface Gravimeter Experiment status. The experiment will not be exercised until studies have been completed and an agreed course of action is approved. The experiment's sensor temperature is stabilized at 49.161°C (slave heater ON).

The Lunar Surface Profiling Experiment (LSPE) explosive charges #5, #2 and #3, deployed during the EVA-3 traverse detonated as planned. The four LSPE geophones responded to the detonation of each explosive package. Instrument calibrate pulses were executed during the experiment's operating mode.

EP	Size	Detonation G.m.t.	LSPE ON G.m.t.	HBR ON G.m.t.	HBR OFF G.m.t.	LSPE Stby G.m.t.
5	3 lb	17 Dec/2316	2213	2217	2330	-
2	1/4 lb	18 Dec/0045	-	0000	0057	-
3	1/8 lb	18 Dec/0307	-	0213	0318	0408

The Lunar Atmospheric Composition Experiment (LACE) remains powered down. Approximately one hour after detonation of the last LSPE explosive charge the LACE was commanded to operate select and the instrument's dust cover over the optical surface radiator commanded off (0420 G.m.t., 18 December). The experiment was then commanded to off at 0425 G.m.t. The current plan is to leave the LACE powered down until the internal temperature (AM-41) decreases to 130°F, at which time the instrument's bakeout sequence will be initiated. The internal temperature of the instrument in the powered down mode with the dust cover on reached 154.1°F. With removal of the experiment's dust cover, the internal temperature decreased. Presently the instrument's internal temperature is 148.9°F.

The Lunar Ejecta and Meteroites Experiment (LEAM) remains powered down. The internal temperature of the instrument is currently 174.9°F. The projected non-operating temperature of the LEAM is 176°F, based on the rate of increase over the past 24 hours.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 0417 G.m.t., 18 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1125	682	506	239
Total Commands to Date	15690	12481	3958	7780
Sun Angle	35°	41°	61°	76°
Input Power	71.7w	70.0w	72.3w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	All ON	SWS Stby	ASE OFF
Avg Thermal Plate Temp	83.0°F	97.9°F	108.5°F	109.5°F
PSE Sensor Temp (DL-07)	126.7°F	125.6°F	139.8°F	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	66.0°C	45.8°C
SWS Module 300 Temp (DW-13)	56.7°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	85.5°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	364.0°K	N/A
CPLEE Elect Temp (AC-06)	N/A	53.1°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	52.0°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	324.3°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	6
Total Commands to Date	2707
Sun Angle	92°
Input Power	75.9w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	128.5°F
LMS Temp (AM-41)	148.9°F
LEAM Temp (AJ-11)	174.9°F
HFE Temp Ref 1 (DH-13)	328.0°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	132.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

19 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station continues operating normally. Engineering measurements of the station's data subsystem components are currently indicating a average temperature decrease of 0.6°F/hour. The central station's data subsystem components attained a maximum temperature value near 0600 G.m.t., 18 December, as the average thermal plate temperature peaked at 129.0°F (93° sun angle at the site). Radioactive thermo generator output is constant. Downlink signal strength varies between -136 dbm to -139 dbm depending on the receiving site.

The Heat Flow Experiment continues to operate normally, with all temperature sensors returning data and the probes continuing to equilibrate with the surrounding lunar soil. Maximum surface temperature measured by the Heat Flow Experiment thermocouples was 388 ±8°K at lunar noon. The maximum temperature reached by the experiment's electronics was 55°C (sun angle 93, 0600 G.m.t., 18 December).

There has been no change in status of the Lunar Surface Gravimeter since the last report.

The Lunar Surface Profiling Experiment remains in standby, with a 30 minute passive listening mode planned for 22 December.

The Lunar Atmospheric Composition Experiment (LACE) currently is off. Following completion of the experiment's nine hour bake-out sequence, the instrument's engineering measurements (high voltage power supply and ion source filaments off) were monitored for the next seven hours to establish trend data. The LACE was commanded off at 0927 G.m.t., 19 December, after the instrument's temperature (AM-41) increased to 126.1°F (reference mission rule 32-52). It is planned that the LACE remain in the powered down mode for a minmum of 50 hours after ephemeris sunset (25 December) at which time full operations would be initiated. The LACE's radiator plate temperature peaked at 154.1°F (92° sun angle, about 0400 G.m.t., 18 December).

The Lunar Ejecta and Meteroites Experiment (LEAM) remains powered down. New temperature limitations were established for the LEAM experiment before the thermal radiation surface dust cover is removed (AJ-11 = 160°F), and full operation is initiated (AJ-11 = 125°F). The LEAM attained a maximum temperature of 176.0°F, and stabilized at this peak temperature for a period of about 15 hours (93° - 99° sun angle). The instrument's temperature is currently decreasing at a rate of 0.04°F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1100 G.m.t., 19 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1126	683	507	240
Total Commands to Date	15713	7807	12514	3998
Sun Angle	58°	59°	79°	92°
Input Power	68.6w	70.0w	72.3w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	90.5°F	111.5°F	114.5°F	110.9°F
PSE Sensor Temp (DL-07)	127.7°F	122.2°F	Offscale HIGH	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	71.4°C	48.2°C
SWS Module 300 Temp (DW-13)	64.3°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	89.1°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	372.6°K	N/A
CPLEE Elect Temp (AC-06)	N/A	72.3°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	71.2°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	329.9°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	7
Total Commands to Date	2763
Sun Angle	105°
Input Power	75.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	113.2°F
LMS Temp (AM-41)	126.1°F
LEAM Temp (AJ-11)	174.9°F
HFE Temp Ref 1 (DH-13)	326.2°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	114.9°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

20 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

Currently, the central station's electronics thermal plate average temperature is 124.8°F, holding steady. Data subsystem component operation is nominal. RTG output power remains constant at 75.8 watts. Downlink signal strength is ample at -137.0 ± 1.0 dbm. A status change in the station's command decoder switch inhibit telemetry point, AB-18, verified that the internally generated 61-hour pulse occurred as anticipated. At 0507 G.m.t., 20 December, the command to maintain the automatic switchover capability of the central station's command decoder to the opposite receiver/decoder inhibited was executed as planned.

The Heat Flow Experiment temperature sensors and thermocouples in the cable are continuing to track the temperatures on and below the lunar surface. The experiment electronics continue to operate normally, with periodic ring bridge survey's being accomplished. The experiment's thermocouples, above the surface, are reading 374 ± 8°K, and the temperature at the lowermost sensors is about 257°K.

There has been no change in status of the Lunar Surface Gravimeter Experiment or Lunar Surface Profiling Experiment since the last report.

The Lunar Atmospheric Composition Experiment (LACE) currently is off. The instrument was commanded on (high voltage power supply off, ion source filaments off, back-up heater off, and low voltage power supply on) at 1316 G.m.t., 19 December, to monitor engineering measurements for additional data correlation. The LACE was commanded off at 1804 G.m.t., 19 December, after the instrument's low voltage power supply temperature (AM-15) increased to 128.3°F. It is planned that the experiment remain in the off mode until its temperature (AM-41) decreases to 32°F, at which time the LACE would be placed in standby select prior to the ephemeris sunset. The instrument's temperature is currently decreasing at a average rate of 3.2°F/hour.

The Lunar Ejecta and Meteroites Experiment (LEAM) remains powered down. New temperature limitations were established for the LEAM experiment before the thermal radiation surface dust cover is removed (AJ-11 = 160°F), and full operation is initiated (AJ-11 = 125°F). The instrument's temperature is currently decreasing at an average rate of 0.2 °F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1100 G.m.t., 20 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1127	684	508	243
Total Commands to Date	15729	7831	12555	4032
Sun Angle	63°	71°	91°	103°
Input Power	68.6w	70.0w	72.3w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	93.3°F	116.6°F	116.5°F	109.8°F
PSE Sensor Temp (DL-07)	131.8°F	125.5°F	Offscale HIGH	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	73.3°C	47.0°C
SWS Module 300 Temp (DW-13)	66.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	89.5°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	364.0°K	N/A
CPLEE Elect Temp (AC-06)	N/A	78.4°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	82.0°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	333.8°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	8
Total Commands to Date	2840
Sun Angle	118°
Input Power	75.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	124.8°F
LMS Temp (AM-41)	68.2°F
LEAM Temp (AJ-11)	170.6°F
HFE Temp Ref 1 (DH-13)	322.8°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	126.7°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

21 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station continues operating normally. Radioactive thermo generator output is constant. Downlink signal strength varies between -136 dbm to -139 dbm depending on the receiving site.

The Heat Flow Experiment probes and electronics are performing normally. The experiment is operating in the gradient mode (mode 1), with all sensors being sampled in full sequence. In addition to the normal measurements in mode 1, temperature measurements are periodically made at the ring sensors, with the probe heaters not energized (ring bridge survey). The experiment's thermocouples, above the surface, are reading 374 $\pm$ 8°K.

The Lunar Surface Gravimeter Experiment's status is unchanged since the last report. The instrument is configured to seismic high gain select, in an effort to operate to some extent as a vertical seismometer. The instrument's housekeeping data continues to be normal.

The Lunar Surface Profiling Experiment remains in standby, with a 30 minute passive listening mode planned for 22 December.

The Lunar Atmospheric Composition Experiment (LACE) currently is off. It is planned that the experiment remain in the off mode until its temperature (AM-41) decreases to 32°F, at which time the LACE would be placed in standby select prior to the ephemeris sunset. The instrument's temperature is currently decreasing at an average rate of 0.7°F/hour.

The Lunar Ejecta and Meteroites Experiment (LEAM) remains powered down. New temperature limitations were established for the LEAM experiment before the thermal radiation surface dust cover is removed (AJ-11 = 160°F), and full operation is initiated (AJ-11 = 125°F). At 0957 G.m.t., 21 December, the experiment's thermal radiation surface dust cover was removed successfully (AJ-11 = 159.8°F), and the experiment powered down. The instrument's temperature is currently decreasing at an average rate of 2.1°F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1030 G.m.t., 21 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1128	685	509	244
Total Commands to Date	15738	7852	12580	4053
Sun Angle	75°	81°	103°	116°
Input Power	68.6w	70.0w	72.3w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE & CPLEE Stby	SWS OFF	ASE OFF
Avg Thermal Plate Temp	93.4°F	117.0°F	117.5°F	107.4°F
PSE Sensor Temp (DL-07)	137.5°F	129.4°F	Offscale HIGH	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	71.4°C	44.7°C
SWS Module 300 Temp (DW-13)	67.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	90.7°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	364.0°K	N/A
CPLEE Elect Temp (AC-06)	N/A	Standby	N/A	N/A
ASE GLA Temp (AS-03)	N/A	85.3°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	331.7°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	9
Total Commands to Date	2863
Sun Angle	131°
Input Power	75.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	119.3°F
LMS Temp (AM-41)	53.7°F
LEAM Temp (AJ-11)	157.6°F
HFE Temp Ref 1 (DH-13)	316.5°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	121.1°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

22 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station continues operating normally. Engineering measurements of the station's data subsystem components are currently indicating an average temperature decrease of about 0.4°F/hour. Downlink RF signal strength is satisfactory at -137.0 ± 1.5 dbm. Since ALSEP activation, network receiving stations have reported downlink signal strength fluctuations which appear and disappear at about 6 minute intervals. When present, the fluctuations are sinusoidal (± 1.5 db around the steady-state value) with a period of about 45 seconds; gradually building up and decaying. At times the period is 75 to 90 seconds per cycle; occasionally it then changes to 22 to 30 seconds per cycle. These changes occur at 6 to 10 hour intervals. There is no frequency shift and the stations are supporting multiple ALSEP's. The signal strength, at minimum, is well within the acceptable range for ALSEP normal bit rate. These signal strength fluctuations have no effect on collection of the telemetry data, and the variations continue to be monitored for possible changes. Power output from the radioisotope source remains constant at 75.8 watts.

The Heat Flow Experiment continues to operate nominally. Thermocouple temperature measured at the lunar surface is approximately 358 ± 8°K. The temperature at 230 cm depth is 256.4°K at probe #1, and 257.0°K at probe #2. Both heat probes indicate an increase of temperature with depth for depths greater than 65 cm reflecting heat flow from the interior of the moon.

There has been no change in status of the Lunar Surface Gravimeter Experiment.

The Lunar Surface Profiling Experiment was commanded on at 0657 G.m.t., 22 December, and to LSPE data format processing (high bit rate) at 0710 G.m.t., for a thirty minute passive listening period. Two geophone calibration pulses were sent to the experiment during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real time. LSPE processing was terminated at 0740 G.m.t., and the instrument commanded to standby select at 0743 G.m.t.

The Lunar Atmospheric Composition Experiment (LACE) currently is off. It is planned that the experiment remain in the off mode until its temperature (AM-41) decreases to 32°F, at which time the LACE would be placed in standby select prior to the ephemeris sunset. The instrument's temperature is currently decreasing at an average rate of about 0.4°F/hour.

The Lunar Ejecta and Meteorites Experiment (LEAM) remains powered down. New temperature limitations were established for the LEAM experiment before full operation is initiated (AJ-11 = 125°F). The instrument's temperature is currently decreasing at an average rate of approximately 0.9°F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 16 ALSEP

Operational status from 15 December 1972, 1200 G.m.t., to 22 December 1972, 1200 G.m.t.

Central station	Noon of the 9th lunar day occurred on 19 December 1972 at the Descartes Site. The DSS-1 (10 watts) heater is OFF and will remain off throughout lunar day operation. The average thermal plate temperature is stabilized at 107.4°F. The 18-hour timer output pulses continue to be inhibited. The 30-foot antenna tracking stations report a signal strength of -140.5 ± 2.5 dbm from transmitter "A".
Passive seismic experiment	The y-axis continues to respond to leveling commands in the forced mode and auto mode since 13 December 1972. Experiment operation continues with the feedback loop filter commanded OUT, the sensor gains of all components configured to 0 db, and the sensor assembly temperature stabilized (auto ON thermal control mode). The uncage/arm fire circuit is configured to the uncaged state. The instrument will be configured in this manner throughout lunar day. The instrument's DL-07 sensor assembly temperature was off-scale HIGH at 1100 G.m.t., 17 December. It is projected to return on-scale 26 December 1972.
Lunar surface magnetometer experiment	The experiment continues to measure time-dependent solar and induced magnetic fields with increased activity as the moon passes through the earth's geomagnetic tail. The instrument's 248th flip calibration sequence was executed correctly by command on 20 December 1972. The experiment is presently configured with the digital filter commanded IN, the flip cal inhibit logic commanded IN and the sensors in the 200 gamma range.
Active seismic experiment	The experiment is in standby OFF with a 30-minute passive listening period scheduled for today. On 15 December 1972 the experiment was commanded to operate select at 1233 G.m.t. and to high bit rate ON at 1245 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real-time. High bit rate operations were terminated at 1315 G.m.t. and the experiment commanded to standby OFF at 1318 G.m.t.

Apollo 15 ALSEP

Operational status from 15 December 1972, 1200 G.m.t., to 22 December 1972, 1200 G.m.t.

Central station	Noon of the station's 18th lunation occurred 20 December 1972; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -137.5 ± 4.0 dbm. The 18-hour timer continues operation in the uninhibited mode for day operations.
Passive seismic experiment	The instrument's DL-07 sensor assembly temperature was offscale HIGH at 1230 G.m.t., 18 December. Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic events have been noted during the real-time support of this instrument.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 100 gamma range for lunar day operation. Currently the instrument has executed 731 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. The experiment's y-axis sensor has indicated off-scale LOW (static) since 20 September 1972. The flip calibration sequences were suspended on 18 December 1972 as the LSM internal temperature is above 60°C.
Solar wind spectrometer experiment	Presently in standby pending further analysis per SMEAR #45. The instrument has not been commanded to operate select since 17 August 1972.
Suprathermal ion detector/cold cathode gauge experiment	The instrument is presently operating in the 0-39 frame stepping sequence with the Channeltron high voltages commanded ON simultaneously with the Apollo 12 and 14 ALSEP SIDE instruments. This places the instruments in synchronization with each other and eliminates cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to get two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period for the Apollo 17 ALSEP.

Apollo 15 ALSEP (continued)

Operational status from 15 December 1972, 1200 G.m.t., to 22 December 1972, 1200 G.m.t.

Heat flow experiment

The temperature of probe 1 at the bottom of the lowest probe section is 253.1 K (-3.8°F) with probe 2 indicating a temperature of 250.7°K (-8.1°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 370.2°K (206.9°F). Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement, TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 15 December 1972, 1200 G.m.t., to 22 December 1972, 1200 G.m.t.

Central station	Noon of the 24th lunar day at the Apollo 14 landing site will occur today, 22 December 1972. Power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -142.0 ± 3.0 dbm. The central station's DSS-1 heater (10 watts) is OFF for lunar day operations.
Passive seismic experiment	This instrument is configured; thermal control forced OFF, 0 db gain on all sensors, and filter OUT. The instrument's long period z-axis has not displayed valid data nor responded to commands since 17 November 1972. No major seismic events have been noted during real-time support.
Active seismic experiment	Currently in standby with a 30-minute passive listenting mode planned for today. On 15 December 1972 the experiment was commanded to operate select at 1328 G.m.t. and to high bit rate ON at 1335 G.m.t. Geophone 3 indicated off-scale HIGH at 1336 G.m.t., 15 December 1972 during this brief listening period. No geophone calibration pulses were sent to the instrument. The listening mode was terminated at 1338 G.m.t. because of excessive noise due to intermittent downlink lock. The instrument was commanded to standby at 1341 G.m.t.
Suprathermal ion detector/cold cathode gauge experiment	The instrument is presently operating in the 0-39 frame stepping sequence simultaneously with the Apollo 12 and 15 ALSEP SIDE instrument. This places the instruments in synchronization with each other. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to get two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period for the Apollo 17 ALSEP. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.

Apollo 14 ALSEP (continued)

Operational status from 15 December 1972, 1200 G.m.t., to 22 December 1972, 1200 G.m.t.

Charged particle lunar environmental	Under a revised operations procedure (reference SMEAR #79) the experiment was configured to automatic thermal control mode indefinitely. This was accomplished at 1839 G.m.t., 11 December. It is planned that the experiment will continue to be commanded periodically, to various voltage levels, during lunar day operations using the guidelines referenced in SMEAR #77, 78 & 79. At 1513 G.m.t., 19 December 1972, the experiment was commanded to standby as AC-03 analyzer A high voltage dropped to 2290.6 vdc. At 1914 G.m.t., 19 December 1972, the experiment was commanded to ON after a minimum 3 hour waiting period. At 2242 G.m.t., 20 December, the instrument was commanded to standby as AC-03 analyzer A high voltage dropped to 2264.3 vdc. The instrument is presently operating in the full auto mode after being commanded on at 1050 G.m.t., 22 December.

Apollo 12 ALSEP

Operational status from 15 December 1972, 1200 G.m.t., to 22 December 1972, 1200 G.m.t.

Central station	Noon of the packages 39th lunar day occurs today 22 December 1972; RTG power output is constant; and transmitter "B" signal strength was reported at -139.8 ± 2.7dbm. On 10 December at 0422 G.m.t., a spurious DTREM OFF command (octal 031) was executed, placing the measurements package in OFF. The DTREM was commanded back ON at 1155 G.m.t., 15 December 1972. No adverse effects were noted during this period. This was the 60th spurious command for this station.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the component gains at 0 db, and the feedback loop filter commanded OUT. No seismic signals have been noted in real-time during this reporting period.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	This experiment continues to perform its design function well beyond its planned operational period, returning more than three years of scientific data on solar wind plasma, magnetosphere plasma and magnetopause crossings, by sensing the direction and energies of both electrons and positive ions.
Suprathermal ion detector	Cyclic commanding of the experiment's high voltage power supply during the current lunar day will be unchanged from the previous operational procedures, and was started at 0149 G.m.t., 17 December, when electronics temperature T2 indicated 52.8°C. The instrument is commanded to master reset and to reset frame counter at frame 39. This places all SIDE instruments in synchronization with each other and eliminates cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to attain two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day dupport period of Apollo 17 ALSEP. At 0016 and 1113 G.m.t., 20 December 1972, the experiment experienced a mode register change to X10 when T2 indicated 58°C and 55.5°C without a spurious CVW. The instrument was commanded to standby/OFF at 0016 and 1115 G.m.t.

Status as of 1100 G.m.t., 22 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1129	686	510	245
Total Commands to Date	15750	7863	12641	4074
Sun Angle	87°	93°	116°	127°
Input Power	68.6w	70.0w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS OFF	ASE OFF
Avg Thermal Plate Temp	93.9°F	117.5°F	116.2°F	103.8°F
PSE Sensor Temp (DL-07)	Offscale HIGH	132.1°F	Offscale HIGH	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	67.7°C	42.4°C
SWS Module 300 Temp (DW-13)	67.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	90.9°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	364.0°K	N/A
CPLEE Elect Temp (AC-06)	N/A	59.5°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	88.8°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	329.4°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	10
Total Commands to Date	2887
Sun Angle	143°
Input Power	75.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LACE & LEAM OFF/LSPE Stby
Avg Thermal Plate Temp	111.6°F
LMS Temp (AM-41)	41.5°F
LEAM Temp (AJ-11)	131.6°F
HFE Temp Ref 1 (DH-13)	309.7°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	113.5°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

All experiments are operating as planned, including the Lunar Surface Gravimeter in its limited mode. Power from the RTG remains constant. The downlink received signal is steady at -137.0 ± 1.0 dbm. The central station's command decoder switch inhibit pulse occurred as anticipated, verified by a status change in telemetry point AB-18. The command to inhibit the next internally generated 61-hour pulse was transmitted at 2000 G.m.t., 22 December. The central station's average thermal plate temperature continues to decrease at a rate of about 0.9 °F/hour.

The Heat Flow Experiment continues to operate nominally. Thermocouple temperature measured at the lunar surface is approximately 304 ± 8°K. The temperature at 230 cm depth is 256.6°K at probe #1, and 257.0°K at probe #2.

There is no change in the Lunar Surface Gravimeter Experiment status. The experiment will not be exercised until studies have been completed and an agreed course of action is approved. The experiment's sensor temperature is stabilized at 49.165°C (slave heater ON).

The Lunar Surface Profiling Experiment remains in standby select.

The Lunar Atmospheric Composition Experiment (LACE) was placed in standby select when its temperature (AM-41) decreased to 31.3°F, at 2112 G.m.t., 22 December. It is planned that the experiment remain in standby select until a minimum of 50 hours after ephemeris sunset to avoid hazards from pressure bursts of the LM descent stage and other debris. LACE scientific data is expected to be collected beginning 27 December, with commanding of the instrument's high voltage power supply and ion source filaments ON. The instrument's temperature is currently increasing at an average rate of about 0.4°F/hour.

The Lunar Ejecta and Meteorite Experiment (LEAM) currently is OFF. The LEAM was commanded to operate ON at 1631 G.m.t., 22 December, when the instrument's engineering measurement, AJ-11, indicated that the appropriate internal temperature decrease had been attained (AJ-11 = 124.6°F). It was planned that experiment operation be maximized with the three sensors covered throughout ephemeris sunset, collecting noise background data for statistical evidence (sensor dust cover removal planned for 28 December). The LEAM was commanded OFF at 0737 G.m.t., 23 December, after the instrument's internal temperature (AJ-11) increased to 150.1°F. It is presently planned that the experiment remain powered down until its temperature decreases to 125°F, at which time the LEAM would be placed in operate select to maximize collecting noise backgound data prior to the lunar sunset (25 December). The instrument's temperature is currently decreasing at an average rate of approximately 2.6°F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1100 G.m.t., 23 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1130	687	511	246
Total Commands to Date	15766	7898	12672	4091
Sun Angle	96°	105°	127°	140°
Input Power	68.6w	70.0w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS OFF	ASE OFF
Avg Thermal Plate Temp	94.2°F	116.9°F	113.1°F	95.1°F
PSE Sensor Temp (DL-07)	Offscale HIGH	134.3°F	142.2°F	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	67.6°C	41.3°C
SWS Module 300 Temp (DW-13)	67.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	88.2°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	355.6°K	N/A
CPLEE Elect Temp (AC-06)	N/A	80.7°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	88.8°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	325.7°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	11
Total Commands to Date	2912
Sun Angle	156°
Input Power	75.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LEAM OFF/LSPE & LACE Stby
Avg Thermal Plate Temp	81.7°F
LMS Temp (AM-41)	96.5°F
LEAM Temp (AJ-11)	146.4°F
HFE Temp Ref 1 (DH-13)	300.1°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	82.9°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

24 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station's operation remains essentially unchanged from the preceding 24 hours, with the exception of the data subsystem components continuing to undergo a temperature decrease as a function of sun elevation at the ALSEP site. Signal strength of the transmitter is reported as -137.0 ±1.5 dbm. The RTG output continues steady at 75.3 watts.

The Heat Flow Experiment probes continue to function normally during the twelfth day of operation in the moon's near surface structure. The approach of lunar night has resulted in a surface temperature decrease, as measured by the instrument's thermocouples, of 53 $\pm 8^{\circ}$K during the last 24 hour period.

There has been no change in status of the Lunar Surface Gravimeter Experiment or Lunar Surface Profiling Experiment since the last report.

The Lunar Atmospheric Composition Experiment (LACE) currently is in standby select. It is planned that the experiment remain in standby select until a minimum of 50 hours after ephemeris sunset to avoid hazards from pressure bursts of the LM descent stage and other debris. After being commanded to standby select (2112 G.m.t., 22 December) the LACE's internal temperature (AM-41) increased to a maximum of 98.2°F (near 1330 G.m.t., 23 December). Following a thermal stabilization period of about one hour, the experiment's housekeeping measurement reflected a temperature reduction. The instrument's temperature is currently decreasing at an average rate of about 0.5°F/hour.

The Lunar Ejecta and Meteorites Experiment (LEAM) is in the operating mode with a dust cover over all three sensors. The LEAM was commanded to operate ON at 1503 G.m.t., 23 December, when the instrument's engineering measurement, AJ-11, indicated that the appropriate internal temperature decrease had been attained (AJ-11 = 127.2°F). It is planned that the experiment operate with the three sensors covered throughout ephemeris sunset, collecting noise background data for additional statistical evidence (sensor dust cover removal planned for 28 December). After being commanded to operate select the LEAM's internal temperature (AJ-11) increased to a maximum of 135.9°F (near 0000 G.m.t., 24 December). Following a thermal stabilization period of about 6 hours, the experiment's housekeeping measurement reflected a temperature decrease. The instrument's temperature is currently decreasing at an average rate of about 0.4°F/hour. The experiment's periodic calibrate pulses (automatically internally generated within the central station as a pair of commands 3.5 minutes apart, every 15.4 hours) occurred as anticipated. This signal is used to calibrate the overall sensor electronics and data storage system of the LEAM experiment.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1200 G.m.t., 24 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1131	688	512	247
Total Commands to Date	15771	7923	12704	4095
Sun Angle	112°	118°	140°	152°
Input Power	68.4w	70.0w	72.9w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	95.9°F	110.7°F	104.9°F	85.0°F
PSE Sensor Temp (DL-07)	Offscale HIGH	135.0°F	135.7°F	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	60.9°C	43.5°C
SWS Module 300 Temp (DW-13)	66.1°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	83.0°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	347.4°K	N/A
CPLEE Elect Temp (AC-06)	N/A	75.2°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	87.1°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	319.7°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	12
Total Commands to Date	2932
Sun Angle	168°
Input Power	75.3w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE & LACE Stby
Avg Thermal Plate Temp	55.0°F
LMS Temp (AM-41)	86.4°F
LEAM Temp (AJ-11)	133.3°F
HFE Temp Ref 1 (DH-13)	293.1°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	56.1°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 December 1972
G.m.t.: 1000

Apollo 17 ALSEP

The central station is operating normally. The station's data subsystem components had continued to measure a constant temperature decrease until the average thermal plate temperature reached 55.0°F (near 1200 G.m.t., 24 December). Then between 1200 G.m.t. and 1300 G.m.t., the station's automatic power management (APM) circuit initially turned-off. The APM thermostat inside the power conditioning unit, which is in the APM 2 circuit, disabled APM 2 dumping all the experiments package reserve power internally into the central station. The station's average thermal plate temperature immediately increased. Since the initial turn-off of APM 2 the central station's average thermal plate temperature has been cyclic (minmum temperature = 55.0°F; maximum temperature = 83.9°F). Currently the station's average thermal plate temperature is decreasing. Power from the RTG remains constant. The downlink received signal is steady at -137.0 ± 1.0 dbm. The central station's command decoder switch inhibit pulse occurred as anticipated, verified by a status change in telemetry point AB-18. The command to inhibit the next internally generated 61-hour pulse was transmitted at 0746 G.m.t., 25 December.

The Heat Flow Experiment continues to operate nominally. Thermocouple temperature measured at the lunar surface is about 140 + 8°K. The temperature at 230 cm depth is 256.4°K at probe #1, and 256.9°K at probe #2.

There is no change in the Lunar Surface Gravimeter Experiment status. The experiment's sensor temperature is stabilized at 49.165°C (slave heater ON).

The Lunar Surface Profiling Experiment remains in standby select.

The Lunar Atmospheric Composition Experiment remains in standby select. The instrument's temperature is currently decreasing at an average rate of about 2.0°F/hour.

The Lunar Ejecta and Meteorites Experiment is in the operating mode with a dust cover over all three sensors. The experiment's periodic calibrate pulses occurred as anticipated. The instrument's temperature is currently decreasing at an average rate of about 2.4°F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 0900 G.m.t., 25 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1132	689	513	248
Total Commands to Date	15788	7937	12752	4133
Sun Angle	124°	129°	151°	161°
Input Power	71.7w	70.0w	72.3w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	93.7°F	104.5°F	95.3°F	75.4°F
PSE Sensor Temp (DL-07)	Offscale HIGH	133.7°F	126.1°F	Offscale HIGH
LSM Internal Temp (DM-05)	Invalid	N/A	64.2°C	35.4°C
SWS Module 300 Temp (DW-13)	63.5°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	48.3°C	Invalid	74.5°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	331.5°K	N/A
CPLEE Elect Temp (AC-06)	N/A	67.5°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	83.7°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	310.8°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	13
Total Commands to Date	2955
Sun Angle	179°
Input Power	76.9w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE & LACE Stby
Avg Thermal Plate Temp	62.9°F
IMS Temp (AM-41)	43.9°F
LEAM Temp (AJ-11)	82.2°F
HFE Temp Ref 1 (DH-13)	290.2°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	65.7°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

26 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The experiments package is functioning normally, some 31 hours into its first lunar night. It is estimated that sunset occurred near 0600 G.m.t., 25 December (sun angle of 177.4°). The sunset time is primarily based on the decisive temperature decrease recorded from the Heat Flow Experiment thermocouples (TC-12 and TC-22), and the central station's upper sunshield temperature transducer, AT-01.

The central station is operating satisfactorily at the lowest temperatures it has experienced thus far since lunar activation, with the station's automatic power management (APM) functioning as anticipated. Currently the average thermal plate temperature is decreasing at an average rate of about 0.7°F/hour. Downlink signal strength is adequate at -138.0 dbm, plus or minus one dbm. The RTG output power to the experiments package continues to be stable.

The Heat Flow Experiment temperature sensors and thermocouples in the cable are continuing to track the temperatures on and below the lunar surface. The experiment electronics continue to operate normally, with periodic ring bridge survey's being accomplished. The experiment's thermocouples, above the surface, are reading 122 ± 8°K, and the temperature at the lowermost sensors is about 257°K.

There is no change in the Lunar Surface Gravimeter Experiment status. The experiment's sensor temperature is stabilized at 49.165°C (slave heater ON).

The Lunar Surface Profiling Experiment remains in standby select.

The Lunar Atmospheric Composition Experiment remains in standby select. The instrument's temperature is currently decreasing at an average rate of about 1.6°F/hour.

The Lunar Ejecta and Meteorites Experiment (LEAM) is in the operating mode with a dust cover over all three sensors. The experiment's periodic calibrate pulses occurred as anticipated. The LEAM's thermal control heater is controlling experiment temperature automatically. Since the heater's thermostat became active, the instrument's internal temperature (AJ-11) has been cyclic (minimum temperature = -1.3°F, heater ON; maximum temperature = 6.4°F, heater OFF). The instrument's temperature is currently increasing.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status of 1100 G.m.t., 26 December 1972, was as follow

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1133	690	514	249
Total Commands to Date	15794	7958	12780	4213
Sun Angle	136°	141°	164°	176°
Input Power	68.6w	70.6w	72.9w	70.1w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	87.1°F	95.1°F	81.1°F	49.4°F
PSE Sensor Temp (DL-07)	Offscale HIGH	129.1°F	125.7°F	142.6°F
LSM Internal Temp (DM-05)	Invalid	N/A	59.4°C	32.8°C
SWS Module 300 Temp (DW-13)	60.9°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	63.5°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	308.8°K	N/A
CPLEE Elect Temp (AC-06)	N/A	54.3°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	77.2°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	301.6°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	14
Total Commands to Date	2975
Sun Angle	191°
Input Power	76.9w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE & LACE Stby
Avg Thermal Plate Temp	44.5°F
LMS Temp (AM-41)	-12.0°F
LEAM Temp (AJ-11)	2.9°F
HFE Temp Ref 1 (DH-13)	290.8°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	44.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

27 December 1972
G.m.t.: 0900

Apollo 17 ALSEP

The central station continues operating normally. Downlink RF signal strength is reported at -137.0 ± 1.0 dbm. Power from the RTG remains constant. Engineering measurements of the central station's electronics and structural components are continuing to indicate an average temperature decrease of about 0.4°F/hour (APM 2 functioning normally).

The Heat Flow Experiment's housekeeping data indicates that the instrument's electronics package thermal plate temperature is stabilized at 291.0°K. The experiment's thermocouples, above the surface, are reading a surface temperature of 117 ± 8°K.

There has been no change in status of the Lunar Surface Gravimeter Experiment or Lunar Surface Profiling Experiment since the last report.

The Lunar Atmospheric Composition Experiment (LACE) is in operate ON, with ion high voltage turn-on planned for today. It was planned that the experiment remain in standby select until a minimum of 50 hours after ephemeris sunset, however, due to a continuous negative temperature excursion the LACE was commanded to operate select at 1458 G.m.t., 26 December (AM-41 = -14.0°F). Following the operate select command the instrument's data reflected a continuing temperature decrease (AM-41= -18.1°F), and at 1516 G.m.t. the back-up heater ON command was executed. Subsequent commanding configured the experiment to the following; high voltage power supply off, ion source filaments off, multipliers low, low voltage power supply on, and back-up heater on. The instrument's electronics temperature stabilized for a period of about two hours (AM-41 = -16.0°F), and the LACE's engineering data then reflected a temperature increase. The LACE's temperature continues increasing at an average rate of about 1.0°F/hour.

The Lunar Ejecta and Meteorites Experiment (LEAM) is in operate select. The experiment's periodic calibrate pulses are occurring as anticipated. This signal is used to calibrate the overall sensor electronics and data storage system of the LEAM experiment. Since the LEAM's automatic thermal control became active (near 0320 G.m.t., 26 December), the instrument's internal temperature (AJ-11) has been cyclic (minimum temperature = -1.3°F, heater ON; and, maximum temperature = 6.4°F, heater OFF). The instrument's temperature is currently increasing.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 0900 G.m.t., 27 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1134	691	515	250
Total Commands to Date	15809	7986	12835	4250
Sun Angle	148°	153°	176°	189°
Input Power	68.1w	70.0w	72.9w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	SIDE OFF	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	76.0°F	83.7°F	57.1°F	39.7°F
PSE Sensor Temp (DL-07)	Offscale HIGH	125.5°F	125.2°F	126.1°F
LSM Internal Temp (DM-05)	Invalid	N/A	49.5°C	0.9°C
SWS Module 300 Temp (DW-13)	55.9°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	OFF	Invalid	45.7°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	280.8°K	N/A
CPLEE Elect Temp (AC-06)	N/A	39.7°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	65.6°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	293.6°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	15
Total Commands to Date	3001
Sun Angle	203°
Input Power	76.5w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE Stby
Avg Thermal Plate Temp	35.6°F
IMS Temp (AM-41)	1.4°F
LEAM Temp (AJ-11)	6.4°F
HFE Temp Ref 1 (DH-13)	291.8°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	38.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

28 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station's data subsystem components had continuously measured a negative thermal excursion until the station's average thermal plate temperature decreased to 35.6°F (near 0900 G.m.t., 27 December). Within one hour engineering measurements of the central station's compoents were reflecting a positive temperature excursion. Currently the average thermal plate temperature continues to decrease, with APM 2 controlling the station's internal electronics temperatures (CS-37 = 30.8°F). The central station's external structural temperatures are stabilized (upper sunshield temperature, AT-01 = -275.9°F; and, the bottom structure temperature, AT-10 = -162.8°F). Power for the ALSEP generated by the RTG is stable. Downlink signal strength remains adequate. The central station's command decoder switch inhibit pulse occurred as anticipated, verified by a status change in telemetry point AB-18. The command to inhibit the next internally generated 61-hour pulse was transmitted at 2153 G.m.t., 27 December.

The Heat Flow Experiment (HFE) electronics continue to operate normally, with periodic ring bridge survey's being accomplished. Both probes of the HFE are currently sensing a temperature of about 257°K at a depth of 230 cm. The instrument's thermocouples above the surface (TC-12 and TC-22), indicate a lunar surface temperature of 114 ± 8°K.

There is no change in the Lunar Surface Gravimeter Experiment status. The experiment's sensor temperature is stabilized at 49.165°C (slave heater ON).

The Lunar Surface Profiling Experiment remains in standby select.

The Lunar Atmospheric Composition Experiment (LACE) is configured to obtain data on the composition of the lunar atmosphere. Following a one hour bake-out sequence (initiated at 1628 G.m.t., 27 December) the experiment electronics were checked-out. The LACE's initial sweep and multiplier high voltage ON command was executed at 1807 G.m.t., 27 December. Subsequent commanding configured the experiment to the following: automatic sweep, high voltage power supply ON, ion source filaments ON, multipliers LOW, low voltage power supply ON, and back-up heater ON. The LACE's electronics temperature is currently increasing at an average rate of about 0.6°F/hour.

The Lunar Ejecta and Meteorites Experiment (LEAM) is in operate select, with sensor dust cover removal planned for today. Since the LEAM's automatic thermal control became active (near 0320 G.m.t., 26 December), the instrument's internal temperature (AJ-11) has been cyclic, between 6.4°F and -1.3°F.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status . of 1100 G.m.t., 28 December 1972, was as follows

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1135	692	516	251
Total Commands to Date	15824	8011	12854	4260
Sun Angle	160°	165°	188°	201°
Input Power	68.1w	70.0w	72.5w	70.4w
Heater and Power Dumps	All OFF	All OFF	All OFF	All OFF
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	66.9°F	68.7°F	9.8°F	41.9°F
PSE Sensor Temp (DL-07)	Offscale HIGH	125.1°F	124.8°F	125.9°F
LSM Internal Temp (DM-05)	Invalid	N/A	15.1°C	-6.6°C
SWS Module 300 Temp (DW-13)	46.5°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	41.6°C	Invalid	6.6°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	133.9°K	N/A
CPLEE Elect Temp (AC-06)	N/A	20.9°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	52.0°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	284.4°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	16
Total Commands to Date	3201
Sun Angle	216°
Input Power	76.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE Stby
Avg Thermal Plate Temp	32.0°F
LMS Temp (AM-41)	4.9°F
LEAM Temp (AJ-11)	0.8°F
HFE Temp Ref 1 (DH-13)	290.9°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	34.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

29 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station continues operating normally. Downlink RF signal strength is reported at -144.0 ± 2.0 dbm. Power from the RTG remains constant. Engineering measurements of the central station's electronics and structural components are equilibrating, with APM 2 controlling the station's internal electronics temperatures (CS-37 = 30.3°F).

The Heat Flow Experiment's housekeeping data indicates that the instrument's electronics package thermal plate temperature is stabilized at 291.0°K. The experiment's thermocouples, above the surface, are reading a surface temperature of 114 ± 8°K.

There has been no change in status of the Lunar Surface Gravimeter Experiment since the last report.

The Lunar Surface Profiling Experiment remains in standby select, with a 30 minute passive listening mode planned for 30 December.

The Lunar Atmospheric Composition Experiment (LACE) continues to collect data on the composition of the lunar atmosphere. Subsequent commanding of the LACE throughout 28 December completed verification of the experiment's subsystem components. It was determined that two of the experiment's mass range data channels (DM-04, intermediate mass range; and, DM-03, low mass range) are displaying electrical background noise during part of the analyser sweep. The noise appears to be sweep voltage dependent. The presence of this background noise will require additional steps in the data reduction process to attain corrected science data. This background noise occurrence continues under investigation. The instrument is currently configured to the following: automatic sweep, high voltage and low voltage power supply's ON, ion source filaments ON, multipliers LOW, and back-up heater ON. The LACE's electronics temperature (AM-41) is currently cyclic, between 6.7°F and 21.3°F.

The Lunar Ejecta and Meteorites Experiment (LEAM) is configured to measure impact flux rates on the lunar surface. At 1957 G.m.t., 28 December, the LEAM's sensor dust cover was removed successfully, and each of the experiment's three sensor systems (east, west and up sensor system) were enabled to perform a specific function in the overall measurement procedure. Since the LEAM's automatic thermal control became active, the instrument's internal temperature (AJ-11) has been cyclic, between 6.4°F and -1.3°F.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Apollo 16 ALSEP

Operational status from 22 December 1972, 1200 G.m.t., to 29 December 1972, 1200 G.m.t.

Central station

Sunset of the 9th lunar day occurred on 26 December at the Descartes Site. The DSS-1 (10 watts) heater was commanded ON at 1523 G.m.t., 26 December, and will remain ON throughout lunar night operation. The 18-hour timer output pulses continue to be inhibited. The 30-foot antenna tracking stations report a signal strength of -141.4 ± 2.4 dbm from transmitter "A".

Passive seismic experiment

The y-axis has continued to respond to leveling commands in both the forced mode and auto mode since 13 December 1972. Experiment operation continues with the feedback loop filter commanded OUT, sensor gains of all components configured to 0 db, and auto ON thermal control mode. The uncage/arm fire circuit is configured to the uncaged state. The instrument's DL-07 sensor assembly temperature returned on-scale at 1000 G.m.t., 26 December. No significant seismic events were noted during the intermittent real-time support periods of this experiment.

Lunar surface magnetometer experiment

The experiment continues to measure time-dependent solar and induced magnetic fields. The instrument's 258th flip calibration sequence was executed correctly by command on 28 December 1972. The experiment is presently configured with the digital filter commanded IN, the flip cal inhibit logic commanded IN, and the sensors in the 200 gamma range.

Active seismic experiment

The experiment is in standby OFF with a 30-minute listening period scheduled for 30 December. On 22 December 1972 the experiment was commanded to operate select at 0927 G.m.t. and to high bit rate ON at 0945 G.m.t. for a passive listening period. Two geophone calibration pulses were sent to the instrument during the listening mode. Data output of all geophones appeared normal and no significant signals were noted in real-time. High bit rate operations were terminated at 1015 G.m.t. and the experiment commanded to standby OFF at 1019 G.m.t.

Apollo 15 ALSEP

Operational status from 22 December 1972, 1200 G.m.t., to 29 December 1972, 1200 G.m.t.

Central station	Sunset of the station's 18th lunation occurred 27 December; power from the RTG continues steady and transmitter "A" downlink signal strength is reported at -136.2 ± 3.2 dbm. The lunar night's operational procedure of eliminating the data subsystem's timer outputs by uplinking the timer's reset command, octal 150, twice daily at 1400 G.m.t. and 2200 G.m.t. will be initiated on 30 December.
Passive seismic experiment	The instrument's DL-07 sensor assembly temperature was offscale HIGH at 1230 G.m.t., 18 December and onscale at 0800 G.m.t., 23 December. Operation is in the auto ON thermal control mode, sensor gains are 0 db, and the feedback loop filter commanded OUT in order to achieve seismic network congruity. No major seismic events have been noted during the real-time support of this instrument.
Lunar surface magnetometer experiment	The experiment's sensors are presently in the 50 gamma range (gamma range change executed 27 December) for lunar night operation. Currently the instrument has executed 743 flip calibration sequences since activation. The experiment's y-axis sensor head remains fixed at a 180 degree position, not responding to flip cal commands. The x-axis and z-axis sensors are returned to the 180 degree position following each flip cal sequence to maintain sensor head synchronization. The experiment's y-axis sensor has indicated off-scale LOW (static) since 20 September 1972. The flip calibration sequences were suspended on 18 December 1972 as the LSM internal temperature was above 62°C. Flip calibration sequences were resumed 26 December when the instruments internal temperature decreased below 62°C.
Solar wind spectrometer experiment	Presently in standby select. The instrument has not been commanded to operate select since 17 August 1972.

Apollo 15 ALSEP (continued)

Operational status from 22 December 1972, 1200 G.m.t., to 29 December 1972, 1200 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	The instrument is presently operating in the 0-39 frame stepping sequence with the Channeltron high voltages commanded ON simultaneously with the Apollo 12 and 14 ALSEP SIDE instruments. This places the instruments in synchronization with each other and eliminates cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to attain two calibration sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period for the Apollo 17 ALSEP.
Heat flow experiment	The temperature of probe 1 at the bottom of the lowest probe section is 253.1 ^{o}K, with probe 2 indicating a temperature of 250.7^{o}K at its lower-most point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 96.0 ^{o}K. Since 29 May 1972, the instrument's measurement TREF 2 has continually displayed erroneous data. A duplicate measurement TREF 1, is operating normally so that no data are lost.

Apollo 14 ALSEP

Operational status from 22 December 1972, 1200 G.m.t. to 29 December 1972, 1200 G.m.t.

Central station	Sunset of the 24th lunar day at the Apollo 14 landing site will occur today, 29 December. Power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported at -140.0 ± 2.0 dbm. The central station's DSS-1 heater (10 watts) was commanded ON for lunar night operations at 1200 G.m.t., 29 December; average thermal plate temperature was 33.8°F.
Passive seismic experiment	This instrument is configured; thermal control auto ON, 0 db gain on all sensors, and filter OUT. The instrument's long period z-axis has not displayed valid data nor responded to commands since 17 November 1972. No major seismic events have been noted during real-time support.
Active seismic experiment	Currently in standby select with a 30-minute passive listening mode planned for 30 Dec. On 22 December 1972 the experiment was commanded to operate select at 1049 G.m.t. and to high bit rate ON at 1110 G.m.t. Geophone 3 indicated off-scale HIGH, and no significant signals were noted in real-time. No geophone calibration pulses were sent to the instrument during the listening mode. High bit rate operation was terminated at 1140 G.m.t. and the instrument commanded to standby at 1143 G.m.t.
Suprathermal ion detector/cold cathode gauge	The instrument is presently operating in the 0-39 stepping sequence simultaneously with the Apollo 12 and 15 ALSEP SIDE instrument. This places the instruments in synchronization with each other. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to get two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period for the Apollo 17 ALSEP. Intermittent positive engineering data interruptions (anomaly occurred 9 May 1971) in one section of the analog-to-digital filter are having no adverse effect on the scientific outputs of the experiments.
Charge particle lunar environmental	Under a revised operations procedure (reference SMEAR #79) the experiment was configured to automatic thermal control mode indefinitely. The instrument is presently operating in the full auto mode after being commanded ON at 1050 G.m.t., 22 December. Analyzer A voltage appears normal and analyzer B voltage is below operating limits.

Apollo 12 ALSEP

Operational status from 22 December 1972, 1200 G.m.t., to 29 December 1972, 1200 G.m.t.

Central station	Sunset of the packages 39th lunar day occurs today 29 December; RTG power output is constant; and transmitter "B" signal strength was reported at -142.0 ± 2.0 dbm. The central station's DSS-1 heater (10 watts) will be commanded ON when the average thermal plate temperature decreases to 16°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, the sensor gains at 0 db, and the feedback loop filter commanded OUT. No seismic signals have been noted in real-time during this reporting period. The instrument's z-axis drive motor will be commanded ON December 29 for lunar night operation.
Lunar surface magnetometer experiment	Scientific and engineering data have been static since 4 June 1972. The instrument's digital filter remains commanded IN.
Solar wind spectrometer experiment	This experiment continues to return scientific data on solar wind plasma, magnetosphere plasma and magnetopause crossings, by sensing the direction and energies of both electrons and positive ions.
Suprathermal ion detector	Cyclic commanding of the experiment's high voltage power supply during the current lunar day has been unchanged from the previous operational procedures. The SIDE was commanded ON for continuous support 27 December. The instrument is commanded to master reset and to reset frame counter at frame 39. This places all SIDE instruments in synchronization with each other and eliminates cal sequences. At six hour intervals, the master reset and reset at 39 sequence is repeated with sufficient delay to attain two cal sequences. This mode of operation optimizes science return at a time when command capability is available during the 45 day support period of Apollo 17 ALSEP.

status as of 1100 G.m.t., 29 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1136	693	517	252
Total Commands to Date	15825	8059	12428	4288
Sun Angle	172°	180°	200°	213°
Input Power	68.6w	71.0w	72.9w	70.4w
Heater and Power Dumps	All OFF	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	48.2°F	33.8°F	2.6°F	41.5°F
PSE Sensor Temp (DL-07)	136.7°F	124.6°F	124.7°F	125.9°F
LSM Internal Temp (DM-05)	Invalid	N/A	6.4°C	-7.7°C
SWS Module 300 Temp (DW-13)	30.4°C	N/A	Standby	N/A
SIDE Temp (DJ-05)	40.0°C	Invalid	6.6°C	N/A
CCGE Temp (DJ-04)	OFF	Invalid	118.7°K	N/A
CPLEE Elect Temp (AC-06)	N/A	-5.5°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	18.5°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	283.7°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	17
Total Commands to Date	3315
Sun Angle	228°
Input Power	76.5w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE Stby
Avg Thermal Plate Temp	30.3°F
LMS Temp (AM-41)	11.8°F
LEAM Temp (AJ-11)	0.8°F
HFE Temp Ref 1 (DH-13)	290.6°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	33.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

The central station's data subsystem component temperatures continue to alternate about their point of thermal equilibrium, while the station's external structural temperatures are stabilized.

AT-01, Upper sunshield = -278.5°F
AT-10, Bottom structure = -170.1°F
CS-37, Thermal plate = 29.0°F

Power for the ALSEP generated by the RTG is stable. Downlink signal strength is reported at -142.0 ± 2.0 dbm. The station's command decoder switch inhibit pulse occurred as anticipated, verified by a status change in telemetry point AB-18. The command to inhibit the next internally generated 61-hour pulse was transmitted at 1218 G.m.t., 30 December.

The Heat Flow Experiment continues to operate normally. Thermocouple temperature measured at the lunar surface is 110 ± 8°K. The temperature at 230 cm depth is 256.6°K at probe #1, and 256.9°K at probe #2. Both heat probes indicate an increase of temperature with depth for depths greater than 65 cm reflecting heat flow from the interior of the moon.

There is no change in the Lunar Surface Gravimeter Experiment status. The experiment will not be exercised until studies have been completed and an agreed course of action is approved. The experiment's sensor temperature is stabilized at 49.169°C (slave heater ON).

The Lunar Surface Profiling Experiment was commanded ON at 0553 G.m.t., 30 December, and to LSPE data format processing (high bit rate) at 0600 G.m.t., for a thirty minute passive listening period. Two geophone calibration pulses were sent to the experiment during the listening mode. Data output of all geophones appeared normal, with LM noise apparently being recorded by the LSPE. LSPE processing was terminated at 0630 G.m.t., and the instrument commanded to standby select at 0632 G.m.t.

The Lunar Atmospheric Composition Experiment continues to collect data on the composition of the lunar atmosphere. The two mass range data channels (DM-04, intermediate mass range; and, DM-03, low mass range) continue to display electrical background noise during part of the analyser sweep. There has been no change in configuration of the LACE's subsystem components since the last report. The LACE's electronics temperature, AM-41, stabilized at 13.4°F, near 1500 G.m.t., 29 December (sun angle = 230°).

The Lunar Ejecta and Meteorites Experiment is configured to measure impact flux rates on the lunar surface. Since the LEAM's automatic thermal control became active, the instrument's internal temperature (AJ-11) has been cyclic, between 6.4°F and -1.3°F.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1100 G.m.t., 30 December 1972, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1137	694	518	253
Total Commands to Date	15893	8081	12947	4302
Sun Angle	185°	192°	212°	225°
Input Power	69.4w	70.8w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	21.2°F	35.2°F	1.4°F	41.7°F
PSE Sensor Temp (DL-07)	126.9°F	124.3°F	124.7°F	125.9°F
LSM Internal Temp (DM-05)	Invalid	N/A	4.7°C	-7.7°C
SWS Module 300 Temp (DW-13)	0.6°C	N/A	Standby	N/A
SIDE Temp	Static	Invalid	6.6°C	N/A
CCGE Temp	OFF	Invalid	116.5°K	N/A
CPLEE Elect Temp (AC-06)	N/A	-20.0°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	-28.7°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	283.4°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	18
Total Commands to Date	3346
Sun Angle	240°
Input Power	76.8w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE Stby
Avg Thermal Plate Temp	28.4°F
LMS Temp (AM-41)	13.4°F
LEAM Temp (AJ-11)	6.4°F
HFE Temp Ref 1 (DH-13)	290.8°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	30.4°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

31 December 1972
G.m.t.: 1300

Apollo 17 ALSEP

Mission control real-time support of the ALSEP 17 station and all other ALSEP stations will be terminated for a 24 hour period beginning at 2200 G.m.t., 31 December, through 2200 G.m.t., 1 January 1973. During this period of no real-time support the tracking network will shift to Phase III operations in support of all five ALSEP's. Phase III operations require that all ALSEP scientific and engineering data be recorded continuously at the receiving stations for subsequent analysis.

ALSEP 17 telemetry data indicates virtually no change in the central station's electronics and structural component temperatures, the thermoelectric power source output, or transmitter A signal strength.

The experiments scientific sensors continue to operate steadily in the lunar night environment. The Heat Flow Experiment probe temperature sensors are all returning data, while the instrument's thermocouple temperature measured at the lunar surface is 110 ± 8°K. There has been no change in status of the Lunar Surface Gravimeter Experiment or the Lunar Surface Profiling Experiment. The Lunar Ejecta and Meteorites Experiment continues to collect statistical data of impact flux rates on the lunar surface, and the instrument's internal temperature (AJ-11) continues to cycle between 6.4°F and -1.3°F. Subsequent commanding of the Lunar Atmospheric Composition Experiment on 30 December re-configured the experiment to the following; high voltage power supply OFF, ion source filaments OFF, multipliers HIGH, low voltage power supply ON, and back-up heater ON. It is planned to operate the LACE in this mode until January 2. The LACE's electronics temperature (AM-41) is decreasing at a rate of about 0.8°F/hour.

It is requested that any organization having comments, questions, or suggestions concerning this report contact R. Miley, Science Requirements Branch, TN3, telephone 483-5067.

Status as of 1100 G.m.t., 31 December 1972, was as follows.

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP	APOLLO 16 ALSEP
Total Days of Operation	1138	695	519	254
Total Commands to Date	15895	8097	12980	4316
Sun Angle	197°	204°	224°	237°
Input Power	68.9w	70.8w	72.9w	70.4w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	All OFF	DSS-1 ON(10w)
Experiment Status	All ON	ASE Stby	SWS Stby	ASE OFF
Avg Thermal Plate Temp	17.6°F	34.0°F	1.4°F	40.8°F
PSE Sensor Temp (DL-07)	126.4°F	124.2°F	124.6°F	125.8°F
LSM Internal Temp (DM-05)	Invalid	N/A	4.7°C	-7.7°C
SWS Module 300 Temp (DW-13)	-13.1°C	N/A	Standby	N/A
SIDE Temp	Static	Invalid	6.6°C	N/A
CCGE Temp	OFF	Invalid	114.3°K	N/A
CPLEE Elect Temp (AC-06)	N/A	-20.0°C	N/A	N/A
ASE GLA Temp (AS-03)	N/A	-49.1°C	N/A	OFF
HFE Temp Ref 1 (DH-13)	N/A	N/A	283.4°K	OFF

TM POINT	APOLLO 17 ALSEP
Total Days of Operation	19
Total Commands to Date	3383
Sun Angle	252°
Input Power	76.5w
APM Status (AB-13)	ON
Power Dump Status (AB-14)	All OFF
Experiment Status	LSPE Stby
Avg Thermal Plate Temp	35.4°F
LMS Temp (AM-41)	1.4°F
LEAM Temp (AJ-11)	0.8°F
HFE Temp Ref 1 (DH-13)	290.5°K
LSG Temp (DG-04)	49.1°C
LSP Temp (AP-01)	37.0°F