Apollo Lunar Surface Experiments Package Status Reports

1971

Apollo Lunar Surface Experiments Package
Status Reports 1971
Table of Contents

February 6, 1971
February 7, 1971
February 8, 1971
February 9, 1971
February 10, 1971
February 11, 1971
February 12, 1971
February 13, 1971
February 14, 1971
February 15, 1971
February 16, 1971
February 17, 1971
February 18, 1971
February 19, 1971
February 20, 1971
February 22, 1971
February 23, 1971
February 24, 1971
February 25, 1971
February 26, 1971
February 27, 1971
March 1, 1971
March 2, 1971
March 3, 1971
March 4, 1971
March 5, 1971
March 6, 1971
March 8, 1971
March 9, 1971
March 10, 1971
March 11, 1971
March 12, 1971
March 13, 1971
March 15, 1971
March 16, 1971
March 17, 1971
March 18, 1971
March 19, 1971
March 20, 1971
March 22, 1971
March 23, 1971
March 26, 1971
April 2, 1971
April 8, 1971
April 16, 1971
April 23, 1971
April 30, 1971
May 7, 1971
May 14, 1971
May 21, 1971
May 28, 1971
June 4, 1971
June 11, 1971
June 17, 1971
June 25, 1971
July 2, 1971
July 9, 1971
July 16, 1971
July 23, 1971
August 1, 1971
August 2, 1971
August 3, 1971
August 4, 1971
August 5, 1971
August 6, 1971
August 7, 1971
August 9, 1971
August 10, 1971
August 11, 1971
August 12 1971
August 13, 1971
August 14, 1971
August 16, 1971
August 17, 1971
August 18, 1971
August 19 1971
August 20, 1971
August 21, 1971
August 23, 1971
August 24, 1971
August 25, 1971
August 26, 1971
August 27, 1971
August 28, 1971
August 30, 1971
August 31, 1971
September 1, 1971
September 2, 1971
September 3, 1971
September 4, 1971
September 6, 1971
September 7, 1971
September 8, 1971
September 9, 1971
September 10, 1971
September 11, 1971
September 13, 1971
September 17, 1971
September 24, 1971
October 1, 1971
October 8, 1971
October 15, 1971
October 22, 1971
October 29, 1971
November 5, 1971
November 12, 1971
November 19, 1971
December 3, 1971
December 10, 1971
December 17, 1971
December 23, 1971

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

6 February 1971
GMT: 14:00

APOLLO 14/ALSEP

The ALSEP for Apollo 14 was deployed on the moon on February 5 at approximately 10 meters WNW of coordinates CQ and 61.5 on the EVA 1 timeline map. Initial acquisition of a downlink signal was reported by the Canary Island (-150 dbm), and Madrid, Spain (-143 dbm), ground stations at 17:28 GMT, prior to antenna installation. Acquisition occurred 65 minutes after fueling of the Radioisotope Thermoelectric Generator. With initial antenna alignment, lock on ALSEP data was obtained at 17:51 GMT. Initial conditions of the central station were normal. Power output of the RTG was 69.1 watts, and the central station thermal plate temperature averaged 73.8°F. A reserve power reading of 43.5 watts indicated that the basic power consumption was normal for ALSEP start-up. ALSEP was commanded to high bit rate mode at 17:59 GMT, and the ASE/Thumper (Active Seismic Experiment) mode of operation continued until 18:37 GMT. The thumper was used by the crew to fire 13 of 18 charges. The energy released by each of the firing sequences was received clearly by the geophones and transmitted to earth by the central station data subsystem. Three planned firing sequences were skipped since remaining EVA 1 lunar surface time was diminished by activities preceding ALSEP deployment. The Active Seismic Experiment was returned to standby by the crew with the rotation of astro switch No. 5. Enclosure 1 is a detailed timeline of the thumper fire sequence history.

Experiments were turned on at the following times: Passive Seismic Experiment, 18:47 GMT; Charged Particle Lunar Environment Experiment, 19:01 GMT; Suprathermal Ion Detector, 19:02 GMT; and Dust, Thermal, and Radiation Engineering Measurements Package, 19:22 GMT.

Transmitter "A" signal strength was a nominal -139 dbm but subsequently dropped to a -144 dbm (-146 dbm is the nominal threshold using a MSFN 30-foot uncooled par-amp after the mission, based on Apollo 12/ALSEP history). As a result of the decrease in transmitter signal strength, ALSEP started to experience intermittent losses of downlink. The MSFN Canary Island and Texas ground stations could discover no problems that could be attributive to causing intermittent losses of downlink. ALSEP transmitter "B" was selected by command at 21:27 GMT. Following implementation of transmitter "B", the intermittent losses of downlink continued. In a further effort to correct downlink dropouts, data processor "Y" was selected at 21:44 GMT. It was reported that transmitter "A" had a 1 dbm signal strength increase over transmitter "B". At 22:18 GMT, the command to reselect transmitter "A" was executed. Following analysis of the situation, it was thought that movement of the central station was the most probable cause. Subsequent antenna adjustment during EVA 2 resulted in 0.5 dbm improvement.

At turn-on of the Suprathermal Ion Detector Experiment, however, erratic data was noted causing interference on the Passive Seismic and Charged Particle Lunar Environment Experiments. Following execution of a mode change command (X10 Accumulation Interval ON/OFF, at 00:58 GMT, February 6) it was noted that the SIDE dust cover and the Cold Cathode Ionization Gauge seal were open and the interference disappeared. The SIDE and the CCIG both recorded normal data for 40 minutes and were then commanded to standby. The CCIG recorded LM EVA 2 cabin depress, crew equipment jettison, and crew movement at the ALSEP central station during EVA 2.

The SIDE experienced an unexpected mode change at 13:33 GMT, February 6. Instrument internal temperature at that time was 24.7°C. In view of the mode change problems associated with the initial SIDE/CCIG operations the experiment has been commanded to operate mode with high voltages OFF (16:27 GMT) until the first lunar sunset.

The Charged Particle Lunar Environment Experiment (CPLEE) recorded engineering data from first turn on. All instrument commands were verified. The CPLEE becomes fully operational when the dust cover is removed after LM liftoff.

The PSE recorded movements of the crew and crew equipment jettison on all of the long period axis (LPX, LPY, LPZ), and on its short period vertical axis (SPZ). At 13:00 GMT, February 6, sensor temperature (DL-07) indicated 107.5°F (first temperature output since deployment).

ENCLOSURE NO. 1

Thumper Fire Sequence History

ASI Number	Digital History (GMT)	Event Results
1	18:09:09	No Fire
	18:10:39	Fire
2	18:11:54	No Fire
	18:12:13	Fire
3	18:13:33	Fire
4	18:14:39	Fire
5	18:16:38	No Fire
	No Data	No Fire
6	18:17:04	No Fire
	18:18:46	No Fire
	18:19:03	No Fire
7	18:20:32	Fire
8	Skipped	
9	Skipped	
10	Skipped	
11	18:24:12	Fire
12	18:26:30	Fire
13	18:27:18	Fire
14	18:28:10	No Fire
15	18:29:16	No Fire
	18:29:35	No Fire
16	18:30:18	No Fire
17	18:31:17	Fire
18	18:32:29	Fire
19	18:33:48	Fire
20	18:34:42	Fire
21	18:37:07	Fire

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

7 February 1971
GMT: 14:00

APOLLO 14/ALSEP

The ALSEP central station and experiments continue to function, 44 hours after being placed on the lunar surface by the crew of Apollo 14. The Apollo 12/ALSEP and Apollo 14/ALSEP experiment packages measured the effects of lunar module ascent at 18:48 GMT, 6 February, and the subsequent lunar impact of LM-8 at 00:45 GMT, 7 February. Preliminary impact data indicates that LM-8 impacted 116.0 Km and 66.7 Km from the Apollo 12/ALSEP and Apollo 14/ALSEP deployment sites respectively.

Central station average thermal plate temperatures is slightly higher (10 degrees) than nominal, but well within the predicted temperature response band. Temperature of the Power Dissipation Module (AT-11) continues slightly higher than predicted; (1) the amount of reserve power being dissipated within the PDM panel; and (2) the accumulation of lunar surface material touching the panel is thought to be the most probable cause. This higher temperature response is not a problem.

The signal strength from transmitter "A" continues to vary depending on site characteristics, between -141.5 dbm and -144 dbm. The improvement in signal strength associated with antenna realignment (EVA 2, 12:01 GMT, 6 February) has apparently solved the intermittent losses of downlink that were seen following initial acquisition and lock on ALSEP data by the MSFN ground stations.

The thermoelectric power source output remains steady at 72.0 watts. To date, more than 329 commands have been transmitted to and implemented by the command decoder for various experiment adjustments. Investigation is underway to determine why the 12-hour timer pulse was not received when expected. Loss of the timer output pulse has no adverse effect on package operations.

The Passive Seismic Experiment has recorded significant data on all of the sensor axes (LPX, LPY, LPZ, and SPZ) as a result of the LM-8 lunar ascent and impact effects. Antares impact signal had a duration of approximately 90 minutes starting at 00:45 GMT (45 second delay after impact). PSE engineering data indicates that the sensor temperature (DL-07) began approaching thermal equilibrium at 00:00 GMT, 7 February. DL-07 is currently reading 124.8°F.

The Charged Particle Lunar Environment Experiment dust cover was commanded OFF at 19:30 GMT, 6 February. At 85 seconds prior to LM impact, the experiment began detecting accelerated electrons in the 30-200 ev range. Peak data was observed in real time 40 seconds after impact in the form of clusters of charged particles. Peak data output from impact was in the 50-75 ev range, Channeltron No. 3. The instrument is fully operational (high voltages ON).

The Suprathermal Ion Detector Experiment is operating with high voltages OFF, and the Active Seismic Experiment is in standby.

At 17:00 GMT, 6 February, the DTREM Cell 2 temperature (AX-02) indicated 32.1°C (first temperature output since deployment; lower limit of output scale is 30°C).

APOLLO 12/ALSEP

The Apollo 12/ALSEP experiments package continues to transmit scientific and engineering data after more than 445 consecutive days of lunar operation. Sunrise of the Apollo 12/ALSEP 16th lunar day occurred at 00:47 GMT, 5 February.

Transmitter "B" has experienced no signal dropouts since its implementation (19 December 1970). The signal strength from transmitter "B" continues to vary slightly depending on site characteristics, between -138 dbm and -140 dbm. The thermoelectric power source output remains steady at 72.5 watts. The RTG temperature AR05 returned on scale at 02:00 GMT, 5 February. Central station telemetry data indicates that the average thermal plate temperature is 78.4°F. To date, more than 7759 commands have been transmitted to and implemented by ALSEP 1.

The PSE short period vertical axis (DL-08) returned ON scale at 02:39 GMT, 5 February. At that time, the experiment's temperature sensor (DL-07) indicated 121.0°F. The instrument was experiencing a sun angle of 0.7 degrees. The Apollo 12/ALSEP seismometer also responded significantly to lunar impact of the LM-8 ascent stage. The impact signal was recorded on all three long period axes (LPX, LPY, and LPZ), with an approximate duration of 90 minutes beginning 79 seconds after impact.

The Suprathermal Ion Detector Experiment detected ion counts from both the Antares ascent and impact. The experiment noted increased ion counts from ascent in the energy ranges of 50 ev and 100 ev. The peak particle count was detected in real time at 18:54:40 GMT (6 minutes 40 seconds after ascent) as the Antares passed by the Apollo 12/ALSEP (ascent track approximately 10 nm south of deployment site). The SIDE also noted increased ion count following LM impact on the high energy and low energy data channels. The Cold Cathode Gauge sensor temperature (DI-04) continues to indicate off scale HIGH, and the high voltage supply remains inoperative.

The Solar Wind Spectrometer was commanded to high gain operational mode at 14:02 GMT, 4 February. No real time data output change was noted from the instrument during either LM ascent or descent. The experiment continues to function normally.

The Lunar Surface Magnetometer engineering data returned, restoring valid housekeeping data, at 12:45 GMT, 7 February. The LSM internal temperature was 43.5°C. The instrument was experiencing a sun angle of 30 degrees. The experiments field sensor outputs remain static. The instruments engineering status bits continue to indicate that axis sensor heads flipped on command, and that the Y axis sensor head remains locked at a 180 degree position. This event is characteristic to that which occurred after the previous lunar sunset and cleared up after sunrise, indicating a low-temperature effect.

The Dust Detector cell outputs are exhibiting the same trend as noted during previous lunar cycles.

Status as of 12:00 GMT, 7 February, was as follows:

TM POINT	APOLLO 12/ALSEP	APOLLO 14/ALSEP
Sun Angle	31°	37°
Input Power	72.5 Watts	72.0 Watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Thermal Plate Temperature (Average)	78.4°F	93.9°F
PSE Sensor Assembly Temperature	126.5°F	124.8°F
LSM Internal Temperature	Static	N/A
SWS Temperature Module 300	51.1°C (123.9°F)	N/A
SIDE Temperature 2	52.8°C (127.1°F)	57.5°C (135.5°F)
CCIG Temperature	HIGH	339.4°K (151.5°F)
CPLEE Electronics Temperature	N/A	35.2°C (95.4°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

8 February 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues to operate after 68 hours on the lunar surface. Scientific data is being collected, including the effects of passing through the Earth's magnetopause.

The central station operation continues to indicate normal performance. Central station average thermal plate temperature is within the predicted temperature response band. The RTG output continues steady at 72.1 watts. During the last 24 hours, the signal strength from transmitter "A" is reported to have varied, depending on site characteristics, between -141.3 dbm and -142.7 dbm.

A test was performed on 7 February in order to ascertain whether or not the 12-hour timer was operational. The test consisted of transmitting the TIMER OUTPUT ACCEPT command (octal 032) followed immediately by the TIMER OUTPUT INHIBIT command (octal 032). The TIMER OUTPUT INHIBIT command will input level changes to the hours and minutes counters of the delayed command sequencer and advance the counters by 12 hours and 1 minute generating the repetitive 12 hour timer pulse functions. Results of this tested proved that the delayed command sequencer circuits would not respond when in the accept mode (i.e., input driven from 12-hour timer). The inhibit commands, however, stepped the sequencer circuits properly through the 12-hour and 1 minute sequences as verified by the Passive Seismic Experiment and Suprathermal Ion Detector Experiment engineering responses in the downlink data. The conclusion of this test verifies operation of the timer accept/inhibit logic in the delayed command sequencer section of the command decoder, and that the 12-hour timer switches are not being actuated by the timer drive mechanism. Further definition of the timer failure (oscillator, battery, or gear mechanism inoperative) is not possible from telemetry data. Loss of the 12-hour timer output pulse has no adverse effect on ALSEP operations.

All experiments are operating normal and within the predicted temperature response bands. The Passive Seismic Experiment engineering data indicates that the sensor assembly has reached thermal equilibrium. DL-07 is currently reading 125.1 ^{o}F. Engineering data from the other science sensors indicates that they are experiencing an average temperature increase of 0.5 degrees per hour. The Charged Particle Lunar Environment Experiment is detecting activity in the -35 voltage range, and low background data in all other voltage ranges, on both analyzer A and B. The Suprathermal Ion Detector Experiment in operating with high voltages OFF, and the Active Seismic Experiment is in standby.

Status as of 12:00 GMT, 8 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	446	3
Total Commands to Date	7799	419
Sun Angle	43°	49°
Input Power	72.5 watts	72.0 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Thermal Plate Temperature (Average)	84.5°F	107.9°F
PSE Sensor Assembly Temperature	123.1°F	125.1°F
LSM Internal Temperature	52.1°C (125.8°F)	N/A
SWS Temperature Module 300	60.0°C (140.0°F)	N/A
SIDE Temperature 2	40.8°C (105.4°F)	68.8°C (155.8°F)
CCIG Temperature	HIGH	347.4°K (165.2°F)
CPLEE Electronics Temperature	N/A	45.6°C (114.1°F)
ASE GLA Temperature	N/A	44.6°C (112.3°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

9 February 1971
GMT: 14:00

APOLLO 14 ALSEP

Four days after being placed on the lunar surface by the crew of Apollo 14, ALSEP continues to collect scientific data and transmit it to Earth.

The central station average thermal plate temperature continues to track slightly under the upper edge of the predicted temperature response band. The central station is experiencing an average internal temperature increase of 0.4 degrees per hour. A steady output of 72.0 watts from the thermoelectric generator is being received by experiments package. Over the past 24 hours, the signal strength from transmitter "A" is reported to have varied, depending on site characteristics, between -140.5 dbm (GWM) and -142.3 dbm (TEX).

The Passive Seismic Experiment recorded a lunar seismic event of approximately 60 minutes duration starting at 03:45 GMT, 9 February. The event was detected by the Apollo 12 ALSEP seismometer 1.5 minutes earlier. The signal was recorded by all of the sensor axes (horizontal X, Y sensors and vertical Z sensor). The sensor assembly temperature remains stabilized.

The Charged Particle Lunar Environment Experiment continues detecting activity in the -35 voltage range, and low background data in all other voltage ranges, on both analyzer A and B. Experiment science data indicates that the instrument began detecting a burst of charged particles in the three negative voltage ranges (-35, -350, and -3500) of analyzer A at 03:40 GMT, 9 February. Analyzer B indicated only low background data during this event. The experiments internal electronics temperature is increasing at an average of 0.3°C per hour.

The Suprathermal Ion Detector Experiment is operating with high voltages OFF. The instrument is experiencing an internal temperature increase of 0.3°C per hour. The Cold Cathode Gage indicated temperature stabilization of 355.6°K at 15:00 GMT, 8 February.

The Active Seismic Experiment is in standby. The GLA temperature continues to increase at an average rate of 0.4°C.

Note: Add to paragraph 3 ALSEP Status Report dated 6 February 1971. The MSFN Canary Island ground station voice reported transmitter "A" signal strength as a nominal -139 dbm at antenna installation and alignment. Subsequent investigation by the Canary Island ground station of the on-site analog (function/event) recorder history indicated the data listed below.

Time (GMT)	Apollo 14 ALSEP Signal Strength
17:52	-141.0 dbm
17:57	-142.0 dbm
18:15	-141.5 dbm
18:45	-144.0 dbm
↓	↓
19:30	-144.0 dbm

APOLLO 12 ALSEP

The Apollo 12 ALSEP seismometer also responded significantly to the lunar seismic event recorded on the Apollo 14 ALSEP seisometer. The signal was recorded on all three long period axes (LPX, LPY, and LPZ), with an approximate duration of 60 minutes beginning at 03:44 GMT.

The Lunar Surface Magnetometer engineering data returned, restoring valid housekeeping data, at 12:45 GMT, 7 February. The instruments engineering status bits continue to indicate that the axis sensor heads flip on command, and that the Y axis sensor head remains locked at a 180 degree position. Currently the experiments field sensor outputs remain static. Based on Apollo 12 ALSEP instrument history the field sensor outputs should have returned coincident with return of the engineering data. However, on this particular lunation cyclic operation of the experiment has not repeated. Predicting return of the field sensor outputs is not feasible. A summary of the experiments historical cyclic operation follows.

Average Instrument Temperature at Data Return	Time Period (Instrument Operations)
-11°C	Day 022 - Day 106
-3°C	Day 106 - Day 194
+33°C	Day 194 - Current Lunation

Status as of 12:00 GMT, 9 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	447	4
Total Commands to Date	7822	445
Sun Angle	54°	60°
Input Power	72.5 watts	72.0 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Thermal Plate Temperature (Average)	89.7°F	117.8°F
PSE Sensor Assembly Temperature	128.4°F	125.5°F
LSM Internal Temperature	66.0°C (150.8°F)	N/A
SWS Temperature Module 300	64.3°C(147.7°F)	N/A
SIDE Temperature 2	47.4°C (117.3°F)	76.8°C (170.2°F)
CCIG Temperature	HIGH	355.6°K (180.7°F)
CPLEE Electronics Temperature	N/A	54.3°C (129.7°F)
ASE GLA Temperature	N/A	56.6°C (133.9°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

10 February 1971
GMT: 14:00

APOLLO 14 ALSEP

The ALSEP continues to operate after 5 days on the lunar surface. Scientific and engineering data is being collected, including the unique thermal effects of passing through a total eclipse of the moon.

DTREM cell 2 output (AX-05) was used as time of entry and exit of the Apollo 14 ALSEP deployment site into and out of the penumbra. The initial drop of cell 2 output occurred at 05:05 GMT, 10 February (ALSEP enters penumbra). Departure of the deployment site from the penumbra was noted at 10:17 GMT, 10 February (ALSEP exits penumbra).

Preceding the various phases of the eclipse, the central station average thermal plate temperature continued to track slightly under the upper edge of the predicted temperature response band. The central station sunshield (AT-01) experienced a maximum temperature change of 307.1 ^{o}F. The attachment presents selected temperature data during the eclipse.

The MSFN network over the past 24 hours reported the signal strength from transmitter "A" to have varied, depending on site characteristics, between -140.5 dbm (GWM) and -141.4 dbm (TEX).

All four experiments are operating normal and within the predicted temperature response bands, having experienced the extreme temperature changes of a lunar eclipse. Two of them, the Passive Seismic Experiment and Charged Particle Lunar Environment Experiment, indicated no unexpected science output resulting from the eclipse. The Active Seismic Experiment is in standby. The Suprathermal Ion Detector Experiment is operating with high voltages OFF. Neither the Active Seismic Experiment or the Suprathermal Ion Detector Experiment were commanded to change their operational mode during the eclipse.

APOLLO 12 ALSEP

The ALSEP dust detector cell 2 output (AX-05) indicated that the Apollo 12 deployment site entered the penumbra two minutes earlier than the Apollo 14 ALSEP site. The experiments package entered the penumbra at 05:03 GMT, 10 February, and exited the penumbra at 10:15 GMT, 10 February.

The ALSEP central station, seismometer, and field particle experiment sensors indicated the extreme temperature changes recorded by Apollo 14 ALSEP, and the scientific instruments recorded low background data during the eclipse. The magnetometer field sensor outputs which have been static since 20 January have not recovered.

Status prior to lunar eclipse 03:00 GMT, 10 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	448	5
Total Commands to Date	7834	461
Sun Angle	61°	67°
Input Power	72.5 watts	72.0 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Thermal Plate Temperature (Average)	91.5°F	121.1°F
PSE Sensor Assembly Temperature	131.3°F	126.1°F
LSM Internal Temperature	71.4°C (160.5°F)	N/A
SWS Temperature Module 300	65.2°C (149.4°F)	N/A
SIDE Temperature 2	45.7°C (114.3°F)	79.2°C (174.6°F)
CCIG Temperature	OFF Scale High	364.0°K (195.8°F)
CPLEE Electronics Temperature	N/A	58.1°C (136.6°F)
ASE GLA Temperature	N/A	61.6°C (142.9°F)

ATTACHMENT

TM POINT	PENUMBRA ENTRY(1) APOLLO 12 ALSEP	PENUMBRA ENTRY(1) APOLLO 14 ALSEP	PENUMBRA EXIT(2) APOLLO 12 ALSEP	PENUMBRA EXIT(2) APOLLO 14 ALSEP	MAXIMUM TEMPERATURE CHANGE ALSEP 12	MAXIMUM TEMPERATURE CHANGE ALSEP 14
PSE DL-07 TEMP	132.1°F	126.3°F	129.7°F	124.6°F	3.7°F	1.7°F
LSM INT TEMP	71.4°C	N/A	57.9°C	N/A	24.4°C	N/A
SWS 300 TEMP	65.2°C	N/A	48.0°C	N/A	23.8°C	N/A
SIDE TEMP 2	49.2°C	79.2°C	44.0°C	59.4°C	13.1°C	28.3°C
CCIG TEMP	N/A	364.0°K	N/A	237.6°K	N/A	132.2°K
CPLEE P/S TEMP	N/A	58.1°C	N/A	14.0°C	N/A	48.7°C
GLA TEMP	N/A	70.4°C	N/A	51.7°C	N/A	26.3°C
C/S SUNSHIELD (AT-01)	168.3°F	154.1°F	-153.0°F	-153.0°F	321.3°F	307.1°F

NOTE: (1) Apollo 12 ALSEP site, penumbra entry 05:03 GMT, penumbra exit 10:15 GMT, 10 February 1971.

(2) Apollo 14 ALSEP site, penumbra entry 05:05 GMT, penumbra exit 10:17 GMT, 10 February 1971.

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE SUMMARY

11 February 1971
GMT: 14:00

APOLLO 14 ALSEP

The ALSEP continues to operate after 6 days on the lunar surface. Scientific and engineering data is being collected, including the unique thermal gradient effects of passing through a total eclipse of the moon.

Engineering measurements indicate that the central station and experiments are operating normally and have acceded to thermal equilibrium, some 28 hours after the penumbra exited the ALSEP deployment site. The signal strength from transmitter "A" continues to vary depending on site characteristics, between -139.9 dbm and -143.0 dbm. The improvement in signal strength associated with antenna realignment (EVA 2) solved the intermittent losses of downlink that were seen following initial acquisition and lock on ALSEP data by the MSFN ground stations. The thermoelectric power source output remains steady at 72.0 watts

The Passive Seismic Experiment recorded a lunar seismic event of approximately 60 minutes duration on 9 February. The event was detected by the Apollo 12 ALSEP seismometer 1.5 minutes earlier. The signal was recorded by all of the sensor axes (horizontal sensors and vertical sensor). The experiment recorded another lunar seismic event of approximately 25 minutes duration on 11 February. Longest amplitudes were recorded on the long-period horizontal components (LPX and LPY) and by short-period vertical component (SPZ) seismometer. The event was not detected by the Apollo 12 ALSEP seismometer indicating that the event occurred much closer to station 14 than to station 12. All elements of the instrument have operated properly since initial activation with the exception of the long-period vertical component (LPZ) which appears to be operating at a natural period longer than planned. Also the long-period horizontal Y axis component is not responding properly to leveling mode (AUTOMATIC/FORCED) uplink commands. The cause of these deviations from nominal operation has not been determined as yet.

The Charged Particle Lunar Environment Experiment continues detecting constant activity in the -35 voltage range, and low background data in all other voltage ranges, on both analyzer A and B. Experiment science data also indicates that the instrument is detecting activity of high energy charged particles in the six voltage ranges (+35, +350, -3500, -35, -350, -3500) of analyzer A detector 5 as lunar noon is approached. Analyzer B continues indicating low background data.

At turn-on of the Suprathermal Ion Detector Experiment erratic data was noted causing interference on the Passive Seismic and Charged Particle Lunar Environment Experiments. Following execution of a mode change command it was noted that the SIDE dust cover and the Cold Cathode Ionization Gauge seal were open and the interference disappeared. The SIDE and the CCIG both recorded normal data for 40 minutes and were then commanded to standby. The experiment experienced an unexpected mode change on 6 February. In view of the mode change problems associated with the initial SIDE/CCIG operations the experiment has been commanded to operate mode with high voltages OFF until the first lunar sunset.

The Active Seismic Experiment was fully deployed. All three geophones are now in normal operation mode. The thumper mode was completed during the first EVA with the thumper successfully firing 13 times. Nine of the thirteen "thumps" were recorded on all three geophones. The high bit rate (HBR) mode was successfully commanded "ON" at the beginning of the experiment and commanded "OFF" at the end. The mortar box assembly safety device has been removed and it is now ready to "arm" and "fire" on appropriate command.

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

11 February, 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth, six days after being deployed on the lunar surface by the crew of APOLLO 14.

Central station telemetry data indicates that the thermal plate reached thermal equilibrium at 09:00 GMT, 11 February. The average temperature of the thermal plate is currently 122.8°F. A steady output of 72.5 watts from the thermoelectric generator is being received by the experiments package. Over the past 24 hours, the signal strength from transmitter "A" is reported to have varied, depending on site characteristics, between -139.9 dbm (CYI) and -140.5 dbm (CRO).

The Passive Seismic Experiment recorded a lunar seismic event of approximately 25 minutes duration starting at 09:41 GMT, 11 February. Longest amplitudes were recorded on the long-period horizontal components (LPX and LPY) and by short-period vertical component (SPZ) seismometer. The event was not detected by the Apollo 12 ALSEP seismometer indicating that the event occurred much closer to station 14 than to station 12. All elements of the instrument have operated properly since initial activation with the exception of the long-period vertical component (LPZ) which appears to be operating at a natural period longer than planned. Also the long-period horizontal Y axis component is not responding properly to leveling mode (AUTOMATIC/FORCED) uplink commands. The cause of these deviations from nominal operation has not been determined as yet.

The Charged Particle Lunar Environment Experiment continues detecting activity in the -35 voltage range, and low background data in all other voltage ranges, on both analyzer A and B. Experiment science data indicates that the instrument began detecting constant activity of high energy charged particles in the six voltage ranges (+35, +350, +3500, -35, -350, and -3500) of analyzer A detector 5 at 02:58 GMT, 11 February. Analyzer B continues indicating low background data. The experiment's internal electronics temperature reached a thermal equilibrium of 62.5°C at 09:00 GMT, 11 February.

The Suprathermal Ion Detector Experiment is operating with it's high voltages OFF. The experiment's internal temperature reached a thermal equilibrium of 80.47°C at 09:00 GMT, 11 February. The Cold Cathode Gage temperature is stabilized following the lunar eclipse at 364.01°K at 15:00 GMT, 10 February.

The Active Seismic Experiment is in standby. The GLA reached a thermal equilibrium of 60.3°C at 09:00 GMT, 11 February.

Status as of 12:00 GMT, 11 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	449	6
Total Commands to Date	7851	479
Sun Angle	78.6°	85.1°
Input power	72.5 watts	72.5 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	92.3°F	122.8°F
PSE Sensor Assembly Temperature	134.6°F	126.6°F
LSM Internal Temperature	75.2°C (167.5°F)	N/A
Solar Wind Temperature (Mod 300)	66.1°C (151.1°F)	N/A
SIDE Temperature 2	50.0°C (122.0°F)	80.5°C (176.9°F)
CCIG Temeprature	HIGH	364.0°K (195.8°F)
CPLEE Electronics Temperature	N/A	62.5°C (144.5°F)
ASE GLA Temperature	N/A	60.3°C (140.5°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

12 February, 1971
GMT: 14:00

APOLLO 14 ALSEP

Seven days after being placed on the lunar surface by the crew of Apollo 14, ALSEP continues to collect scientific data and transmit it to Earth.

Central station telemetry data indicates the average temperature of the thermal plate is currently 122.7°F. A steady output of 72.5 watts from the thermoelectric generator is being received by the experiments package. Over the past 24 hours, the signal strength from transmitter "A" is reported to have varied, depending on site characteristics, between -139.4 dbm (CYI) and -139.8 dbm (CRO).

ALSEP implemented an unexpected functional change of the seismometer's short period calibration status (AL-07) at 22:09 GMT, 11 February. The functional status change indicated receipt of a repetitive timer pulse generated by the delayed command sequencer and 12 hour timer. Short period calibration status and uncage circuit status of the Passive Seismic instrument again changed, without ground command, at 10:13 GMT, 12 February, indicating the effects of a second 12 hour timer pulse. Immediately on receipt of the 10:13 GMT timer pulse a command sequence was performed in order to ascertain closure of the 12 hour timer switches being actuated by the timer drive mechanism.

(1) Transmitted a command sequence immediately:
   a. Timer Output Accept (octal 032), 10:24:10 GMT.
   b. Timer Output Inhibit (octal 033), 10:24:30 GMT.
   c. Results, no seismometer status change, indicating 12 hour switches are closed.

(2) Retransmit of timer accept and inhibit command sequence after 21 minute planned delay:
   a. Octal 032, 10:45:10 GMT.
   b. Octal 033, 10:45:40 GMT.
   c. Results, seismometer short period calibration status and uncage circuit status change indicated.

The conclusion of this command sequence verifies operation of the timer accept/inhibit logic in the delayed command sequencer, and that the 12 hour switches are operational (opening/closing) when actuated by the timer drive mechanism (reference ALSEP Status Report, dated 8 February 1971). The 12 hour timer command sequence performed on 7 February verified that the one minute switches where not actuating at that time, and that the timer was not operational. Loss of, or erratic, operation of the 12 hour timer output pulse has no adverse effect on ALSEP operations.

The Passive Seismic Experiment long-period horizontal component (LPX and LPY) signals continue to indicate settling of the instrument into the lunar surface. The seismometer sensor assembly temperature has continued to increase on an average of 0.15°F per hour.

The Charged Particle Lunar Environment Experiment continues detecting constant activity of high energy charged particles in the six voltage ranges (+35, +350, +3500, -35, -350, and -3500) of analyzer A and analyzer B as the moon passes out of the effects of the Earth blocking the flow of particles from the sun. The experiment was advanced by command thru various voltage ranges to provide background count data for analysis.

The experiment experienced an unexpected mode change at 21:15 GMT, 11 February. Instrument internal temperature at that time was 63.2°C. CPLEE was then commanded to the +3500 voltage range, and eventually returned to the automatic sequencing voltage mode. Instrument operation continues to be normal.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment is operating with high voltages OFF, and the Active Seismic Experiment is in standby. A "listening mode" operation will be performed at 15:00 GMT, for 30 minutes today.

Status as of 12:00 GMT, 12 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	450	7
Total Commands to Date	7913	519
Sun Angle	91°	97°
Input power	72.5 watts	72.5 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	92.1°F	122.6°F
PSE Sensor Assembly Temperature	140.2°F	130.5°F
LSM Internal Temperature	79.3°C (176.1°F)	N/A
Solar Wind Temperature (Mod 300)	67.1°C (152.8°F)	N/A
SIDE Temperature 2	54.6°C (130.3°F)	83.0°C (181.4°F)
CCIG Temperature	High	364.0°K (195.8°F)
CPLEE Electronics Temperature	N/A	63.3°C (145.9°F)
ASE GLA Temperature	N/A	63.3°C (145.9°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

13 February, 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth after eight days of lunar operation. Central station engineering measurements mark steady operation, with an RTG output of 72.5 watts. Telemetry data indicates that the average thermal plate temperature is decreasing at a rate of 0.1°F per hour. The average thermal plate temperature reached a maximum of 123.4°F during the first day of lunar operations. Over the past 24 hours, the signal strength from transmitter "A" is reported to have varied, depending on site characteristics, at -139.0 $\pm$ 0.4 dbm. The effects of the third and fourth 12 hour timer pulse where seen in the downlink housekeeping of the seismometer at 22:10 GMT, 12 February, and 10:13 GMT, 13 February.

The Passive Seismic Experiment long-period horizontal component (LPX and LPY) signals continue to detect settling of the instrument into the lunar surface. The indications of instrument settling or thermal shroud movement from thermal gradient effects are normally coincident in time, but not in amplitude. Occasionally the long-period vertical component (LPZ) will detect a signal typical of settling. The sensor assembly temperature reached a maximum of 130.3°F, 12 February. Data indicates that the sensor temperature is decreasing at an average rate of 0.18°F per hour, following command of Thermal Control Auto Off (octal 076) at 14:38 GMT, 12 February.

The Charged Particle Lunar Environment Experiment continues detecting constant activity of charged particles in the six voltage ranges of analyzer A and analyzer B as the moon passes form the Earth's geomagnetic tail into the Earth's magnetic bow shock. The most prominent feature of the data is the presence of intense fluxes of protons with energies of 100-2000 ev. The experiment is being advanced by command to the +350 voltage step (Manual Step) for 50 minutes of every hour to provide high time resolution data on these proton fluxes, and to the full stepping voltage sequence (Automatic Stepping) for 10 minutes every hour to provide comprehensive particle data. This particular sequence was initiated at 02:22 GMT, and will continue for several more hours. The experiments internal electronics temperature peaked at 63.3°C, and is currently decreasing at an average of 0.1°C per hour.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The detector's internal electronics temperature continues to increase at 0.1°C per hour, while the gauge's temperature remains stabilized.

The Active Seismic Experiment was commanded on at 14:56 GMT, and ALSEP High Bit Rate data on at 15:00 GMT, for a 30 minute period of "listening mode" operation. Geophone calibrate commands were received and the response observed in the downlink signals. Geophone 2, with maximum sensitivity setting recorded a minor amount of activity(approximately seven seconds). The high bit rate data was received and processed by two MSFN ground stations located at Honeysuckel Creek, Australia (85 foot antenna) and Carnarvon, Australia (30 foot antenna, with cooled par-amp). Data from the 30 foot antenna was displayed during the listening mode and there was no apparent difference in quality compared to data from the 85 foot antenna. Honeysuckle signal strength was reported as -132.0 dbm, while Carnarvon reported a -139.4 dbm reading. "Listening mode" operations are now scheduled every Friday from 15:00 GMT - 15:30 GMT.

APOLLO 12 ALSEP

In general, the central station and experiments continue to follow the pattern of measurements established during previous lunar cycles. The downlink signal strength from transmitter "B" continues to vary depending on MSFN site characteristics, between -138 dbm and -141 dbm.

The Passive Seismic Experiment sensor assembly temperature (DL-07) deflected off-scale HIGH at 01:35 GMT, 13 February. This interruption of temperature data is characteristic of that seen in previous lunations.

The Solar Wind Spectrometer continues to record solar wind plasma data in the high gain mode for subsequent long term analysis.

The Suprathermal Ion Detector Experiment continues to indicate moderate low and high energy activity. Cyclical commanding of the experiment has been in effect in order to minimize instrument mode changes during the lunar noon period. The Cold Cathode Gauge high voltage remains inoperative. The CCGE internal temperature measurement continues off-scale HIGH.

The Lunar Surface Magnetometer engineering data returned, restoring valid housekeeping data, at 12:45 GMT, 7 February. The instruments engineering status bits continue to indicate that the axis sensor heads flip on command, and that the Y axis sensor head remains locked at a 180 degree position. The instrument Z axis field sensor output deflected from off-scale LOW to off-scale HIGH at 07:49 GMT, 11 February, for a duration of 99 minutes. A second off-scale deflection of the Z axis output to HIGH was noted on 12 February at 06:17 GMT. The Z axis output field sensor remains static off-scale HIGH. The experiments X axis and Y axis sensor outputs remain static off-scale LOW. Based on instrument history the field sensor outputs should have returned coincident with return of the engineering data. However, on this particular lunation cyclic operation of the experiment has not repeated. Predicting return of the field sensor outputs is not feasible.

Status as of 12:00 GMT, 13 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	451	8
Total Commands to Date	7922	602
Sun Angle	103°	109°
Input Power	72.5 watts	72.5 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	92.4°F	120.0°F
PSE Sensor Assembly Temperature	Off-scale HIGH	125.8°F
LSM Internal Temperature	79.3°C(176.1°F)	N/A
Solar Wind Temperature(Mod 300)	67.1°C(152.9°F)	N/A
SIDE Temperature 2	55.5°C(132.2°F)	84.3°C (183.9°F)
CCGE Temperature	Off-scale HIGH	364.0°K(195.8°F)
CPLEE Electronics Temperature	N/A	61.0°C (141.9°F)
ASE GLA Temperature	N/A	68.3°C (155.1°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

14 February, 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues to operate after nine days on the lunar surface. Scientific data is being collected, including the effects of passing thru the Earth's bow shock.

Central station telemetry data indicates the average temperature of the thermal plate is currently decreasing at 0.2°F per hour. A steady output of 72.5 watts from the RTG is being received by the experiments package. Calibration status of the seismometer changed at 22:10 GMT, 13 February, signalling the arrival of the fifth 12 hour timer pulse. The sixth pulse arrived at 10:13 GMT, 14 February. During the last 24 hours, the signal strength from transmitter "A" is reported to have varied, depending on site characteristics, between -138.6 dbm (TEX) and -140.2 dbm (CRO).

The Passive Seismic Experiment long-period horizontal and vertical component (LPX, LPY, and LPZ) signals continue to detect settling of the instrument into the lunar surface, and effects of commanding the operational heater. Periodic commanding of the heater (thermal control auto ON/OFF) maintains the sensor assembly temperature at 125.0 $\pm$1.0°F. This particular operational sequence was initiated on 13 February.

The Charged Particle Lunar Environment Experiment is being advanced by command from the full automatic voltage stepping sequence to the +350 voltage step every other hour. The experiment is operated in either voltage step for one hour, before being returned to the other cycle. The intense proton fluxes are still present and are confined to the energy range of 100-2000 ev. Large electron fluxes distributed over the entire range are also seen in both analyzer A and analyzer B. The background level, measured at the +0 voltage step, is insignificant relative to the counts due to the charged particles. The experiments internal electronics temperature is currently decreasing at an average of 0.1°C per hour.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The detector's internal electronics temperature peaked at 84.3°C, and is currently decreasing at an average rate of 0.1°C per hour. The gauge's temperature remains stabilized.

The Active Seismic Experiment is in standby. The experiments Grenade Launch Assembly temperature is decreasing at an average rate of 0.1°C per hour.

Status as of 12:00 GMT, 14 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	452	9
Total Commands to Date	7930	672
Sun Angle	115°	121°
Input Power	72.0 watts	72.1 watts
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	91.9°F	115.4°F
PSE Sensor Assembly Temperature	Off-scale HIGH	125.1°F
LSM Internal Temperature	75.3°C(167.5°F)	N/A
SWS Temperature Module 300	65.2°C(149.4°F)	N/A
SIDE Temperature 2	54.2°C(128.9°F)	83.0°C (181.5°F)
CCGE Temperature	Off-scale HIGH	364.0°K(195.8°F)
CPLEE Electronics Temperature	N/A	52.0°C (125.4°F)
ASE GLA Temperature	N/A	66.9°C (152.1°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

15 February, 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP system performance after 10 days of lunar operation is stable, providing scientific and engineering data as the moon continues passing through the bow shock of the earth. Central station and experiment sensor downlink data indicates that the package is experiencing an average temperature decrease of 0.3 degrees per hour. The RTG output continues steady at 72.0 watts. The seventh 12 hour timer pulse was verified at 22:10 GMT, 14 February, with the eighth pulse occurring at 10:13 GMT, 15 February. Signal strength of transmitter "A" is reported to have varied at -140.0 $\pm$ 0.5 dbm, during the last 24 hours.

The Passive Seismic Experiment continues to record seismic signals from natural events at an average rate of one per day. The last event was detected at 07:52 GMT, 14 February, and was recorded by all of the seismometer's sensor axes. The short-period vertical component (SPZ) data recorded a greater amplitude, than the long-period components (LPX, LPY, and LPZ). Duration of the signal was 10 minutes. The event was not detected by the Apollo 12 ALSEP seismometer indicating that the event occurred much closer to station 14 than to station 12.

The instrument also recorded an episode of large amplitude signals which occurred on the short-period vertical component (SPZ) from 06:00 GMT - 20:00 GMT, 14 February. Cursory analysis indicates that the signals appear to have been caused by magnetic field variations experienced as the moon passed through the Earth's bow shock. These recorded data are not seismic signals, but are voltages induced in the coil of the seismometer by the magnetic field variations.

The Charged Particle Lunar Environment Experiment continues to be operated in the automatic mode for one hour, alternating with one hour of manual mode at the +350 voltage step. The proton and electron fluxes recorded by the experiment over the past two days in the magnetosheath have become highly variable in both intensity and arrival direction, probably as a result of approaching the Earth's bow shock. On several occasions during the last 24 hours the proton fluxes were observed to rapidly change direction as shown by dynamic changes on the ratio of the counting rates in analyzer A and analyzer B, respectively. Over time scales as short as two minutes the ratio of analyzer A/analyzer B protons would range from 100/1 to 0.01/1, or an overall change of 10^4:1. These significant changes are most likely the result of changes in the direction of the near-moon magnetic field in the turbulent region behind the bow shock. The high energy electron fluxes, measured at the -3500 voltage step, are also observed to display significant changes in arrival direction.

The Suprathermal Ion Detector Experiment, Cold Cathode Gauge Experiment, and Active Seismic Experiment operational modes remain as reported in the previous status report.

Status as of 12:00 GMT, 15 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	453	10
Total Commands to Date	7946	733
Sun Angle	127°	133°
Input power	72.0 watts	72.0 watts
Heater and Power Dumps	OFF	OFF
Experiment status	All ON	ASE Standby
Average Thermal Plate Temperature	88.8°F	107.1°F
PSE Sensor Assembly Temperature	OFF-scale High	125.5°F
LSM Internal Temperature	71.4°C (160.5°F)	N/A
SWS Temperature Module 300	63.5°C (146.3°F)	N/A
SIDE Temperature 2	50.9°C (123.6°F)	80.5°C (176.9°F)
CCIG Temperature	OFF-scale High	355.6°K (180.6°F)
CPLEE Electronics Temperature	N/A	44.2°C (111.5°F)
ASE GLA Temperature	N/A	61.6°C (142.8°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

16 February 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues to operate after 11 days on the lunar surface. The package is transmitting scientific and engineering data to Earth as the moon continues passing through the Earth's bow shock front and into interplanetary space. The central station thermal plate average temperature is decreasing at a rate of 0.5°F per hour. The experiments temperature decline follows that of the central station. The RTG is supplying a constant 72.0 watts to the central station. The ninth 12 hour timer pulse was received by the central station command section at 22:08 GMT, 15 February. The tenth pulse was received at 10:08 GMT, 16 February. Verification of the pulse is provided by indication of a seismometer calibration status change. Transmitter "A" signal strength is reported to have varied over the past 24 hours, depending on site characteristics, at -139.2 ± 0.1 ddm.

Apollo 14 ALSEP implemented a spurious SIDE Load 2 Command (octal 105) at 01:26 GMT, 16 February. The command verification word was noted in the downlink by the Ascension Island ground station. The SIDE/CCGE experiment input command register was cleared by command resulting in no functional change to the instrument's operational mode.

Apollo 12 ALSEP implemented an unexpected functional change of the seismometer's long-period horizontal X axis drive motor from OFF to ON. The spurious ON command occurred at 08:55 GMT, 16 February (TEX ground station supporting). The seismometer's drive motor was command OFF, and the instrument releveled. There were no engineering, or other data out of tolerances as a result of the functional change in the experiment.

The Passive Seismic Experiment recorded a lunar seismic event of approximately 60 minutes duration starting at 19:37 GMT, 15 February. The signal was recorded on the long-period horizontal components (LPX, LPY and LPZ) and by the short-period vertical component (SPZ). The event was detected by the Apollo 12 ALSEP seismometer's long-period components.

With the diminishing solar input the seismometer's long-period Y tidal data channel (DL-05) drifted off-scale LOW. A command sequence was initiated at 11:39 GMT, 16 February, to re-center the long-period Y tidal data. The result of command sequence was negative, as the long-period horizontal Y axis component did not respond properly to the leveling mode (AUTOMATIC/FORCED) uplink commands. This particular command sequence was terminated, at 12:16 GMT. Another leveling mode sequence was initiated at 14:29 GMT, proving successful, re-centering the instrument's long-period Y tidal data channel. Currently the instrument's long-period Y tidal data channel is centered, and the thermal control mode is in auto ON.

The Charged Particle Lunar Environment Experiment continues to be operated in automatic stepping mode for one hour, alternating with the experiment in the manual step mode (+350 voltage step) one hour. The experiment continues to record decreasing activity in analyzer A to a level of background counts, while analyzer B activity remains significant. The greatest activity is in the 860-7000 eV proton range recorded by analyzer B, detectors 4 and 5 at the +350 voltage step. The sun-moon line was parallel to the center line of analyzer B at 02:00 GMT, 16 February.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The Active Seismic Experiment is in standby.

Status as of 12:00 GMT, 16 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	454	11
Total Commands to Date	7961	792
Sun Angle	139°	145°
Input power	72.0 w	72.0 w
Heater and Power Dumps	OFF	OFF
Experiment status	All ON	ASE Standby
Average Thermal Plate Temperature	83.4°F	96.1°F
PSE Sensor Assembly Temperature	Off-scale HIGH	125.2°F
LSM Internal Temperature	62.6°C (144.7°F)	N/A
SWS Temperature Module 300	59.2°C (138.6°F)	N/A
SIDE Temperature 2	47.4°C (117.3°F)	73.3°C (163.9°F)
CCGE Temperature	Off-scale HIGH	347.4°K (164.9°F)
CPLEE Electronics Temperature	N/A	38.3°C (100.9°F)
ASE GIA Temperature	N/A	53.1°C (127.6°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

17 February 1971
GMT: 14:00

APOLLO 14 ALSEP

Twelve days after being placed on the lunar surface by the crew of Apollo 14, ALSEP continues to collect scientific data and transmit it to Earth. Central station and experiment sensor downlink data indicates that the package is experiencing an average temperature decrease, coincident with diminishing solar input, of 0.6 degrees per hour. The downlink signal strength from Transmitter "A" is reported to have varied, due to site characteristics, at -139.3±0.7 dbm. The RTG is supplying a constant 72.5 watts to the central station. The eleventh 12 hour timer pulse was verified at 22:02 GMT, 16 February, with the twelfth pulse occurring at 10:05 GMT, 17 February.

The Passive Seismic Experiment long-period horizontal component (LPX and LPY) signals continue to detect settling of the instrument into the lunar surface. The indications of instrument settling or thermal shroud movement from thermal gradient effects are normally coincident in time, but not in amplitude. Occasionally the long-period vertical component (LPZ) will detect a signal typical of settling.

The experiment, particularly the short-period vertical component (SPZ), has continuously recorded seismic activity generated by venting of the LM descent stage. These signals continue to subside as the vehicle temperature decreases with the approach of lunar night.

The Charged Particle Lunar Environment Experiment recent data indicates, after analysis, that the Apollo 14 ALSEP deployment site passed through the Earth's bow shock at 06:00 GMT, 15 February. Data level recorded by the instrument remains significant in analyzer B, with essentially only background counts in analyzer A. This indicates that the experiment is seeing direct solar wind fluxes in analyzer B. The peak counting activity has shifted from analyzer B detector 4 (+350 voltage step) to analyzer B detector 5 (+350 voltage step), reflecting a shift in the average solar wind energy from 1.0 keV to 1.8 keV. The instrument continues to be operated for alternate hours in the automatic mode and the +350 voltage step manual mode, and the data indicates rapid (approximate 10 second) changes in the flux level and energy spectrum of the solar wind.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The Active Seismic Experiment is in standby.

Status as of 12:00 GMT, 17 February was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	455	12
Total Commands to Date	7982	837
Sun Angle	151°	157°
Input power	72.1 w	72.5 w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	71.9°F	83.1°F
PSE Sensor Assembly Temperature	Off-scale HIGH	124.9°F
LSM Internal Temperature	53.5°C (128.3°F)	N/A
SWS Temperature Module 300	54.3°C (129.7°F)	N/A
SIDE Temperature 2	49.2°C (120.6°F)	63.5°C (146.3°F)
CCGE Temperature	Off-scale HIGH	339.4°K (151.5°F)
CPLEE Electronics Temperature	N/A	24.7°C (76.5°F)
ASE GLA Temperature	N/A	42.6°C (108.7°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

18 February 1971
GMT: 14:00

APOLLO 14 ALSEP

The APOLLO geology team initially places the location of the APOLLO 14 ALSEP central station as 185±5 meters from the Lunar Module descent stage at an azimuth of 285° from lunar true north. Central station and experiment sensor downlink data indicates that the package is experiencing an average temperature decrease of 0.6 degrees per hour. Transmitter "A" signal strength is reported to have varied over the past 24 hours, depending on site characteristics, at -139.8±0.6 dbm. The RTG output power to the central station is constant at 72.5 watts. The effects of the thirteenth 12 hour timer pulse were seen in the downlink housekeeping of the seismometer at 22:17 GMT, 17 February. A functional status change of the fourteenth timer pulse have not been seen in the downlink. Loss of, or erratic, operation of the 12 hour timer output has no adverse effect on ALSEP operations.

The Passive Seismic Experiment long-period Y tidal data channel was re-centered on the second leveling mode sequence initiated at 18:09 GMT, 17 February. The experiment's long-period X tidal data channel was recentered, without difficulty, at 18:14 GMT. The seismometer heater was left in Auto ON throughout the leveling mode sequence. Currently the instrument's long-period Y tidal data channel is centered, and the thermal control mode is Auto ON.

The Charged Particle Lunar Environment Experiment is recording dimishing solar wind activity as the sun's position moves away from the instrument sensor's field of view. The Auto Mode/Manual Mode cyclic operation of the instrument was discontinued at 23:00 GMT, 17 February, (+350 voltage step activity has returned to low background counts). The instrument currently is in Auto mode, recording low background data in all voltage ranges, on both analyzer A and B.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The Active Seismic Experiment is in standby.

Status as of 12:00 GMT, 18 February was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	456	13
Total Commands to Date	7998	869
Sun Angle	164°	170°
Input power	72.0 w	72.5 w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	59.8°F	65.7°F
PSE Sensor Assembly Temperature	139.2°F	124.7°F
LSM Internal Temperature	40.3°C (104.6°F)	N/A
SWS Temperature Module 300	43.6°C (110.5°F)	N/A
SIDE Temperature 2	50.1°C (122.2°F)	49.2°C (120.6°F)
CCGE Temperature	Off-scale HIGH	323.8°K (123.4°F)
CPLEE Electronics Temperature	N/A	0.2°C (32.4°F)
ASE GLA Temperature	N/A	29.1°C (84.4°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

19 February 1971
GMT: 12:00

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth after 14 days of lunar operation. Central station engineering measurements mark steady operation, with an output of 72.5 watts from the theromelectric generator being received by the experiments package. Transmitter "A" signal strength is reported to have varied over the past 24 hours, depending on site characteristics, at -139.1±0.9 dbm. A functional status change of the fourteenth timer pulse has not been seen in the downlink. Loss of, or erratic, operation of the 12 hour timer output has no adverse effect on ALSEP operations.

DTREM temperature measurement (AX-03) significantly changed rate of decrease from 0.7°C per hour to 127.0°C per hour at 05:53 GMT, 19 February. Lunar sunset of the Apollo 14 ALSEP site was theoretically predicted to occur, based on ephemeris data corresponding to longitude and the Moon's rotation rate and Apollo 12 ALSEP empirical data corrected, at 07:33 GMT, 19 February.

The Passive Seismic Experiment long-period X and Y tidal data channels were re-centered without difficulty at 19:52 GMT, and 19:53 GMT, 18 February, repectively. The seismometer's heater was left in Auto ON throughout the leveling sequence. Currently the instrument's long-period tidal data channels are centered, and the sensor temperature is decreasing at the very slight rate of 0.02°F per hour(thermal control mode is Auto ON).

The Charged Particle Lunar Environment Experiment continues recording low background data in all voltage ranges, on both analyzer A and analyzer B. The operational thermostat activated the instrument's heater when the internal electronics temperature reached 0.4°C on 18 February. The operational heater was commanded to Forced ON at 09:49 GMT, 19 February, when the instrument's internal electronics temperature reached -20°C, per mission rule. Currently the experiment is experiencing a temperature decrease of 2.3°C per hour.

The Active Seismic Experiment is in standby. The experiments Grenade Launch Assembly temperature is decreasing at an average rate of 2.7°C per hour. A "listening mode" operation will be performed at 15:00 GMT, for 30 minutes today.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The experiments high voltages are to be commanded ON, placing the experiments in full scientific operation, at 15:30 GMT, 19 February. The detector's internal electronics temperature is currently decreasing at a rate of 3.8°C per hour, while the gauge's temperature is dropping at a rate of 8.5°K per hour.

APOLLO 12 ALSEP

Apollo 12 ALSEP has been operating on the lunar surface for 457 days and continues to perform normally, transmitting scientific and engineering data to Earth. Power output of the RTG and transmitter "B" signal strength remain steady. Sunset at the Apollo 12 ALSEP has not yet occurred.

The Passive Seismic Experiment continues to record seismic signals conicident with the 14 ALSEP seismometer. The sensor assembly temperature (DL-07) deflected off-scale HIGH at 01:35 GMT, 13 February, and returned on-scale at a temperature of 142.8°F., 17 February, 19:18 GMT. This interruption of temperature data is characteristic of that seen in previous lunations. The experiments characteristic Short Period Z axis pulse train appeared at 12:36 GMT, 13 February, and remained until 16:00 GMT, 14 February.

The Lunar Surface Magnetometer Experiment engineering data returned, restoring valid housekeeping data, at 12:45 GMT, 7 February. The experiments field sensor outputs returned, restoring valid science data from 00:47 GMT to 00:53 GMT, 16 February. The instruments internal temperature was 59.4°C. Following the instrument's abbreviated attempt to restore valid field sensor output data the three axes deflected off-scale simultaneously. The experiments engineering data became static at 18:01 GMT, 18 February. The internal electronics temperature was 37.3°C. Based on instrument history it is expected that data will remain static until after the next lunar sunrise, 6 March. The Y axis sensor head remains fixed at a 180 degree position, not responsive to flip-cal commands. The X and Z sensors are returned to the 180 degree position following each flip-cal sequence to maintain sensor synchronization.

The Solar Wind Spectrometer continues to record solar wind plasma data in the high gain mode for subsequent long term analysis.

The Suprathermal Ion Detector Experiment continued to indicate high energy and low energy activity through the optical terminator crossing. The experiment experienced an unexpected mode change to X10 accumulation mode from normal mode at 10:59 GMT, 18 February. The internal electronics temperature was 50.1°C. The Cold Cathode Gauge high voltage remains inoperative, and the internal temperature measurement continues off-scale HIGH.

The dust detector cell outputs are exhibiting the same trend as noted during previous sunset terminator crossings.

Status as of 12:00 GMT, 19 February was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	457	14
Total Commands to Date	8009	881
Sun Angle	176°	182°
Input Power	72.0w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	35.5°F	33.8°F
PSE Sensor Assembly Temperature	129.1°F	124.4°F
LSM Internal Temperature	Static	N/A
SWS Temperature Module 300	26.4°C(79.5°F)	N/A
SIDE Temperature 2	32.4°C(90.3°F)	8.4°C (47.1°F)
CCGE Temperature	Off-scale HIGH	163.2°K(-165.6°F)
CPLEE Electronics Temperature	N/A	-15.4°C(4.3°F)
ASE GLA Temperature	N/A	1.6°C (34.9°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

20 February 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth. Central station and engineering experiment sensor downlink data indicate steady operation after 15 days of lunar operation. The RTG is supplying a constant output of 72.5 watts to the experiments package. The average thermal plate temperature is decreasing at a rate of 0.1°F per hour. Over the past 26 hour period, the signal strength from transmitter "A" has varied from -137.8 dbm (TEX) to -140.0 dbm (ACN), depending on MSFN site characteristics.

The Passive Seismic Experiment recorded a lunar seismic event of approximately 40 minutes duration starting at 17:35 GMT, 19 February. The signal was recorded by all of the instrument's axes. The event was not detected by the Apollo 12 ALSEP seismometer indicating that the event occurred much closer to station 14 than to station 12. The seismometer recorded another lunar seismic event of approximately 60 minutes duration starting at 05:55 GMT, 20 February. The signal was recorded on the long-period and the short-period axes. This event was also detected by the Apollo 12 ALSEP seismometer's long-period axes. The experiment's long-period X and Y tidal data channels were re-centered without difficulty at 18:33 GMT, 19 February. The seismometer's heater was left in Auto ON throughout the leveling sequence. Currently the sensor's temperature (DL-07) is stabilized at 124.2°F in the Auto thermal control mode.

The Charged Particle Lunar Environment Experiment continues recording low background data in all voltage ranges, on both analyzer A and analyzer B. Engineering data indicates that the instrument temperature has stabilized in the lunar night environment at -23.3°C.

The Active Seismic Experiment was commanded on at 15:03 GMT, and ALSEP high bit rate data on at 15:18 GMT, for a 30 minute period of "listening mode" operation. Geophone calibrate commands were received and the response observed in the downlink signals. Geophone 2, with maximum sensitivity setting recorded three bursts of activity at 15:30 GMT, 15:39 GMT, and 15:40 GMT. The activity recorded at 15:30 GMT by geophone 2, was also recorded by geophone 1. The largest amplitudes were seen on geophone 2. The geophone 2 activity detected at 15:40 GMT, was recorded for a duration greater than one minute. The high bit rate data was received and processed by two MSFN ground stations located at Honeysuckle Creek, Australia (85 foot antenna) and Kokee Park, Hawaii (30 foot antenna, with cooled par-amp). Data from the 30 foot antenna was displayed

during the listening mode and there was no apparent difference in quality compared to data from the 85 foot antenna. Honeysuckle high bit rate signal strength was reported as -126.0 dbm, while Hawaii reported a -138.0 dbm reading. Listening mode operations are now scheduled every Friday from 15:00 GMT - 15:30 GMT.

The Cold Cathode Gauge high voltage power supply (4.5 kv) was activated by command at 16:20 GMT, 19 February. With initial activation "striking" was achieved, placing the gauge in full science operation. During normal operations gauge data is inhibited each time the instrument experiences an automatic calibrate function (every 154.6 seconds or 128 SIDE frames). After the first internal calibrate function occurred the CCGE data did not return to normal ("striking was lost). On re-cycling the gauge's high voltage power supply it was observed that "striking" could be re-initiated, and then lost following the normal automatic calibrate function. The experiment was then sequenced through its various reset modes to verify optimum gauge operation. The decision was made to operate the experiment at reset SIDE frame counter at 79.

Initiation of this command changes the operational data format characteristics. Upon receipt of the command, the experiment resets to SIDE frame zero and then steps to SIDE frame 79 before resetting again to zero. The velocity filter and the high and low energy curved plate analyzers step through the values obtained for these SIDE frames in the normal mode of operation. The ground plane voltage steps through the normal 24 step sequence. Resetting to zero bypasses the automatic calibration functions, which were detected as having an operational effect on the gauge.

The Suprathermal Ion Detector Channeltron high voltage power supply (-3.5kv) was activated by command at 19:50 GMT, 19 February, placing the detector in full science operation. Currently the experiment is operating with high voltages ON, and in reset SIDE frame counter at 79. The gauge operational discrepancey is under investigation.

Status as of 12:00 GMT, 20 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	458	15
Total Commands to Date	8047	952
Sun Angle	188°	194°
Input Power	72.5w	72.5w
Heater and Power Dumps	DSS-1 ON(10 w)	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	22.4°F	17.6°F
PSE Sensor Assembly Temperature	126.2°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Temperature Module 300	-6.4°C(20.5°F)	N/A
SIDE Temperature 2	3.7°C(38.7°F)	-0.9°C(30.4°F)
CCGE Temperature	Off-scale HIGH	118.7°K(-245.7°F)
CPLEE Electronics Temperature	N/A	-23.3°C(-9.9°F)
ASE GLA Temperature	N/A	-28.9°C(-20.0°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

22 February, 1971
GMT: 14:00

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth after 17 days of lunar surface operation. The RTG is supplying a constant output of 72.5 watts to the experiments package. The average thermal plate temperature has statilized in the lunar night environment at 16.1°F without the aid of central station heaters. Over the past 48 hour period, the signal strength from transmitter "A" has varied from -137Odbm (HAW) to -139.5 dbm (ACN), depending on site characteristics.

The Passive Seismic Experiment record five lunar seismic events during the past 48 hour period. The events occurred at 15:07 GMT to 15:30 GMT, 20 February; 03:33 GMT to 04:30 GMT, 21 February; 11:20 GMT to 11:50 GMT, 21 February; 18:36 GMT to 19:00 GMT, 21 February; and 21:53 GMT to 22:30 GMT, 21 February. The first three seismic events were also recorded by the Apollo 12 ALSEP seismometer. Currently the sensor's temperature (DL-07) has stabilized in the lunar night environment at 124.2°F in the auto thermal control mode. The experiment's tidal data channels have not required re-centering since 19 February.

The particle experiments, Suprathermal Ion Detector/Cold Cathode Gauge and Charged Particle Lunar Environment, internal electronic temperatures have stabilized in the lunar night environment at -1.5°C and -24.0°C, respectively. Scientific sensors of each experiment are recording low background data in all voltage ranges. The ion detector/gauge is currently operating in the "reset SIDE frame counter at 79" mode. The charged particle instrument is operating in its automatic voltage stepping sequence mode. The Active Seismic Experiment is in standby. Currently the Grenade Launch Assembly temperature is decreasing at a rate of 0.2 degrees per hour.

Status as of 12:00 GMT, 22 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	460	17
Total Commands to Date	8083	972
Sun Angle	212°	218°
Input Power	72.5 watts	72.5 watts
Heater & Power Dumps	DSS-1 ON (10 w)	OFF
Experiment Status	ON	ASE Standby
Average Thermal Plate Temperature	21.0°F	16.1°F
PSE Sensor Assembly Temperature	126.2°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Temperature, Module 300	-14.8°C (5.4°F)	N/A
SIDE Temperature 2	4.25°C (39.6°F)	-1.50°C (29.3°F)
CCGE Temperature	Off-scale HIGH	110.2°K (-261°F)
CPLEE Electronics Temperature	N/A	-24.0°C (-11.2°F)
ASE GLA Temperature	N/A	-47.3°C (-53.1°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

23 February 1971
14:00 GMT

APOLLO 14 ALSEP

Eighteen days after being placed on the lunar surface by the crew of Apollo 14, ALSEP continues to collect scientific data and transmit it to Earth. The RTG is supplying a constant output of 72.5 watts to the experiment package. Over the past 24-hour period, the signal strength from transmitter "A" has varied from -137.3 dbm (TEX) to -139.0 dbm (ACN), depending on site characteristics. Central station heater DSS-1 (10w) was commanded ON at 19:27 GMT, 22 February, after the central station average thermal plate temperature had stabilized at 16.1°F. Since commanding DSS-1 ON the central station average thermal plate temperature is increasing at a rate of 1 degree per hour.

The Passive Seismic Experiment recorded a lunar seismic event of approximately 92 minutes duration starting at 15:58 GMT, 22 February, and a seismic event of approximatley 25 minutes duration starting at 18:21 GMT, 22 February. The seismic signals were recorded by all the instrument's axes. The first event was also recorded by the Apollo 12 ALSEP seismometer. The experiments long-period X and Y tidal data channels were re-centered without difficulty at 19:03 GMT, and 19:05 GMT, 22 February, respectively. The seismometer's heater was turned to auto OFF prior to the leveling sequence. Currently the sensor's temperature (DL-07) has stabilized at 124.2°F, in the auto thermal control mode.

The particle experiments, Suprathermal Ion Detector/Cold Cathode Gauge and Charged Particle Lunar Environment, internal electronic temperatures have stabilized in the lunar night environment at -1.5°C and -24.0°C, respectively. Scientific sensors of each experiment are recording low background data in all voltage ranges. The gauge is currently measuring a lunar atmosphere of approximatley 7×10^{-12} torr. The ion detector/gauge is currently operating in the "reset SIDE frame counter at 79" mode. The charged particle instrument is operating in its automatic voltage stepping sequence mode. The Active Seismic Experiment is in standby. Currently the Grenade Launch Assembly temperature is decreasing at a rate of 0.2 degrees per hour.

Status as of 12:00 GMT, 23 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	461	18
Total Commands to Date	8097	991
Sun Angle	224°	230°
Input Power	72.5w	72.5w
Heater & Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	21.0°F	38.5°F
PSE Sensor Assembly Temperature	126.2°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Temperature Module 300	-15.2°C(4.6°F)	N/A
SIDE Temperature 2	3.7°C(38.7°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	110.2°K(-261.0°F)
CPLEE Temperature	N/A	-24.0°C(-11.2°F)
ASE GLA Temperature	N/A	-51.4°C(-60.5°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

24 February 1971
12:00 GMT

APOLLO 14 ALSEP

The ALSEP 14 system performance after 19 days of operation is stable and providing data of the moon's lunar night environment. All data from Apollo 12 and 14 experiment packages are being continuously recorded by the MSFN tracking stations for subsequent analysis.

Central station telemetry data indicates that the average thermal plate temperature, following activation of DSS-1 heater, has stablized at 40.6°F at 03:00 GMT, 24 February. The thermoelectric power source output remains steady at 72.5 watts. Transmitter "A" signal strength is reported to have varied over the past 24 hours, depending on site characteristics, at -138.0 ± 0.5 dbm.

All experiments are functioning steadily having reached thermal equilibrium. Analyses of seismometer analog drum recordings indicated that the 14 station instrument detected two additional seismic events on 23 February, at 04:01 GMT (17 minutes duration), and 04:37 GMT (23 minutes duration). Each of the signals were of low amplitude and recorded by only the Y axis data channel of the ALSEP 14 instrument. At 19:50 GMT, 23 February, the ALSEP 14 instrument detected another low amplitude seismic signal of approximately 25 minutes duration. This signal was recorded by the X and Y axes data channels of the 14 station. The Apollo 12 and 14 seismometers recorded two seismic events on 24 February, at 05:51 GMT (approximately 20 minutes duration), and at 07:07 GMT (approximately 25 minutes duration). Each of the signals were of low amplitude and detected by the long-period X and Y axes data channels of each instrument, and also on the short-period Z axis data channel of the 14 instrument.

The scientific sensors of the ion detector and charged particle instrument are recording low background data in all voltage ranges. The gauge is currently measuring a lunar atmosphere of approximately 3×10^{-13} torr. The ion detector/gauge is currently operating in the "reset SIDE frame counter at 79" mode. The charged particle instrument is operating in its automatic voltage stepping sequence mode. The active seismic is in standby.

Status as of 12:00 GMT, 24 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	462	19
Total Commands to Date	8101	1001
Sun Angle	238°	244°
Input Power	73.0w	72.5w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	21.0°F	40.6°F
PSE Sensor Assembly Temperature	126.1°F	124.1°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.2°C(4.6°F)	N/A
SIDE Temperature 2	3.7°C(38.7°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	108.3°K(-265.4°F)
CPLEE Temperature	N/A	-24.0°C(-11.2°F)
ASE GLA Temperature	N/A	-53.2°C(-63.7°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

25 February 1971
G.m.t.: 14:00

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth after 20 days of lunar operation. All experiments are functioning steadily having reached thermal equilibrium in the lunar night environment. The RTG is supplying a constant output of 72.5 watts of power to the experiments package.

The MSFN initially implemented use of the Vanguard tracking ship to acquire track and command of the Apollo 12 and 14 ALSEP's, at 15:15 G.m.t., 24 February. ALSEP signal strength was reported as -137.5 dbm at Vanguard acquisition of signal,and -140.0 dbm at loss of signal at 19:49 G.m.t. During the Vanguard's tracking period two par-amp problems were experienced; (1) 16:40 - 16:57 G.m.t.; and, (2) 17:05 - 17:35 G.m.t. The Vanguard par-amp problems resulted in a total of 47 minutes of no record of ALSEP data.

The Apollo 12 and 14 seismometers recorded a seismic event of approximately 41 minutes duration starting at 17:35 G.m.t., 24 February, (re-acquisition of ALSEP signal by Vanguard). The seismic signal was recorded by the X and Y axes data channels of each instrument, and also on the short-period Z axis data channel of the 14 seismometer. The long-period Z axis data channel signal was below the background noise of each instrument. At 12:17 G.m.t., 25 February, the ALSEP 12 and 14 instruments detected another seismic signal of approximately 60 minutes duration. This signal was recorded on all axes of each seismometer.

The Cold Cathode Gauge was observed to lose "strike" at approximately 04:46 G.m.t., 25 February. On re-cycling the gauge's high voltage power supply is was determined that "striking" could be re-initiated, and then lost folling the normal automatic calibrate function. During normal operations gauge data is inhibited each time the instrument experiences an automatic calibrate function (every 154.6 seconds or 128 SIDE frames). The experiment's high voltage power supply was then re-cycled several times in order to obtain "striking". The experiment was then commanded to "reset SIDE frame counter at 79" mode, obtaining optimum gauge operation.

Initiation of "reset SIDE frame counter at 79" command changes the operational data format characteristics. Upon receipt of the command, the experiment resets to SIDE frame zero and then steps to SIDE frame 79 before resetting again to zero. The velocity filter and the high and low energy curved plate analyzers step through the values obtained for these SIDE frames in the normal mode of operation. The ground plane voltage steps through the normal 24 step sequence. Resetting to zero bypasses the automatic calibration functions of the instrument, which are detected as having an operational effect on the gauge.

The Suprathermal Ion Detector Channeltron high voltage power supply (-3.5kv) was not commanded OFF during CCGE high voltage re-cycling.

Currently the experiment is operating with high voltages ON, and in "reset SIDE frame counter at 79" mode. Solutions are under study to correct the gauge operational situation.

The Charged Particle Lunar Environment instrument is operating in its automatic voltage stepping sequence mode, and recording low background data in all voltage ranges. The Active Seismic Experiment is in standby.

Status as of 12:00 GMT, 25 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	463	20
Total Commands to Date	8103	1061
Sun Angle	256	262
Input Power	72.4 w	72.5 w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	21.0°F	40.6°F
PSE Sensor Assembly Temperature	126.1°F	124.1°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.2°C (4.6°F)	N/A
SIDE Temperature 2	3.7°C (38.7°F)	-1.5°C (29.3°F)
CCGE Temperature	Off-scale HIGH	106.5°K(-257.7°F)
CPLEE Temperature	N/A	-24.0°C (-11.2°F)
ASE GLA Temperature	N/A	-53.2°C (-63.7°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

26 February 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Twenty-one days after being placed on the lunar surface by the crew of Apollo 14, ALSEP continues to collect scientific data and transmit it to Earth. All experiments are functioning steadily having reached thermal equilibrium in the lunar night environment. The RTG is supplying a constant output of 72.5 watts of power to the experiments package. Over the past 24 hour period, the signal strength from transmitter "A" has varied from -137.5 dbm (CYI) to -139.0 dbm (VAN), depending on the site characteristics.

The Apollo 12 and 14 ALSEP seismometers recorded a lunar seismic event of approximately 53 minutes duration starting at 1215 G.m.t., 25 February. The seismic signal was recorded by both of the instruments axes. At 1514 G.m.t., 25 February, the 12 and 14 station instruments detected another seismic event of approximately 30 minutes duration. This event was also recorded on all axes of each seismometer.

The Cold Cathode Gauge lost "strike" on three separate occasions; (1) 1706 G.m.t., 25 February; (2) 2155 G.m.t., 25 February; and, (3) 0648 G.m.t., 26 February. With each occurrence of dropping "strike" re-cycling of the gauge's high voltage power supply was initiated, and the instrument commanded to "reset SIDE frame counter at 79" mode, obtaining optimum gauge operation. The gauge is currently in electrometer range 3, measuring a lunar atmosphere of approximately 1×10^{-10} torr.

The Suprathermal Ion Detector Channeltron high voltage power supply was not commanded OFF during CCGE high voltage re-cycling. The ion detector continues recording low background data in all voltage ranges.

The Charge Particle Lunar Environment instrument is operating in its automatic voltage stepping sequence mode, recording low background data in all voltage ranges.

The Active Seismic Experiment is in standby. A "listening mode" operation will be performed at 1500 G.m.t., for 30 minutes today.

APOLLO 12 ALSEP

The 16th lunar sunset experienced by Apollo 12 ALSEP occurred at 1916 G.m.t., 19 February, when the dust detector's west facing solar cell output (AX-04) went off-scale LOW indicating sunset at the deployment site.

All experiments are functioning steadily having reached thermal equilibrium in the lunar night environment. Central station engineering measurements mark steady operation, with an output of 72.5 watts from the thermoelectric generator being received by the experiments package. Activation of DSS-1 heater (10w) was accomplished at 2038 G.m.t., 19 February, as the central station average thermal plate temperature decreased to 21.0°F. The downlink signal strength over the past seven days from transmitter "B" continues to vary depending on MSFN site characteristics, between -137.5 dbm (CRO) and -143.0 dbm (ACN).

The Passive Seismic Experiment continues to record seismic signals coincident with the ALSEP 14 seismometer. The instrument's Z axis leveling motor was commanded to auto ON at 0747 G.m.t., 20 February, as the sensor assembly temperature decreased to 125.7°F. Commanding of the experiment's heater to auto ON during lunar night is a operational procedure used to maintain thermal equilibrium of the sensor. The output of the seismometer's short-period Z sensor (DL-08) became inoperative after sunset at 1800 G.m.t., 20 February, as it has during previous lunar night cycles. This Z data channel output is expected to return after the subsequent sunrise. Since the seismometer's long-period sensors provide the primary seismic data, characteristic loss of this data is not considered critical.

Data from the Lunar Surface Magnetometer scientific and engineering data channels remains static, except for the status bit indicators of the instrument's operational mode. The magnetometer has not processed data since 18 February, due to the cyclic instrument anomaly during each of the lunar nights since January 1970. Based on instrument history it is expected that data will remain static until after the next lunar sunrise, 6 March. The Y axis sensor head remains fixed at a 180 degree position, not responsive to flip-cal commands. The X and Z sensor heads are returned to the 180 degree position following each flip-cal sequence to maintain sensor synchronization.

The scientific sensors of the ion detector and spectrometer instruments continue inactive in the lunar night environment, recording low background data in all voltage ranges.

The Solar Wind Spectrometer continues using the revised operations schedule, which is that the instrument operate in the high gain mode during lunar day and optical terminator crossing, and in normal gain during lunar night. The instrument's gain change for lunar night operation occurred at 0750 G.m.t., 20 February.

The Suprathermal Ion Detector/Cold Cathode Gauge instrument was commanded to "reset SIDE frame counter at 79", at 2042 G.m.t., 19 February. The ion detector's operational data format characteristics were reset in order to have conicident response to the ALSEP 14 ion detector. The instrument continues to function steadily in the reset at 79 mode. The Cold Cathode Gauge high voltage remains inoperative, and the internal temperature measurement continues off-scale HIGH.

Status as of 1200 G.m.t., 26 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	464	21
Total Commands to Date	8123	1126
Sun Angle	261°	267°
Input Power	72.5w	72.5w
Heater & Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	20.5°F	40.6°F
PSE Sensor Assembly Temperature	126.0°F	124.0°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.2°C(4.6°F)	N/A
SIDE Temperature 2	3.7°C(38.7°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	106.5°K(-257.7°F)
CPLEE Electronics Temperature	N/A	-24.0°C(-11.2°F)
ASE GLA Temperature	N/A	-54.2°C(-65.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

27 February 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Maintaining thermal equilibrium the central station and experiments engineering telemetry data indicates steady operation of each instrument in the lunar night environment. Midnight at the Apollo 14 ALSEP deployment site theoretically occurred at 1800 G.m.t., 26 February. The radioisotopic thermoelectric power source is supplying a constant output of 72.5 watts of power to the experiments package. Over the past 24 hours, the signal strength from transmitter "A" is reported to have varied from -139.5 dbm (VAN) to -140.5 dbm (ACN), depending on site characteristics.

The Passive Seismic Experiment recorded a lunar seismic event of approximately 27 minutes duration, at 0717 G.m.t., 27 February. This signal was recorded on all axes of the seismometer. The event was not detected by the ALSEP 12 instrument. The moon's perigee occurred on 25 February.

The Cold Cathode Gauge lost "strike" on four separate occasions; (1) 1357 G.m.t., 26 February; (2) 1929 G.m.t., 26 February; (3) 0402 G.m.t., 27 February; and, (4) 1113 G.m.t., 27 February. With each occurrence of dropping "strike" recycling of the gauge's high voltage power supply was initiated, and the instrument commanded back to "reset SIDE frame counter at 79" mode, obtaining optimum gauge operation. The gauge is currently in electrometer range 3, measuring a lunar atmosphere of approximately 1×10^{-10} torr.

The ion detector's Channeltron high voltage power supply was not commanded OFF during CCGE high voltage re-cycling. The ion detector and charged particle instruments are recording low background data in all voltage ranges. The charged particle instrument is operating in its automatic voltage stepping sequence mode.

The Active Seismic Experiment was commanded ON at 1447 G.m.t., and ALSEP high bit rate data ON at 1500 G.m.t., for a 33 minute period of "listening mode" operation. During the experiment "listening mode" the mission control RTCC computer dropped off line from 1511 G.m.t. - 1523 G.m.t., during which time all in-house telemetry and command capability were lost. Re-cycling of the computer was accomplished and the "listening mode" operation completed. Geophone calibrate commands were sent to the instrument and observed in the downlink data. Geophone 2 recorded two bursts of activity; (1) 1508 G.m.t., duration approximately one minute; and, (2) 1527 G.m.t., duration approximately 30 seconds. The high bit rate data was received and processed two MSFN ground stations located at Ascension Island, United Kingdom, (30 foot antenna, with cooled par-amp) and Madrid, Spain, (85 foot antenna). Data from each ground station was displayed during the "listening mode" and there was no apparent difference in quality. Madrid high bit rate signal strength was reported as -126.0 dbm, while Ascension reported a -139.5 dbm reading. "Listening mode" operations are now scheduled every Friday from 1500 G.m.t. - 1530 G.m.t.

Status as of 1200 G.m.t., 27 February, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	465	22
Total Commands to Date	8127	1169
Sun Angle	273°	279°
Input Power	72.5w	72.5w
Heater & Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	20.2°F	40.6°F
PSE Sensor Assembly Temperature	126.0°F	124.0°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.2°C(4.6°F)	N/A
SIDE Temperature 2	3.7°C(38.7°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	104.7°K(-270.9°F)
CPLEE Electronics Temperature	N/A	-24.0°C(-11.2°F)
ASE GLA Temperature	N/A	-57.0°C(-70.6°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

This report covers the ALSEP activity and data for the previous 48 hours. Central station telemetry data indicates steady operation of the package instruments, transmitting scientific and engineering data to Earth for processing. The radioisotopic thermoelectric power source continues to supply 72.9 watts of power to the central station. During this 48 hour period the signal strength from transmitter "A" is reported to have varied from -139.0 dbm (HAW) to -141.7 dbm (CRO), depending on site characteristics.

Apollo 14 ALSEP implemented a spurious Dissipation Resistor 2 ON command (octal 022) at 1202 G.m.t., 1 March. The command verification word was noted in the downlink by the Carnarvon ground station. The dissipation resistor was then commanded OFF. There were no engineering, or other data out of tolerances as a result of the functional change in the central station.

The ALSEP experiments remain at thermal equilibrium as the station remains in lunar night. The particle sensors, Suprathermal Ion Detector and Charged Particle Lunar Environmental Experiments, are recording low background activity. The Cold Cathode Gage lost "strike" on nine separate occasions; (1) 1638 G.m.t. (2) 2207 G.m.t., 27 February; (3) 0326 G.m.t., 28 February; (4) 0848 G.m.t., 28 February; (5) 1404 G.m.t., 28 February; (6) 1943 G.m.t., 28 February; (7) 0130 G.m.t., 1 March; (8) 0518 G.m.t., 1 March; and (9) 1204 G.m.t., 1 March. With each occurrence of dropping "strike" re-cycling of the gauge's high voltage power supply was initiated, and the instrument commanded back to "reset SIDE frame counter at 79" mode, obtaining gauge operation. The gauge remains in electrometer range 3, measuring a lunar atmosphere of approximately 1×10^{-10} torr. The Passive Seismic Experiment recorded three seismic events on 1 March, at 0135 G.m.t. (approximately 30 minutes duration), 0924 G.m.t. (approximately 20 minutes duration), and 1152 G.m.t. (approximately 14 minutes duration). Each of the signals were of low amplitude recorded on all axes of the seismometer, with the 0924 G.m.t. event recorded on the instruments X and Y axes only. None of these seismic events were recorded by the ALSEP 12 seismometer. The Active Seismic Experiment is in standby.

Status as of 1200 G.m.t., 1 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	467	24
Total Commands to Date	8135	1295
Sun Angle	297°	303°
Input Power	72.9 w	72.9 w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	19.9°F	40.4°F
PSE Sensor Assembly Temperature	125.9°F	124.0°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (-3.9°F)	N/A
SIDE Temperature 2	3.7°C (38.6°F)	-1.5°C (29.3°F)
CCGE Temperature	Off-scale HIGH	102.9°K (-274.2°F)
CPLEE Electronics Temperature	N/A	-29.6°C (-21.3°F)
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The central station and all experiments continue to maintain thermal equilibrium in the lunar night environment, with engineering data from the package indicating steady operation of each instrument. The RTG is supplying a constant output of 72.4 watts of power to the experiments package. During the period from 1 March to 7 March, 1971, the MSFN sites scheduled for ALSEP Phase II support (real time) will be either a 30 foot antenna (cooled par-amp only) or a 85 foot antenna. The network is scheduled as indicated in the event of anticipated low signal strength downlink due to the 14 station's apparent antenna misalignment. The signal strength variations reported for the past 24 hours are:

30 foot cooled antenna:	-143.0±0.3dbm
85 foot antenna:	-133.0±2.0dbm

As the pressure of the lunar atmosphere continues to approach the Cold Cathode Gauge's threshold, local variations will cause the threshold of the gauge to be exceeded resulting in loss of "strike". Loss of "strike" occurred on three separate occasions since the last reporting period; (1) 1658 G.m.t., 1 March; (2) 2242 G.m.t., 1 March; (3) 0642 G.m.t., 2 March. With each occurrence of dropping "strike" re-cycling of the gauge's high voltage power supply was initiated, and the instrument commanded back to "reset SIDE frame counter at 79" mode, obtaining gauge operation. The gauge remains in electrometer range 3, measuring a lunar atmosphere of approximately 1×10^{-10} torr. The Charged Particle Lunar Environment and Suprathermal Ion Detector Experiments continue to record low background activity in all voltage ranges. The Active Seismic Experiment is in standby.

The Passive Seismic Experiments long-period axes feedback loop filters were commanded IN to enhance recording of possible long period surface wave trains, and to obtain data on the characteristics of long period seismic noise. The ALSEP 12 instrument's feedback filters were commanded IN at 1419 G.m.t., 1 March, with the ALSEP 14 seismometer filter commanded IN at 1429 G.m.t., 1 March. The 12 station instrument is operational with the feedback filters IN, and the Z axis vertical component remains stable at a natural period longer than normal. With filters IN the 14 seismometer's X and Y axes are operational, while the Z axis is unstable and does not output valid data. Use of the experiments feedback loop filters lowers the electronic amplifier low frequency band pass placing the experiment in a mode of operation to record any occurrences of low frequency waves.

Status as of 1200 G.m.t., 2 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	468	25
Total Commands to Date	8364	1359
Sun Angle	310°	316°
Input power	72.9w	72.4w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	19.9°F	40.2°F
PSE Sensor Assembly Temperature	125.9°F	123.9°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (-3.9°F)	N/A
SIDE Temperature 2	3.7°C (38.6°F)	-1.5°C (29.3°F)
CCGE Temperature	Off-scale HIGH	102.9°K (-274.2°F)
CPLEE Electronics Temperature	N/A	-24.0°C (-11.2°F)
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

APOLLO LUNAR SURFACE EXPERIMENT PACKAGE STATUS REPORT

3 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth. The central station and all experiments remain at thermal equilibrium in the lunar night environment. The RTG is supplying a constant 72.4 watts of power to the experiments package. Transmitter "A" downlink signal strength variations are reported, depending on the supporting MSFN site's antenna size and characteristics (cooled or uncooled paramp), the moon's lunar libration pattern, and 14 station's apparent antenna misalignment, as listed:

30 foot cooled antenna: -144.0±0.7 dbm
85 foot antenna: -133.0±1.0 dbm

The seismometer continues operating with the feedback loop filters commanded IN. The feedback filters were commanded OUT at 2232 G.m.t., 2 March, and the Y axis and Z axis tidal data channels were re-centered without difficulty. The instrument's filters were reinserted at 2314 G.m.t. The experiments Z axis remains unstable with the feedback filters IN. Within 10 seconds following reinsertion of the filters, the Z axis seismic data channel output drifted to off-scale HIGH, and remains off-scale. The Z axis tidal data channel output began oscillating between off-scale HIGH and off-scale LOW, at a cyclic period of 32 minutes, and continues oscillating.

The Cold Cathode Gauge continues to lose "strike". Loss of "strike" occurred on four separate occasions during this report period; (1) 1337 G.m.t., 2 March; (2) 1841 G.m.t., 2 March; (3) 0439 G.m.t., 3 March; and, (4) 0925 G.m.t., 3 March. Following each loss the gauge was returned to "strike" with the SIDE commanded to "reset SIDE frame counter at 79". The gauge continues to record pressure at approximately 1×10^{-10} torr, in electrometer range 3.

The Charged Particle Lunar Environment and Suprathermal Ion Detector experiments continue to record low background activity in all voltage ranges. The Active Seismic Experiment is in standby.

Status as of 1200 G.m.t., 3 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	489	26
Total Commands to Date	8359	1425
Sun Angle	322°	328°
Input power	72.4w	72.4w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	19.9°F	40.2°F
PSE Sensor Assembly Temperature	125.9°F	123.9°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (-3.9°F)	N/A
SIDE Temperature 2	3.7°C (38.6°F)	-1.5°C (29.3°F)
CCGE Temperature	Off-scale HIGH	101.3°K (-277.2°F)
CPLEE Electronics Temperature	N/A	-24.0°C (-11.2°F)
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The central station and all experiments continue to maintain thermal equilibrium in the lunar night environment, with engineering data from the package indicating steady operation of each instrument. The radioisotope thermoelectric power source continues to provide 30% more power than required to operate the scientific station. The signal strength variations from transmitter "A" for the past 24 hour period are:

30 foot cooled antenna: -143.3±0.2dbm
85 foot antenna : -134.0±1.0dbm

The ALSEP experiments remain at thermal equilibrium in the lunar night environment. The particle sensors, Suprathermal Ion Detector and Charged Particle Lunar Environment Experiments, are recording low background activity in all voltage ranges. The Cold Cathode Gauge lost "strike" on four separate occasions; (1) 1428 G.m.t., 3 March; (2) 1858 G.m.t., 3 March; (3) 0208 G.m.t., 4 March; (4) 0841 G.m.t., 4 March. With each occurrence of dropping "strike", re-cycling of the gauge's high voltage power supply was initiated, and the instrument commanded back to "reset SIDE frame counter at 79" mode, obtaining gauge operation. The gauge remains in electrometer range 3, measuring a lunar atmosphere of approximately 1×10^{-10} torr.

The Passive Seismic Experiment continues to record scientific data with the feedback loop filters commanded IN. The Z axis tidal channel output continues to oscillate between off-scale LOW and off-scale HIGH at a cyclic period of 32 minutes. The Active Seismic Experiment remains in standby.

Status as of 1200 G.m.t., 4 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	490	27
Total Commands to Date	8361	1491
Sun Angle	334°	340°
Input power	72.4w	72.4w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status]	All ON	ASE Standby
Average Thermal Plate Temperature	19.9°F	40.2°F
PSE Sensor Assembly Temperature	125.9°F	123.9°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (-3.9°F)	N/A
SIDE Temperature 2	3.7°C (38.6°F)	-1.5°C (29.3°F)
CCGE Temperature	Off-scale HIGH	101.3°K (-277.2°F)
CPLEE Electronics Temperature	N/A	-24.0°C (-11.2°F)
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

5 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The central station and all experiments continue to maintain thermal equilibrium in the lunar night environment, with engineering data from the package indicating steady operation of each instrument. Lunar sunrise of the Apollo 14 ALSEP site is theoretically predicted to occur at 0310 G.m.t., 6 February. The radioisotope thermoelectric power source continues to provide 30% more power than required to operate the scientific station. The signal strength variations from transmitter "A" for the past 24 hour period are:

30 foot cooled antenna: -144.0±0.2dbm
85 foot antenna : -133.5±0.5dbm

The particle sensors, Suprathermal Ion Detector and Charged Particle Lunar Environment Experiments, are recording low background activity in all voltage ranges. The Cold Cathode Gauge lost "strike" on four separate occasions; (1) 1333 G.m.t., 4 March; (2) 1947 G.m.t., 4 March; (3) 0220 G.m.t., 5 March; (4) 0851 G.m.t., 5 March. With each occurrence of dropping "strike", re-cycling of the gauge's high voltage power supply was initiated, and the instrument commanded back to "reset SIDE frame counter at 79" mode, obtaining gauge operation. The gauge remains in electrometer range 3, measuring lunar atmosphere of approximately 1×10^{-10} torr.

The Passive Seismic Experiment recorded a lunar seismic event of approximately 17 minutes duration starting at 0846 G.m.t., 4 March. The seismic signal was recorded on the X and Y axes, and the short-period Z axis of the instrument. At 0829 G.m.t., 5 March, the 14 station seismometer detected another seismic signal of approximately 30 minutes duration. This event was also recorded by the sensor's two horizontal axes and the short-period vertical axis. The short-period Z axis recorded an additional lunar event of approximately 12 minutes, starting at 0959 G.m.t., 5 March. These lunar signals were not recorded by the ALSEP 12 seismometer. The 14 station instrument continues to operate with the feedback filters commanded IN. The Z axis tidal channel output continues to oscillate between off-scale LOW and off-scale HIGH. The cyclic period of oscillation has decreased to 51 minutes.

The Active Seismic Experiment remains in standby. A "listening mode" operation will be initiated at 1500 G.m.t., for 30 minutes today.

APOLLO 12 ALSEP

All experiments are functioning steadily, maintaining thermal equilibrium in the lunar night environment. Central station engineering measurements mark steady operation, with an output of 72.5 watts from the thermoelectric generator being received by the experiments package. The sunrise optical terminator for ALSEP 12 17th lunar day is predicted to occur at 1451 G.m.t., 6 March. The downlink signal strength over the past seven days from transmitter "B" continues to vary depending on MSFN site characteristics, between -137.5 dbm (VAN) and -139.7 dbm (HAW).

he Passive Seismic Experiment continues to record seismic data with the feedback loop ilters commanded IN. The feedback loop filters enhance the recording of possible long period surface wave trains, and to obtain data on the characteristics of long period seismic noise. The output of the seismometer's short-period Z sensor (DL-08) remains inoperative as it has during previous lunar night cycles. This Z data channel output is expected to return after the subsequent sunrise. Since the seismometer's long-period sensors provide the primary seismic data, characteristic loss of this data is not considered critical.

Data from the Lunar Surface Magnetometer scientific and engineering data channels remains static, except for the status bit indicators of the instrument's operational mode. The magnetometer has not processed data since 18 February, due to the cyclic instrument anomaly during each of the lunar nights since January 1971. Based on instrument history it is expected that data will remain static until after the next lunar sunrise, 6 March. The Y axis sensor head remains fixed at a 180 degree position, not responsive to flip-cal commands. The X and Z sensor heads are returned to the 180 degree position following each flip-cal sequence to maintain sensor synchronization.

The scientific sensors of the ion detector and spectrometer instruments continue recording low background data in all voltage ranges.

The Solar Wind Spectrometer continues using the revised operations schedule, which is that the instrument operate in the high gain mode during lunar day and optical terminator crossing, and in normal gain during lunar night. The instruments high gain mode will be initiated at 1530 G.m.t., 5 March.

atus as of 1200 G.m.t., 5 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	491	28
Total Commands to Date	8363	1539
Sun Angle	346°	353°
Input power	72.4w	72.4w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	19.9°F	40.2°F
PSE Sensor Assembly Temperature	125.9°F	123.9°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (-3.9°F)	N/A
SIDE Temperature 2	3.7°C (38.6°F)	-1.5°C (29.3°F)
CCGE Temperature	Off-scale	101.3°K (-277.2°F)
CPLEE Electronics Temperature	N/A	-24.0°C (-11.2°F)
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

6 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Lunar sunrise of the Apollo 14 site was theoretically predicted to occur, based on ephemeris data corresponding to longitude and the moon's rotation rate and Apollo 12 ALSEP empirical data corrected, at 0310 G.m.t., 6 March. Experiments package telemetry data indicated significant changes starting at 0812 G.m.t., 6 March; (1) seismometer activity indicative of previously noted ALSEP 12 optical terminator crossings; (2) the DTREM's cell 1 output (no filter, AX-04), and the ion detector's solar cell reference measurement (DI-12), indicating presence of incident solar energy; and, (3) signigicant positive temperature increases of the cold cathode gauge (DI-04) and central station sunshield (AT-01).

Currently the central station's average thermal plate temperature is increasing at an average rate of 1.3°F per hour. Central station heater DSS-1 (10w) was commanded OFF at 1201 G.m.t., 6 March, after the average thermal plate temperature increased to 51.5°F. The RTG is supplying a constant 72.4 watts of power to the experiments package. The signal strength variations reported over the past 24 hours from transmitter "A" are:

30 foot cooled antenna:	-143.5 ± 0.2 dbm
85 foot antenna:	-133.0 ± 0.2 dbm

The ALSEP 14 seismometer's short-period Z axis recorded a series of four separate events (average duration 8 minutes each) from 1112 G.m.t. - 1937 G.m.t., 5 March. These lunar signals were not recorded by the 12 station seismometer. The 14 station instrument continues to operate with the feedback filters commanded IN. The Z axis tidal channel output continues to oscillate between off-scale LOW and off-scale HIGH. The cyclic period of oscillation is now variable, cycling in as short of period as 27 minutes and requiring at one point a period of 194 minutes to cycle. The instrument's temperature remains stablizied, with auto thermal control ON.

The Charged Particle Lunar Environment Experiment is detecting electron activity in the -35 voltage range, and low particle background data in all other voltage ranges, on both analyzer A and B. Cyclic operation of the instrument's auto mode/manual mode (-35 voltage step) for alternate hours was initiated at 0900 G.m.t., 6 March. The experiment's internal electronics temperature is increasing at an average rate of 4.7°C per hour.

The operational procedure of the SIDE/CCGE during the second lunar day will be in operational mode with each instrument's high voltage power supply ON. If no mode change type problems occur (reference ALSEP 14 Status Report dated 6 February 1971) the ion detector's and gauge's high voltages will remain ON until the detector's internal electronics temperature equals 45°C. At that point the experiment will be commanded to operate mode with high voltages OFF until after the subsequent sunset, 20 March. If mode change problems occur before the electronics temperature = 45°C, the instruments will be commanded to operate mode with high voltages OFF until after the subsequent sunset.

The ion detector is recording low background ion counts in all voltage ranges. The instrument's internal electronics temperature continues to increase at a rate of 1.5°C per hour. The ion gauge lost "strike" on six separate occasions: (1) 1533 G.m.t., 5 March; (2) 2122 G.m.t., 5 March; (3) 0058 G.m.t., 6 March; (4) 0537 G.m.t., 6 March; (5) 0846 G.m.t., 6 March; and, (6) 0910 G.m.t., 6 March. With each occurrence of dropping "strike", re-cycling of the gauge's high voltage was initiated and the instrument commanded back to "reset SIDE frame counter at 79" mode, restoring gauge operation. The gauge continues to measure a lunar atmosphere of approximately 1×10^{-10} torr, operating in electrometer ranges 2 and 3. The gauge is experiencing an average temperature rate increase of 24.0°k per hour.

The Active Seismic Experiment was commanded ON at 1444 G.m.t., 5 March, and the ALSEP high bit rate ON at 1500 G.m.t., for a thirty minute "listening mode" operation. No events were noted during the "listening mode". Geophone calibrate commands were sent to the instrument and observed in the downlink data. The high bit rate data was received and processed at two MSFN ground stations located at Carnarvon, Australia (30 foot antenna, with cooled par-amp), and Madrid, Spain (85 foot antenna). Madrid high bit rate signal strength was reported as -130.0 dbm, while Carnarvon reported -142.0 dbm. The experiment is presently in standby. The average rate of temperature increase of the grenade launch assembly is currently 3.5°C per hour.
Status as of 1200 G.m.t., 6 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	492	29
Total Commands to Date	8370	1637
Sun Angle	359°	5°
Input Power	72.9w	72.4w
Heater and Power Dumps	DSS-1 ON(10w)	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	19.9°F	47.7°F
PSE Sensor Assembly Temperature	125.9°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C(-3.9°F)	N/A
SIDE Temperature	3.7°C(38.6°F)	1.4°C(34.5°F)
CCGE Temperature	Off-scale HIGH	231.0°K(-43.6°F)
CPLEE Electronics Temperature	N/A	-14.7°C(5.5°F)
ASE GLA Temperature	N/A	-47.3°C(-61.1°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

This report covers the ALSEP activity and data for the previous 48 hours. Central station telemetry data indicates steady operation of the package instruments, transmitting scientific and engineering data to Earth for processing. The radioisotopic thermoelectric power source continues to supply 72.5 watts of power to the central station and experiments. During this 48 hour period the signal strength variations reported, from transmitter "A", were:

30 foot cooled antenna:	-141.9 ± 0.1 dbm
85 foot antenna:	-130.7 ± 0.3 dbm

Currently the central station's average thermal plate temperature continues increasing at an average rate of 0.8°F per hour. Comparison of the central station's thermal plate temperatures indicates that the second lunar day temperatures are tracking slightly higher, average of three degrees, than the station's first lunar day temperature readings.

The Apollo 12 and 14 Passive Seismic Experiments long-period axes feedback loop filters were commanded OUT at 1611 G.m.t., 6 March, when re-centering of the 14 instrument's long-period Z axis tidal data channel was required. Having obtained a adequate operational history of the seismometers feedback loop filters (filters commanded IN on March 2), the decision is to operate both seismic instruments with the feedback filters commanded OUT.

The 14 seismometer is experiencing a period of seismic disturbances of instrumental origin associated with optical terminator crossing. The seismometer continues to record seismic events above the instruments terminator induced noise, detecting a series of nine small events on the short-period vertical axis from 0738 G.m.t. - 1719 G.m.t., 7 March, and again on 8 March, from 0222 G.m.t. - 0232 G.m.t. The passive seismometer of stations 12 and 14 recorded a significant lunar event, on all axes of each instrument, starting at 2230 G.m.t., 6 March, for 30 minutes. The 14 instrument's temperature remains essentially stablizied, with auto thermal control ON, experiencing an average increase rate of 0.1°F per hour.

The Charged Particle Lunar Environment Experiment continues being cycled for one hour of automatic mode operation alternating with one hour manual mode (-35 voltage step range) operation. The current plan is to operate in this cyclic operation of auto mode/manual mode for alternate hours until lunar noon, 13 March. The experiment continues detecting constant electron activity in the -35 voltage range, and low background data in all other voltage ranges, on both analyzer A and B. The instrument's thermal control mode was commanded from forced mode to auto mode at 1401 G.m.t., 6 March, when the physical analyzer temperature reached -5°C. Currently the experiment's internal electronics temperature is increasing at an average rate of 0.5°C per hour.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF per the agreed second lunar day operational procedure. No unexpected mode change type problems were experienced before the ion detector's internal electronics temperature reached 45°C (reference ALSEP 14 Status Report dated 6 March 1971).

Following lunar sunrise the ion detector's Channeltron high voltage power supply was commanded OFF, placing the detector in full operational sequence and re-activating the instrument's automatic calibrate function (every 154.6 seconds or 128 SIDE frames). After the first internal calibrate function occurred the cold cathode gauge data did not lose "strike". The experiment's Channeltron high voltage was then re-cycled and the instrument sequenced through various reset modes (1752 G.m.t. - 2029 G.m.t., 6 March) to verify gauge operation. The ion detector remained in a full science operational sequence (automatic calibrate function occurring every 128 SIDE frames) until 2054 G.m.t., 7 March, when the ion detector's Channeltron high voltage supply (-3.5kv) was commanded OFF. Preceding the high voltage OFF command the instrument recorded constant fluxes of ion's along the magnetosheath.

Preceding the gauge's high voltage power supply OFF command at 2057 G.m.t., 7 March, the instrument was in electrometer range 2, measuring a lunar atmosphere of approximately 2.5×10^{-10} torr. Following sunrise and return of the ion detector to a full science operational mode, including automatic calibrate functions, the gauge did not lose "strike".

The ion detector internal electronics temperature continues to increase at a rate of 1.0°C per hour, while the gauge is experiencing an average temperature rate increase of 1.5°K per hour.

The Active Seismic Experiment is in standby. The average rate of temperature increase of the grenade launch assembly is currently 1.5°C per hour.

Status as of 1200 G.m.t., 8 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	494	31
Total Commands to Date	8417	1757
Sun Angle	23°	29°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Average Thermal Plate Temperature	70.6°F	86.7°F
PSE Sensor Assembly Temperature	126.0°F	125.0°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	39.3°C(102.7°F)	N/A
SIDE Temperature 2	48.5°C(119.3°F)	52.5°C(126.5°F)
CCGE Temperature	Off-scale HIGH	331.5°K(137.3°F)
CPLEE Temperature	N/A	24.3°C(75.7°F)
ASE GLA Temperature	N/A	16.5°C(61.7°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

9 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The central station and all experiments continue to increase in temperature following sunrise. The RTG continues to supply 72.0 watts of power to the central station. The signal strength variations reported from transmitter "A" during the last 24 hours were:

30 foot cooled antenna: -142±1.5 dbm
85 foot antenna : -129.5±1 dbm

Apollo 12 ALSEP implemented a unexpected functional change of the seismometer's long-period horizontal X and Y gain from 0 db to -10 db. The spurious command (1A063) occurred at 09:14 G.m.t. 9 March (HAW ground station supporting). The gain was commanded back to 0. There were no engineering, or other data out of tolerances as a result of the functional change in the experiment.

The ALSEP 14 Passive Seismic Experiment has recorded a number of events on the short period Z axis only. From the period 20:01 G.m.t. 8 March to 20:08 G.m.t. 9 March, 20 events have been recorded. The longest event started 05:15 G.m.t. on 9 March and lasted for 16 minutes.

The Charged Particle Lunar Environment Experiment is cycled between automatic mode and manual mode for one hour during each mode. The instrument continues to record the greatest activity at the -35 volt level. The Suprathermal Ion Detector and Cold Cathode Gauge Experiments are operating with the high voltage OFF per the second lunar day operational procedure. The Active Seismic Experiment is in standby.

Status as of 1200 G.m.t., 9 March was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	475	32
Total Commands to Date	8443	1794
Sun Angle	35°	41°
Input power	72.5w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	80.8°F	100.4°F
PSE Sensor Assembly Temperature	126.5°F	125.3°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	54.3°C (129.7°F)	N/A
SIDE Temperature 2	52.8°C (127.0°F)	65.6°C (150.0°F)
CCGE Temperature	Off-scale HIGH	347.4°K (165.2°F)
CPLEE Electronics Temperature	N/A	40.7°C (105.3°F)
ASE GLA Temperature	N/A	38.0°C (100.4°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

ALSEP continues transmitting scientific and engineering data to Earth after 33 days on the lunar surface. The central station's average thermal plate temperature continues to increase .4°F per hour. The RTG continues to supply 72.5 watts of power to the central station and experiments. Transmitter "A" downlink reported signal strength varied, depending on the supporting MSFN sites' characteristics as follows:

30 foot uncooled antenna	:	-143±0.1 dbm
30 foot cooled antenna	:	-141±0.1 dbm
85 foot antenna	:	-129.5 ±0.2 dbm

Real time support was suspended for the period 1523 G.m.t. (HAW LOS) to 1710 (MAD AOS) 9 March. During this period ALSEP 12 and 14 data was recorded by the Carnarvon, Australia remote site. Carnarvon was unable to provide real time support due to their support of the IMP satellite. The backup sites for Carnarvon, Guam and Honeysuckle, were unable to provide support during this period due to antenna maintenance required and the installation of engineering modifications in preparation for the Apollo 15 mission. This gap will occur again 12 March for 2 hours.

Apollo 14 ALSEP implemented an unexpected functional change of the seismometer's long-period horizontal Z axis drive motor from OFF to ON. The spurious ON command occurred at 1332 G.m.t., 10 March, with no CVW in the downlink (CRO ground station supporting). The seismometer's drive motor was commanded OFF, and the instrument releveled. There were no engineering, or other data out of tolerances as a result of the functional change in the experiment.

The Passive Seismic Experiment has recorded 36 short period Z events of approximately five minutes duration during the past 24 hour period. The instrument's engineering data indicates that the sensor temperature, DL-07, is currently increasing at a rate of 0.13°F per hour.

The Charged Particle Lunar Environment Experiment continues being cycled for one hour of automatic mode operation alternating with one hour manual mode (-35 voltage step range) operation. The current plan is to operate in this cyclic auto/manual mode until lunar, noon 13 March. Currently the experiment's internal electronics temperature is increasing at an average rate of 0.4°C per hour.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. No unexpected mode change type problems were experienced before the ion detector's internal electronics temperature reached 45°C. The ion detector's internal electronics temperature continues to increase at a rate of 0.3°C per hour, while the gauge is experiencing an average temperature rate increase of 0.3°K per hour.

The Cold Cathode Gauge Experiment continued to record science data during the lunar night and during the optical terminator on 6 March. During the lunar night operation the particle activity near the lunar surface decreased as the elapsed time from sunset increased. Monitoring of the strip chart recordings during the real time support effort indicated the possibility the gauge had lost "strike" due to decreasing lunar atmospheric pressure. The real time data in the Mission Control Center has shown disagreement due to the computer processing techniques. The Principal Investigator will start processing remote site data recordings this week for a detailed data analysis. The Principal Investigator now believes that the gauge may not have lost "strike". Also it has been determined that the "SIDE Reset at Frame 79" mode of operation may have contributed to the misunderstanding of the data.

The Active Seismic Experiment is in standby. The average rate of temperature increase of the grenade launch assembly is currently 0.3°C per hour.

APOLLO 12, ALSEP STATUS

In general, the central station and experiments continue to follow the pattern of temperature measurements established during previous lunar cycles.

The Passive Seismic Experiment sensor continues to record lunar seismic events on the long period X, Y, and Z axis and the short period Z axis.

The Lunar Surface Magnetometer continues to provide engineering status data indicating the experiments operating modes. The experiment's engineering data returned on scale, 09:30 G.m.t., 10 March. A review of the real time data indicates that the LSM science data has not returned on scale for a significant period since 20 January. The only science data observed since 20 January occurred on 7 and 18 February. The LSM science data had been expected to return on scale following sunrise, 6 March but this has not occurred yet.

The Solar Wind Spectrometer continues to record solar wind plasma data in the high gain mode for subsequent long term analysis.

The Suprathermal Ion Detector Experiment continues to indicate moderate low and high energy activity. Cyclical commanding of the experiment, 2 hours in operate power ON alternating with 10 hour periods of power OFF, is in effect in order to minimize instrument mode changes during the approach to lunar noon. The Cold Cathode Gauge high voltage remains inoperative. The gauge internal temperature measurement continues off-scale HIGH.

Status as of 1200 G.m.t., 10 March was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	476	33
Total Commands to Date	8457	1825
Sun Angle	47°	53°
Input power	72.5 w	72.5 w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	87.3°F	110.3°F
PSE Sensor Assembly Temperature	127.2°F	126.5°F
LSM Internal Temperature	57.9°C (136.2°F)	N/A
SWS Module 300 Temperature	60.8°C (140.4°F)	N/A
SIDE Temperature 2	SIDE OFF	73.3°C (163.9°F)
CCGE Temperature	Off-scale HIGH	355.6°K (180.7°F)
CPLEE Electronics Temperature	N/A	50.4°C (122.7°F)
ASE GLA Temperature	N/A	53.1°C (127.6°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Apollo 14 ALSEP continues to collect scientific and engineering data transmitting it to Earth. The RTG is supplying a constant output of 72.5 watts of power to the experiments package. Over the past 24 hours period, the reported signal strength from transmitter "A" has varied, depending on the supporting MSFN sites' characteristics as follows:

30 foot cooled antenna:	-140±1.0 dbm
85 foot antenna	-131.0 ± 0.3 dbm

The ALSEP 12 and 14 seismometers recorded a seismic event of approximately 50 minutes duration starting at 1742 G.m.t., 10 March. The seismic event was recorded on all the instruments axes. In addition, ALSEP 14 seismometer short-period Z axis, recorded 30 seismic events during this reporting period. The PSE heater was commanded AUTO/OFF at 1602 G.m.t., 10 March, as the instrument's temperature, DL-07, reached 127.2°F. The instrument's temperature is now decreasing at an averate rate of 0.3°F per hour.

The Charged Particle Lunar Environment Experiment continues recording charged particles in the 40 to 150 eV range and background data in the remaining voltage ranges of both analyzer A and analyzer B. The Auto Mode/Manual Mode cyclic operation of the instrument was discontinued at 2145 G.m.t., 10 March. The instrument is currently being operated in the Auto Mode. The experiment's internal electronics temperature is increasing at an average rate of 0.3°C per hour.

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments are operating with high voltage OFF. The gauge internal temperature has stabilized at 355.6°K and the ion detector's internal temperature is increasing 0.1°C per hour.

The Active Seismic Experiment remains in standby. A "listening mode" operation will be initiated at 1500 G.m.t., 12 March, for 30 Minutes. The average rate of temperature increase of the grenade launch assembly is currently 0.3 degrees per hour.

Status as of 1200 G.m.t., 11 March was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	477	34
Total Commands to Date	8496	1842
Sun Angle	59°	65°
Input power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	91.3°F	116.5°F
PSE Sensor Assembly Temperature	128.0°F	125.0°F
LSM Internal Temperature	67.7°C (153.8°F)	N/A
SWS Module 300 Temperature	64.3°C (147.7°F)	N/A
SIDE Temperature 2	SIDE OFF	78.0°C (172.4°F)
CCGE Temperature	Off-scale HIGH	355.6°K (180.7°F)
CPLEE Electronics Temperature	N/A	58.1°C (137.6°F)
ASE GLA Temperature	N/A	62.9°C (145.2°F)

APOLLO LUNAR EXPERIMENTS PACKAGE STATUS REPORT

12 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The experiments package continues to function steadily, recording and transmitting scientific data, as the moon passes thru the Earth's geomagnetic tail. Engineering telemetry data indicates that the central station and experiments temperatures continue to increase at an average rate of 0.1 degree per hour. The thermoelectric power source continues to supply 72.5 watts of power to the experiments package. Over the past 24 hour period, the signal strength from transmitter "A" was reported as -140.8 dbm (VAN) and -131.0 dbm (GDS and MAD). Mission control real time support will be suspended from 1652 G.m.t. (HAW LOS) to 1947 G.m.t. (MAD AOS), 12 March.

The 14 station seismometer recorded a series of 21 small events on the short-period vertical axis from 1335 G.m.t., 11 March, --- 1057 G.m.t. 12 March. The longest duration of these small events was approximately 13 minutes. The 14 instrument recorded significant lunar events at 2133 G.m.t., 11 March, (long-period Y axis and short-period Z axis) for approximately 11 minutes, and at 0034 G.m.t., 12 March (long-period X and Y axes, and short-period Z axis) for approximately 20 minutes. These lunar signals were not recorded by the Apollo 12 ALSEP seismometer.

The ALSEP 14 charged particle instrument is recording electron data in the 35-150 eV range (-35 voltage step, detectors 1-4) of Analyzer A and B, with low background counts in all other electron and proton ranges.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF. The Active Seismic Experiment is in standby. A "listening mode" operation will be performed at 1500 G.m.t., for 30 minutes today.

APOLLO 12 ALSEP

The ALSEP 12 experiments package experienced sunrise for the 17th lunar day at 1452 G.m.t., 6 March. In the package's sixteenth month of continuous lunar surface operations there is little evidence of degradation. Transmitter "B" signal strength remains steady, reported as varying only ±0.5 dbm over the past seven days (30 foot antenna nominal -140.4 dbm). The power output of the RTG is 72.5 watts, compared to an initial value of 74.3 watts. This is 20% above the power required for 12 stations's operation.

The central station's heater, DSS-1 (10w), was commanded off at 2046 G.m.t., 6 March, when the average thermal plate temperature reached 38.0°F. The power generator's cold frame temperature measurement, AR-05, returned on-scale at 1600 G.m.t., 6 March. This is a characteristic cyclic engineering event which has no adverse operational effect on the experiments package.

Scientific measurements are similar to previous lunar cycles. The ALSEP 12 seismometer continues to record lunar seismic events coincident with the ALSEP 14 seismometer's activity. The magnetometer's engineering data returned on-scale at 0930 G.m.t., 10 March, followed by return of the experiment's field sensor outputs at 2203 G.m.t., 10 March. The magnetometer's science output dropped off-scale at 2406 G.m.t., 10 March, returning to a static output. Based on instrument history it is expected that the science data will remain static until after the next lunar sunrise, 5 April. The Y axis sensor head remains fixed at a 180 degree position, not responsive to flip-cal commands. The X and Z sensor heads are returned to the 180 degree position following each flip-cal sequence to maintain sensor synchronization. The spectrometer continues using the revised operations schedule, which is that the instrument operate in the high gain mode during lunar day and optical terminator crossing, and in normal gain during lunar night. The instrument's gain change for lunar day operation occurred at 0125 G.m.t., 6 March.

Cyclical commanding of the ion detector, two hours in operate power ON alternating with 10 hour periods of power OFF, is in effect in order to minimize instrument mode changes during the approach to lunar noon.

Status as of 1200 G.m.t., 12 March was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	478	35
Total Commands to Date	8521	1866
Sun Angle	72°	78°
Input power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	92.3°F	120.0°F
PSE Sensor Assembly Temperature	132.2 °F	126.3 °F
LSM Internal Temperature	73.3°C (164.0°F)	N/A
SWS Module 300 Temperature	65.2°C (149.4°F)	N/A
SIDE Temperature 2	SIDE OFF	80.5°C (176.9°F)
CCGE Temperature	Off-scale HIGH	364.0°K (88.0°F)
CPLEE Electronics Temperature	N/A	62.5°C (144.5°F)
ASE GLA Temperature	N/A	68.3°C (155.0°F)

APOLLO LUNAR EXPERIMENTS PACKAGE STATUS REPORT

13 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The central station's thermal plate attained lunar noon temperatures at 1700 G.m.t., 12 March (average thermal plate second lunar day temperature peaked at 121.6°F). Central station telemetry data presently indicates decreasing temperatures at an average rate of 0.1°F per hour. The RTG output power to the experiments package is constant at 72.5 watts. During this report period transmitter "A" reported signal strength was, -139.9 ±0.6 dbm (VAN and HAW) and -132.0 dbm (MAD).

The Passive Seismic Experiment sensor temperature (DL-07) continues increasing at 0.1°F per hour. The instrument is commanded currently to auto thermal control OFF. The seismometer recorded a significant event of approximately 21 minutes on the long-period X and Y axes and the short-period Z axis starting at 2136 G.m.t., 12 March. At 0020 G.m.t., 13 March, the experiment's long-period Y axis detected another seismic signal of approximately 19 minutes duration. In addition the 14 station seismometer's short-period vertical axis recorded a series of 16 small events during this 24 hour report period. These lunar signals were not recorded by the Apollo 12 ALSEP seismometer.

The Charged Particle Lunar Environment Experiment was commanded to standby at 0000 G.m.t., 13 March (83.6° sun angle), using a revised operations schedule. The experiment will remain in this mode until 1800 G.m.t., 13 March (92.8° sun angle). This 18 hour period being the period of maximum ultraviolet radiation from the sun directly into the experiment's analyzer A helix Channeltron aperture. Direct ultraviolet contamination results in a substantial increase of partical counts in the helix Channeltron. This operational procedure is to extend the Channeltron's photomultiplier effectivity. The procedure will be repeated for another period of time in approximately five days when the sun looks directly into physical analyzer B. This revised operational schedule will be repeated during future lunations.

The Suprathermal Ion Detector Experiment and Cold Cathode Gauge Experiment are operating with high voltages OFF.

The Active Seismic Experiment was commanded ON at 1445 G.m.t., 12 March, and the ALSEP high bit rate ON at 1500 G.m.t., for a thirty minute "listening mode" operation. No real time events were noted during the "listening mode". Geophone calibrate commands were sent to the instrument and observed in the downlink data. The high bit rate data was received and processed at the MSFN ground station located at Kokee Park, Hawaii (30 foot antenna, with cooled par-amp). Hawaii high bit rate signal strength was reported as -139.2 dbm. No processing problems were noted in real time. The experiment is presently in standby.

Status as of 1200 G.m.t., 13 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	479	36
Total Commands to Date	8538	1893
Sun Angle	84°	90°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby
Average Thermal Plate Temperature	92.8°F	119.3°F
PSE Sensor Assembly Temperature	137.3°F	128.2°F
LSM Internal Temperature	77.3°C(171.1°F)	N/A
SWS Module 300 Temperature	66.1°C(151.0°F)	N/A
SIDE Temperature 2	SIDE OFF	81.7°C(179.1°F)
CCGE Temperature	Off-scale HIGH	364.0°K(195.8°F)
CPLEE Electronic Temperature	N/A	CPLEE Standby
ASE GLA Temperature	N/A	69.8°C(157.6°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

15 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

This report covers the ALSEP activity and data for the previous 48 hours. ALSEP continues transmitting scientific and engineering data to Earth as the moon passes from the geomagnetic tail into the Earth's transition region. Telemetry data from the central station indicates that the station's thermal plate average temperature continues to decrease at a rate of 0.2°F per hour. The power supplied by the RTG to the experiments package is constant at 72.5 watts. Over the past 48 hours the signal strength from transmitter "A" was reported varing as -140.3 ±1.7 dbm (CRO, ACN, and HAW) and -131.0 dbm (GDS).

The ALSEP 14 seismometer recorded a series of at least 23 seismic events on the short-period vertical axis from 1015 G.m.t.,13 March, thru 0703 G.m.t., 15 March. In addition there were three significant lunar signals recorded by the instrument's long-period axes as follows:

(1) 1537 G.m.t. - 1558 G.m.t., 13 March, long-period X & Y axes.
(2) 2312 G.m.t., 14 March - 0009 G.m.t., 15 March, long-period X & Y axes.
(3) 0750 G.m.t. - 0845 G.m.t., 15 March, long-period X, Y, & Z axes, and short-period Z axis.

The 0750 G.m.t., 15 March, seismic signal was also recorded by the ALSEP 12 seismometer's long-period X, Y and Z axes. The experiment's sensor attained a lunar noon temperature of 129.6°F (DL-07) at 2100 G.m.t., 14 March. The sensor assembly is currently experiencing a temperature decrease of 0.01°F per hour. The instrument remains in auto thermal control OFF.

The charged particle experiment was commanded to operate ON at 1756 G.m.t., 13 March, following the revised operations schedule. The experiment's internal electronics reached a maximum lunar noon temperature of 64.1°C at 0500 G.m.t., 14 March. The instrument's electronics temperature is presently decreasing at an average rate of 0.1°C per hour. The instrument is recording the presents of solar wind flux in analyzer A, detector's 4 & 5 at the +350 voltage level (860 ev - 7.0 kev energy range) and moderate background counts in analyzer B.

The ion detector internal electronics reached a peak lunar noon temperature of 82.9°C at 2300 G.m.t., 13 March. The gauge temperature remains stablized at 364.0°K. Each instrument is operating with its high voltage OFF.

The active seismic remains in standby. The grenade launch assembly temperature increased to a maximum temperature of 69.8°C at 0500 G.m.t., 14 March.

APOLLO 12 ALSEP

The ALSEP 12 station implemented an unexpected spurious command, 1A/046, at 1511 G.m.t., 14 March, placing the Solar Wind Spectrometer Experiment in standby. A command verification word was received by the supporting ground station at CRO. The solar wind was commanded back to operational power ON without incident. Experiment re-initialization places the instrument in normal gain mode. Revised lunar day operating procedure requires that the experiment be in high gain mode, which was accomplished at 1527 G.m.t., 14 March. There were no engineering, or other data out of tolerances as a result of the spurious command.

Status as of 1100 G.m.t., 15 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	481	38
Total Commands to Date	8574	1920
Sun Angle	107°	113°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	91.4°F	116.5°F
PSE Sensor Assembly Temperature	Off-scale HIGH	129.5°F
LSM Internal Temperature	77.3°C(171.1°F)	N/A
SWS Module 300 Temperature	66.1°C(151.0°F)	N/A
SIDE Temperature 2	SIDE OFF	82.9°C(181.2°F)
CCGE Temperature	Off-scale HIGH	364.0°K(195.8°F)
CPLEE Electronics Temperature	N/A	60.9°C(141.6°F)
ASE GLA Temperature	N/A	70.0°C(158.0°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The experiments package continues to function steadily, recording and transmitting scientific data, as the moon passes thru the Earth's transition region. Telemetry data from the central station indicates that the station's average thermal plate temperature continues to decrease at a average rate of 0.2°F per hour. The thermoelectric power source continues to supply 72.0 watts of electrical power to the experiments package. Over the past 24 hour period, the signal strength from transmitter "A" was reported as -139.2 ± 0.2 dbm (CRO and TEX).

The Passive Seismic Experiment's internal sensor assembly temperature, DL-07, continues to decrease at a average rate of 0.1°F per hour. The instrument remains in the auto/OFF thermal control mode. The experiment recorded a series of eight small events on the short-period vertical axis from 0844 G.m.t., 15 March, - 0403 G.m.t., 16 March. These lunar signals were not recorded by the Apollo 12 ALSEP seismometer.

Cyclic operation of the Charged Particle Lunar Environment Experiment for one hour of automatic mode operation alternating with one hour of manual mode operation (-35 voltage level) continues, after being initiated at 2100 G.m.t., 15 March. The instrument continues recording the presents of solar wind flux in analyzer A, detector's 4 & 5 at the +350 voltage level (860 ev - 7.0 Kev energy range) and moderate particle counts in all other voltage ranges, on analyzer A and analyzer B. Each analyzer of the experiment is recording considerable electron activity in the -35 voltage level (35 ev - 1200 ev energy range). The experiment's internal electronics temperature (AC-06) is decreasing at an average rate of 0.3°C per hour. The instrument's thermal control mode is OFF.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are operating with high voltages OFF per the agreed second lunar day operational procedure. Per revised experiment operations procedure the ion detector's and gauge's high voltages are to be commanded ON when the instruments internal electronics temperature, DI-05, decreases to 50°C. At that point (downward temperature trend) the experiments will be commanded to operate mode with high voltages ON until after the subsequent sunrise, 4 April. The experiments high voltages will remain ON until the detector's internal electronics temperature equals 55°C. At that point (upward temperature trend) the instruments will be commanded to operate mode with high voltages OFF until the experiments internal temperature decreases to 60°C. The ion detector and gauge will continue to be operated in this manner increasing the temperature by ten degrees each subsequent lunation. Currently the detector's electronics temperature is decreasing at an average rate of 0.1°C per hour. The gauge temperature has decreased to 355.6°K.

The Active Seismic Experiment remains in standby. The grenade launch assembly temperature is experiencing an average decrease of 0.2°C per hour.

Status as of 1100 G.m.t., 16 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	482	39
Total Commands to Date	8584	1948
Sun Angle	120°	126°
Input Power	72.5w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	89.0°F	109.8°F
PSE Sensor Assembly Temperature	Off-scale HIGH	127.2°F
LSM Internal Temperature	71.4°C(160.5°F)	N/A
SWS Module 300 Temperature	64.3°C(147.7°F)	N/A
SIDE Temperature 2	SIDE OFF	81.7°C(179.0°F)
CCGE Temperature	Off-scale HIGH	355.6°K(180.7°F)
CPLEE Electronics Temperature	N/A	54.3°C(129.8°F)
ASE GLA Temperature	N/A	65.6°C(150.1°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Apollo 14 ALSEP continues to collect scientific and engineering data transmitting it to Earth. The RTG is supplying a constant output of 72.0 watts of power to the experiments package. Telemetry data from the central station indicates that the station's average thermal plate temperature continues to decrease at a average rate of 0.7°F per hour. Over the past 24 hour period, the signal strength from transmitter "A" was reported as -139.6 ± 0.1 dbm (CRO, HAW and TEX).

The ALSEP 14 seismometer recorded a significant seismic event of approximately 50 minutes duration starting at 0622 G.m.t., 17 March. The seismic signal was recorded on the long-period X and Y axes of the 14 instrument. The experiment also recorded a series of 15 small events of short time duration on the short-period vertical axis from 0559 G.m.t., 16 March, to 0551 G.m.t., 17 March. These lunar signals were not recorded by the Apollo 12 ALSEP seismometer. The sensor's heater was commanded to AUTO/ON at 0001 G.m.t., 17 March, as the instrument's temperature, DL-07, decreased to 125.0°F.

The Charged Particle Lunar Environment Experiment was commanded to standby at 0803 G.m.t., 17 March (136.3 degree sun angle), using the revised experiment operations schedule. The experiment will remain in this mode until 0400 G.m.t., 19 March (158.6 degree sun angle). This 44 hour period being the period of maximum ultraviolet radiation from the sun directly into the experiment's analyzer B helix Channeltron aperture. Direct ultraviolet contamination results in a substantial increase of particle counts in the helix Channeltron. This operational procedure is to extend the Channeltron's photomultiplier effectivity. This revised operational schedule will be repeated during future lunations.

The Suprathermal Ion Detector/Cold Cathode Gauge experiments are operating with high voltages OFF. Currently the instrument's internal electronics temperature, DI-05, is decreasing at an average rate of 0.3°C per hour.

The active seismic instrument remains in standby. The grenade launch assembly temperature is experiencing an average decrease of 0.2°C per hour.

Status as of 1100 G.m.t., 17 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	483	40
Total Commands to Date	8594	1964
Sun Angle	132°	138°
Input Power	72.0w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE & CPLEE Standby
Average Thermal Plate Temperature	84.6°F	99.6°F
PSE Sensor Assembly Temperature	Off-scale HIGH	126.4°F
LSM Internal Temperature	65.9°C(150.6°F)	N/A
SWS Module 300 Temperature	60.9°C(141.6°F)	N/A
SIDE Temperature 2	SIDE OFF	76.8°C(170.2°F)
CCGE Temperature	Off-scale HIGH	355.6°K(180.7°F)
CPLEE Electronics Temperature	N/A	CPLEE Standby
ASE GLA Temperature	N/A	60.3°C(140.5°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

18 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The scientific station continues to function steadily, recording and transmitting data, as the moon passes thru interplanetary space. Telemetry data from the central station indicates that the station's average thermal plate temperature continues to decrease at an average rate of 0.6 degrees per hour. The thermoelectric power source continues to supply 72.0 watts of electrical power to the experiments package. Over the past 24 hour period, the signal strength from transmitter "A" was reported as -139.8 ± 1.2 dbm (CRO, HAW, and ACN).

The Passive Seismic Experiment recorded a series of 11 small events of a short time duration on the SP-Z axis from 0552 G.m.t., 17 March, to 0500 G.m.t., 18 March. These lunar signals were not recorded by the Apollo 12 ALSEP instrument. The sensor's internal temperature, DL-07, is decreasing at an average rate of 0.03 degrees per hour. The instrument's thermal control mode is AUTO/ON.

The Charged Particle Lunar Environment Experiment and Active Seismic Experiment remain in standby. The charged particle was commanded to standby on 17 March, and will remain in this mode until 0400 G.m.t., 19 March per the instrument's revised operations schedule. The active seismic instrument's grenade launch assembly temperature is experiencing an average decrease of 0.5 degrees per hour.

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments are operating with high voltages OFF. Currently the ion detector's internal electronics temperature, DI-05, is decreasing at an average rate of 0.3 degrees per hour. The gauge's internal temperature is decreasing at an average rate of 0.3 degrees per hour also.

Status as of 1100 G.m.t., 18 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	484	41
Total Commands to Date	8604	1970
Sun Angle	144°	150°
Input Power	72.0w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE & CPLEE Standby
Average Thermal Plate Temperature	76.8°F	87.2°F
PSE Sensor Assembly Temperature	Off-scale HIGH	125.2°F
LSM Internal Temperature	57.8°C(136.0°F)	N/A
SWS Module 300 Temperature	56.7°C(134.0°F)	N/A
SIDE Temperature 2	SIDE OFF	69.9°C(157.8°F)
CCGE Temperature	Off-scale HIGH	347.4°K(165.9°F)
CPLEE Electronics Temperature	N/A	CPLEE Standby
ASE GLA Temperature	N/A	50.9°C(123.6°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

19 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The Apollo 14 scientific station continues to function steadily, recording and transmitting data to Earth. Telemetry data from the central station indicates that the station's average thermal plate temperature continues to decrease at an average rate of 1.0 degrees per hour. The thermoelectric power source continues to supply 72.0 watts of electrical power to the experiments package. Over the past 24 hour period, the signal strength from transmitter "A" was reported as -139.8 $\pm$ 1.2 dbm (CRO, HAW, TEX, and ACN).

The Passive Seismic Experiment's horizontal Y axis of the gimbal leveling system displayed the same intermittent and/or sluggish response to level commands, as first noticed after the instrument's deployment and activation. Re-occurrence of this intermittent operation was experienced from 2045 G.m.t. - 2302 G.m.t., 18 March. The Y axis was re-centered by cyclic commanding of the leveling motor at ten minute intervals. The experiment recorded a series of ten small events of a short time duration on the short-period vertical axis from 0500 G.m.t., 18 March, to 1000 G.m.t., 19 March. These lunar signals were not recorded by the ALSEP 12 seismometer. The sensor's internal temperature, DL-07, is decreasing at an average rate of 0.03 degrees per hour. The instrument's thermal control mode is AUTO/ON.

The Charged Particle Lunar Environment Experiment was commanded to operate ON at 0400 G.m.t., 19 March, following the revised operations schedule. The experiment's internal electronics had decreased to a temperature of -7.3°C at 0400 G.m.t., 19 March. The instrument's internal temperature is presently increasing at an average rate of 0.5 degrees per hour.

The Active Seismic Experiment is in standby. A 30 minute "listening mode" operation will be performed at 1500 G.m.t. today. The experiment's grenade launch assembly temperature is experiencing an average decrease of 0.5 degrees per hour.

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments are operating with high voltages OFF. Currently the ion detector's internal electronics temperature, DI-05, is decreasing at an average rate of 0.5 degrees per hour. The gauge's internal temperature is decreasing at an average rate of 0.6 degrees per hour.

APOLLO 12 ALSEP

After 485 days of continuous operation on the lunar surface, the performance of this ALSEP is firm. The systems characteristic cyclic engineering events noted in previous lunar day periods were repeated during the past seven days of operation, having no adverse operational effect on the experiments package. The electrical power output of the RTG to the experiments package is solid at 72.0 watts. Transmitter "B" downlink signal strength is reported as unchanging, experiencing no dropouts.

The Passive Seismic Experiment continues to record some lunar seismic events coincident with the ALSEP 14 seismometer's activity. The ALSEP 12 seismometer's temperature measurement, DL-07, deflected off-scale HIGH at 1523 G.m.t., 14 March, and returned on-scale at a temperature of 142.6 ^{o}F, 19 March, 0000 G.m.t. The experiment's characteristic short-period vertical axis pulse train appeared at 1900 G.m.t., 14 March, and remained until 0100 G.m.t., 16 March. This characteristic interruption of data is not considered critical.

The Lunar Surface Magnetometer has, since June 1970, lost both science and engineering data during lunar night and recovered after sunrise. The experiment's engineering data returned on 10 March followed by return of the experiment's field sensor outputs, but science data became invalid at 0006 G.m.t., 11 March. Since 11 March the instrument's field sensor outputs have remained invalid, and are expected to remain unchanged until after the subsequent sunrise, 5 April. The Y axis sensor head remains fixed at a 180 degree position, not responsive to flip-cal commands. The X and Z sensor heads are returned to the 180 degree position following each flip-cal sequence to maintain sensor synchronization.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day, to record data with no problems.

The Suprathermal Ion Detector Experiment experienced three mode changes at 1928 G.m.t., 13 March, and 0756 G.m.t. and 1926 G.m.t., 14 March, at an instrument temperature of 54.6 ^{o}C. Similar mode changes have occurred previously at temperatures usually above 50 ^{o}C and are believed to be caused by high voltage arcing. In order to minimized instrument mode changes during lunar daytime, the experiment generally is operated for periods of two hours followed by cooling periods of ten hours. The experiment is operated continuously during lunar night.

Status as of 1100 G.m.t., 19 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	485	42
Total Commands to Date	8619	2036
Sun Angle	156°	162°
Input Power	72.0w	72.0w
Heater and Power Dumps	OFF	OFF
Average Thermal Plate Temperature	65.0°F	72.9°F
PSE Sensor Assembly Temperature	140.8°F	124.8°F
LSM Internal Temperature	47.0°C(116.6°F)	N/A
SWS Module 300 Temperature	49.6°C(121.3°F)	N/A
SIDE Temperature 2	33.8°C(92.8°F)	57.5°C(135.5°F)
CCGE Temperature	Off-scale HIGH	331.5°K(137.3°F)
CPLEE Electronics Temperature	N/A	12.2°C(53.9°F)
ASE GLA Temperature	N/A	38.0°C(100.4°F)
Experiment Status	All ON	ASE Standby

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

20 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Forty-three days after being placed on the lunar surface by the crew of Apollo 14, ALSEP continues to collect scientific data and transmit it to Earth. Telemetry data indicates that the central station is experiencing an average temperature decrease, concident with diminishing solar input, of 0.8 degrees per hour. The RTG is supplying a constant 72.5 watts of electrical pwer to the experiments package. Downlink signal strength from transmitter "A" is reported to have varied at -138.8 $\pm$ 0.7 dbm, over the past 24 hours.

The Passive Seismic Experiment recorded a significant lunar seismic event of 68 minutes duration starting at 1821 G.m.t., 19 March. This seismic event was recorded at both the ALSEP 14 station and the ALSEP 12 station, arriving coincident in time and on all axes of each seismometer. In addition the ALSEP 14 seismometer short-period Z axis recorded eight small events of a short time duration during this reporting period. The 14 station's seismometer's horizontal Y axis responded to level commands and was re-centered, without difficulty, at 1225 G.m.t., 19 March, and 0715 G.m.t., 20 March. The sensor's internal temperature, DL-07, continues decreasing at an average rate of 0.01 degrees per hour. The instrument's thermal control mode is AUTO/ON.

The Cold Cathode Gauge Experiment's high voltage power supply (4.5kv) was activated by command at 1410 G.m.t., 19 March. Instrument electronics temperature was 55.6°C. With initial activation the gauge achieved science operation. Currently the gauge is intermittently switching electrometer range's between 1 and 3, measuring a lunar atmosphere of approximately 3×10^{-11} torr. The gauge's temperature is decreasing at an average rate of 1.0 degrees per hour.

The Suprathermal Ion Detector's Channeltron high voltage power supply (-3.5kv) was activated by command at 1414 G.m.t., 19 March, placing the ion detector in science operation. Currently the ion detector is recording low background data in all voltage ranges. The instrument's internal electornics temperature is decreasing at an average rate of 0.8 degrees per hour.

The Active Seismic Experiment was commanded ON at 1450 G.m.t., 19 March, and the ALSEP high bit rate ON at 1500 G.m.t., for a thirty minute "listening mode" operation. No real time events were noted during the "listening mode". Geophone calibrate commands were sent to the instrument and observed in the downlink data. The high bit rate data was received and processed at the MSFN ground station located at Kokee Park, Hawaii (30 foot antenna, with cooled par-amp). Hawaii high bit rate signal strength was reported as -138.6 dbm. No processing problems were noted in real time. The experiment is in standby. The grenade launch assembly temperature (AS-03) is decreasing at an average rate of 0.6 degrees per hour.

The Charged Particle Lunar Environment Experiment is operating in its automatic voltage stepping sequence mode, recording low background data in all voltage ranges of each analyzer A and B. The experiment's internal electronics temperature continues to increase at an average rate of 1.0 degrees per hour.

Status as of 1100 G.m.t., 20 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	486	43
Total Commands to Date	8625	2058
Sun Angle	168°	174°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	48.5°F	54.9°F
PSE Sensor Assembly Temperature	134.3°F	124.6°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	36.5°C(98.0°F)	N/A
SIDE Temperature 2	42.5°C(108.5°F)	43.5°C(110.3°F)
CCGE Temperature	Off-scale HIGH	308.8°K(96.4°F)
CPLEE Electronics Temperature	N/A	11.3°C(52.4°F)
ASE GLA Temperature	N/A	24.9°C(84.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

22 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Analysis of real time data indicates that the earlier reported seismic event at 1821 G.m.t., 19 March, was accompanied by an ion cloud detected by the Suprathermal Ion Detector Experiment sensors, beginning 36 minutes later. Both the seismic and ion activity were recorded by the seismometer and ion detector sensors at both the ALSEP 14 station and the ALSEP 12 station. This event is believed to be a meteoroid impact and is the first confirmed correlation between seismic and ion data for a natural lunar event since activation of the ALSEP 14 station. The signals arrives slightly earlier at station 12, implying that the impact occurred nearer to station 12 then to station 14. No obvious recording of the event was noted in the real time data display of the Cold Cathode Gauge Experiment.

ALSEP 14 station activity and data for the previous 48 hour period indicates the experiments package temperatures continued to decrease as its second lunar sunset was experienced at 1911 G.m.t., 20 March (sunset time based on extrapolation of the ion detector's experiment solar ecll reference measurement, DI-12).

Currently the central station's average thermal plate temperature has stabilized at an average of 41.8° F. Central station heater DSS-1 (10w) was commanded ON at 2220 G.m.t., 20 March, after the average thermal plate temperature decreased to 37.2° F. The RTG is supplying a constant output of 72.5 watts of electrical power to the experiments package. Over the past 48 hour period the signal strength from transmitter "A" is reported to have varied from a maximum of -139.3 dbm (CRO) to a minimum of -142.5 dbm (ACN).

The ALSEP 14 experiments continue to function steadily, as the various instrument internal electronics temperatures have stabilized in the lunar night environment. The Active Seismic Experiment remains in standby.

The Passive Seismic Experiment recorded a lunar seismic event of approximately 30 minutes duration starting at 1630 G.m.t., 21 March. The signal was recorded by all of the instrument's axes. This event was also detected by the Apollo 12 ALSEP seismometer. The 14 station's seismometer's horizontal Y axis responded to level commands and was re-centered, without difficulty, at 1829 G.m.t., 20 March. Since that time re-centering of the axis has not been required. A series of 10 signals associated with terminator passage and believed to be generated by venting of the LM descent stage were recorded on the short-period vertical axis of the seismometer between 20 March, 1215 G.m.t., to 22 March, 0755 G.m.t.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments and the Charge Particle Lunar Environment Experiment, internal electronic temperatures are stabilized in the lunar night environment at -1.5°C and -23.3°C, respectively. The scientific sensors of each experiment are recording low background data in all voltage ranges. Currently the gauge is measuring a lunar atmosphere of approximately 6×10^{-12} torr.

Status as of 1100 G.m.t., 22 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	488	45
Total Commands to Date	8687	2092
Sun Angle	193.3°	199.3°
Input Power	72.5w	72.5w
Experiment Status	All ON	ASE Standby
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Average Thermal Plate Temperature	22.2°F	41.8°F
PSE Sensor Assembly Temperature	126.4°F	124.3°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-11.0°C(12.2°F)	N/A
SIDE Temperature 2	-3.7°C(38.1°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	116.5°K(-249.7°F)
CPLEE Electronic Temperature	N/A	-23.3°C(-9.9°F)
ASE GLA Temperature	N/A	-33.8°C(-28.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The Apollo 14 ALSEP forty-five day Phase II operations were terminated at 0235 G.m.t., 23 March, when Mission Control Center real time support was suspened, and the Manned Space Flight Network shifted to Phase III operations in support of the ALSEP 14 station and the ALSEP 12 station. Phase III operations require that all ALSEP scientific and engineering data be recorded continuously at the receiving stations for subsequent analysis. Intermittent periods of real time data monitoring (Phase II operations) at Mission Control Center are scheduled one hour every other day during lunar night and two hours per day during lunar daytime. Additional periods are scheduled at lunar sunrise and sunset. Thus, real time data is monitored approximately 12% of the time, on the average. Also, as of today, the daily ALSEP status report is suspened and will be published in the future on Friday of each week.

ALSEP 14 station telemetry data indicates virtually no change in the experiments package status and/or operations during the 12 hours preceding termination of the forty-five day Phase II operations. The central station's and experiments temperatures, the thermoelectric power source output, and transmitter "A" signal strength remain essentially unchanged. The experiments continue to operate steadily, with scientific sensors indicating low background data as the severe lunar night environment intensifies. The 14 station passive seismometer recorded an event not previously reported starting at 0714 G.m.t., 22 March. This particular signal was approximately 40 minutes in duration, and recorded on only the long-period X and Y axes of the instrument. The moon's March perigee will occur on 26 March, at 0900 G.m.t.

Status as of 0235 G.m.t., 23 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	489	46
Total Commands to Date	8699	2110
Sun Angle	200°	206°
Input Power	72.5w	72.5w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	21.3°F	41.6°F
PSE Sensor Assembly Temperature	126.3°F	124.3°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-13.9°C(7.0°F)	N/A
SIDE Temperature 2	-3.7°C(38.1°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	114.3°K(-253.7°F)
CPLEE Electronics Temperature	N/A	-24.0°C(-11.2°F)
ASE GLA Temperature	N/A	-40.2°C(-40.4°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

26 March 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The ALSEP 14 package performance after 49 days of continuous operations is stable and providing data on the moon's lunar environment. All data from the experiments package are being continuously recorded by MSFN tracking stations for subsequent analysis.

Central station telemetry data indicates that the average thermal plate temperature is stabilized in the lunar night environment at 40.8°F, with DSS-1 heater ON(10w). The thermoelectric power source output remains steady at 72.5 watts. The signal strength from transmitter "A" is reported to have varied over the past three days, between -137.0 dbm and -140.0 dbm.

All 14 station experiments are functioning steadily having reached thermal equilibrium. The scientific sensors of the ion detector and charged particle instruments are recording low background data in all voltage ranges. The Cold Cathode Gauge Experiment is in electrometer range 1, measuring a lunar atmosphere of approximately 5×10^{-12} torr.

Passive Seismic Experiment FM/FM data (DL-01, DL-03, and DL-08) is being recorded continuously at mission control to determine site play-back data requirements during the moon's March perigee. Site tape play-back has not been required during this reporting period. The 14 station's seismometer's horizontal Y axis responded to level commands and was re-centered, without difficulty, at 0214 G.m.t., 23 March.

The Active Seismic Experiment is in standby. A 30 minute "listening mode" operation will be performed at 1500 G.m.t., 26 March.

APOLLO 12 ALSEP

All station 12 experiments are functioning steadily, maintaining thermal equilibrium in the lunar night environment. Sunset of ALSEP 12, 17th lunar night occurred at 0845 G.m.t., 21 March, when the dust detector's west facing solar cell output (AX-04) went off-scale indicating sunset at the deployment site. The central station's DSS-1 heater (10w) was commanded ON at 1055 G.m.t., 21 March, and the average thermal plate temperature has stabilized at 21.0°F. The RTG power source has remained steady at 72.5 watts output. The signal strength from transmitter "B" is reported to have varied between -136.0 dbm and -141.0 dbm, since the last reporting period.

The Passive Seismic Experiment's sensor temperature (DL-07) returned on-scale at 0000 G.m.t., 19 March. At 0100 G.m.t., 22 March, the short-period Z seismic data channel (DL-08) indicated off-scale low (zero PCM counts). As in previous lunations, DL-08 is expected to return on-scale after the next sunrise, 5 April. These characteristic cyclic events have no adverse operational effect on the experiments package. The instrument's Z axis leveling motor was commanded ON at 1904 G.m.t., 21 March, as the sensor's temperature decreased to 125.8°F.

The Lunar Surface Magnetometer engineering data indicated a static condition at 0200 G.m.t., 20 March. The instrument's internal temperature was 39.3°C prior to the static indication. Based on instrument's history it is expected that data will remain static until after the next lunar sunrise, 5 April. The Y axis sensor head remains fixed at a 180 degree position, not responsive to flip-cal commands. The X and Z sensor heads are returned to the 180 degree position following each flip-cal sequence to maintain sensor synchronization.

The scientific sensors of the ion detector and spectrometer instruments continue recording low background data in all voltage ranges. The solar wind spectrometer instrument continues using the revised operations schedule, which is that the instrument operate in the normal gain mode during lunar night. The instrument's normal gain mode was commanded at 1902 G.m.t., 21 March.

Apollo 12 ALSEP implemented a spurious seismometer Course Level Sensor IN (octal 102) command at 2330 G.m.t., 23 March. The command verification word was noted in the downlink by the MSFN site at Carnarvon, Australia, supporting ALSEP Phase III operations. The spurious command was commanded OUT at 0032 G.m.t., 24 March. There were no engineering, or other data out of tolerances as a result of the functional change in the experiment.

Status as of 1900 G.m.t., 24 March, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	492	49
Total Commands to Date	8725	2118
Sun Angle	243°	249°
Input Power	72.5w	72.5w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	21.0°F	40.8°F
PSE Sensor Assembly Temperature	126.1°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-16.8°C(2.2°F)	N/A
SIDE Temperature 2	3.7°C(38.7°F)	-1.5°C(29.3°F)
CCGE Temperature	Off-scale HIGH	110.3°K(-261.0°F)
CPLEE Electronics Temperature	N/A	-24.0°C(-11.2°F)
ASE GLA Temperature	N/A	-50.3°C(-58.5°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 April 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The Apollo 14 scientific station continues to function steadily, recording and transmitting data to earth. Telemetry data from the central station indicates that thermal equilibrium is being maintained in the lunar night environment. Sunrise of the Apollo 14 ALSEP's third lunar day will occur on 4 April. The thermoelectric power source continues to supply 72.5 watts of electricl power to the experiments package. Over the past seven day period, the signal strength from transmitter "A" was reported to have varied between -142.1 dbm and -138.7 dbm, depending on MSFN site characteristics and the lunar/earth libration pattern.

Apollo 14 ALSEP implemented a spurious SIDE Load 2 command (octal 105) at 1205 G.m.t., 30 March. The command verification word was noted in the downlink by the Madrid, Spain, ground station. The SIDE/CCGE experiment input command register was cleared by command resulting in no functional change to the instrument's operational mode.

All 14 station experiments are functioning steadily maintaining thermal equilibrium. The scientific sensors of the Suprathermal Ion Detector/Cold Cathode Gauge Experiments and the Charged Particle Lunar Environment Experiment continue recording low background data in all voltage ranges.

Site playback data of the 14 ALSEP Passive Seismic Experiment indicated that the seismometer recorded four significant lunar seismic events during the moon's March perigee. The events occurred at (1) 2114 G.m.t., 23 March(approximately 40 minutes duration); (2) 1518 G.m.t., 25 March(approximately 90 minutes duration); (3) 0027 G.m.t., 26 March(approximately 40 minutes duration); and, (4) 1828 G.m.t., 26 March(approximately 90 minutes duration). These signals were recorded by all of the 14 instrument's axes. The four lunar events were also detected by the Apollo 12 ALSEP seismometer's long-period axes.

Currently the Active Seismic Experiment is in standby. The experiment was command ON at 1511 G.m.t., 26 March, and the ALSEP high bit rate ON at 1527 G.m.t., for a thirty minute "listening mode" operation. Data outputs of geophone 1 and geophone 2 appeared normal, however, geophone 3 data was continuously erratic between zero (50% full scale) and off-scale positive (100% full scale). A calibration pulse was sent at 1539 G.m.t. The geophone 1 response was normal, geophone 2 was questionable due to a data dropout, and geophone 3 data displaced off-scale high. A second calibration pulse was sent at 1544 G.m.t. in an attempt to restore the geophone 3 data to zero. Again the geophone 1 response appeared normal, geophone 2 was questionable and geophone 3 remained off-scale high. As a further measure ALSEP high bit rate was cycled OFF and then ON again at 1549 G.m.t. in another attempt to restore the geophone 3 data to on-scale. It remained off-scale high. At 1556 G.m.t., for no apparent reason geophone 3 data returned on-scale but exhibited the same continuous erratic displacement between zero and off-scale high observed at the beginning of the "listening mode". At 1559 G.m.t. a third calibration pulse was sent. Geophone 1 and 2 appeared normal but geophone 3 returned off-scale high and remained there. At 1600 G.m.t. the final calibration pulse was sent. Geophone 3 remained off-scale positive. ALSEP high bit rate was terminated at 1607 G.m.t., with geophone 3 data reading off-scale high.

The Active Seismic Experiment was command ON at 1415 G.m.t., 30 March, and the ALSEP high bit rate ON at 1430 G.m.t., for a "listening mode" with the instrument's principal investigator present. It was observed that the geophone 3 erratic data problem was unchanged and the instrument's high bit rate was commanded OFF at 1438 G.m.t., and the experiment returned to standby. No geophone calibration pulse commands were transmitted to the instrument.

In summary, geophone 3 data continued to be erratic. This problem has been flagged in the normal fashion by a Span/Mission Evaluation Action Request, is identified as a hardware anomaly, and is under investigation. As part of the investigation it has been requested that the Active Seismic Experiment be commanded ON for a "listening mode" of approximately five minutes daily from 4 April thru 12 April.

APOLLO 12 ALSEP

After 497 days of continuous operation on the lunar surface, the performance of this ALSEP is steady. The systems characteristic cyclic engineering events noted in previous lunar night periods have repeated during the past seven days of operation, having no adverse operational effect on the experiments package. The electrical power output of the RTG to the experiments package is constant at 72.5 watts. Transmitter "B" downlink signal strength is reported as unchanging, experiencing no dropouts.

On 25 March the Apollo 12 ALSEP implemented a spurious Timer Output Inhibit command (octal 033) at 2005 G.m.t. The command verification word was observed in the downlink by the Vanguard tracking ship. There were no out of tolerances or other adverse effects as a result of the spurious command.

The scientific sensors of the Suprathermal Ion Detector Experiment and the Solar Wind Spectrometer Experiment continue recording low background data in all voltage ranges. The solar wind instrument continues using the revised operations schedule, which is that the instrument operate in the normal gain mode during lunar night. The ion detector is operating with its high voltage ON in full automatic sequence (0-127 SIDE frames). The Lunar Surface Magnetometer data output is static, which is characteristic of the instrument's operational history. The Passive Seismic Experiment continues to record some lunar seismic events coincident with the Apollo 14 ALSEP seismometer's activity.

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

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	497	54
Total Commands to Date	8744	2155
Sun Angle	305°	311°
Input Power	72.5w	72.5w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temp	19.9°F	40.5°F
PSE Sensor Assembly Temp	126.0°F	124.2°F
LSM Internal Temp	Static	N/A
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A
SIDE Temp 2	3.7°C(38.7°F)	-2.1°C(28.2°F)
CCGE Temp	Off-scale HIGH	103.0°K(-274.0°F)
CPLEE Electronic Temp	N/A	-29.7°C(-21.3°F)
ASE GLA Temp	N/A	-57.1°C(-70.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 April 1971
G.m.t.: 1600

APOLLO 14 ALSEP

The experiments package telemetry data indicated sunrise for the Apollo 14 ALSEP's third lunar day occurred at 2144 G.m.t., 4 April, as the DTREM's cell 1 output(no filter, AX-04) and the ion detector experiment's solar cell reference measurement (DI-12) indicated the presence of incident solar energy. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. Over the past 5 day period, the signal strength from transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern, at -141.5±1.5 dbm. The central station's DSS-1 heater (10w) was commanded OFF when the average thermal plate temperature reached 51.3°F at 0116 G.m.t., 5 April.

Apollo 14 ALSEP implemented a spurious CPLEE Operational Heater ON command (octal 111) at 1227 G.m.t., 7 April. The command verification word was noted in the downlink by the Carnarvon, Australia, ground station. The experiment was returned to automatic thermal control mode by command. There were no adverse effects to the instrument as a result of the spurious command.

Site playback data of the Apollo 14 ALSEP Passive Seismic Experiment indicated that the seismometer recorded three significant lunar seismic events near the moon's March perigee. The events occurred at (1) 1520 G.m.t., 26 March (approximately 40 minutes duration); (2) 1824 G.m.t., 26 March (approximately 30 minutes duration); (3) 2336 G.m.t., 27 March (approximately 30 minutes duration). These signals were recorded by all of the 14 instrument's axes. The first and second events were also detected by the Apollo 12 ALSEP seismometer's long-period axes. The sensor's assembly internal temperature, DL-07, is currently increasing at a rate of approximately 0.1°F per hour. The 14 station's seismometer's horizontal Y axis responded to level commands and was re-centered without difficulty, at 0638 G.m.t., 6 April, and 1046 G.m.t., 7 April. The instrument's thermal control mode was commanded to AUTO/OFF at 1355 G.m.t., 8 April.

The Charged Particle Lunar Environment Experiment is detecting electron activity in the 35-1000 ev range, on both analyzer A and analyzer B. The experiments internal electronics temperature is increasing at an average rate of 0.9°C per hour.

The Suprathermal Ion Detector Experiment's engineering data (ion detector positive voltages & temperatures, gauge temperature, high & low energy curved plate analyzer stepper voltages, and velocity filter voltages) were erroneous at the start of Phase II operations 6 April. Site playback data of the ion detector experiment revealed that the instrument's data became erroneous at 1909 G.m.t., 5 April. The experiment's internal temperature (DI-05) was 30.9°C at that time.

During Phase II operations on 6 April, the ion detector's experiment engineering data became valid at 2215 G.m.t. At that time the instrument's internal temperature, DI-05, indicated 53.7°C. The experiment continued to indicate valid engineering data throughout the Phase II support period.

At the start of Phase II operations on 7 April, 0646 G.m.t., the ion detector experiment engineering data was erroneous. The experiment's engineering data became valid at 1021 G.m.t. DI-05 indicated 60.4°C. The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are currently operating with high voltages OFF per the agreed third lunar day operational procedure. Per revised experiment operations procedure the ion detector's and gauge's high voltages were to be commanded OFF when the instruments internal electronics temperature, DI-05, increased to 60°C. The experiments high voltages were commanded OFF at 1038 G.m.t., 7 April. Site playback data of the ion detector experiment revealed that the instrument's data became erroneous at 0215 G.m.t., 7 April. The experiment's internal temperature (DI-05) was 55.9 °C at that time.

The Suprathermal Ion Detector Experiment's erratic operation is under investigation. The scientific output of the ion detector instrument and gauge experiment show no adverse effects during the time periods that erroneous engineering is being downlinked from the experiment.

Currently the ion detector's engineering data is valid, with the instrument's internal electronics temperature reading 69.9°C, and the experiments high voltages commanded OFF.

Currently the Active Seismic Experiment is in standby. As part of the geophone 3 investigation the experiment has been commanded ON for a "listening mode" over the last several days, as presented below.

Active Seismic Experiment Status	High Bit Rate Status	Calibration Commands	Geophone 3 Data	Sun Angle
5 April				
0212 G.m.t., ON	0227 G.m.t.,ON	NO	Erratic	5°
0235 G.m.t.,Standby	0233 G.m.t.,OFF			
0622 G.m.t., ON	0639 G.m.t.,ON	NO	Valid	7°
0650 G.m.t.,Standby	0647 G.m.t.,OFF			
6 April				
0702 G.m.t., ON	0718 G.m.t., ON		Valid	20°
		0723 G.m.t.		
		0728 G.m.t.		
0735 G.m.t.,Standby	0733 G.m.t.,OFF			
2231 G.m.t.,ON	2246 G.m.t.,ON	Remoted site		27°
2302 G.m.t.,Standby	2250 G.m.t.,OFF	CYI decom		
		lock marginal		
7 April				
0755 G.m.t.,ON	0810 G.m.t.,ON		Erratic	32°
		0815 G.m.t.	Valid	
		0820 G.m.t.		
0827 G.m.t.,Standby	0825 G.m.t.,OFF			
8 April				
1406 G.m.t.,ON	1421 G.m.t.,ON		Valid	47°
		1426 G.m.t.		
		1431 G.m.t.		
1438 G.m.t.,Standby	1436 G.m.t.,OFF			

APOLLO 12 ALSEP

The APOLLO 12 ALSEP continues to function steadily, recording and transmitting data to Earth. The package experienced the beginning of its eighteenth lunation at 0408 G.m.t., 5 April, when the Dust Detector's east facing solar cell output (AX-06) returned on-scale indicating sunrise at the APOLLO 12 landing site.

Central station engineering telemetry indicates that temperatures are rising steadily as a function of increasing sun elevation. The C/S DSS-1 heater (10w) was commanded OFF at 1009 G.m.t., 5 April, when the average thermal plate temperature reached 41.4°F. The RTG output is steady at 72.5 watts. The transmitter's downlink signal strength remains steady at -139.5±1.5 dbm, depending upon site characteristics and the lunar/earth libration pattern.

APOLLO 12 ALSEP implemented a spurious SIDE Load 1 command (octal 104) at 1012 G.m.t., 1 April. The command verification word was noted in the downlink by the Carnarvon, Australia, ground station. The SIDE/CCGE experiment input command register was cleared by command resulting in no functional change to the instrument's operational mode.

The ALSEP 12 station implemented an unexpected spurious command, octal 037, at 1923 G.m.t., 4 April, placing the Passive Seismic Experiment in standby. A command verification word was not received at the supporting ground station (Vanguard tracking ship). The seismometer was commanded back to operational power ON without incident. There were no engineering, or other data out of tolerances as a result of the spurious command.

The Apollo 12 ALSEP Passive Seismic Experiment continues to record some lunar seismic events coincident with the Apollo 14 seismometer's activity. The instruments Z axis leveling motor was commanded OFF at 1012 G.m.t., 5 April, as the sensor temperature increased to 126.1°F. The sensor's internal temperature, DL-07, is increasing at an average rate of 0.1°F per hour. The instrument's thermal control mode is AUTO/ON.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day, to record data with no problems.

The Suprathermal Ion Detector Experiment experienced a mode change from automatic mode to X10 accumulation mode at 1021 G.m.t., 7 April, as the instrument's internal temperature (DI-05) increased to 53.7°C. Similar mode changes have occurred previously at temperatures usually above 50°C and are believed to be caused by high voltage arcing. In order to minimize instrument mode changes during lunar daytime, the experiment generally is operated for periods of two hours followed by cooling periods of ten hours.

The Lunar Surface Magnetometer Experiment's scientific and engineering data outputs are static, and are expected to remain unchanged for another 20 degrees of sun angle, which is characteristic of the instruments operational history.

Status as of 1400 G.m.t., 8 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	505	62
Total Commands to Date	8853	2265
Sun Angle	41°	47°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temp	84.5°F	105.2°F
PSE Sensor Assembly Temp	126.8°F	125.7°F
LSM Internal Temp	Static	N/A
SWS Module 300 Temp	57.5°C (135.5°F)	N/A
SIDE Temp 2	26.0°C (78.8°F)	69.9°C (157.8°F)
CCGE Temp	Off-scale HIGH	347.4°K (165.7°F)
CPLEE Electronic Temp	N/A	43.4°C (110.0°F)
ASE GLA Temp	N/A	48.7°C (119.7°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 April 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Apollo 14 ALSEP continues to collect scientific and engineering data, transmitting it to Earth. The RTG is supplying a constant output of 72.0 watts of power to the experiments package. Lunar noon for the site occurred at 0100 G.m.t. on 12 April. Over the past 7 day period, the signal strength from transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern, at 139.0±1.0 dbm.

The Passive Seismic Experiment indicated a major seismic event was in progress at the beginning of real-time support at 1335 G.m.t. on 13 April. Amplitude variations were diminishing at that time and activity ceased at approximately 1515 G.m.t. The event was recorded on all three long period axes. The PSE thermal control was commanded to AUTO ON at 1700 G.m.t., 15 April. The instrument's internal temperature, DL-07, was 124.5°F.

The Active Seismic Experiment was activated four times during this reporting period on 9, 10, 11 and 12 April, and the high bit rate listening mode operations performed for ten minutes each time. Geophone 3 performed flawlessly each time and all geophone calibrations were normal.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments remain in the operate mode with high voltages OFF. During the past week, the SIDE/CCGE positive engineering data has remained largely invalid with brief sporadic intervals of normal data. Currently, the data is valid, having returned to this state during the real-time support period on 15 April.

The Charged Particle Lunar Environment Experiment is currently in standby mode. Upon initiation of real-time support at 1340 G.m.t., 9 April, it was discovered that the CPLEE channeltron high voltages were below nominal values. Analyzer B channeltron voltage (AC-02) was 521 volts and analyzer A voltage (AC-03) was 2307 volts. (Nominal values range between 2600 and 2900 volts.) As a result analyzer B science data was non-existent.

At this time the sun angle at the ALSEP site was 60°. The physical analyzer temperature (AC-05) and the deflector power supply temperature (AC-06) were 53°C and 58°C respectively. Playback data revealed the anomalous condition occurred suddenly at 2155 G.m.t. on 8 April. AC-02 dropped from 2752 volts to 672 volts. At that time AC-06 was 50.4°C and AC-05 was 46.5°C. The sun angle was 52°.

On 10 April shortly after initiation of real-time support on that day, the CPLEE was commanded to operate at 1505 G.m.t. and a series of CPLEE commands was transmitted in an attempt to restore the high voltages to nominal levels or obtain further insight into the problem. The first of the series was the command to bypass the regulator for the 28 volt line to the high voltage generating circuits and thus raise the nominal value of 2800 volts to 3200 volts. This was partially effective in that AC-03 increased to a value of around 3100 volts, but AC-02 remained relatively low, increasing gradually during the next half hour to a peak value of slightly less than 1000 volts. It then began a slow decline until CPLEE was placed in standby approximately one half hour later. The other CPLEE commands implemented a voltage stepping sequence on the analyzer deflection plates. This had no effect on AC-02 and AC-03. At 1604 G.m.t. the channeltron high voltage was commanded back to the nominal 2800 volt mode. AC-02 dropped from 635 volts to 598 volts. AC-03 dropped from 3088 volts to 2421 volts. After five minutes the high level mode was restored by command and left in this mode until the CPLEE was placed in standby at 1616 G.m.t. The final values of AC-02 and AC-03 were 819 volts and 3088 volts respectively.

APOLLO 12 ALSEP

The APOLLO 12 ALSEP continues to function steadily, recording and transmitting data to Earth. The package experienced lunar noon at 1300 G.m.t. on 12 April. Central station engineering telemetry indicates that temperatures are decreasing steadily as a function of decreasing sun elevation. The RTG output is steady at 72.0 watts. The transmitter's downlink signal strength remains steady at -141.0±1.0 dbm, depending upon site characteristics and the lunar/earth libration pattern.

The Passive Seismic Experiment indicated a major seismic event was in progress at the APOLLO 12 ALSEP site at the beginning of real-time support at 1335 G.m.t., 13 April. The event was coincident with the seismic activity in progress at the APOLLO 14 ALSEP site. Envelope amplitudes recorded by the APOLLO 12 PSE were approximately twice the magnitude of those being recorded by the Apollo 14 PSE, even though the amplitude variations were diminishing with time. Activity ceased at approximately 1535 G.m.t., or some 20 minutes later than apparent cessation at the Apollo 14 site. The event was recorded on all three long period axes.

On 14 April, parameter DL-07 was off-scale high at the beginning of real-time support at 1340 G.m.t. It was also observed that a recurring series of pulses was in the short period Z axis bit stream at beginning of support. These pulses occurred at irregular intervals for the entire support period and closely resembled the pulses that have been observed during previous lunations in this channel.

The Lunar Surface Magnetometer Experiment was found to be out-putting valid science and engineering data at the beginning of the support period on 9 April at 1340 G.m.t. At that time the internal temperature was 65.95°C and the base temperature was 56.50°C. The sun angle was 54°. Since that time the LSM has produced valid data during every support

period without interruption. All flip-calibration sequences appeared normal although the Y axis sensor still will not execute the 180° to 0° flip command. On 13, 14, and 15 April, the science data indicated increased activity as the moon approached and entered the transition region between the earth's geomagnetic tail and the bow shock.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day, to record data with no problems.

Cyclical commanding of the ion detector placing it in OPERATE mode for two hours per day to gather scientific data and then turning it OFF to preclude mode changes remains in effect. During the support periods on 13, 14, and 15 April, the SIDE indicated substantial high energy data.

Status as of 1600 G.m.t., 15 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	512	69
Total Commands to Date	8939	2334
Sun Angle	127°	133°
Input Power	72.0w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE and CPLEE in stby.
Average Thermal Plate Temp.	83.5°F	100.2°F
PSE Sensor Assembly Temp.	Off-scale HIGH	124.6°F
LSM Internal Temp.	67.7°C (153.9°F)	N/A
SWS Module 300 Temp.	60.9°C (141.6°F)	N/A
SIDE Temp. 2	38.4°C (101.1°F)	78.0°C (172.4°F)
CCGE Temp.	Off-scale HIGH	355.6°K (180.7°F)
CPLEE Electronic Temp.	N/A	N/A
ASE GLA Temp.	N/A	61.6°C (142.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS STATUS REPORT

23 April 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Following sunset on 19 April, this scientific experiments package is operating in its third lunar night and has completed 77 days on the lunar surface. Power output of the thermoelectric power source and downlink signal strength of the "A" transmitter are steady. Central station and instrument sensor downlink data indicate that the experiments package is experiencing a temperature decrease, coincident with diminishing solar input. The central station's EQH-1 heater (10w) was commanded ON when the average thermal plate temperature reached 62.5°F at 1459 G.m.t., 18 April.

The Passive Seismic Experiment recorded a characteristic period of intense seismic disturbances associated with the terminator passage 19/20 April. No long-period seismic events could be recognized at the station. The seismometer's horizontal Y axis of the gimbal leveling system displayed the same intermittent and/or sluggish response to level commands, as first noticed after the instrument's deployment and activation. Recurrence of this intermittent operation was experienced throughout the Phase II support period 17 April. At the start of Phase II support on 18 April it was noted that the Y axis leveling motor had inadvertently been left ON from the previous support period, and that the Y axis tidal data channel was re-centered. The Y axis leveling motor was commanded OFF at 1447 G.m.t., 18 April. There were no adverse effects to the instrument as a result of the leveling motor ON condition. The seismometer's thermal control mode is AUTO/ON.

The Charged Particle Lunar Environment Experiment was commanded to operate select from standby at 1429 G.m.t., 16 April. The experiment is operating in 2800 voltage range to the Channeltron electron multiplier. Analyzer A continues to record low background counts in all electron and proton ranges, while Analyzer B science data remains nonexistent.

The Active Seismic Experiment remains in standby. No "listening mode" operations have been performed since 12 April per the agreed Span/Mission Evaluation Action Request #41. The agreed to operational procedure is that a "listening mode" will be performed only when the experiments electronics internal temperature (AS-01) is 35°C or above.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are currently operating with high voltages ON per the agreed third lunar night operational procedure. Per revised experiment operations procedure the ion detector's and gauge's high voltages were to be commanded ON when the instruments internal electronics temperature, DI-05, decreased to 65°C. The experiments high voltages were commanded ON at 1214 G.m.t., 17 April. The experiment's internal temperature (DI-05) was 63.5°C at that time. The instrument's engineering data (ion detector positive voltages and temperatures, gauge temperature, high and low energy curved plate analyzer stepper voltages, and velocity filter voltages) continue to remain intermittently erroneous. The scientific outputs of the ion detector instrument and gauge experiment show no adverse effects during the time periods that erroneous engineering data is being downlinked from the experiment. The instrument's erratic operation is under investigation.

APOLLO 12 ALSEP

This ALSEP has been operating 518 days on the surface of the Moon and is in its 18th lunar night. Power and signal output are steady. Sunset occurred at 2120 G.m.t., 19 April. The central station's DSS-1 heater (10w) was commanded ON when the average thermal plate temperature reached 54.5°F at 1439 G.m.t., 18 April. The Solar Wind Spectrometer instrument is operating normally using the revised operations procedure. The experiment was returned to the normal gain mode at 1242 G.m.t., 20 April. The Passive Seismic Experiment's parameter DL-07 returned on-scale at the beginning of Phase II operations on 17 April. The seismometer recorded the characteristic period of seismic disturbances associated with the terminator passage 19/20 April. The Suprathermal Ion Detector is currently operating normally with its Channeltron high voltage commanded ON, recording low background data in all voltage channels. The Lunar Surface Magnetometer scientific and engineering data were static at the start of real-time support on 18 April. The experiment has, since June 1970, lost data during lunar night and has become degraded progressively such that in April it produced scientific data for only nine days. The Cold Cathode Ion Gauge has not operated since shortly after initial turn-on when it suffered a malfunction, presumably due to high voltage arcing.

Status as of 1600 G.m.t., 21 April, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	518	75
Total Commands to Date	9060	2410
Sun Angle	201°	207°
Input Power	72.8w	72.3w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE STBY
Average Thermal Plate Temperature	21.3°F	40.6°F
PSE Sensor Assembly Temperature	126.4°F	124.3°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-12.7°C (10.4°F)	N/A
SIDE Temperature	3.7°C (38.5°F)	Erroneous
CCGE Temperature	Off-scale HIGH	Erroneous
CPLEE Electronic Temperature	N/A	-21.9 C(-7.4 F)
ASE GLA Temperature	N/A	-41.4 C(-42.5 F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 April 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The Apollo 14 scientific station continues to function steadily, recording and transmitting data to earth. Telemetry data from the central station indicates that thermal equilibrium is being maintained in the lunar night environment. Sunrise of the Apollo 14 ALSEP's fourth lunar day will occur on 4 May. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. Over the past seven day period, the signal strength from transmitter "A" was reported to have varied between -141.8 dbm and -138.1 dbm, depending on MSFN site characteristics and the lunar/earth libration pattern.

On 27 April at 1426 G.m.t., a spurious Passive Seismic Experiment leveling mode command was executed, placing the seismometer in FORCED LEVELING MODE. The command verification word was noted in the downlink by the Madrid, Spain ground station. The leveling mode was commanded back to AUTO by the Texas site at the direction of Mission Control (mode 1 operations).

The Active Seismic Experiment has remained in STANDBY as per the agreed operations plan.

Apollo 14 ALSEP implemented a spurious SIDE Standby command (octal 046) at 0557 G.m.t., 29 April. The command verification word was noted in the downlink by the Honeysuckle, Australia ground station. The SIDE/CCGE experiment was commanded to OPERATE SELECT at 0831 G.m.t., 29 April. No adverse effects were noted; although SIDE temperature 2 fell to a value of -8.3°C before the instrument was commanded back to operate.

Presently, all 14 station experiments are functioning steadily maintaining thermal equilibrium. The scientific sensors of the Suprathermal Ion Detector/Cold Cathode Gauge Experiments continue recording low background data in all voltage ranges. The Charged Particle Lunar Environment Experiment analyzer "A" is operating in all voltage ranges, recording low background data. Analyzer "B" data remains nonexistent due to the below-nominal Channeltron high voltage for that analyzer.

APOLLO 12 ALSEP

After 525 days of continuous operation on the lunar surface, the performance of this ALSEP is steady. The systems characteristic cyclic engineering events noted in previous lunar night periods have repeated during the past seven days of operation, having no adverse operational effect on the experiments package. The electrical power output of the RTG to the experiments package is constant at 72.5 watts. Transmitter "B" downlink signal strength is reported as unchanging, experiencing no dropouts.

The scientific sensors of the Suprathermal Ion Detector Experiment and the Solar Wind Spectrometer Experiment continue recording low background data in all voltage ranges. The solar wind instrument continues using the revised operations schedule, which is that the instrument operate in the normal gain mode during lunar night. The ion detector is operating with its high voltage ON in full automatic sequence (0-127 SIDE frames). The Lunar Surface Magnetometer data output is static, which is characteristic of the instrument's operational history. The seismometer continues to record data, operating as expected.
Status as of 1300 G.m.t., 28 April was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	525	82
Total Commands to Date	9104	2439
Sun Angle	310°	316°
Input Power	72.5w	72.5w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temp	19.9°F	39.4°F
PSE Sensor Assembly Temp	126.0°F	124.2°F
LSM Internal Temp	Static	N/A
SWS Module 300 Temp	-15.6°C(3.9°F)	N/A
SIDE Temp 2	3.7°C(38.7°F)	Invalid
CCGE Temp	Off-scale HIGH	Invalid
CPLEE Electronic Temp	N/A	-28.2°C(-18.8°F)
ASE GLA Temp	N/A	-57.1°C(-70.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

7 May 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The experiments package telemetry data indicated sunrise for the Apollo 14 ALSEP's fourth lunar day occurred on 4 May. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. Over the past 7 day period, the signal strength from transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern, at -141.5±1.5 dbm. The central station's DDS-1 heater (10w) was commanded OFF when the average thermal plate temperature reached 76.4°F at 2315 G.m.t., 4 May.

The Passive Seismic Experiment sensor temperature (DL-07) continues to increase at 0.1°F per hour. No seismic events have been recorded by the instrument during real-time support in this reporting period.

The Active Seismic Experiment has remained in STANDBY as per the agreed operations plan.

The Charged Particle Lunar Environment Experiment is detecting electron activity in the 35-1000 ev range, on analyzer A. Analyzer "B" data remains nonexistent due to the below-nominal Channeltron high voltage for that analyzer.

At the start of Phase II operations 1038 G.m.t., 5 May, the Superathermal Ion Detector Experiment engineering data was off-scale HIGH. The engineering data had been under investigation since 7 April when the data had become random. The scientific output of the ion detector instrument and gauge experiment show no adverse effects during the time period of erroneous and now off-scale HIGH engineering data.

APOLLO 12 ALSEP

The APOLLO 12 ALSEP continues to function steadily, recording and transmitting data to Earth. The package experienced the beginning of its eighteenth lunation at 1625 G.m.t., 4 May, when the Dust Detector's east facing solar cell output (AX-06) returned on-scale indicated sunrise at the APOLLO 12 landing site.

Central station engineering telemetry indicates that temperatures are rising steadily as a function of increasing sun elevation. The C/S DSS-1 heater (10w) was commanded OFF at 2319 G.m.t., 4 May, when the average thermal plate temperature reached 44.7°F. The RTG output is steady at 72.5 watts. The transmitter's downlink signal strength remains steady at -139.5±1.5 dbm, depending upon site characteristics and the lunar/earth libration pattern.

The Apollo 12 ALSEP Passive Seismic Experiment continues to record seismic data for postmission analysis. The instruments Z axis leveling motor was commanded OFF at 2322 G.m.t., 4 May, as the sensor temperature increased to 126.2°F. The sensor's internal temperature, DL-07, is increasing at an average rate of 0.1°F per hour. The instrument's thermal control mode is AUTO/ON. The instruments short period data, DL-08, returned on-scale at sunrise as in past lunations.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day, to record data with no problems. The instrument was commanded to high gain at 1343 G.m.t., 3 May.

The Suprathermal Ion Detector Experiment is currently operating normally with its Channeltron high voltage commanded ON, recording low background data in all voltage channels.

The Lunar Surface Magnetometer Experiment's scientific and engineering data outputs are static, and are expected to remain unchanged for another 30 degrees of sun angle, which is characteristic of the instruments operational history.

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

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	533	90
Total Commands to Date	9186	2490
Sun Angle	23°	29°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temp	72.9°F	86.1°F
PSE Sensor Assembly Temp	126.1°F	125.0°F
LSM Internal Temp	Static	N/A
SWS Module 300 Temp	39.3°C (102.7°F)	N/A
SIDE Temp 2	46.6°C (115.9°F)	Off-scale HIGH
CCGE Temp	Off-scale HIGH	Off-scale HIGH
CPLEE Electronic Temp	N/A	27.1°C (80.8°F)
ASE GLA Temp	N/A	34.7°C (94.5°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

14 May 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Apollo 14 ALSEP continues to collect scientific and engineering data, transmitting it to Earth. Lunar noon for the site occurred theoretically at 1400 G.m.t. on 11 May. Over the past 7 day period, the signal strength from Transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern, at -138.0 ± 1.0 dbm.

The Passive Seismic Experiment Y axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during Phase II operations on 9 May 1971, and did not achieve a functional response. Following initialization of Phase II support at 1918 G.m.t. 10 May 1971, the instrument's Y axis leveling motor was commanded to the AUTO ON/OFF mode without obtaining a functional response. Following MSFN station handover the Y axis leveling motor was again commanded to AUTO ON mode at 2001 G.m.t. The seismometer's horizontal Y axis responded to the level command and was re-centered at 2007 G.m.t., 10 May. The seismometer continues to record data, operating as expected.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments remain in the operate mode with high voltage OFF. The experiments high voltages were commanded OFF on 8 May 1971, at 1740 G.m.t., when the ion detector's temperature 2 (DI-05) reached approximately 74°C. During Phase II operations of the past week, the instruments positive engineering data has remained invalid with sporadic intervals of erroneous or off-scale HIGH data.

The Charged Particle Lunar Enviornment Experiment continues to operate detecting electron activity on analyzer A in all voltage ranges. Analyzer B data remains nonexistent due to the below-nominal Channeltron high voltage for that analyzer. On 10 May 1971, 2050 G.m.t., the experiment was commanded to the standby mode per the revised operations schedule. This period covers the time that ultraviolet contamination from the sun is looking directly into the experiments physical analyzer A aperture. The experiment was returned to operate select at 1858 G.m.t., 11 May 1971.

Currently the Active Seismic Experiment is in standby. As part of the geophone 3 investigation the experiment has been commanded ON for a "listening mode" over the last several days, as presented below.

Active Seismic Experiment Status	High Bit Rate Status	Calibration Commands	Geophone 3 Data	Sun Angle
8 May				
1358 G.m.t., ON	1420 G.m.t., ON	1422 G.m.t.	Valid	53°
1427 G.m.t., Standby	1425 G.m.t., OFF			
9 May				
1445 G.m.t., ON	1500 G.m.t., ON	1503 G.m.t.	Valid	66°
1507 G.m.t., Standby	1505 G.m.t., OFF			
11 May				
1830 G.m.t., ON	1845 G.m.t., ON	1846 G.m.t. 1847 G.m.t.	Erratic	92°
1857 G.m.t., Standby	1855 G.m.t., OFF			

APOLLO 12 ALSEP

The APOLLO 12 ALSEP continues to function steadily, recording and transmitting data to Earth. The package experienced theoretical lunar noon at 0200 G.m.t. on 12 May 1971. The transmitter's down-link signal strength remains steady at -140.5 ± 1.5 dbm, depending upon site characteristics and the lunar/earth libration pattern.

The Lunar Surface Magnetometer Experiment was out-putting valid scientific and engineering data at the beginning of Phase II operations on 8 May 1971, at 1244 G.m.t. At that time the instrument's internal temperature was 57.8°C. Since that time the magnetometer has produced valid data during every real time support period without interruption. All flip-calibration sequences appeared normal although the Y axis sensor remains fixed at the 180 degree flip position. The Solar Wind Spectrometer and the Passive Seismic Experiments continue to operate and are providing valid scientific data. The spectrometer experiment is operating per the agreed to lunar day operations procedure (High Gain Mode). Cyclical commanding of the Suprathermal Ion Detector Experiment is in effect, placing the instrument in OPERATE mode for two hours per day to gather scientific data and then turning it OFF to preclude uncommanded mode changes.

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

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	539	96
Total Commands to Date	9278	2570
Sun Angle	97°	103°
Input Power	72.0w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	SIDE OFF	ASE Standby
Average Thermal Plate Temperature	89.0°F	116.5°F
PSE Sensor Assembly Temperature	139.5°F	130.1°F
LSM Internal Temperature	77.2°C (171.0°F)	N/A
SWS Module 300 Temperature	64.3°C (147.8°F)	N/A
SIDE Temperature 2	46.5°C (115.7°F)	Invalid
CCGE Temperature	Off-scale HIGH	Invalid
CPLEE Electronic Temperature	N/A	69.2°C (156.6°F)
ASE GLA Temperature	N/A	69.8°C (157.6°F)

APOLLO LUNAR SURFACE EXPERIMENTS STATUS REPORT

21 May 1971
G.m.t.: 1400

APOLLO 14 ALSEP

Following sunset on 18 May, this scientific experiments package is operating in its fourth lunar night and has completed 105 days on the lunar surface. Power output of the thermoelectric power source and downlink signal strength of the "A" transmitter are steady. Central station and instrument sensor downlink data indicate that the experiments package is experiencing a temperature decrease, coincident with diminishing solar input. The central station's DSS-1 heater (10w) was commanded ON when the average thermal plate temperature reached 49.9°F at 1429 G.m.t., 18 May.

The Passive Seismic Experiment recorded a characteristic period of intense seismic disturbances associated with the terminator passage 18/19 May. No long-period seismic events could be recognized at the station. The seismometer's horizontal Y axis of the gimbal leveling system displayed the same intermittent and/or sluggish response to level commands, as first noticed after the instrument's deployment and activation. Recurrence of this intermittent operation was experienced throughout the Phase II support period 17 May.

On 13 May at 0955 G.m.t., a spurious Passive Seismic Experiment Filter In mode command was executed. The command verification word was noted in the downlink by the Goldstone, California ground station. The filter was commanded OUT by the Honeysuckle, Australia site at the direction of Mission Control (mode 1 operations).

The Charged Particle Lunar Environment Experiment was commanded to the Channeltron low voltage mode at 1210 G.m.t., 19 May. This is the 2800 voltage range of the Channeltron electron multiplier. Analyzer A continues to record low background counts in all electron and proton ranges, while Analyzer B science data remains nonexistent.

Currently the Active Seismic Experiment is in standby. As part of the continuing geophone 3 investigation the experiment has been commanded ON for a "listening mode" over the last several days, as presented below.

Active Seismic Experiment Status	High Bit Rate Status	Calibration Commands	Geophone 3 Data	Electronics Temperature AS-01
14 May 1904 G.m.t., ON	1920 G.m.t., ON	1921 G.m.t. 1925 G.m.t.	Erratic	38°C
	1928 G.m.t., OFF			
	2030 G.m.t., ON	2031 G.m.t. 2034 G.m.t.	Off-Scale HIGH	46°C
2049 G.m.t., Standby	2038 G.m.t., OFF			
18 May 1321 G.m.t., ON	1336 G.m.t., ON	1341 G.m.t.	Erratic	7°C
1349 G.m.t., Standby	1346 G.m.t., OFF			

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are currently operating with high voltages ON and will continue in this mode indefinitely under the agreed revised operating procedure. This operational mode is subject to reevaluation based on future functional changes within the instrument. The experiments' high voltages were commanded ON at 1255 G.m.t., 15 May. A review of the experiments' data reveals the following spurious load changes occurred within the instruments' command/mode registers:

8 May	Command Register	Mode Register
	000 to 015	000 to 015

15 May	Command Register	Mode Register
1506 G.m.t.		013(Normal) to 001
1523 G.m.t.	000 to 015	
1702 G.m.t.		001 to 015

Both registers were subsequently cleared (000) by commanding the SIDE/CGGE to STANDBY and back to OPERATE. No apparent functional changes were observed as a result of these spurious register loads. During Phase II operations of the past week, the instruments' positive engineering data has remained invalid with sporadic intervals of erroneous or off-scale HIGH data.

APOLLO 12 ALSEP

This ALSEP has been operating 546 days on the surface of the Moon and is in its 19th lunar night. Power and signal output are steady. Sunset occurred theoretically at 1000 G.m.t., 19 May. The central station's DSS-1 heater (10w) was commanded ON when the average thermal plate temperature reached 45.9°F at 1434 G.m.t., 18 May. The Solar Wind Spectrometer instrument is operating normally using the revised operations procedure. The experiment was returned to the normal gain mode at 2204 G.m.t., 19 May. The Passive Seismic Experiment's parameter DL-07 returned on-scale at the beginning of Phase II operations on 17 May. The seismometer recorded the characteristic period of seismic disturbances associated with the terminator passage. The characteristic pulse train in the short period Z axis data was present at the beginning of support at 0954 G.m.t. on 19 May and disappeared at 1200 G.m.t. that day. The Suprathermal Ion Detector is currently operating normally with its Channeltron high voltage commanded ON, recording low background data in all voltage channels. The Lunar Surface Magnetometer scientific and engineering data were static at the start of real-time support on 18 May. The experiment has, since June 1970, lost data during lunar night and has become progressively erratic in the production of valid scientific and engineering data. The Cold Cathode Ion Gauge has not operated since shortly after initial turn-on when it suffered a malfunction, presumably due to high voltage arcing.

Status as of 1400 G.m.t., 20 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	545	104
Total Commands to Date	9385	2656
Sun Angle	194°	200°
Input Power	72.8w	72.3w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE STBY
Average Thermal Plate Temperature	22.1°F	40.0°F
PSE Sensor Assembly Temperature	126.4°F	124.3°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-11.8°C(10.8°F)	N/A
SIDE Temperature	4.3°C (39.7°F)	Erroneous
CCGE Temperature	Off-scale HIGH	Erroneous
CPLEE Electronic Temperature	N/A	-20.6°C(-5.1°F)
ASE GLA Temperature	N/A	-35.6°C(-32.1°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

28 May 1971
G.m.t.: 1400

APOLLO 14 ALSEP

The Apollo 14 scientific station continues to function steadily, recording and transmitting data to earth. Telemetry data from the central station indicates that thermal equilibrium is being maintained in the lunar night environment. Midnight of the Apollo 14 ALSEP's fourth lunar night occurred on 26 May. The thermoelectric power source continues to supply 71.8 watts of electrical power to the experiments package. Over the past seven day period, the signal strength from transmitter "A" was reported to have varied between -140.3 dbm and -141.5 dbm, depending on MSFN site characteristics and the lunar/earth libration pattern.

Presently, all 14 station experiments are functioning steadily maintaining thermal equilibrium. The scientific sensors of the Suprathermal Ion Detector/Cold Cathode Gauge Experiments continue recording low background data in all voltage ranges; the positive engineering data has remained invalid with sporadic intervals of erroneous or off-scale HIGH data. The Charged Particle Lunar Environment Experiment analyzer "A" is operating in all voltage ranges, recording low background data. The Passive Seismic Experiment continues to record seismic data for long term analysis. The Active Seismic Experiment has remained in STANDBY as per the agreed operations plan.

APOLLO 12 ALSEP

After 555 days of continuous operation on the lunar surface, the performance of this ALSEP is steady. The systems characteristic cyclic engineering events noted in previous lunar night periods have repeated during the past seven days of operation, having no adverse operational effect on the experiments package. The electrical power output of the RTG to the experiments package is constant at 72.3 watts. Transmitter "B" downlink signal strength is reported as unchanging, experiencing no dropouts.

The scientific sensors of the Suprathermal Ion Detector Experiment and the Solar Wind Spectrometer Experiment continue recording low background data in all voltage ranges. The solar wind instrument continues using the revised operations schedule, which is that the instrument operate in the normal gain mode during lunar night. The ion detector experiment is operating with its high voltage ON in full automatic sequence (0-127 SIDE frames). The Lunar Surface Magnetometer data output is static, which is characteristic of the instrument's lunar night operational history. The Passive Seismic Experiment continues to record data, operating as expected. The seismometer's short period vertical seismic channel (DL-08) became off-scale LOW at 1900 G.m.t., 19 May, as experienced in previous lunations since 24 December, 1970.

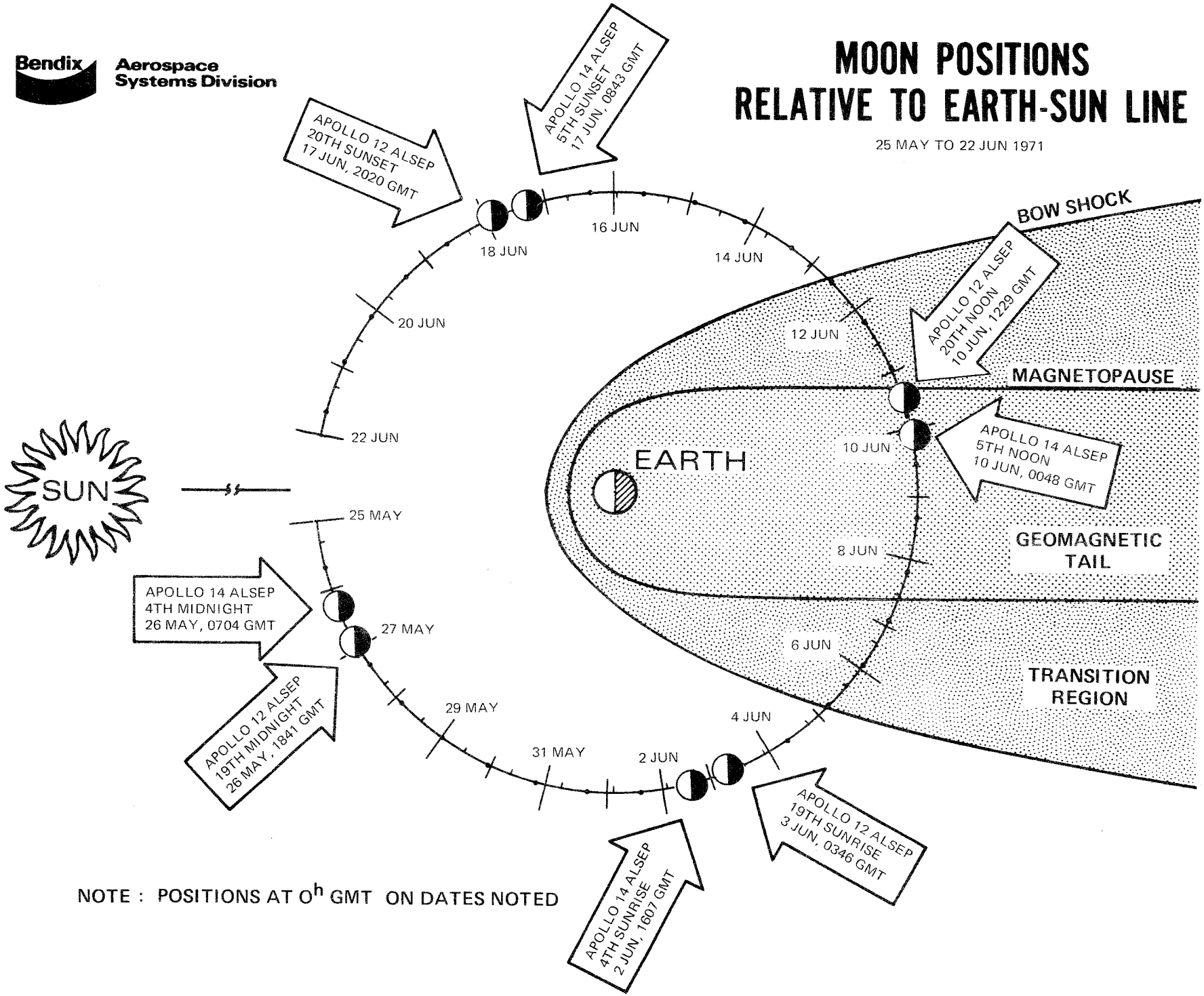
Status as of 1400 G.m.t., 26 May, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	553	110
Total Commands to Date	9420	2670
Sun Angle	268°	274°
Input Power	72.3w	71.8w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE STANDBY
Average Thermal Plate Temperature	20.2°F	38.8°F
PSE Sensor Assembly Temperature	126.0°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (4.0°F)	N/A
SIDE Temperature	4.3°C (39.7°F)	Erroneous
CCGE Temperature	Off-scale HIGH	Erroneous
CPLEE Electronic Temperature	N/A	-27.5°C (-17.5°F)
ASE GLA Temperature	N/A	-37.1°C (-34.8°F)

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

25 MAY TO 22 JUN 1971



NOTE : POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 June 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The experiments package telemetry data indicated sunrise for the Apollo 14 ALSEP's fifth lunar day occurred on 2 June. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. Over the past 7 day period, the signal strength from transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern, at -141.5±1.5 dbm. The central station's DDS-1 heater (10w) was commanded OFF when the average thermal plate temperature reached 69.0°F at 1018 G.m.t., 3 June.

The Passive Seismic Experiment sensor temperature (DL-07) continues to increase at 0.1°F per hour. No seismic events have been recorded by the instrument during real-time support in this reporting period.

The Active Seismic Experiment has remained in STANDBY as per the agreed operations plan.

The Charged Particle Lunar Environment Experiment is detecting electron activity in the 35-1000 ev range, on analyzer A. Analyzer "B" data remains nonexistent due to the below-nominal Channeltron high voltage for that analyzer.

The scientific sensors of the Suprathermal Ion Detector/Cold Cathode Gauge Experiments continue recording low background data in all voltage ranges; the positive engineering data has remained invalid with sporadic intervals of erroneous or off-scale HIGH data.

APOLLO 12 ALSEP

The APOLLO 12 ALSEP continues to function steadily, recording and transmitting data to Earth. The package experienced the beginning of its twentieth lunation at 0351 G.m.t., 3 June, when the Dust Detector's east facing solar cell output (AX-06) returned on-scale indicated sunrise at the APOLLO 12 landing site.

Central station engineering telemetry indicates that temperatures are rising steadily as a function of increasing sun elevation. The C/S DSS-1 heater (10w) was commanded OFF at 1013 G.m.t., 3 June, when the average thermal plate temperature reached 43.1°F. The RTG output is steady at 72.5 watts. The transmitter's downlink signal strength remains steady at -139.5±1.5 dbm, depending upon site characteristics and the lunar/earth libration pattern.

The Apollo 12 ALSEP Passive Seismic Experiment continues to record seismic data for postmission analysis. The instruments Z axis leveling motor was commanded OFF at 1010 G.m.t., 3 June, as the sensor temperature increased to 125.8°F. The sensor's internal temperature, DL-07, is increasing at an average rate of 0.1°F per hour. The instrument's thermal control mode is AUTO/ON. The instruments short period data, DL-08, returned on-scale at sunrise as in past lunations.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day, to record data with no problems. The instrument was commanded to high gain at 1025 G.m.t., 3 June.

The Suprathermal Ion Detector Experiment is currently operating normally with its Channeltron high voltage commanded ON, recording low background data in all voltage channels.

The Lunar Surface Magnetometer Experiment's scientific and engineering data outputs are static, and are expected to remain unchanged for another 30 degrees of sun angle, which is characteristic of the instruments operational history.

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

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	561	118
Total Commands to Date	9457	2686
Sun Angle	5°	11°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	42.8°F	68.1°F
PSE Sensor Assembly Temperature	125.8°F	124.5°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	4.8°C (40.6°F)	N/A
SIDE Temperature 2	13.8°C (56.8°F)	Off-scale HIGH
CCGE Temperature	Off-scale HIGH	Off-scale HIGH
CPLEE Electronic Temperature	N/A	-0.9°C (30.4°F)
ASE GLA Temperature	N/A	-17.0°C (1.4°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 June 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The Apollo 14 ALSEP scientific station continues to function steadily, recording and transmitting data to Earth. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. Over the past 7 day period, the signal strength from transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern, at -141.5±1.5 dbm.

At the start of real time support, 1140 G.m.t., 7 June, the Passive Seismic Experiment's long-period Z axis data, DL-03, was experiencing undampened oscillations. The oscillating condition continued through the two hour support period but did not effect the remaining science outputs of the seismometer. During subsequent support periods, the oscillations have not reoccurred. The long-period Z oscillations of 7 June are under investigation.

At the start of real time support, 1023 G.m.t., 9 June, a lunar seismic event was in progress on all axis of the Apollo 14 seismometer. Seismic activity had subsided by 1050 G.m.t. This event was also recorded by the Apollo 12 instrument.

The Suprathermal Ion Detector experienced a mode change from automatic mode to continuous cal mode at 0004 G.m.t., 7 June, as the instrument's internal temperature (DI-05) increased to 74.47°C. The mode change is believed to be caused by high voltage arcing similar to that experienced by the Apollo 12 instrument at elevated temperatures. The ion detector is presently operating with high voltages OFF. The high voltages are expected to be turned ON when the instruments internal temperature drops to approximately 73°C. During the past week, the SIDE/CCGE positive engineering data has remained largely invalid with brief sporadic intervals of normal data.

The Charged Particle Lunar Environment Experiment is currently in the standby mode. At 1715 G.m.t., 6 June, the instrument's analyzer A channeltron high voltage (AC-03) dropped from a normal 3300 volts to 2326 volts. The instrument was commanded to the channeltron high voltage increase OFF mode (2800 volts) and the channeltron high voltage dropped from 2326 volts to 1700 volts. The CPLEE was commanded to standby at 1811 G.m.t., 6 June. At 1220 G.m.t., 7 June, the CPLEE was again commanded to operate select with the principal investigator present. The channeltron high voltage was again submarginal and the instrument was placed in standby at 1258 G.m.t. The instrument will be turned ON, one day prior to sunset, to determine if the undervoltage anomoly is temperature dependent. During the past week, analyzer B science data has been nonexistent, due to a similar undervoltage condition.

Currently the Active Seismic Experiment is in standby. The experiment was commanded ON at 1919 G.m.t., 5 June, and the ALSEP high bit rate ON at 1920 G.m.t., for a sixty minute "listening mode" operation. Data outputs of geophone 1 and geophone 2 appeared normal, however, geophone 3 data was continuously erratic between zero (50% full scale) and off-scale positive (100% full scale). No geophone calibration pulses were sent during the "listening mode" operation. ALSEP high bit rate was terminated at 2020 G.m.t., and the ASE placed in standby at 2023 G.m.t.

APOLLO 12 ALSEP

The Apollo 12 ALSEP continues to function steadily, recording and transmitting data to Earth after 569 days of continuous operation. The RTG output is steady at 72.5 watts. The transmitter's downlink signal strength remains steady at -139.5±1.5 dbm. depending upon site characteristics and the lunar/earth libration pattern.

On 9 June, the Apollo 12 Passive Seismic Experiment recorded a lunar seismic event on all long period axes, coincident with the Apollo 14 seismometer. The sensor's internal temperature (DL-07) is increasing at an average rate of 0.1 F per hour. The instrument's thermal control mode is AUTO/ON.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day, to record data with no problems.

The Suprathermal Ion Detector Experiment experienced a mode change from automatic mode to X10 accumulation mode at 1848 G.m.t., 5 June, as the instrument's internal temperature (DI-05) increased to 57.47°C. Similar mode changes have occurred previously at temperatures usually above 50°C and are believed to be caused by high voltage arcing. In order to minimize instrument mode changes during lunar daytime, the experiment generally is operated for periods of two hours followed by cooling periods of twenty two hours.

The Lunar Surface Magnetometer field sensor outputs and engineering data returned, restoring valid science data, at the start of real time support 1140 G.m.t., 7 June. The experiment experienced a 75% scale negative deflection in the Y axis field sensor at 1140 G.m.t., 7 June. The Y axis deflection disappeared at 1415 G.m.t., 10 June. The Y axis field sensor negative deflection is not abnormal to instrument operation, as it has been previously experienced.

Status as of 1400 G.m.t., 10 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	568	125
Total Commands to Date	9561	2772
Sun Angle	91°	97°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE Standby
Average Thermal Plate Temperature	88.8°F	114.0°F
PSE Sensor Assembly Temperature	136.6°F	127.5°F
LSM Internal Temperature	77.3°C (171.1°F)	N/A
SWS Module 300 Temperature	64.3°C (147.7°F)	N/A
SIDE Temperature 2	50.9°C (123.6°F)	Off-scale HIGH
CCGE Temperature	Off-scale HIGH	Off-scale HIGH
CPLEE Electronic Temperature	N/A	Standby
ASE GLA Temperature	N/A	69.8°C (157.6°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 June 1971
G.m.t.: 1300

APOLLO 14 ALSEP

Following sunset on 17 June, the Apollo 14 ALSEP scientific station is operating in its fifth lunar night and has completed 135 days on the lunar surface. Theoretically sunset occurred at 0843 G.m.t., 17 June. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. During the past 7 day period, the signal strength from Transmitter "A" is reported to have varied, due to site characteristics and the lunar/earth libration pattern at -138.5±1.5 dbm.

During real time support at 1353 G.m.t., 11 June, a lunar seismic event occurred on all axis of the Apollo 14 seismometer. Seismic activity had subsided by 1500 G.m.t. This event was also recorded by the Apollo 12 instrument.

The Suprathermal Ion Detector is presently operating in the automatic mode with high voltages ON. The high voltage was commanded ON at 1306 G.m.t., 14 June. During the past week, the SIDE/CCGE positive engineering data has remained invalid with sporadic intervals of erroneous or off-scale HIGH data.

Currently the Active Seismic Experiment is in standby. The experiment was commanded ON at 1445 G.m.t., 13 June, and the ALSEP high bit rate ON at 1500 G.m.t., for a thirty minute "listening mode" operation. Data outputs of geophone 1 and geophone 2 appeared normal, however, geophone 3 data was continuously erratic between zero (50% full scale) and off-scale positive (100% full scale). No geophone calibration pulses were sent during the "listening mode" operation. ALSEP high bit rate was terminated at 1530 G.m.t., and the ASE placed in standby at 1533 G.m.t.

The Charged Particle Lunar Environment Experiment is currently in the standby mode. At 2238 G.m.t., 16 June, the instrument was commanded ON and produced valid scientific data from analyzer A until 2310 G.m.t., when the analyzer A channeltron high voltage (AC-03) dropped from 2650 volts to 1900 volts. The instrument was commanded to standby at 2336 G.m.t. The revised operations schedule for the CPLEE is to remain in standby except for events of prime scientific significance, i.e., SIVB impacts, LM impacts, etc., at which time, at least 30 minutes of valid CPLEE data is expected to be obtained.

APOLLO 12 ALSEP

The Apollo 12 ALSEP continues to function steadily, recording and transmitting data to Earth after 576 days of continuous operation. Sunset for the Apollo 12 ALSEP is predicted to occur at 2020 G.m.t., 17 June. The RTG output is steady at 72.5 watts. The transmitter's downlink signal strength remains steady at -138.5±1.5 dbm, depending upon site characteristics and the lunar/earth libration pattern.

On 11 June, the Apollo 12 Passive Seismic Experiment recorded a lunar seismic event on all long period axes, coincident with the Apollo 14 seismometer. The sensor's internal temperature (DL-07) is decreasing at an average rate of 0.1°F per hour.

The Solar Wind Spectrometer continues using the revised operations schedule, high gain mode during lunar day and normal gain mode during lunar night, to record data with no problems.

The Suprathermal Ion Detector is presently operating in the high voltage ON mode. The high voltage mode was commanded ON at 1257 G.m.t., 14 June. At the start of the support period 1255 G.m.t., 15 June the experiment had experienced a mode change from automatic mode to X10 accumulation mode. At this time the instruments internal temperature (DI-05) was reading 59.4°C. At the start of support period 2148 G.m.t., 16 June the experiment had again encountered a mode change from the automatic mode to X10 accumulation mode. At this time the internal temperature (DI-05) was reading 41.56°C. In both instances the instrument was subsequently reinitialized to the automatic mode by commanding the SIDE/CCGE to STANDBY and back to operate. Similar mode changes have occurred previously at temperatures usually above 50°C and are believed to be caused by high voltage arcing. In order to minimize instrument mode changes during lunar daytime, the experiment generally is operated for periods of two hours followed by cooling periods of twenty two hours.

The Lunar Surface Magnetometer scientific and engineering data were static at the start of real-time support on 16 June. During the past three lunations, the LSM has produced valid scientific data for nine days each lunation. All flip-calibration sequences appeared normal although the Y axis sensor still will not execute the 180° to 0° flip command.

Status as of 1400 G.m.t., 17 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	576	135
Total Commands to Date	9623	2827
Sun Angle	176°	182°
Input Power	72.5w	72.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE & CPLEE Standby
Average Thermal Plate Temperature	47.1°F	50.9°F
PSE Sensor Assembly Temperature	129.6°F	124.7°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	35.1°C (95.2°F)	N/A
SIDE Temperature	41.6°C (106.8°F)	Erroneous
CCGE Temperature	Off-scale HIGH	Erroneous
CPLEE Electronic Temperature	N/A	-10.9°C (12.38°F)
ASE GLA Temperature	N/A	22.2°C (71.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 June 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The Apollo 14 scientific station continues to function steadily, recording and transmitting data to earth. Telemetry data from the central station indicates that thermal equilibrium is being maintained in the lunar night environment. Midnight of the Apollo 14 ALSEP's fifth lunar night occurred on 24 June. The thermoelectric power source continues to supply 71.8 watts of electrical power to the experiments package. Over the past seven day period, the signal strength from transmitter "A" was reported to have varied between -139.0 dbm and -142.0 dbm, depending on MSFN site characteristics and the lunar/earth libration pattern. On 16 June the central station's DSS-1 heater (10w) was commanded ON at 2330 G.m.t. when the average thermal plate temperature reached 50°F.

On 24 June at 0859 G.m.t. the ground station at Guam observed a change in the status of parameter AB-05 in the downlink of the Apollo 14 ALSEP package. It was determined that the change in status was a result of the Suprathermal Ion Detector Experiment/Cold Cathode Gauge Experiment going to STANDBY. No CVW was observed in the downlink. Subsequent real time analysis of data through the Bermuda ground station revealed that the package had switched from PCU 1 to PCU 2. In addition, the receiver had switched from local oscillator "B" to local oscillator "A" and the PSE uncage status had gone from UNCAGE to OT.

Playback data from the Guam ground station confirmed that these events all occurred simultaneously. Further investigation also revealed that during testing of the ALSEP 4 PCU switchover function, the SIDE/CCGE had a history of changing from OPERATE to STANDBY status when the switch was made. As a result it was concluded that there was a strong possibility that ALSEP 4 had implemented a spurious PCU switchover command (octal 062); with the SIDE/CCGE change to STANDBY status consistent with test observations. The changes in receiver oscillators and PSE uncage status were also consistent with PCU switchovers.

The decision was made to command the package back to PCU 1 so as to retain the automatic switchover capability and to then return the SIDE/CCGE to OPERATE status. This was accomplished successfully at 1651 G.m.t., 24 June. The PSE uncage status returned to UNCAGE but receiver local oscillator "A" remained operative. This was not unexpected and caused no concern.

The scientific sensors of the SIDE/CCGE continue to record low background data in all voltage ranges. The positive engineering data remain invalid.

The Charged Particle Lunar Environment Experiment has remained in STANDBY since it was placed in that mode on 16 June. The Active Seismic Experiment is currently in STANDBY. On 18 June the ASE was commanded ON at 1930 G.m.t. Geophone outputs from 1 and 2 appeared normal, but geophone 3 output was again erratic between 50% full-scale and off-scale positive. The ASE was commanded to STANDBY at 2017 G.m.t.

The Passive Seismic Experiment indicated a seismic disturbance of minor amplitude at the ALSEP 4 site on 24 June. The arrival time was approximately 1346 G.m.t. and data was recorded by the long period X and Y channels only. The event lasted about 30 minutes.

APOLLO 12 ALSEP

This ALSEP has been operating 582 days on the surface of the Moon and is in its 20th lunar night. Power and signal output are steady. The central station's DSS-1 heater (10w) was commanded ON when the average thermal plate temperature reached 47°F at 2332 G.m.t., 16 June.

On 13 June at 1647 G.m.t. the Hawaii ground station observed a spurious CVW in the downlink indicating a possible LSM thermal control OFF command. (octal 134). This was subsequently verified as having occurred functionally. The LSM was later returned to "Y" thermal control by command on 18 June at 0732 G.m.t. On 17 June at 1520 G.m.t. the Hawaii ground station observed another spurious CVW in the downlink indicating a possible PSE Y motor ON command (octal 071). This was also verified as having occurred functionally and the motor was commanded OFF at 1852 G.m.t. that day.

The scientific sensors of the Suprathermal Ion Detector Experiment and the Solar Wind Spectrometer Experiment continue recording low background data in all voltage ranges. The solar wind instrument continues using the revised operations schedule, which is that the instrument operate in the normal gain mode during lunar night. The ion detector experiment is operating with its high voltage ON in full automatic sequence (0-127 SIDE frames). The Lunar Surface Magnetometer data output is static, which is characteristic of the instrument's lunar night operational history. The Passive Seismic Experiment continues to record data, operating as expected. The instrument's Z motor was commanded ON at 1854 G.m.t., 17 June. The internal temperature (DL-07) at that time was 128.5°F.

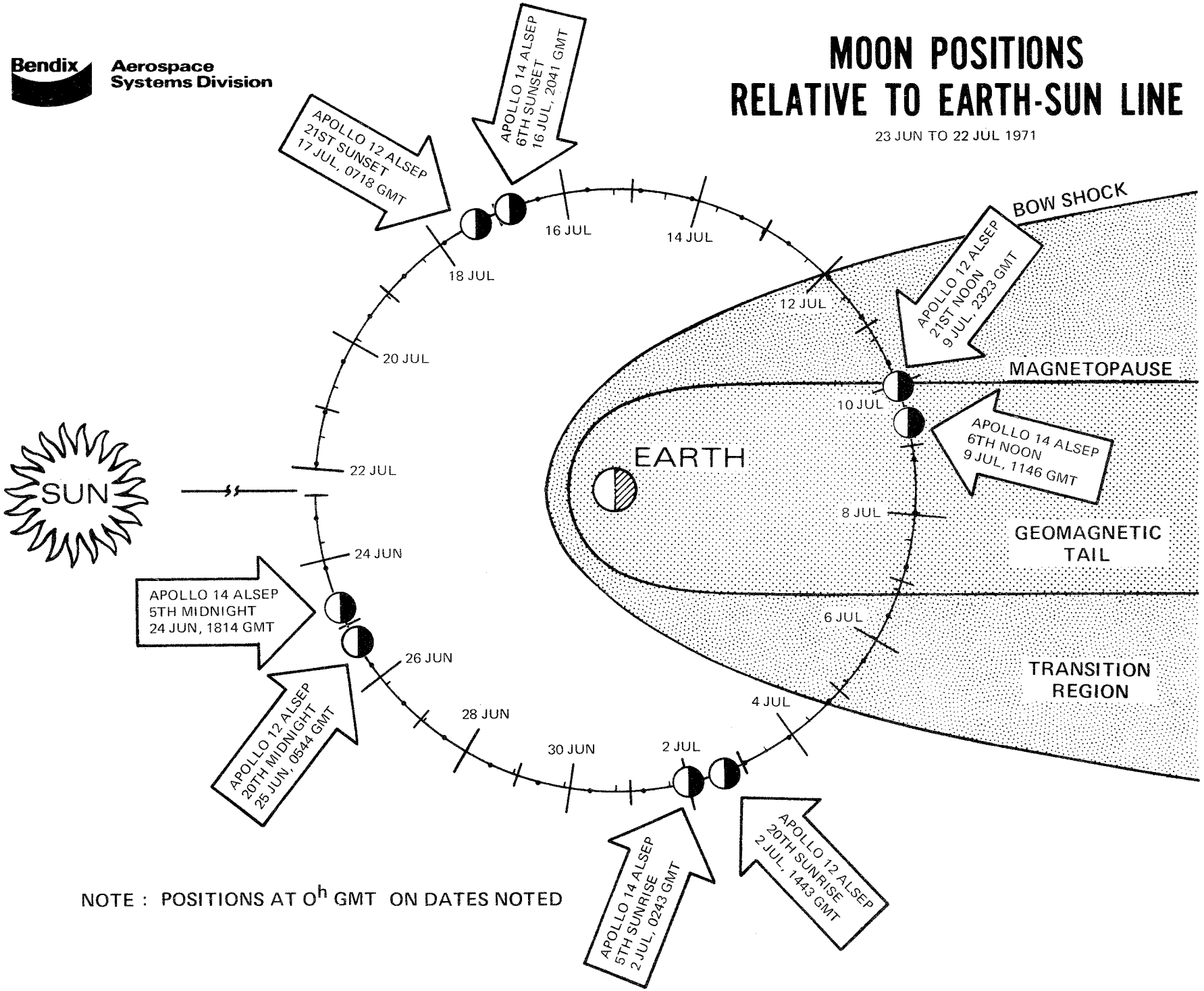
Status as of 1700 G.m.t., 24 June, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	581	139
Total Commands to Date	9745	2864
Sun Angle	263°	269°
Input Power	72.0w	71.8w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE and CPLEE STBY
Average Thermal Plate Temperature	19.9°F	41.2°F
PSE Sensor Assembly Temperature	126.0°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.6°C (4.0°F)	N/A
SIDE Temperature	4.3°C (39.7°F)	Erroneous
CCGE Temperature	Off-scale HIGH	Erroneous
CPLEE Electronic Temperature	N/A	Standby
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

23 JUN TO 22 JUL 1971



NOTE : POSITIONS AT 0^h GMT ON DATES NOTED

Bendix Aerospace Systems Division

ALSEP SUNRISE/SUNSET PREDICTIONS FOR 1971

APOLLO 15 ALSEP			APOLLO 14 ALSEP			APOLLO 12 ALSEP		
Lunation	Noon-90° Day/GMT	Noon+90° Day/GMT	Lunation	Noon-90° Day/GMT	Noon+90° Day/GMT	Lunation	Sunrise Day/GMT	Sunset Day/GMT
—	—	—	6	Jul 2/0243	Jul 16/2041	21	Jul 2/1443	Jul 17/0718
1	Jul 29/2007	Aug 13/1414	7	Jul 31/1337	Aug 15/0744	22	Aug 1/0130	Aug 15/1828
2	Aug 28/0722	Sep 12/0150	8	Aug 30/0054	Sep 13/1923	23	Aug 30/1243	Sep 14/0612
3	Sep 26/1922	Oct 11/1418	9	Sep 28/1257	Oct 13/0754	24	Sep 29/0043	Oct 13/1849
4	Oct 26/0819	Nov 10/0344	10	Oct 28/0157	Nov 11/2123	25	Oct 28/1343	Nov 12/0823
5	Nov 24/2210	Dec 9/1758	11	Nov 26/1552	Dec 11/1140	26	Nov 27/0339	Dec 11/2232
6	Dec 24/1239	Jan 8/0554	12	Dec 26/0623	Jan 9/2233	27	Dec 26/1813	Jan 10/0920

NOTES:

(1) APOLLO 12 ALSEP predictions are based on ephemeris data with an empirical correction to represent sunrise and sunset as observed by Dust Detector measurements AX-06 and AX-04.

(2) APOLLO 14 ALSEP and APOLLO 15 ALSEP predictions are based on longitude only; hence, they represent sunrise and sunset on a spherical moon at the equator for each ALSEP's longitude.

(3) Based on empirical data, APOLLO 14 ALSEP will detect sunrise 5.5 hours later, and sunset 2.8 hours earlier, than shown here. This indicates that it is deployed in a "bowl".

(4) Longitudes: 12 = 23.39° West, 14 = 17.48° West, 15 = 3.65° East (Nominal).

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 July 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The Apollo 14 scientific station continues to function steadily, recording and transmitting data to earth. Telemetry data from the central station indicates that thermal equilibrium is being maintained in the lunar night environment. Sunrise of the Apollo 14 ALSEP's sixth lunar day will occur on 2 July. The thermoelectric power source continues to supply 72.5 watts of electrical power to the experiments package. Over the past seven day period, the signal strength from transmitter "A" was reported to have varied between -141.8 dbm and -138.1 dbm, depending on MSFN site characteristics and the lunar/earth libration pattern.

At the start of real time support, 1250 G.m.t., 25 June, the Passive Seismic Experiments long-period Z axis data, DL-03, was displaying continuous oscillations and has been present during all subsequent support periods. These oscillations have not effected the remaining science outputs of the seismometer.

The Suprathermal Ion Detector Experiment is presently operating in the automatic mode with the SIDE and CCGE high voltages ON. During the past week, the SIDE/CCGE positive engineering data has remained largely invalid with brief sporadic intervals of normal data. The Charged Particle Lunar Environment Experiment has remained in STANDBY since it was placed in that mode on 16 June.

The Active Seismic Experiment is currently in STANDBY. On 28 June, the ASE was commanded ON at 1020 G.m.t. and ALSEP high bit rate ON at 1141 G.m.t. for a twenty minute "listening mode" operation. Data outputs of geophone 1 and 2 appeared normal, however, geophone 3 data was continuously erratic between zero (50% full scale) and off-scale positive (100% full scale). No geophone calibration pulses were sent during the "listening mode" operation. ALSEP high bit rate was terminated at 1201 G.m.t., and the ASE placed in standby at 1203 G.m.t.

APOLLO 12 ALSEP

After 590 days of continuous operation on the lunar surface, the performance of this ALSEP is steady. The systems characteristic cyclic engineering events noted in previous lunar night periods have repeated during the past seven days of operation, having no adverse operational effect on the experiments package. The electrical power output of the RTG to the experiments package is constant at 72.5 watts. Transmitter "B" downlink signal strength is reported as unchanging, experiencing no dropouts.

Apollo 12 ALSEP implemented a spurious Passive Seismic Experiment X motor ON commanded (Octal 070) at 2033 G.m.t., 24 June, with the Bermuda ground station supporting. The seismometer's drive motor was commanded OFF at 1309 G.m.t., 25 June. There were no engineering or science data out of tolerances as a result of the functional change in the experiment.

At 0643 G.m.t., 27 June, Apollo 12 ALSEP implemented a spurious LSM range change (Octal 123) from 100 gamma to 200 gamma (Guam ground station supporting). The magnetometer was commanded back to the 100 gamma range at 1009 G.m.t., 28 June, with no engineering, or science data out of tolerances as a result of the functional change in the instrument.

The scientific sensors of the Suprathermal Ion Detector Experiment and the Solar Wind Spectrometer Experiment continue recording low background data in all voltage ranges. The solar wind instrument continues using the revised operations schedule, which is that the instrument operate in the normal gain mode during lunar night. The ion detector is operating with its high voltage ON in full automatic sequence (0-127 SIDE frames). The Lunar Surface Magnetometer data output is static, which is characteristic of the instrument's operational history. The seismometer continues to record data, operating as expected.

Status as of 1300 G.m.t., 30 June was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	588	145
Total Commands to Date	9776	2894
Sun Angle	335°	341°
Input Power	72.5w	72.5w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE and CPLEE Standby
Average Thermal Plate Temperature	19.6°F	39.0°F
PSE Sensor Assembly Temperature	126.0°F	124.2°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-17.6°C (0.3°F)	N/A
SIDE Temperature 2	4.2°C (39.6°F)	Invalid
CCGE Temperature	Off-scale HIGH	Invalid
CPLEE Electronic Temperature	N/A	Standby
ASE GLA Temperature	N/A	-59.3°C (-74.7°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

9 July 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The experiments package telemetry data indicated sunrise for the Apollo 14 ALSEP's sixth lunar day occurred on 2 July. The thermoelectric power source continues to supply 72.0 watts of electrical power to the experiments package. During the past seven day period, the signal strength from transmitter "A" was reported to have varied between -141.0 dbm and -136.8 dbm, as a result of MSFN site characteristics and the lunar/earth libration pattern. The central station's DDS-1 heater (10w) was commanded OFF when the average thermal plate temperature reached 88.1°F at 0831 G.m.t., 3 July.

The Passive Seismic Experiment long-period Z axis continues to display noisy oscillations. No seismic events have been recorded by the instrument during real-time support in this reporting period.

The Active Seismic Experiment is currently in STANDBY. On 3 July, the ASE was commanded ON at 2013 G.m.t. and ALSEP high bit rate ON at 2030 G.m.t. for a thirty minute "listening mode" operation. Data outputs of geophone 1 and 2 appeared normal; however, geophone 3 data was continuously erratic between zero (50% full scale) and off-scale positive (100% full scale). No geophone calibration pulses were sent during the "listening mode" operation. ALSEP high bit rate was terminated at 2100 G.m.t., and the ASE placed in standby at 2102 G.m.t.

At the beginning of real-time support on 6 July at 1837 G.m.t., the Supra-thermal Ion Detector Experiment command register contained command 015 (RESET COMMAND REGISTER). The mode register was clear (000). At 1901 G.m.t., command 4A110 was uplinked, executing the 015 in the command register and thus resetting it to 000 (clear condition). The SIDE and CCGE high voltages were then commanded OFF in accordance with the established cycling procedure during lunar day. The positive engineering data has remained invalid for the past week.

The Charged Particle Lunar Environment Experiment has remained in STANDBY since it was placed in that mode on 16 June.

APOLLO 12 ALSEP

The Apollo 12 ALSEP is in its 21st lunation. The package experienced its 20th sunrise at 1444 G.m.t. on 2 July. On 5 July during phase 3 support, the Honeysuckle, Australia ground station reported downlink LOS at 1616 G.m.t. At 1810 G.m.t. via direction of Flight Control, the Ascension Island ground station uplinked command 1A013 (TRANSMITTER ON). The package responded and downlink was reestablished with the "B" transmitter. Signal strength was -142.0 dbm and steady. The electrical power output of the RTG was unchanged at 71.5 watts. The assumption is that a spurious TRANSMITTER OFF command (Octal 014) was implemented by the package, causing the loss of signal.

The central station DSS-1 heater (10w) was commanded OFF at 0833 G.m.t. on 3 July. The average thermal plate temperature at that time was 68.5°F.

The Passive Seismic Experiment has indicated no seismic activity during real-time support periods over the past week. The instrument's Z axis leveling motor was commanded OFF at 0836 G.m.t. on 3 July. The internal temperature, DL-07, was 126.6°F at that time.

At the beginning of real-time support on 6 July at 1837 G.m.t. the Lunar Surface Magnetometer was putting out valid science and engineering data. The data have continued valid during real-time support periods since that time.

The Solar Wind Spectrometer is in the extended range mode and continues to output valid data.

At the beginning of real-time support on 5 July at 1232 G.m.t. the Channeltron high voltage in the Suprathermal Ion Detector was OFF. Both the command and mode registers within the instrument were noted to be clear (000). The experiment was commanded OFF at 1316 G.m.t. and left OFF until the following day (6 July). The SIDE was commanded ON at 1911 G.m.t. with the Channeltron high voltage coming ON simultaneously as expected. The SIDE was again turned OFF at the end of the support period that day and will continue to be cycled ON and OFF during the lunar day as has been done during past lunar days in order to prevent overheating and minimize instrument mode changes.

Status as of 1200 G.m.t., 7 July, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	595	152
Total Commands to Date	9870	2962
Sun Angle	60°	66°
Input Power	71.5w	72.0w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE and CPLEE Standby
Average Thermal Plate Temperature	87.7°F	109.8°F
PSE Sensor Assembly Temperature	127.4°	125.5°F
LSM Internal Temperature	67.7°C (153.8°F)	N/A
SWS Module 300 Temperature	61.7°C (143.1°F)	N/A
SIDE Temperature 2	38.4°C (101.1°F)	Invalid
CCGE Temperature	Off-scale HIGH	Invalid
CPLEE Electronic Temperature	N/A	Standby
ASE GLA Temperature	N/A	62.9°C (145.2°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 July 1971
G.m.t.: 1300

APOLLO 14 ALSEP

After 161 days of operation, Apollo 14 ALSEP is completing its sixth lunar day (sunset will occur on 16 July). The thermoelectric power source continues to supply 71.5 watts of electrical power to the experiments package. The signal strength from the ALSEP transmitter is steady and the combined effects of lunar libration and ALSEP antenna misalignment are causing no problems.

At the start of real time support on 9 July at 1454 G.m.t., the long-period Z-axis (LPZ) output of the Passive Seismic Experiment was not experiencing the undampened noise oscillations that had been continuously experienced during Phase II operations since 25 June. On 10 July at 0444 G.m.t. the MSFN station at Ascension Island observed a spurious command verification word in the downlink indicating a possible instrument status change from UNCAGED to OT. This was subsequently verified during real-time support on 10 July as having occurred. Command 4A073 was uplinked at 1423 G.m.t. returning the PSE uncage status to UNCAGED with no problems. The experiment's heater was placed in the auto ON mode, 2214 G.m.t., 12 July. The instrument's Y axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during Phase II operations on 15 July, and did not achieve a functional response. No seismic events have been recorded by the instrument during real-time support in this reporting period.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments high voltages were commanded ON at 1258 G.m.t., 13 July, following periodic lunar daytime operations, to avoid high-temperature "arcing" problems. The experiments positive engineering data remains invalid.

The Charged Particle Lunar Environment Experiment has remained in STANDBY since it was placed in that mode on 16 June.

The Active Seismic Experiment is currently in STANDBY. On 9 July, the ASE was commanded ON at 1337 G.m.t. and ALSEP high bit rate ON at 1400 G.m.t. for a thirty minute "listening mode" operation. Data outputs of geophone 1 and 2 appeared normal; however, geophone 3 data was continuously erratic between zero (50% full scale) and off-scale positive (100% full scale). No geophone calibration pulses were sent during the "listening mode" operation. ALSEP high bit rate was terminated at 1430 G.m.t., and the ASE placed in standby at 1433 G.m.t.

APOLLO 12 ALSEP

The Apollo 12 ALSEP continues to function steadily, recording and transmitting data to Earth after 604 days of continuous operation. The RTG output is steady at 71.1 watts. The downlink signal strength of transmitter "B" remains constant. The 21st sunset of the Apollo 12 ALSEP will occur on 17 July.

The Passive Seismic Experiment has indicated no seismic activity during real time support periods of the past week.

The Lunar Surface Magnetometer field sensor outputs and engineering data continue to output valid science data. At the start of real time support 1148 G.m.t., 7 July, the experiment experienced a 75% negative scale deflection in the Y axis field sensor. The negative scale deflection had disappeared at the beginning of real time support on 15 July, 1152 G.m.t. The Y axis field sensor negative deflection is not abnormal to instrument operation, as it has been previously experienced.

The scientific sensors of the Solar Wind Spectrometer Experiment are providing uninterrupted background data in all voltage ranges. The solar wind instrument continues using the revised operations schedule, which is that the instrument operate in the extended range mode during lunar day.

The Suprathermal Ion Detector Experiment high voltage was commanded ON at 1207 G.m.t., 15 July, after being operated periodically during lunar daytime, to avoid high-temperature "arcing" problems.

Status as of 1200 G.m.t., 15 July, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	603	160
Total Commands to Date	9946	3003
Sun Angle	157°	163°
Input Power	71.1w	71.5w
Heater and Power Dumps	OFF	OFF
Experiment Status	All ON	ASE and CPLEE Standby
Average Thermal Plate Temperature	59.1°F	67.3°F
PSE Sensor Assembly Temperature	136.1°F	124.9°F
LSM Internal Temperature	44.7°C (112.5°F)	N/A
SWS Module 300 Temperature	45.8°C (116.4°F)	N/A
SIDE Temperature 2	10.8°C (51.4°F)	Invalid
CCGE Temperature	Off-scale HIGH	Invalid
CPLEE Electronic Temperature	N/A	Standby
ASE GLA Temperature	N/A	37.1°C (66.8°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 July 1971
G.m.t.: 1300

APOLLO 14 ALSEP

The experiments package telemetry data indicated sunset for the Apollo 14 ALSEP's sixth lunar night occurred on 16 July. The thermoelectric power source continues to supply 71.5 watts of electrical power to the experiments package. During the past seven day period, the signal strength from transmitter "A" was reported to have varied between -139.0 dbm and -141.2 dbm, as a result of MSFN site characteristics and the lunar/earth libration pattern. The central station's DSS-1 heater (10w) was commanded ON when the average thermal plate temperature reached 47.8°F at 1307 G.m.t., 16 July.

The Passive Seismic Experiment has indicated no seismic activity during real-time support periods over the past week. The instrument's Y-axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during phase II operations on the sixteenth, seventeenth and eighteenth of July. The Y-axis was successfully centered on 18 July after a 25 minute motor driving period. During this reporting period, a total of 4 hours and 23 minutes of motor "ON time" was required to level the Y axis.

The Charged Particle Lunar Environment Experiment has remained in STANDBY since it was placed in that mode on 16 June.

At the beginning of real-time support on 15 July, the Suprathermal Ion Detector Experiment was operating in the RESET AT 79 mode (mode register indication 006) with the command register in the CHANNELTRON HIGH VOLTAGE ON/OFF mode (command register indication 014). The instrument was reinitialized in it's full sequence mode by commanding it to STANDBY and then ON at 1226 G.m.t., 15 July. The positive engineering data has remained invalid for the past week.

The Active Seismic Experiment is currently in STANDBY. On 17 July, a listening mode was attempted with the Texas ground station supporting. Due to an unfavorable lunar/earth libration pattern and the station having an uncooled par amp, Texas was unable to maintain lock on the ALSEP high bit rate data with a signal strength of -141.2 dbm. The listening mode was rescheduled to 23 July.

APOLLO 12 ALSEP

This ALSEP has been operating 610 days on the surface of the Moon and is in its 21st lunar night. Power and signal output are steady. The central station's DSS-1 heater (10w) was commanded ON when the average thermal plate temperature reached 45° at 1308 G.m.t., 16 July.

On 14 July at 0920 G.m.t. the Texas ground station observed a spurious CVW in the downlink indicating a possible LSM offset address change command (octal 125). This was subsequently verified as having occurred functionally when it was noted that the offset address had gone from Y to Z. The address was returned to Y by command at 1230 G.m.t. on 15 July. At 1740 G.m.t. on 14 July the Guam ground station observed another spurious CVW in the downlink indicating a possible LSM thermal control OFF command (octal 134). This was also verified as having occurred functionally. The LSM was later returned to "Y" thermal control by command on 15 July at 1235 G.m.t.

The scientific sensors of the Suprathermal Ion Detector Experiment and the Solar Wind Spectrometer Experiment continue recording low background data in all voltage ranges. The ion detector experiment is operating with its high voltage ON in full automatic sequence (0-127 SIDE frames). The Lunar Surface Magnetometer data output has been static since the beginning of support on 16 July at 1243 G.m.t. This is characteristic of the instrument's lunar night operational history. The Passive Seismic Experiment continues to record data, operating as expected. The instrument's Z motor was commanded ON at 1711 G.m.t., 17 July. The internal temperature (DL-07) at that time was 125.7°F.

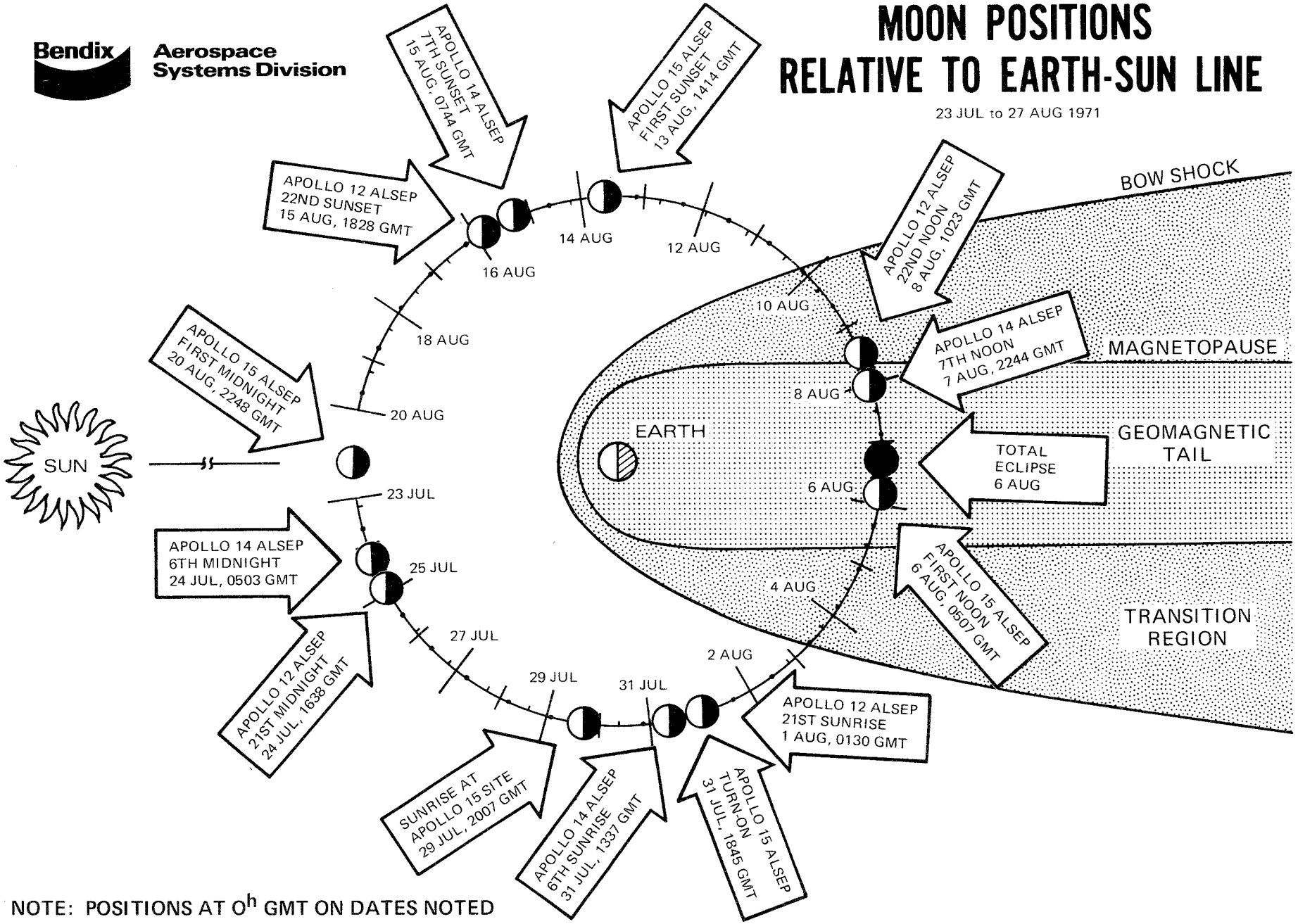
Status as of 1400 G.m.t., 21 July was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP
Total Days of Operation	609	166
Total Commands to Date	10028	3072
Sun Angle	232°	238°
Input Power	72.0w	71.5w
Heater and Power Dumps	DSS-1 ON (10w)	DSS-1 ON (10w)
Experiment Status	All ON	ASE and CPLEE Standby
Average Thermal Plate Temperature	20.5°F	39.0°F
PSE Sensor Assembly Temperature	126.0°F	124.3°F
LSM Internal Temperature	Static	N/A
SWS Module 300 Temperature	-15.2°C (4.6°F)	N/A
SIDE Temperature	4.3°C (39.7°F)	Erroneous
CCGE Temperature	Off-scale HIGH	Erroneous
CPLEE Electronic Temperature	N/A	Standby
ASE GLA Temperature	N/A	-56.6°C (-69.9°F)

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

23 JUL to 27 AUG 1971



NOTE: POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 August 1971
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 ALSEP was deployed on the moon on 31 July at approximately 100 yards west of the Falcon's location (LM-15 coordinates on the EVA 1 timeline map are BS.4 and 73.3). Some initial acquisition of a downlink signal was reported by the Canary Islands (-152.0 dbm) ground station at 1836 G.m.t., prior to antenna installation. Initial acquisition occurred 42 minutes after fueling of the Radioisotope Thermoelectric Generator. With initial antenna alignment, lock on Apollo 15 ALSEP data was obtained at 1850 G.m.t., by the Canary Islands station (-144.0 dbm). The MSFN ground station at Bermuda reported lock on ALSEP data at 1852 G.m.t., with a signal strength of -143.0 dbm. Initial conditions of the central station were normal. Power output of the RTG was 67.8 watts, and the central station's thermal plate temperature averaged 86.4°F. A reserve power reading of 29.1 watts indicated that the basic power consumption was normal for Apollo 15 ALSEP start-up. Transmitter "A" signal strength subsequently increased to a nominal -135.0 dbm, and remains steady.

Experiments were initially turned on at the following times: Passive Seismic Experiment, 1921 G.m.t.; Lunar Surface Magnetometer Experiment, 1929 G.m.t.; Dust, Thermal, and Radiation Engineering Measurements Package, 1932 G.m.t.; Solar Wind Spectrometer Experiment, 1937 G.m.t.; Suprathermal Ion Detector/Cold Cathode Gauge Experiments, 1943 G.m.t.; and the Heat Flow Experiment, 1947 G.m.t.

The Passive Seismic Experiment was uncaged by command, with initial leveling of the instruments long period axes (LPX, LPY, & LPZ) completed at 2310 G.m.t. Re-leveling of the long period axes has been repeated successfully, with the sensor's heater turned OFF prior to leveling commands. The experiment is operating with the feedback loop filter commanded IN. At 0459 G.m.t., 1 August, sensor temperature, DL-07, indicated 106.5°F (first temperature output since deployment.

The Lunar Surface Magnetometer Experiment has recorded data from turn-on, with the first flip calibration command transmitted at 2306 G.m.t., 31 July. The instrument is operating with the digital filter commanded OUT.

The Solar Wind Spectrometer Experiment was initialized without problem, and continues to record data.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments both recorded normal data for 28 minutes and were then commanded to STAND-BY per the agreed to operational plan. The gauge's seal was removed by command at 1956 G.m.t., 31 July. The experiments will be commanded to OPERATE SELECT prior to LM EVA 2 cabin depress, and the ion detect-or's dust cover will be commanded open. The experiments will then be operated for approximately 30 minutes and returned to STANDBY until just prior to LM EVA 3 cabin depress.

Probe #1 of the Heat Flow Experiment is emplaced in a hole of a depth estimated to be 5 feet. The instrument has been activated and both probes and the electronics are performing normally. The experiment is operating in the gradient mode (Mode 1), with all sensors being sampled in full sequence. The experiment's probe #2 installation was not com-pleted during EVA 1. A plan has been formulated to complete probe emplancement during EVA 2.

Apollo 14 ALSEP

After 177 days of operations, Apollo 14 ALSEP continues to transmit scientific and engineering data. Sunrise of the seventh lunar day at Fra Mauro occurred on 31 July. The thermoelectric power source continues to supply 71.0 watts of electrical power to the experiments package. The signal strength from the transmitter is steady. The central station's 10 watt heater (DSS-1) was commanded OFF at 0528 G.m.t., 1 August.

During Phase II operations on 26 July and 30 July, the long period Z-axis (LPZ) output of the Passive Seismic Experiment experienced a recurrence of the continuous undampened noise oscillation. The oscillating condition of LPZ does not effect the remaining science outputs of the seismometer.

The Charged Particle Lunar Environment Experiment was commanded to OPERATE SELECT (3200 volt range) on 29 July at 1836 G.m.t., and again at 2044 G.m.t. per the operational plan. The experiment was commanded back to STANDBY after observing the effects of Apollo 15 S-IVB impact on the low energy sprectrum of analzyer A (-35 volt-age range). The experiment was commanded to OPERATE SELECT at 1942 G.m.t., 31 July, in order to observe optical sunrise. The instru-ment was returned to STANDBY from the high voltage range full auto-matic voltage stepping sequence following 16 minutes of ON operations. Throughout all Phase II operations the experiment's analyzer A Chann-eltron voltage remained stable.

The Suprathermal Ion Detector and Cold Cathode Ion Gauge are collecting science data but there are interruptions in part of the engineering data. This problem, in one section of the analog-to-digital converter was first observed on 6 April. This interruption of housekeeping has no adverse effect on the instruments science outputs.

A scheduled period of Active Seismic Experiment "listening mode" operations on 23 July was cancelled because of excessive data dropouts. This resulted from the combination of weak signal strength (adverse liberation) and an uncooled parametric amplifier at the MSFN Canary Islands station. On 30 July, the experiment was commanded ON at 1241 G.m.t., and ALSEP high bit rate ON at 1300 G.m.t. for a 30 minute "listening mode" operation. Data outputs of geophone 1 and 2 appeared normal; however, geophone 3 data was continuously off-scale positive (100% full scale). No geophone calibration pulses were sent during the "listening mode" operation. ALSEP high bit rate was terminated at 1330 G.m.t., and the experiment placed in STANDBY at 1333 G.m.t.

Apollo 12 ALSEP

After 620 days of lunar operation, this ALSEP is in its 21st lunar night; sunrise of the 22nd lunar day will occur on 1 August. The power output of the RTG, and the downlink signal strength is steady. A total of 10,085 commands from MCC have been processed by this Apollo 12 ALSEP.

The Solar Wind Spectrometer, Suprathermal Ion Detector, and Passive Seismic Experiment continue to provide uninterrupted science and engineering data of the lunar environment. The Lunar Surface Magnetometer experienced a loss of data output at low temperatures on 16 July, which has been characteristic of the magnetometer's operations since June 1970. On 30 July at 2106 G.m.t., a spurious DTREM command (octal 031) was executed, placing the measurements package in OFF. A command verification word was noted in the downlink, and the DTREM was commanded back ON. No adverse effects were noted. The seismometer's Z-axis leveling motor was commanded OFF at 0549 G.m.t., 1 August, followed by the central station's DSS-1 heater (10 watts) at 0552 G.m.t.

Status as of 1300 G.m.t., 1 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	620	177	1
Total Commands to Date	10085	3149	235
Sun Angle	6°	12°	33°
Input Power	71.0w	71.0w	73.5w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	SIDE/CCGE Standby
Ave Thermal Plate Temp	42.4°F	60.9°F	86.3°F
PSE Sensor Assembly Temp	125.6°F	124.5°F	124.4°F
LSM Internal Temp	Static	N/A	114.4°F
SWS Module 300 Temp	36.8°F	N/A	98.9°F
SIDE Temp	54.6°F	N/A	85.2°F
CCGE Temp	Off-scale HIGH	N/A	151.5°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-3.2°F	N/A
HFE Temp Ref Junction	N/A	N/A	97.3°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The ALSEP central station and all experiments continue to function at this time, 43 hours after being placed on the surface by the crew of Apollo 15. The experiments package measured the crew activities during EVA 2 over essentially the full traverse range, the crew's return to the ALSEP site during EVA 2, and the effects of LM EVA 2 and EVA 3 cabin depress.

Central station average thermal plate temperature is slightly higher than nominal (7 degrees), but well within the predicted temperature response band. The signal strength from transmitter "A", and the thermoelectric power source output remains steady. A status change in the timer hour counter (AZ-01) at 1250 G.m.t., 1 August, and at 0707 G.m.t., 2 August, indicated arrival of the first and second 18-hour pulses from the data subsystem timer. A status change in the seismometer's short period cal status, AL-07, also verified output of the timer pulse.

The Passive Seismic Experiment continues to operate normally. 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. Signals were recorded during drill operations but were largely above the frequency range of the seismometer. The instrument's long period sensors have been operated mainly in the filter IN mode, with the filter commanded OUT for enhanced stability during EVA's. The filter OUT mode will be used for LM impact for maximum recording sensitivity.

The Lunar Surface Magnetometer Experiment recorded the magnetic field of the PLSS as the crew passed by the experiment during EVA 2. The instrument is presently operating normally, indicating the moon's passage through the bow shock created due to the interaction of the earth's magnetic field with the solar wind.

The Solar Wind Spectrometer Experiment is operating normally, and continues to record baseline data.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments both recorded normal data for 31 minutes during EVA 2 cabin venting of the LM. The ion detector's dust cover was commanded open at 1132 G.m.t., 1 August, and the experiment operated normally recording low background counts in all voltage ranges before being commanded to STANDBY. The experiments were commanded to OPERATE SELECT at 0835 G.m.t., 2 August, for LM EVA 3 cabin depress, and operated for 37 minutes. The experiments were then commanded OFF, and will remain in this mode until just prior to LM cabin vent for equipment jettison.

The deployment of the Heat Flow Experiment was begun in EVA 1. The electronics box and initial probe deployment went essentially as planned. At the first hole site, the borestem was drilled to a depth of approximately 66.3 inches and probe 1 was emplaced to the bottom of the borestem. The top of the probe is about 17.5 inches below the lunar surface.

At the second hole site, the borestem was drilled into the regolith to a depth of about 37.1 inches on EVA 1. Late in EVA 2, the drilling of hole 2 was continued to a depth of approximately 70.2 inches. Probe 2 was emplaced to a depth of about 54.6 inches within the stem. The top of the probe is approximately at the lunar surface. The probe was prevented from going to the bottom of the hole by some undetermined obstruction.

Subsequent to emplacement of probe 1, the experiment was commanded ON. All temperature sensors functioned normally in full sequence Mode 1 (gradient mode) operation. The temperatures measured by probe 1 show it to be equilibrating with the lunar subsurface material. Over the past 24 hours of observation, the temperature has decreased to about $-2.2^{\circ}F$. The temperature difference measured over each probe section has been steadily decreasing with time. The upper sensor of each section is the warmer.

The thermocouples in probe 1 are measuring temperatures at the top of the probe, in the borestem, and on the lunar surface. The thermocouple at the top of the probe is essentially in agreement with the top most gradient bridge sensor. The others are now indicating the diurnal change of the surface temperature.

Probe 2 was stored on the drill rack between EVA 1 and EVA 2. The sensors in this probe are now rapidly equilibrating to subsurface temperatures and function normally in full sequence Mode 1. The thermocouples in the probe 2 cable essentially follow the surface temperature variations.

Status as of 1000 G.m.t., 2 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	621	178	2
Total Commands to Date	10130	3178	313
Sun Angle	17°	23°	44°
Input Power	71.1w	71.1w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	SIDE/CCGE OFF
Ave Thermal Plate Temp	56.8°F	72.5°F	95.9°F
PSE Sensor Assembly Temp	125.9°F	126.4°F	125.8°F
LSM Internal Temp	Static	N/A	123.4°F
SWS Module 300 Temp	98.2°F	N/A	111.4°F
SIDE Temp	92.8°F	N/A	OFF
CCGE Temp	Off-scale HIGH	N/A	OFF
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	40.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	96.4°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 scientific station measured the crew activities during EVA 3 over essentially the full traverse range; the effects of LM cabin vent for equipment jettison; and, the Falcon's lunar surface liftoff and impact.

Conversion of the LM-15 EVA grid map coordinates of BS.4 and 73.3 to a LUNAR PLANNING CHART (LOC-2) are: longitude - 3°38'55" East
latitude - 26°06'10" North
The ALSEP was deployed at approximately 100 meters west of the Falcon's descent stage location.

Central station operation is in agreement with predictions. The RTG output continues steady at 74.1 watts. Downlink signal strength is constant at -136.0 dbm, plus or minus one dbm. The average thermal plate temperature is increasing at a rate of approximately 0.3°F per hour, and reached an average temperature of 103.4°F at 1000 G.m.t., 3 August. The station's timer hour counter telemetry status point, AZ-01, changed at 0124 G.m.t., 3 August, signalling the arrival of the third 18-hour timer pulse. A status change in the seismometer's short period cal status (AL-07) and uncage status (AL-08), also verified output of the timer pulse.

The Passive Seismic Experiment recorded significant response to the LM lunar liftoff and impact. The seismometer recorded a signal of approximately 4 minutes duration at LM ascent on all sensor components. After impact of the LM, a sustained effect was observed by the three seismic stations presently in operation for approximately one hour (stations 14 and 15 in real time). The impact point was estimated at 95 km from the Apollo 15 station, and approximately 1100 km from the Apollo 12 ALSEP and Apollo 14 ALSEP seismometers. The experiment also detected the effects of EVA equipment jettison, and the removal of dust covers of the Solar Wind Spectrometer Experiment. Along with these artifical disturbances, several natural events have been detected by the Apollo 15 seismometer.

The Lunar Surface Magnetometer Experiment performed its second flip calibration sequence, by command, at 1238 G.m.t., 2 August. The experiment recorded the magnetic signature of LM ascent and impact, and continues to measure magnetic field data as the moon passes through the earth's magnetosheath.

The dust covers of the Solar Wind Spectrometer were removed by command at 1807 G.m.t., 2 August. Collection of scientific data continues, with no unexpected results. Instrument temperatures are rising gradually, a normal trend for the present sun angle.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments both recorded normal data for 34 minutes during LM cabin vent for equipment jettison, and then were commanded to STANDBY per the operational plan. The instruments were then commanded to OPERATE SELECT for 28 minutes and observed effects of LM ascent with the mass analyzer, as well as the total ion detector. The ion detector also observed intense ion fluxes in the magnetosheath near the time of ascent. At liftoff, the gauge recorded a pressure that exceeded the instruments calibrated range, gradually decreasing to a steady pressure of 1×10^{-8} torr.

The ion detector and gauge experiments were re-initialized to OPERATE SELECT for 42 minutes to observe the effects of LM impact, and recorded mass and energy spectra associated with impact. The experiments were then commanded to the OPERATE SELECT mode with the Channeltron high voltages OFF, and will remain in this mode until sunset, which occurs on 13 August.

The Heat Flow Experiment probes continued to perform normally during the second day of operation in the moon's subsurface. In addition to the normal measurements in mode 1 temperature measurements were made at the ring sensors (mode 3 - high conductivity) spaced 11.7 inches apart and 3.9 inches from the end of each probe section. These temperatures allow a detailed temperature profile along the length of probe 1. The temperature varies from about -2.3°F at the top of the probe to -3.1°F at the bottom. The temperature profile goes through a minimum of about -4.0°F at a depth approximately 29.3 inches below the lunar surface. This profile shows evidence of the diurnal wave propagating from the surface along the probe. The borestem and probe continue to equilibrate with local subsurface thermal conditions. The temperatures on probe 2 range from 154.4°F at the lunar surface to about 4°F at the bottom of the upper probe section. The temperature difference over the lower sections is much smaller, being 2.2°F. Thermocouples in the cable are continuing to track the lunar surface temperatures.

Status as of 1000 G.m.t., 3 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	622	179	3
Total Commands to Date	10141	3212	457
Sun Angle	28°	35°	56°
Input Power	71.5w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	73.9°F	83.3°F	103.4°F
PSE Sensor Assembly Temp	126.3°F	125.1°F	126.0°F
LSM Internal Temp	Static	N/A	133.4°F
SWS Module 300 Temp	115.5°F	N/A	124.0°F
SIDE Temp	125.2°F	135.5°F	123.7°F
CCGE Temp	Off-scale HIGH	137.3°F	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	76.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	109.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

Scientific data continues being collected, including the effects of 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. A status change in the timer hour counter telemetry point, AZ-01, at 1942 G.m.t., 3 August, indicated arrival of the fourth 18-hour timer pulse from the data subsystem timer. A status change in the seismometer's short period cal status (AL-07) and uncage status (AL-08), also verified output of the timer pulse.

The Passive Seismic Experiment's short period vertical component (SPZ) is recording the LM's outgassing, plus the thermal pops of the descent stage. The seismometer is also recording characteristic wobbling as the instrument settles and thermally stablizes in the lunar environment, plus interference from movement of thermal effects on the thermal shroud. The sensor's temperature (DL-07) appears, at this point in time, to have stablized. The experiment is operating with the feedback loop filter commanded OUT in order to match seismic response at the three seismic stations in operation.

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.

The Solar Wind Spectrometer Experiment continues to operate normally, collecting data for long term analyses.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF.

The Heat Flow Experiment continues to perform normally. Temperatures versus depth profiles, plotted and based on temperature measurements made at each sensor of probe 1, demonstrate a continued decrease in the minimum temperature seen by the probe. The temperature profile on 3 August contained a minimum of -4.9°F at a depth of about 29.3 inches, or a decrease of about 0.9°F over the last 24 hours. The average temperature at the top section of probe 2 reached a minimum of about 77.0°F and is continuing to increase. This performance is expected as this probe section will be highly sensitive to the temperature of the lunar surface. Thermocouple temperatures indicate a lunar surface temperature of 177.8°F.

Status as of 1000 G.m.t., 4 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	623	180	4
Total Commands to Date	10172	3218	527
Sun Angle	41°	47°	68°
Input Power	71.6w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	79.9°F	95.8°F	108.7°F
PSE Sensor Assembly Temp	126.7°F	125.4°F	126.0°F
LSM Internal Temp	Static	N/A	144.6°F
SWS Module 300 Temp	132.5°F	N/A	129.7°F
SIDE Temp	OFF	Invalid	166.0°F
CCGE Temp	OFF	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	117.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	119.7°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

5 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP experiments and central station are functioning as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within expected limits.

Power from the radioisotope source remains constant at 74.1 watts. Average temperature of the central station electronics thermal plate was 112.8°F with a sun angle of 81 degrees at the ALSEP 15 lunar site; temperature rise of approximately 0.2°F per hour. Downlink signal strength is constant at -136.0 dbm, plus or minus one 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 1359 G.m.t., 4 August, and again at 0816 G.m.t., 5 August.

The Passive Seismic Experiment continues recording venting in the LM descent stage, and characteristic wobbling as the instrument settles. These disturbances are gradually decreasing in amplitude. The sensor's temperature (DL-07) remains stabilized at 126.0°F, with the heater in auto thermal control mode. Analysis of experiment data indicated that station 15 recorded a seismic signal, probably a meteorite event, beginning at 2125 G.m.t., 2 August. The seismometer's long period components indicated a signal duration of 20 minutes, while the signal was noted for 10 minutes by the short period component.

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. The instrument electronics are now at 150.8°F, and continuing to rise at a rate of approximately 0.1°F per hour.

The Solar Wind Spectrometer Experiment continues to operate normally, collecting solar wind plasma activity for long term analyses. Engineering data indicates that the instrument's electronic temperatures have stabilized in the lunar day environment at 145.0°F.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF. Housekeeping data indicates that the instruments electronic temperature (Temp 2) have stabilized at 172.4°F.

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 indicate a lunar surface temperature of 192.2°F.

Status as of 1000 G.m.t., 5 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	624	181	5
Total Commands to Date	10193	3227	601
Sun Angle	54°	60°	81°
Input Power	71.5w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	85.4°F	106.9°F	112.8°F
PSE Sensor Assembly Temp	131.8°F	128.9°F	126.0°F
LSM Internal Temp	141.8°F	N/A	150.8°F
SWS Module 300 Temp	141.4°F	N/A	134.0°F
SIDE Temp	OFF	Invalid	172.4°F
CCGE Temp	Off-scale HIGH	Invalid	195.8°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	138.3°F	N/A
HFE Temp Ref Junction	N/A	N/A	126.3°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

6 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP is in its sixth day of operation with the moon in the magnetospheric tail of the earth. Data of this region is being gathered by the Lunar Surface Magnetometer and Solar Wind Spectrometer. Data recorded by the Heat Flow Experiment thermocouples during the total eclipse of the moon in the afternoon hours of today, may represent an accurate, insitu measurement of temperature during a lunar eclipse. All experiments and the central station continue to function properly in the lunar day environment. The electronics temperatures of each of the experiments packages components have essentially reached thermal equilibrium; the signal strength from transmitter "A" is constant; and, the thermoelectric power source output remains steady. Telemetry data indicated that the seventh 18-hour timer pulse executed at 0233 G.m.t. 6 August. On 5 August at 2121 G.m.t., the Canary Island ground station observed a spurious command verification word in the downlink indicating a seismometer Y axis leveling motor ON command (octal 071). This was subsequently verified and the leveling motor commanded OFF at 2215 G.m.t., 5 August. There were no engineering, or other data out of tolerances as a result of the spurious command. The Passive Seismic Experiment continues to record some signals due to creaking and popping of the lunar module descent stage. The Apollo 15 station seismometer recorded a seismic signal of approximately 15 minutes duration on the instrument's long period horizontal axes (LPX and LPY). The Lunar Surface Magnetometer performed its third flip calibration sequence, by command, at 0218 G.m.t., 5 August. The Heat Flow Experiment temperature sensors and thermocouples in the cable are continuing to track the nearsurface and surface temperature variations. Thermocouple temperatures indicate a lunar surface temperature of 188.6°F. The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are operating in full sequence with the Channeltron high voltages commanded OFF, collecting engineering data only.

Apollo 14 ALSEP

The Apollo 14 ALSEP experiments and central station continue to collect scientific and engineering measurements at the Fra Mauro landing site. The power output of the RTG is unchanged, and downlink signal strength from transmitter "A" is steady.

Since initiation of Phase II operations in support of the Apollo 15 mission the Passive Seismic Experiment has experienced an intermittent recurrence of the continuous undampened noise oscillation on the long period vertical (LPZ) axis. The oscillating condition of the long period vertical axis does not effect the remaining science output of the seismometer. The 14 station seismometer has recorded a series of significant lunar signals as follows:

(1) 3 August, 0309 G.m.t., 55 minute duration, LPX, LPY, LPZ, and SPZ
(2) 3 August, 1545 G.m.t., 30 minute duration, LPX, LPY and SPZ
(3) 3 August, 2109 G.m.t., 30 minute duration, LPX, LPY and LPZ
(4) 3 August, 2238 G.m.t., 25 minute duration, LPX and LPY
(5) 4 August, 0715 G.m.t., 30 minute duration, LPX, LPY, LPZ and SPZ
(6) 4 August, 1329 G.m.t., 15 minute duration, LPX, LPY and SPZ
(7) 5 August, 0303 G.m.t., 15 minute duration, LPX and LPY
(8) 6 August, 0345 G.m.t., 55 minute duration, LPX, LPY, LPZ and SPZ

The Charged Particle Lunar Environment Experiment was commanded to OPERATE SELECT (3200 volt range) on 3 August at 0255 G.m.t., to record the LM ascent stage impact. The experiment Channeltron high voltage activated correctly, but decayed within a few seconds. The instrument was commanded to STANDBY at 0301 G.m.t., per the operational plan. The charged particle experiment will be commanded to operate during today's eclipse.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are collecting science data, but there are engineering data interruptions in one section of the analog-to-digital converter, which have no adverse effect on the scientific outputs of the experiments. Cyclical commanding of the experiment is in effect in order to preclude any mode changes prior to the total eclipse.

The Active Seismic Experiment is in STANDBY, and a "listening mode" operation will be performed at 1100 G.m.t., for 30 minutes today.

Apollo 12 ALSEP

The Apollo 12 ALSEP continues to function steadily collecting and recording data and transmitting it to earth. Telemetry data indicates that all experiments and central station temperatures are increasing steadily as a function of the increasing sun elevation. The downlink signal strength, and RTG power output remain steady.

The Solar Wind Spectrometer continues to provide uninterrupted science and engineering data of the lunar environment, in the extended mode range since 30 July, 2307 G.m.t.

Seismic signals were recorded on the long period axes (LPX, LPY and LPZ) of the Passive Seismometer at the Apollo 12 station on 3 August, at 0309 G.m.t., having a duration of approximately 30 minutes.

The Lunar Surface Magnetometer was observed to have a valid scientific and engineering data output at 0100 G.m.t., 5 August.

Cyclical commanding of the Suprathermal Ion Detector placing it in the OPERATE SELECT mode for two hours per day to record scientific and engineering data, and then turning the instrument OFF to preclude mode changes remains in effect.

Status as of 1000 G.m.t, 6 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	625	182	6
Total Commands to Date	10222	3241	683
Sun Angle	72°	78°	93°
Input Power	71.5w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	89.8°F	106.8°F	114.5°F
PSE Sensor Assembly Temp	130.6°F	128.3°F	127.8°F
LSM Internal Temp	158.0°F	N/A	153.9°F
SWS Module 300 Temp	144.7°F	N/A	136.9°F
SIDE Temp	OFF	Invalid	174.6°F
CCGE Temp	Off scale HIGH	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	150.0°F	N/A
HFE Temp Ref Junction	N/A	N/A	129.2°F

* Apollo 15 ALSEP SIDE/CCGE engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

7 August 1971
G.m.t.: 1200

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 6 August total eclipse. The eclipse reached the other two ALSEP's some eight minutes later. Yesterday's event was the fourth such eclipse, partial or total, experienced by the Apollo 12 station. The Apollo 14 scientific station recorded a maximum temperature transient of 310°F during the February 1971 total eclipse. Based on the experience during the previous eclipses, no unusual scientific data was expected or 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 4.5 hours of the eclipse, the sunshield temperature excursion was 283.2°F, and then returned to normal. The temperature-controlled electronics of the data subsystem experienced a 38.1°F temperature transient in this same time frame. An additional effect of this thermal shock was a temporary increase of 3.7 watts in RTG output.

Thermocouples in the heat flow probe cable recorded very rapid changes in lunar surface temperature during the eclipse of the sun by the earth at the Apollo 15 site. The cable temperatures decreased from a temperature of approximately 188.6°F at lunar noon to a value below -207.4°F just as the edge of the earth's shadow passed from the ALSEP site. The temperatures cannot be directly interpreted in terms of the lunar surface temperature without a thorough analysis of the radiative heat balance between the cable and the surface. The heat flow experiment instrument continues to operate normally, and temperature data from the subsurface probes show they are continuing to equilibrate with the lunar material.

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 OFF during the eclipse.

On 6 August at 0943 G.m.t., a spurious sesimometer uncage arm/fire command was executed (octal 073). The command was verified in the downlink by the Hawaii ground station. There were no engineering, or other data out of tolerances resulting from the spurious command.

Central station operation is in agreement with predictions. The RTG output continues steady at 74.1 watts. Downlink signal strength is constant at -136.0 dbm, plus or minus one dbm. A status change in the timer hour counter telemetry point, AZ-01, at 2051 G.m.t, 6 August, indicated arrival of the eighth 18-hour timer pulse from the data subsystem timer. A status change in the seismometer's short period cal status (AL-07) and uncage status (AL-08), also verified output of the timer pulse. Additionally, the suprathermal ion detector and cold cathode gauge experiments telemetry indicated the proper functional change of the 144-hour one-time output to remove the instruments dust cover and seal (if not previously removed).

The lunar surface magnetometer performed its fourth flip calibration sequence, by command, at 1207 G.m.t., 6 August. On completion of the cal sequence the experiment's one-time only site survey sequence was activated (X site survey command, 1218 G.m.t.; Y site survey command, 1231 G.m.t.; and, Z site survey command, 1245 G.m.t.), and completed without incident. Data recorded during the survey sequence is currently being analyzed.

TM POINT	PENUMBRA ENTRY(1)(3) Apollo 14 ALSEP	PENUMBRA ENTRY(1)(3) Apollo 15 ALSEP	PENUMBRA EXIT(2)(3) Apollo 14 ALSEP	PENUMBRA EXIT(2)(3) Apollo 15 ALSEP	MAXIMUM TEMP CHANGE Apollo 14 ALSEP	MAXIMUM TEMP CHANGE Apollo 15 ALSEP
C/S SUNSHIELD(AT-01)	173.9°F	140.0°F	-150.6°F	-143.2°F	324.5°F	283.2°F
AVE THERMAL PLATE	111.2°F	115.6°F	74.4°F	77.4°F	36.8°F	38.1°F
PSE DL-07 TEMP	128.5°F	128.1°F	125.4°F	125.3°F	3.1°F	2.8°F
LSM INT TEMP	N/A	153.9°F	N/A	123.4°F	N/A	30.5°F
SWS MOD 300 TEMP	N/A	136.9°F	N/A	99.0°F	N/A	37.9°F
SIDE TEMP 2	Unknown	174.8°F	Unknown	135.7°F	Unknown	39.1°F
CCGE TEMP	Unknown	180.9°F	Unknown	96.5°F	Unknown	84.4°F
GLA TEMP	153.2°F	N/A	127.6°F	N/A	25.6°F	N/A
HFE REF BRIDGE	N/A	129.6°F	N/A	65.3°F	N/A	64.3°F

NOTE: (1) Apollo 14 ALSEP site, first indications of penumbra entry 1723 G.m.t., penumbra exit 2150 G.m.t., 6 August.

(2) Apollo 15 ALSEP site, first indications of penumbra entry 1731 G.m.t., penumbra exit 2159 G.m.t., 6 August.

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

Status as of 1000 G.m.t., 7 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	626	183	7
Total Commands to Date	10239	3280	723
Sun Angle	78°	84°	105°
Input Power	71.1w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	83.7°F	108.0°F	110.9°F
PSE Sensor Assembly Temp	127.9°F	126.8°F	126.0°F
LSM Internal Temp	147.6°F	N/A	138.9°F
SWS Module 300 Temp	134.0°F	N/A	125.4°F
SIDE Temp	OFF	Invalid	161.9°F
CCGE Temp	OFF	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	148.4°F	N/A
HFE Temp Ref Junction	N/A	N/A	126.3°F

* Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

9 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

This report covers the Apollo 15 ALSEP activity and data for the previous 48 hours. ALSEP telemetry data has indicated that the average temperature of the central station electronics thermal plate peaked at 115.8°F, with a sun angle of 113 degrees at the Hadley Rille site. Currently, the electronics plate average temperature is 110.6°F; temperature decrease of approximately 0.2 degrees per hour. Power from the radioisotope source remains constant at 74.1 watts. Downlink signal strength is constant at -136.0dbm, plus or minus one dbm. As of 2100 G.m.t., 7 August, independent MSFN tracking stations were scheduled in support of the command uplink and telemetry downlink to the three operating ALSEP's and the subsatellite. Individual supporting ground stations will alleviate the requirement of reconfiguration of command uplink equipment when supporting with a common tracking station between three ALSEP's and the subsatellite, plus greater backup capability at each supporting station. 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 pulse as follows:

(1) 7 August, 1508 G.m.t., ninth pulse.
(2) 8 August, 0925 G.m.t., tenth pulse.
(3) 9 August, 0342 G.m.t., eleventh pulse.

The pattern of noise being experienced by the passive seismometer experiment at the Apollo 15 site is similiar to that observed during the initial operations of a seismic instrument on previous missions. The operation of the experiment is normal, and the sensor's temperature remains stabilized at 126.0°F. The moon's August perigee will occur on 9 August, at approximately 0100 G.m.t.

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. The instrument's internal electronics temperature presently indicates 133.5°F, and continuing to decrease at a rate of approximately 0.2 degrees per hour. The instrument's internal electronics temperature peaked at 141.8°F, and stablized at the peak temperature for approximately 34 hours. The experiment performed its fifth, sixth, and seventh flip calibration sequences August 7, by command, one each in the instrument's three gamma ranges as part of the data being investigated with the moon deep in the magnetospheric tail of the earth.

The solar wind spectrometer continues to record plasma data, with no operational problems, for the investigation of long term statistical effects. The experiment was commanded to its extended range mode at 1728 G.m.t., 7 August. Engineering data indicates that the instrument's electronics temperature, module 300, has remained stabilized since 0803 G.m.t., 8 August, at 136.9°F.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF, outputting engineering data only. Experiment housekeeping data indicates that the ion detector's electronic temperature (Temp 2) is now reading 172.4°F, and continuing to decrease at a rate of approximately 0.1 degrees per hour. Instrument telemetry data also indicates that the gauge's temperature is decreasing at 0.3 degrees per hour.

The heat flow instrument continues to acquire subsurface and surface temperature data normally from all probe sensors. Since 1027 G.m.t., 7 August, the probe 2 sequence measurement of the thermal plate temperature has indicated off-scale 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 is lost. At lunar noon the instrument's electronics package thermal plate temperature reached a peak value of 129.2°F, and is now decreasing. During the eclipse the temperature of the electronics thermal plate dipped to 62.2°F.

Status as of 1000 G.m.t., 9 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	628	185	9
Total Commands to Date	10265	3290	787
Sun Angle	102°	108°	129°
Input Power	71.1w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	71.2°F	108.3°F	110.6°F
PSE Sensor Assembly Temp	136.7°F	125.9°F	126.0°F
LSM Internal Temp	167.5°F	N/A	133.5°F
SWS Module 300 Temp	147.8°F	N/A	136.9°F
SIDE Temp	OFF	Invalid	172.4°F
CCGE Temp	OFF	Invalid	165.9°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	154.9°F	N/A
HFE Temp Ref Junction	N/A	N/A	116.3°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to operate, with the moon in the earth's magnetosheath and approaching the bow shock. Data pertaining to this region are being sensed by the lunar surface magnetometer and solar wind spectrometer experiments. All experiments and the central station continue to function properly in the lunar day environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate a gradual temperature decrease. The signal strength from transmitter "A" is constant; and, the thermoelectric power source output remains steady. Telemetry data indicated that the 12th 18-hour timer pulse executed at 2159 G.m.t., 9 August. The passive seismometer experiment continues to return some signals due to settling of the instrument, as well as lunar module descent stage venting. The suprathermal ion detector and cold cathode ion gauge experiments continue to transmit data. The high voltages used by the instruments to sense science data are OFF until lunar sunset (August 13) at the Apollo 15 landing site. The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface.

Status as of 1000 G.m.t., 10 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	629	186	10
Total Commands to Date	10268	3299	820
Sun Angle	114°	120°	141°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	88.5°F	105.2°F	103.2°F
PSE Sensor Assembly Temp	140.5°F	128.7°F	125.8°F
LSM Internal Temp	160.5°F	N/A	133.4°F
SWS Module 300 Temp	146.2°F	N/A	126.8°F
SIDE Temp	OFF	Invalid	161.9°F
CCGE Temp	OFF	Invalid	137.3°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	152.4°F	N/A
HFE Temp Ref Junction	N/A	N/A	105.1°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP experiments and central station are functioning as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within expected limits.

Power from the radioisotope source remains at 74.7 watts. Average temperature of the central station electronics thermal plate was 93.6°F with a sun angle of 154 degrees at the ALSEP 15 lunar site; indicating a temperature decrease of 0.3°F per hour. Downlink signal strength is constant at -137.0 dbm, plus or minus one dbm. The lunar surface magnetometer's flip cal inhibit was commanded OUT at 1328 G.m.t., 10 August, and verified by commanding the instruments eighth flip calibration sequence, immediately thereafter. The magnetometer experiment's ninth flip cal sequence was then activated by the data subsystem timer correctly. This repetitive flip cal capability is an important instrument mode of operation. The other three timer telemetry points, timer counter status (AZ-01), and the seismometer's short period cal status (AL-07) and uncage status (AL-08), also verified output of the 13th timer pulse at 1616 G.m.t., 10 August. The 14th 18-hour timer pulse also executed correctly at 1033 G.m.t., 11 August. Timer pulses have executed consistently at 18 hours, 17 minutes, and 10 seconds since initialization of the timer.

A data playback of the Apollo 12 passive seismometer downlink on 9 August, revealed that the moonquake sensed by the 14 station seismometer and 15 station seismometer, 4 August, was also present on the long period components of the station 12 seismometer. This event, sensed by all three seismometers, falls within one of the previously identified moonquake groups, and is currently being analyzed. The 4 August event was as follows:

(1) Apollo 15 seismometer, 1327 G.m.t., 20 minute duration, LPX, LPY & LPZ
(2) Apollo 14 seismometer, 1329 G.m.t., 15 minute duration, LPX, LPY & LPZ
(3) Apollo 12 seismometer, 1329 G.m.t., 10 minute duration, LPX, LPY & LPZ

The lunar surface magnetometer experiment is presently operating normally, indicating the moon's passage through the bow shock created due to the interaction of the earth's magnetic field with the solar wind. The instrument is operating with the digital filter and flip calibration inhibit commanded OUT.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF, outputting engineering data only. The instruments high voltages will be commanded ON when the experiments internal electronics temperature (Temp 2) decreases to approximately 86.0°F.

The heat flow instrument continues to monitor subsurface and surface temperature data normally from all probe sensors. Temperature readings from probe 1 buried at a depth between 15.6 inches and 58.5 inches indicate that the probe has nearly equilibrated with the adjacent lunar material. The minimum temperature observed at a depth of about 31.2 inches is -5.8°F. Probe 2, buried between 0 and 39.0 inches is still equilibrating. A minimum temperature of -8.5°F is observed at a depth approximately 27.3 inches below the surface. Both probes indicate temperature increasing with depth below 31.2 inches.

Status as of 1000 G.m.t., 11 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	630	187	11
Total Commands to Date	10276	3309	853
Sun Angle	127°	133°	154°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	86.5°F	97.1°F	93.6°F
PSE Sensor Assembly Temp	141.8°F	125.9°F	125.5°F
LSM Internal Temp	153.9°F	N/A	141.7°F
SWS Module 300 Temp	141.5°F	N/A	116.1°F
SIDE Temp	OFF	Invalid	148.2°F
CCGE Temp	OFF	Invalid	123.4°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	145.2°F	N/A
HFE Temp Ref Junction	N/A	N/A	89.2°F

*Apollo 15 ALSEP SIDE/CCIG Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

12 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP in its twelfth day of lunar operations remains essentially unchanged from the previous 24 hours, with the exception of a gradual temperature decrease as a function of sun elevation at the Hadley Rille site.

Central station telemetry downlink data indicates that the data subsystem electronics are experiencing an average temperature decrease of 0.7 degrees per hour. The RTG output continues steady at 74.4 watts. The 15th 18-hour timer pulse output was verified at 0450 G.m.t., 12 August. Signal strength of transmitter "A" is reported as steady.

The passive seismic experiment at the Apollo 15 station sensed an event, probably a meteorite impact, beginning at 1930 G.m.t., 11 August. This event, currently being analyzed, was also sensed by the 14 station seismometer, and the 12 station seismometer (verified by a data playback). The 11 August event was as follows:

(1) Apollo 15 seismometer, 1930 G.m.t., one hour duration, LPX, LPY, LPZ & SPZ
(2) Apollo 14 seismometer, 1930 G.m.t., one hour duration, LPX, LPY, LPZ & SPZ
(3) Apollo 12 seismometer, 1932 G.m.t., one hour duration, LPX, LPY, & LPZ

The Apollo 15 seismometer's housekeeping data reflects that the sensor temperature is decreasing at a gradual rate of 0.01 degrees per hour (thermal control mode is auto ON).

The lunar surface magnetometer experiment is presently operating normally, indicating the moon's passage through the bow shock into interplanetary space. The experiment's 10th and 11th flip cal sequences were executed correctly, by the 18-hour timer, August 11 and 12. The instrument's internal electronics temperature presently indicates 136.1 ^{o}F, and continuing to decrease at a rate of approximately 0.1 degrees per hour.

The solar wind spectrometer continues to record plasma data in the extended range mode. The experiment's electronics, module 300, temperature is decreasing at an average rate of 0.6 degrees per hour.

The heat flow experiment probes continue to perform normally during the twelfth day of operation in the moon's subsurface. The approach of lunar night has resulted in a decrease in surface thermocouple temperature of approximately 25.0 ^{o}F during the last 24 hour period.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF. Experiment engineering data indicates that the ion detector's electronic temperature (Temp 2) is now reading 123.7 ^{o}F, and continuing to decrease at a rate approximately 0.5 degrees per hour. Instrument telemetry data also indicates that the gauge's temperature is decreasing at an average rate of 0.9 degrees per hour.

Status as of 1000 G.m.t., 12 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	631	188	12
Total Commands to Date	10289	3327	878
Sun Angle	139°	145°	166°
Input Power	71.4w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	80.3°F	87.7°F	76.4°F
PSE Sensor Assembly Temp	141.2°F	126.1°F	125.3°F
LSM Internal Temp	141.6°F	N/A	136.1°F
SWS Module 300 Temp	135.5°F	N/A	88.2°F
SIDE Temp	OFF	Invalid	123.7°F
CCGE Temp	OFF	Invalid	83.4°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	133.9°F	N/A
HFE Temp Ref Junction	N/A	N/A	79.9°F

*Apollo 15 ALSEP SIDE/CCIG Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

13 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning properly, as all the experiments and central station components continue to experience a negative temperature excursion with the approach of lunar night. Theoretically sunset at the Hadley Rille site will occur today at 1414 G.m.t.

The 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 16th 18-hour timer pulse executed correctly at 2306 G.m.t., 12 August.

The pattern of noise sensed just before terminator crossing by the passive seismometer experiment at the Apollo 15 site is similar to that observed during the initial operations of the seismic instruments on previous missions. The operation of the experiment is normal in the auto thermal control mode, with the feedback loop filter commanded OUT in order to match seismic response at the three ALSEP stations in operation.

The lunar surface magnetometer's science and housekeeping data output discloses that the moon is in the free-steaming solar wind region, and that the instrument is operating normally. The instrument executed correctly the 12th flip calibration sequence via the 18-hour timer pulse August 12.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects. The ALSEP 12 solar wind spectrometer also is operating in the extended range mode in order to match the solar plasma response of the two instruments. The current plan is operate both experiments throughout lunar day and night in the extended range mode.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperatures as the optical terminator approaches. The instrument is operating normally, and subsurface temperature readings from the probes indicates that they have nearly equilibrated with the adjacent lunar material.

The suprathermal ion detector and cold cathode gauge experiments were operating per the agreeded to schedule, in the full automatic stepping sequence with the Channeltron high voltages commanded OFF to preclude any mode change problems associated with the initial operation of the experiments as observed on previous missions. The suprathermal ion detector's Channeltron high voltage power supply (-3.5 kv) was activated, by command, at 0113 G.m.t., 13 August, correctly placing the instrument in full operational sequence. The instruments electronics temperature (Temp 2) was 70.6 ^{0}F at re-initialization. The cold cathode gauge's high voltage power supply (4.5 kv) was re-initializatized, by command, at 0115 G.m.t., 13 August. With initial activation the gauge stabilized in range 2, indicating a turn-on pressure of approximately 4×10^{-11} torr. The experiments will remain in the OPERATE SELECT mode with the high voltages ON until sunrise, which occurs on 28 August.

Apollo 14 ALSEP

Operational status from 1200 G.m.t., 6 August 1971 to 1200 G.m.t., 13 August 1971.

Central station

Sunset of the 6th lunar night will occur on 15 August; power of the RTG is unvarying; transmitter "A" signal strength is -140.5 ± 4.0 dbm.

Passive seismic experiment

Experiment operation is normal; auto thermal control mode, and feedback loop filter commanded OUT. Intermittent recurrence of the continuous undampened noise oscillation of the long period vertical (LPZ) axis was observed. Oscillating condition of LPZ does not effect remaining science output of the seismometer. The 14 station seismometer sensed a series of lunar signals as follows:

(1) 8 August, 2103 G.m.t., 45 minute duration, LPX and LPY
(2) 9 August, 1801 G.m.t., 25 minute duration, LPX and LPY
(3) 10 August, 0054 G.m.t., 30 minute duration, LPX, LPY and LPZ
(4) 10 August, 1930 G.m.t., one hour duration, LPX, LPY, LPZ and SPZ

Active seismic experiment

Instrument currently in STANDBY. On 6 August, experiment commanded ON at 1045 G.m.t., and to high bit rate ON at 1100 G.m.t., for 30 minute "listening mode" operation. Data output of geophone 1 & 2 appeared normal; geophone 3 data was continuously erratic. No geophone calibration pulses were sent during the "listening mode" operation. High bit rate terminated at 1130 G.m.t., and the instrument commanded to standby at 1132 G.m.t. Next "listening mode" operations scheduled for 1500 G.m.t., 13 August.

Suprathermal ion detector and cold cathode gauge experiment

Instruments Channeltron high voltages commanded ON at 2100 G.m.t., 11 August, and experiment is in full automatic stepping sequence. Intermittent positive engineering data interruptions in one section of analog-to-digital filter, have no adverse effect on the scientific outputs of the experiments. The experiment's data reveals the following spurious load change occurred within the instruments' command/mode registers:

(1) 12 August, 010730 G.m.t., Command Register 000 to 015
(2) 12 August, 010752 G.m.t., Mode Register 000 to 001.

Both registers were subsequently cleared (000) by commanding the instrument to STANDBY and back to OPERATE. No apparent functional changes were observed as a result of these spurious register loads.

Apollo 14 ALSEP (continued)

Operational status from 1200 G.m.t., 6 August 1971, to 1200 G.m.t., 13 August 1971.

Charged particle lunar environmental experiment	Experiment presently in STANDBY. Instrument was commanded to OPERATE SELECT (3200 volt range) on 6 August, at 2012 G.m.t. The experiments Channeltron high voltage activated correctly, but eventually decayed. The instrument was commanded to STANDBY at 2111 G.m.t., per the operational plan.

Apollo 12 ALSEP

Operational Status from 1200 G.m.t., 6 August 1971, to 1200 G.m.t., 13 August 1971.

Central station	Sunset of the 21st lunar night will occur on 15 August; RTG power output is constant; transmitter "B" signal strength -140.0±2.0 dbm. The 40th unexpected functional change occurred 9 August, 0902 G.m.t., when the Goldstone tracking station reported that ALSEP 12 changed downlink data rate from the normal rate of 1060 bits per second to the slow data rate of 530 bits per second. The change in data rate interrupts the downlink data causing a momentary loss of sync, and the command verification word. The experiments package was returned to normal bit rate by command. There were no temperature, engineering or data out of tolerances as a result of the functional change in the package.
Passive seismic experiment	Seismometer operation is normal; auto thermal control mode, and feedback filter OUT. The 12 station seismometer sensed the following lunar events: (1) 8 August, 0700 G.m.t., 20 minute duration, LPX, LPY, and LPZ (2) 10 August, 1930 G.m.t., one hour duration, LPX, LPY, and LPZ
Lunar surface magnetometer experiment	Instrument's scientific and engineering data output were valid as of 5 August. Sporadic occurrences of invalid scientific outputs have continued throughout this reporting period.
Solar wind spectrometer experiment	Experiment operation in extended range mode is normal.
Suprathermal ion detector experiment	Cyclical commanding of the experiment to preclude mode changes remained in effect until 0600 G.m.t., 13 August, at which time the instrument's high voltages were commanded ON. The experiment will operate in this mode throughout lunar night. An unexpected mode change to X10 mode occurred at 0113 G.m.t., 9 August. Experiment re-initialized by command to full automatic stepping sequence with no adverse effects.

Status as of 1000 G.m.t., 13 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	632	189	13
Total Commands to Date	10301	3336	941
Sun Angle	151°	157°	178°
Input Power	71.1w	71.1w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	70.9°F	79.2°F	56.4°F
PSE Sensor Assembly Temp	138.8°F	125.2°F	124.5°F
LSM Internal Temp	123.4°F	N/A	121.1°F
SWS Module 300 Temp	126.8°F	N/A	75.4°F
SIDE Temp	89.1°F	Invalid	98.3°F
CCGE Temp	Off-scale HIGH	Invalid	34.1°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	121.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	63.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

14 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP experiments and central station are functioning as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within expected limits. The moon is now in the free-streaming solar wind region, and will remain so until 1 September. Data pertaining to this region are being sensed by the lunar surface magnetometer and solar wind spectrometer experiments. All experiments and the central station continue to function properly in the lunar night environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate a temperature decrease. The central station's DSS-2 heater (5.2 watt) was commanded ON, per ALSEP general mission rule 32-1-N, when the station's average thermal plate temperature reached 22.2°F at 1924 G.m.t., 13 August. The signal strength from transmitter "A" is constant, and the thermoelectric power source output remains steady. Telemetry data indicated that the 17th and 18th 18-hour timer pulses executed correctly at 1723 G.m.t., 13 August, and at 1139 G.m.t., 14 August, respectively. The passive seismometer experiment is continuing to sense signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. The suprathermal ion detector and cold cathode ion gauge experiments are operating normally, with the Channeltron high voltages commanded ON, in the full operational sequence. The cold cathode gauge is presently in range 1, indicating a pressure of approximately 4×10^{-12} torr. The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface.

Status as of 1000 G.m.t., 14 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	633	190	14
Total Commands to Date	10311	3355	1004
Sun Angle	163°	169°	190°
Input Power	71.1w	71.1w	74.7w
Heater and Power Dumps	OFF	OFF	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	60.0°F	61.5°F	9.4°F
PSE Sensor Assembly Temp	134.7°F	124.8°F	124.3°F
LSM Internal Temp	104.5°F	N/A	63.0°F
SWS Module 300 Temp	110.5°F	N/A	14.5°F
SIDE Temp	122.0°F	Invalid	42.8°F
CCGE Temp	Off-scale HIGH	Invalid	-223.2°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	98.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	52.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

16 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

This report covers the Apollo 15 ALSEP activity and data from the previous 48 hours. All experiments and the central station continue to operate properly in the lunar night environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate a temperature decrease.

Central station telemetry data indicates that the average temperature of the thermal plate is presently subjected to a negative temperature excursion of 0.1 °F per hour. A steady output of 74.7 watts from the RTG is being received by the experiments package. During the last 48 hours, using 85-foot tracking station antenna's the signal strength from transmitter "A" is reported at -128.0 ± 2.0 dbm. At 0557 G.m.t., 15 August, and 0013 G.m.t., 16 August, respectively, the 19th and 20th 18-hour timer pulses were correctly verified by the four timer telemetry functions; AZ-01, the timer's hour counter telemetry point; AL-07, the seismometer's short period cal status; AL-08, the seismometer's uncage status; and, the magnetometer's flip cal sequences.

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 and short period vertical components will sense a signal typical of settling and/or lunar module descent stage venting. The sensor is currently undergoing a temperature decrease of 0.07 degrees per hour.

The lunar surface magnetometer experiment's 15th and 16th flip cal sequences were executed correctly, by the 18-hour timer, August 15 and 16. The instrument's internal electronics temperature presently is continuing to decrease at a rate of approximately 0.1 degrees per hour.

The solar wind spectrometer continues to record plasma data in the extended range mode. The experiment's electronics, module 300, temperature is decreasing at an average rate of 0.1 degrees per hour.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded ON. Experiment engineering data indicates that the ion detector's electronic temperature (Temp 2) is continuing to decrease at a rate of approximately 0.01 degrees per hour. Instrument telemetry data also indicates that the gauge is experiencing a temperature decrease at an average rate of 0.2 degrees per hour. The cold cathode gauge is currently in range 1, indicating a pressure of less than 10^{-12} torr.

The heat flow experiment's housekeeping data indicates that the instrument's electronics package thermal plate temperature is stabilized at 50.0 °F in the lunar night environment. The thermocouple cable temperatures indicate a lunar surface temperature of approximately -292.4 °F.

Status as of 1000 G.m.t., 16 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	635	192	16
Total Commands to Date	10357	3376	1076
Sun Angle	187°	193°	215°
Input Power	71.1w	71.1w	74.7w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	23.9°F	40.6°F	3.7°F
PSE Sensor Assembly Temp	126.4°F	124.4°F	121.6°F
LSM Internal Temp	Invalid	N/A	45.1°F
SWS Module 300 Temp	27.5°F	N/A	-0.4°F
SIDE Temp	38.6°F	Invalid	42.8°F
CCGE Temp	Off-scale HIGH	Invalid	-253.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-10.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP in its fourteenth day of lunar operations remains essentially unchanged from the previous 24 hours. Central station downlink data indicates that the data subsystem electronics temperatures have reached thermal equilibrium, and the station's average thermal plate temperature is stabilized at 3.7°F. The RTG output continues steady at 74.1 watts. The 21st 18-hour timer pulse output was correctly verified at 1829 G.m.t., 16 August. Signal strength of transmitter "A" is reported as unchanging.

The five experiments, passive seismometer, lunar surface magnetometer, solar wind spectrometer, suprathermal ion detector and cold cathode gauge, and heat flow appear to be thermally stabilized at this time. The experiments are functioning as planned, continuing to sense data associated with the free-streaming solar wind region. The magnetometer correctly performed its 17th flip calibration sequence, via the 18-hour timer pulse on August 16. The cold cathode gauge continues reading a pressure in the low 10^{-12} torr range. Probe 1 of the heat flow is currently sensing a temperature of -4.0°F at a depth of approximately 58.5 inches, and a lunar surface temperature of -299.2°F by the instrument's cable thermocouples.

Status as of 1000 G.m.t., 17 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	636	193	17
Total Commands to Date	10369	3382	1107
Sun Angle	199°	205°	226°
Input Power	71.9w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	21.3°F	39.0°F	3.7°F
PSE Sensor Assembly Temp	126.3°F	124.3°F	119.5°F
LSM Internal Temp	Invalid	N/A	43.5°F
SWS Module 300 Temp	7.5°F	N/A	-0.4°F
SIDE Temp	25.3°F	Invalid	42.8°F
CCGE Temp	Off-scale HIGH	Invalid	-257.3°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-46.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

18 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The engineering data being received and processed from the Apollo 15 ALSEP indicates continued stable operation in operating power, radiated power, and temperature characteristics. Theoretically lunar midnight at the Hadley Rille site will occur on August 20.

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. Instrument housekeeping data continues to indicate a gradual temperature decrease of 0.08 degrees per hour. Currently the sensor's temperature, DL-07, is indicating 117.5 ^{o}F in auto thermal control mode.

The lunar surface magnetometer, functioning as planned, continues to sense a low steady remanent magnetic field. The magnetometer's 18th and 19th flip cal sequences were executed correctly, by the 18-hour timer pulse respectively, at 1248 G.m.t., 17 August, and at 0705 G.m.t., 18 August.

The solar wind spectrometer, and suprathermal ion detector and cold cathode gauge experiments continue to provide uninterrupted science and engineering data. The cold cathode gauge experiment is currently in range 1, indicating a pressure of less than 10^{-12} torr.

The heat flow instrument continues to sense subsurface and surface temperature data normally from all probe sensors. Since 00/07/02 G.m.t., 17 August, the probe 2 sequence measurement of the experiment's electronic thermal plate temperature has indicated valid data. A duplicate measurement, which is performed during the probe 1 sequence, has operated normally since activation so that no data were lost. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -298.3^{o}F.

Status as of 1000 G.m.t., 18 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	637	194	18
Total Commands to Date	10385	3390	1137
Sun Angle	221°	227°	238°
Input Power	71.5w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	21.3°F	38.8°F	3.7°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	117.5°F
LSM Internal Temp	Static	N/A	45.1°F
SWS Module 300 Temp	5.4°F	N/A	-1.2°F
SIDE Temp	25.3°F	Invalid	42.8°F
CCGE Temp	Off-scale HIGH	Invalid	-261.0°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-61.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

19 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP, functioning as planned, experienced no unusual scientific events during the previous 24 hours of lunar night operations.

Central station downlink data indicates that the power output of the RTG is steady at 74.1 watts. While the heat flow experiment's probe 1 ring bridge survey was in progress, an unexpected turnoff, via the power-off sequencer, of the suprathermal ion detector and cold cathode gauge experiments occurred (reserve power/shunt current to start experiment turnoff is 0.78 $\pm$ 0.57 watts, 135 ms delay). During the heat flow experiment's ring bridge survey the instrument is placed momentarily in the high conductivity mode (Mode 3) which demands approximately 0.5 watts of additional power. The experiments package reserve power is varying between a maximum of 12.52 watts, to a minimum of 1.34 watts. If the heat flow experiment's mode 3 is initiated during the period of minimum systems reserve power, experiment turnoff, via the power-off sequencer, occurs. Following is the operational events of the suprathermal ion detector and cold cathode gauge experiments turnoff that occurred on August 19:

(1) 0115 G.m.t., heat flow experiment probe 1 ring bridge survey initiated.
(2) 0127 G.m.t., suprathermal ion detector and cold cathode gauge experiments turnoff.
(3) 0137 G.m.t., central station DSS-2 heater commanded OFF.
(4) 0138 G.m.t., suprathermal ion detector and cold cathode gauge experiments commanded to operate select.
(5) 0139 G.m.t. - 0158 G.m.t., heat flow experiment probe 1 ring bridge survey completed.
(6) 0159 G.m.t., central station DSS-2 heater commanded ON.

There were no engineering, or other data out of tolerances as a result of the suprathermal ion detector/cold cathode gauge experiments turnoff via the power-off sequencer.

Signal strength of the ALSEP transmitter, as measured at the ground receiving stations, is generally unchanged since the start of the experiments package mission. The 24th 18-hour timer pulse was correctly verified at 0122 G.m.t., 19 August.

The five experiments, passive seismometer, lunar surface magnetometer, solar wind spectrometer, suprathermal ion detector and cold cathode gauge, and heat flow 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 analysis. In general, the experiments package telemetry data continues to indicate stabilized temperature characteristics. The passive seismic instrument's sensor temperature, DL-07, appears to be stabilized at 116.9°F, in the auto thermal control mode. The magnetometer's 20th flip cal sequence was executed correctly, by the 18-hour timer pulse on August 19. The cold cathode gauge experiment is currently in range 1, indicating a pressure of less than 10^{-12} torr. The heat flow instrument's cable thermocouples on the lunar surface presently indicate a temperature of approximately -299.6°F.

Status as of 1000 G.m.t., 19 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	638	195	19
Total Commands to Date	10391	3396	1164
Sun Angle	224°	230°	251°
Input Power	71.8w	71.5w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	21.2°F	38.8°F	3.3°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	116.9°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	4.6°F	N/A	-1.2°F
SIDE Temp	25.3°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-261.0°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-68.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	49.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

20 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

Lunar midnight at the Hadley Rille site will theoretically occur today at 2248 G.m.t. The Apollo 15 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 3.3°F. The 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 25th 18-hour timer pulse executed correctly at 1939 G.m.t., 19 August.

The passive seismic experiment at the Apollo 15 station sensed two events on 18 August, at 1414 G.m.t. (duration of approximately 25 minutes), and again at 1513 G.m.t. (maximum duration of 15 minutes). Each lunar signal was sensed by the long period horizontal axes components. The passive seismic instrument's sensor temperature, DL-07, is remaining in a temperature range between 116-117°F. The instrument continues to be operated in the auto thermal control mode, and with 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 the free-steaming solar wind region, and that the instrument is operating normally. The instrument executed correctly the 21st flip calibration sequence via the 18-hour timer pulse August 19.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge continues reading a pressure in the low 10^{-12} torr range.

The heat flow instrument continues to sense subsurface and surface temperature data normally from all probe sensors. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -301.2°F.

Apollo 14 ALSE

Operational status from 13 August 1971, 1200 G.m.t., to 20 August 1971, 1200 G.m.t.

Central station	DSS-1 heater commanded ON at 0636 G.m.t., 15 August, when the station's temperature indicated 40.4°F; power output of the RTG is steady; and, transmitter "A" signal strength was reported as -140.4 ± 0.7 dbm.
Passive seismic experiment	Experiment operation is with the auto thermal control mode, and the feedback loop filter commanded OUT. The 14 station seismometer sensed a series of lunar seismic signals as follows: (1) 15 August, 0402 G.m.t., 14 minutes duration, LPY (2) 17 August, 0203 G.m.t., 20 minutes duration, LPX & LPY (3) 18 August, 0936 G.m.t., 20 minutes duration, LPX & LPY (4) 18 August, 1415 G.m.t., 10 minutes duration, LPX & LPY (5) 18 August, 1514 G.m.t., 10 minutes duration, LPY (6) 18 August, 2231 G.m.t., 15 minutes duration, LPX & LPY (7) 19 August, 0141 G.m.t., 15 minutes duration, LPX & LPY
Active seismic experiment	Instrument currently in standby. On 14 August, experiment commanded ON at 1515 G.m.t., and to high bit rate ON at 1530 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 at 1600 G.m.t., and the instrument commanded to standby at 1601 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., 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.

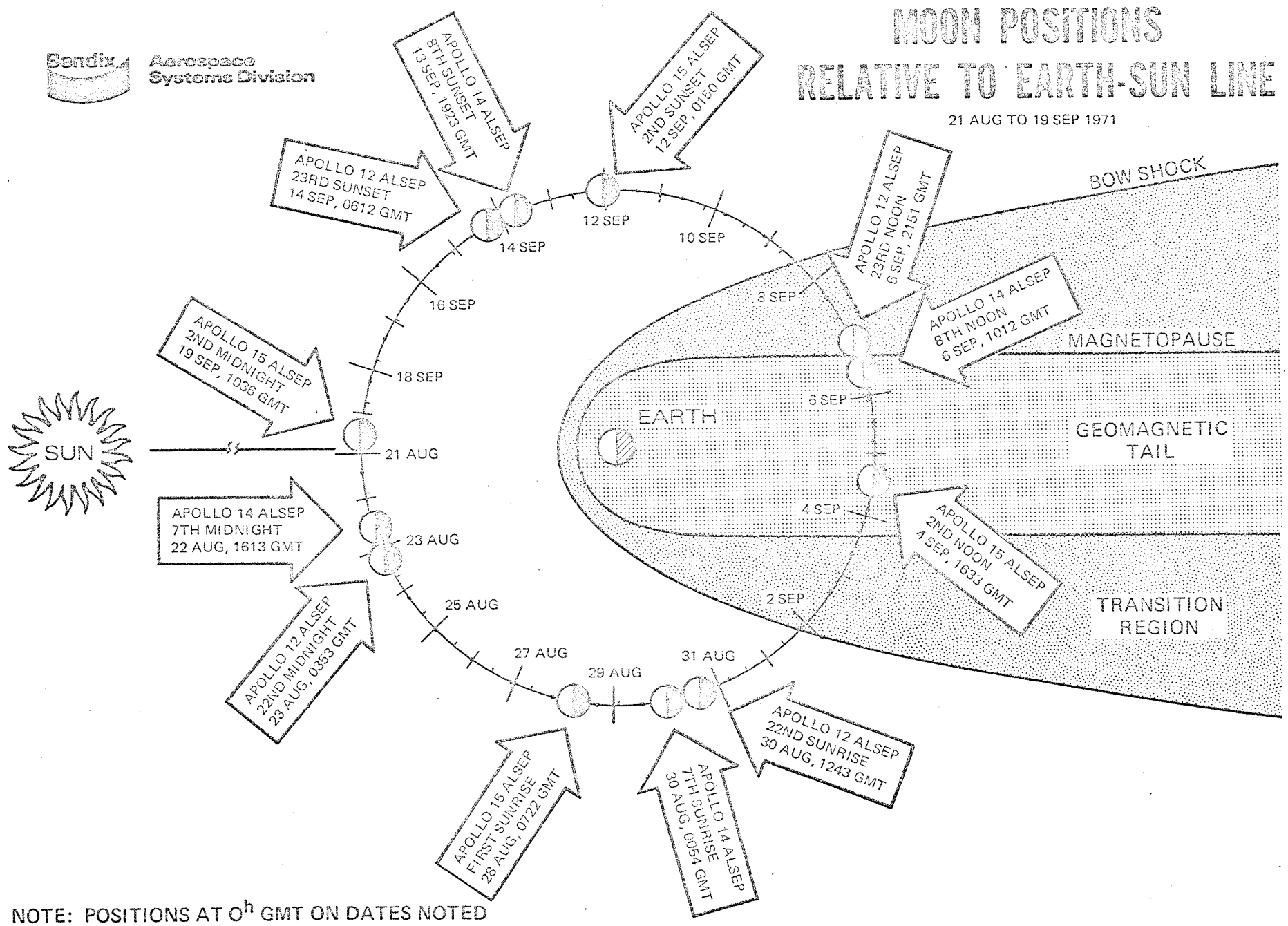
Apollo 12 ALSEP

Operational status from 13 August 1971, 1200 G.m.t., to 20 August 1971, 1200 G.m.t.

Central station	DSS-1 heater commanded ON at 1756 G.m.t., 15 August, when the station's temperature indicated 26.2°F; RTG power output is constant; and, transmitter "B" signal strength was reported as -142.7 ± 0.8 dbm.
Passive seismic experiment	Seismometer operation is normal, in the auto thermal control mode, and with the feedback loop filter commanded OUT. The instrument's Z axis leveling motor was commanded ON at 0052 G.m.t., 16 August. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	The instrument's scientific and engineering data was static at 1900 G.m.t., 14 August. The experiment outputted nine days of valid data during the previous lunar days operation.
Solar wind spectrometer experiment	The experiment is operating 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 1000 G.m.t., 20 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	639	196	20
Total Commands to Date	10401	3406	1196
Sun Angle	236°	242°	263°
Input Power	71.8w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	20.2°F	38.4°F	3.3°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	116.5°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	4.6°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-261.0°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-71.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	49.4°F



NOTE: POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

21 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP central station and all experiments continue to function normally, with the instruments continuing to provide an uninterrupted flow of scientific and engineering data. The experiments package telemetry data continues to indicate stabilized temperature characteristics, with the RTG supplying a constant output of power to the system. The radiated power of the package's transmitter remains steady. At 1356 G.m.t., 20 August, and at 0813 G.m.t., 21 August, respectively, the 26th and 27th 18-hour timer pulses were correctly verified by the systems four telemetry functions.

While the heat flow experiment's probe 1 ring bridge survey was in progress, another unexpected turnoff, via the power-off sequencer, of the suprathermal ion detector and cold cathode gauge experiments occurred (reserve power/shunt current to start experiment ripple-off is 1.0 $\pm$ 0.2 watts, 135 ms delay). During the heat flow experiment's ring bridge survey the instrument is placed momentarily in the high conductivity mode (Mode 3) which demands approximately 0.3 watts of additional power. The experiments package reserve power is varying between a maximum of 5.6 watts, to a minimum of 1.1 watts. If the heat flow experiment's mode 3 is initiated during the period of minimum systems reserve power, experiment ripple-off, via the power-off sequencer, occurs. Following is the operational events of the suprathermal ion detector and cold cathode gauge experiments ripple-off that occurred on August 21:

(1) 0129 G.m.t., heat flow experiment probe 1 ring bridge survey initiated.
(2) 0147 G.m.t., heat flow experiment commanded from mode 1 operation to mode 3 operation.
(3) 0148 G.m.t., suprathermal ion detector and cold cathode gauge experiments rippled to standby.
(4) 0154 G.m.t., central station's DSS-2 heater commanded OFF.
(5) 0154 G.m.t., suprathermal ion detector and cold cathode gauge experiments commanded to operate select.
(6) 0204 G.m.t., heat flow experiment probe 1 ring bridge survey completed.
(7) 0204 G.m.t., central station's DSS-2 heater commanded ON.

There were no engineering, or other data out of tolerances as a result of the suprathermal ion detector/cold cathode gauge experiments being rippled to standby, via the power-off sequencer.

The third incident, since activation, of the Apollo 15 ALSEP executing a functional change, via a spurious command, occurred at 1313 G.m.t., 20 August, as the lunar surface magnetometer correctly executed its 22nd flip cal sequence. The command verification word was confirmed in the downlink data by the Madrid tracking station. There were no engineering, or other data out of tolerances as a result of the spurious command implementation.

Status as of 1000 G.m.t., 21 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	640	197	21
Total Commands to Date	10403	3416	1235
Sun Angle	249°	255°	276°
Input Power	71.9w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.9°F	38.4°F	3.3°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	116.3°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.9°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-264.3°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-75.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	49.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

This report covers the Apollo 15 ALSEP activity and data from the previous 48 hours. All experiments and the central station continue to operate properly in the lunar night environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate equilibrated temperature characteristics.

Central station telemetry data indicates that the average temperature of the thermal plate remains stabilized at 3.3°F. A steady output of 74.1 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter is steady. August 22, at 0230 G.m.t., and 2048 G.m.t, respectively, the 28th and 29th 18-hour timer pulses were correctly verified by the four timer telemetry functions; AZ-01, the timer's hour counter telemetry point; AL-07, the seismometer's short period cal status; AL-08, the seismometer's uncage status; and, the magnetometer's flip cal sequences.

The Apollo 15 station seismometer and the Apollo 14 station seismometer, August 21, sensed two moonquakes on the long period horizontal components of each instrument. The seismic events arrival times were observed as being earlier at the 15 station's instrument (0034 G.m.t., and 0143 G.m.t.), than at the 14 station's seismometer. The duration of each moonquake was approximately 40 minutes. Signals from what appear to be three meteorite impacts were observed, one at station 15 only, and the other two at the 14 station's seismometer, also on August 21. These most recent events are currently being analyzed. The moon's August apogee will occur on 24 August, at approximately 2000 G.m.t. The 15 station's experiment housekeeping data continues to indicate a gradual instrument temperature decrease of 0.02 degrees per hour.

The lunar surface magnetometer, functioning as planned, continues to sense a low steady remanent magnetic field. The instrument executed correctly the 27th and 28th flip calibration sequences via the 18-hour timer pulse August 22.

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

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge is currently in range 1, indicating a pressure of less than 10^{-12} torr.

The heat flow experiment continues to operate normally, with all temperature sensors returning data. Temperature data from the lowest most thermometers of both probes are nearly equilibrated with the lunar subsurface material. The temperature of probe 1 at the bottom of the lowest probe section is -4.4°F, with probe 2 indicating a temperature of -8.1°F at its bottom most point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -304.4°F.

Status as of 1000 G.m.t., 23 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	642	199	23
Total Commands to Date	10411	3428	1297
Sun Angle	273°	279°	300°
Input Power	71.9w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5.2w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.9°F	38.4°F	3.3°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	115.4°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.9°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-264.5°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-75.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	49.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

24 August 1971
G.m.t.: 1000

Apollo 15 ALSEP

The Apollo 15 science station is functioning as planned, continuing to sense data associated with the free-streaming solar wind region.

Currently the average thermal plate temperature of the central station is -0.8°F. Central station telemetry data indicates that the average temperature of the thermal plate was subjected to a negative temperature excursion of 0.5 degrees per hour, resulting from the central station's DSS-2 heater being commanded OFF at 0457 G.m.t., 24 August, per the agreed operational plan in support of initiation of the first low conductivity experiment of the heat flow instrument. Since the experiments package reserve power is marginal (empirical data of August 21, indicated a minimum reserve power of 1.1 watts), it is therefore essential that the central station DSS-2 heater be commanded OFF for the remainer of the first lunar night operations, in support of the heat flow conductivity experiments. The agreed to operational plan also states that if anyone of the central station's five thermal plate telemetry points (AT-03, AT-04, AT-05, AT-06, or AT-07) decreases to a -10°F, the station's DSS-2 heater will be commanded ON and the experiments allowed to ripple-off, via the power-off sequencer, in scientific priority.

The signal strength from transmitter "A", as reported by the various tracking stations, is unchanging. The thermoelectric power source output remains constant. System telemetry data indicated that the 30th and 31st 18-hour timer pulses executed correctly at 1505 G.m.t., 23 August, and at 0922 G.m.t., 24 August.

The heat flow instrument's first low conductivity experiment (Mode 2) was initiated at 0500 G.m.t., 24 August. This is the first of up to 11 experiments to measure how efficiently the near surface layer of the moon conducts heat. To make the conductivity measurements, a heater surrounding the thermometers will be energized with 0.002 watts of power. The temperature rise of the thermometer after the heater is commanded ON gives a measure of how effectively heat is dissipated into the lunar medium and hence its conductivity. These measurements, at six different locations in the moon's subsurface will be carried out in various time segements, possibly a maximum of 36-hours per segement, during the next three weeks.

The other four experiments, passive seismometer, lunar surface magnetometer, solar wind spectrometer, and suprathermal ion detector and cold cathode gauge are functioning as planned. The passive seismic experiment's sensor is currently undergoing a gradual temperature decrease of 0.02 degrees per hour. The magnetometer correctly performed its 29th and 30th flip calibration sequences, via the 18-hour timer pulse on August 23 and 24. The cold cathode gauge continues to indicate an atmospheric pressure in the low 10^{-12} torr range.

Status as of 1000 G.m.t., 24 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	643	200	24
Total Commands to Date	10413	3434	1332
Sun Angle	285°	291°	312°
Input Power	71.5w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.6°F	38.2°F	-0.8°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	114.9°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.9°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-264.5°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-76.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	52.5°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

25 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 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.

Currently the average thermal plate temperature of the central station is -2.8°F, without heaters. Station housekeeping data indicates that the average temperature of the thermal plate remains stabilized following a negative temperature excursion of 0.4 degrees per hour, resulting from the central station's DSS-2 heater being commanded OFF on August 24, per the agreed operational plan in support of the heat flow low conductivity experiment. The central station's five thermal plate telemetry points presently indicate a temperature as follows:

AT-03, -2.3°F
AT-04, -7.7°F
AT-05, -10.3°F
AT-06, 0.3°F
AT-07, 6.2°F

Signal strength of the ALSEP transmitter, as measured at the receiving stations, is generally unchanged since the start of the experiments package mission. The power output of the RTG is steady at 74.1 watts. The 32nd 18-hour timer pulse was correctly verified at 0339 G.m.t., 25 August.

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. Instrument housekeeping data continues to indicate a gradual temperature decrease of 0.01 degrees per hour. The experiment continues to be operated in the auto thermal control mode, and with the uncage/arm fire circuit commanded to the OT status.

The lunar surface magnetometer, functioning as planned, executed correctly its 31st flip calibration sequence via the 18-hour timer pulse August 25.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow experiment continues to sense subsurface and surface temperature data normally from all probe sensors. The experiment's first low conductivity experiment is currently in the 31st hour, of a planned 36-hour observation period. Following completion of this initial mode 2 experiment, the instrument will be commanded to its gradient mode (Mode 1) operations for 12-hours prior to the second low conductivity experiment. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -308.6°F.

Status as of 1000 G.m.t., 25 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	644	201	25
Total Commands to Date	10415	3440	1340
Sun Angle	298°	304°	325°
Input Power	71.5w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.6°F	38.0°F	-2.8°F
PSE Sensor Assembly Temp	126.0°F	124.2°F	114.5°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.8°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-264.4°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-76.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	55.2°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

26 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

Lunar sunrise at the Hadley Rille site will theoretically occur on August 28. The engineering data being received and processed from ALSEP indicates continued steady central station and experiments lunar operation.

The central station's average thermal plate temperature remained stabilized at -2.8°F for approximately 21 hours (2000 G.m.t., 24 August, to 1718 G.m.t., 25 August). Upon completion of the first heat flow mode 2 experiment, the central station's DSS-2 heater was commanded ON at 1718 G.m.t., 25 August, for twelve hours. Central station telemetry data currently indicates that the average temperature of the thermal plate is subjected to a negative temperature excursion of 0.3 degrees per hour, resulting from the central station's DSS-2 heater being commanded OFF at 0455 G.m.t., 26 August, per the agreed operational plan in support of the second low conductivity experiment of the heat flow instrument. The engineering data being received and processed from the central station indicates continued stable operation in operating power and radiated power. System telemetry data indicated that the 33rd 18-hour timer pulse executed correctly at 2156 G.m.t., 25 August.

The passive seismic experiment's housekeeping data continues to indicate a gradual temperature decrease of 0.01 degrees per hour. The experiment continues to be operated in the auto thermal control mode, and with the uncage/arm fire circuit commanded to the OT status. Data pertaining to the free-streaming solar wind region continues being sensed by the lunar surface magnetometer and solar wind spectrometer experiments. The suprathermal ion detector and cold cathode ion gauge experiments are operating normally, with the Channeltron high voltages commanded ON, in the full operational sequence. The cold cathode gauge is presently in range 1, indicating a pressure in the low 10^{-12} torr range. The heat flow experiment continues to sense subsurface and surface temperature data normally from all probe sensors. The experiment's second low conductivity experiment is currently in the 7th hour, of a planned 36-hour observation period.

Status as of 1000 G.m.t., 26 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	645	202	26
Total Commands to Date	10417	3442	1387
Sun Angle	310°	316°	337°
Input Power	72.0w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.6°F	38.0°F	-0.8°F
PSE Sensor Assembly Temp	126.0°F	124.2°F	114.1°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.8°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
COGE Temp	Off-scale HIGH	Invalid	-267.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-76.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	52.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

27 August 1971
G.m.t.: 1000

Apollo 15 ALSEP

The Apollo 15 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 -2.8°F, without heaters. Central station housekeeping data indicated that the average temperature of the thermal plate was stabilized at 1700 G.m.t., 26 August, following a negative temperature excursion resulting from the station's DSS-2 heater being commanded OFF earlier on August 26, per the agreed operational plan in support of the heat flow low conductivity experiment. The RTG is supplying a constant output of power to the system. The radiated power of the package's transmitter remains steady. The 34th 18-hour timer pulse output was verified at 1614 G.m.t., August 26.

The experiments package instruments operations remains essentially unchanged from that of the previous 24 hours. The seismometer's engineering data continues to indicate a gradual temperature decrease of 0.01 degrees per hour. The magnetometer's 33rd flip cal sequence was executed correctly, by the 18-hour timer, August 26. The solar wind instrument continues to operate in its extended range mode. The suprathermal ion detector/cold cathode gauge experiments are operating with the high voltage power supplies ON. The cold cathode gauge is presently in range 1, indicating a pressure in the low 10^{-12} torr range. The heat flow experiment's second low conductivity experiment is currently in the 29th hour, of a planned 36-hour observation period. Anaylsis of the heat flow's low conductivity experiment data to date discloses that the instrument's lunar dawn conductivity experiment is not required. The timeline for completion of the remaining heat flow mode 2 experiment segements, during the next three weeks, remains unchanged. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -308.8°F.

Apollo 14 SEP

Operational status from 20 August 1971, 1200 G.m.t., to 27 August 1971, 1200 G.m.t.

Central station

Sunrise of the seventh lunation, at the Fra Mauro landing site, should occur on August 30; power output of the RTG is unvarying; and, transmitter "A" signal strength was reported as -138.6 ± 0.8 dbm.

Passive seismic experiment

Operation is with the auto thermal control mode, and the feedback loop filter commanded OUT. Intermittent recurrence of the continuous undampened noise oscillation of the long period vertical (LPZ) axis was observed. Occasional transient's generated by the LPZ oscillations do appear on the other long period components (LPX & LPY). The 14 station seismometer sensed a series of events:

(1) 20 August, 0733 G.m.t., 43 minute duration, LPX and LPY
(2) 21 August, 0035 G.m.t., 44 minute duration, LPX, LPY and LPZ
(3) 21 August, 0144 G.m.t., 20 minute duration, LPX and LPY
(4) 21 August, 2229 G.m.t., 40 minute duration, LPY and SPZ
(5) 22 August, 0014 G.m.t., 25 minute duration, LPY and SPZ
(6) 22 August, 0316 G.m.t., 25 minute duration, LPY
(7) 22 August, 2241 G.m.t., 30 minute duration, LPY
(8) 24 August, 0316 G.m.t., 25 minute duration, LPY

Active seismic experiment

Currently in standby. On 20 August, experiment commanded ON at 1440 G.m.t., and to high bit rate ON at 1500 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 at 1500 G.m.t., and the instrument commanded to standby at 1532 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., 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

Presently in standby.

Apollo 12 ALSEP

Operational status from 20 August 1971, 1200 G.m.t., to 27 August 1971, 1200 G.m.t.

Central station	Sunrise of the 22nd lunation will theoretically occur on 30 August; RTG power output is constant; and, transmitter "B" signal strength was reported as -138.9 $\pm$ 1.9 dbm.
Passive seismic experiment	Seismometer operation is normal, in the auto thermal control mode, Z axis leveling motor in Auto ON, and with 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	Scientific and engineering data outputs remain invalid as experienced in previous lunar night cycles.
Solar wind spectrometer experiment	Normal operation in the extended range mode.
Suprathermal ion detector experiment	Operating in the full automatic stepping sequence with its Channeltron high voltage commanded ON.

Status as of 1000 G.m.t., 27 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	646	203	27
Total Commands to Date	10419	3456	1398
Sun Angle	322°	328°	349°
Input Power	72.0w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.6°F	38.0°F	-2.8°F
PSE Sensor Assembly Temp	126.0°F	124.2°F	113.8°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.8°F	N/A	-1.2°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-267.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-77.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	55.2°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

28 August 1971
G.m.t.: 1000

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning properly, as all the experiments and central station components continue to experience a positive temperature excursion as sunrise at the Hadley Rille site occurs today.

The lowest average central station's electronics thermal plate temperature experienced to date occurred on August 27, at 1200 G.m.t., when system's telemetry data indicated an average plate temperature of -3.1°F. At the completion of the second heat flow mode 2 experiment, the central station's DSS-2 heater was commanded ON at 1658 G.m.t., 27 August. Central station telemetry data currently indicates that the average temperature of the thermal plate is subjected to a positive temperature excursion of 0.1 degrees per hour, resulting from commanding the DSS-2 heater ON. The 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 35th and 36th 18-hour timer pulses executed correctly at 1031 G.m.t., 27 August, and at 0448 G.m.t., 28 August.

The passive seismic experiment at the Apollo 15 station detected an event, probably a meteorite impact, beginning at 2059 G.m.t., 26 August. This event, currently being analyzed, was also sensed by the 14 station seismometer. The lunar signal was sensed by all components of the 15 seismometer, and indicated a duration of approximately 75 minutes. The pattern of noise currently being sensed by the experiment at the Apollo 15 site is similar to that observed during operations of the seismic instruments on previous missions. The operation of the experiment is with the auto thermal control mode ON, the feedback loop filter commanded OUT in order to match seismic response at the three ALSEP stations in operation, and the uncage circuitry not powered.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar fields and induced lunar fields. The remanent magnetic field at the Apollo 15 site, if any exists at all, is low in magnitude. The instrument executed correctly the 34th and 35th flip calibration sequences via the 18-hour timer pulse August 26 and 27.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects.

The suprathermal ion detector and cold cathode gauge experiments went to standby status today, during the time that the mission control computer was unexpectedly off-line for a period of 20 minutes. The computer was off-line from 0939 G.m.t. to 0959 G.m.t. The MSFN tracking stations are not required, during phase II operations, to strip out from the station's decom the experiments standby status telemetry, AB-04 or AB-05. It is undetermined at this time as to whether the instruments standby operation resulted from a spurious command, or a ripple-off sequence. There were no engineering, or other data out of tolerances as a result of the suprathermal ion detector/cold cathode gauge experiments standby implementation. The experiments are presently operating in full sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge is currently in range 1, indicating a pressure of less than 10^{-12} torr.

The heat flow experiment continues to operate normally, with all temperature sensors returning data. The experiment's second low conductivity experiment was completed at 1656 G.m.t., 27 August, data currently being analyzed. The temperature of probe 1 at the bottom of the lowest probe section is -3.8°F, with probe 2 indicating a temperature of -8.1°F at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -309.5°F.

Status as of 1000 G.m.t., 28 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	647	204	28
Total Commands to Date	10419	3466	1433
Sun Angle	334°	340°	1°
Input Power	71.5w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	DSS-2 ON(5w)
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Ave Thermal Plate Temp	19.6°F	38.2°F	0.5°F
PSE Sensor Assembly Temp	126.0°F	124.2°F	113.5°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.8°F	N/A	-1.9°F
SIDE Temp	38.6°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-267.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-79.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	49.6°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

30 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

This report covers the Apollo 15 ALSEP activity and data from the previous 48 hours. All experiments and the central station continue to operate properly in the lunar dawn environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate a positive temperature excursion.

Lunar sunrise at the Hadley Rille site was theoretically predicted to occur, based on ephemeris data corresponding to longitude, latitude, and the moon's rotation rate, and Apollo 12 ALSEP empirical data corrected, at 0722 G.m.t., August 28. The 15 experiments package telemetry data indicated significant changes starting at 2339 G.m.t., 28 August; (1) seismometer activity indicative of previously noted Apollo 12 and 14 ALSEP optical terminator crossings; (2) the DTREM's cell 1 output (no filter, AX-04), and the suprathermal ion detector's solar cell reference measurement (DI-12), indicating presence of incident solar energy; and, (3) significant positive temperature increases of the heat flow instrument's cable thermocouples, the cold cathode gauge, and the central station's sunshield (AT-01).

Currently the central station's average thermal plate temperature is increasing at an average rate of 0.9 degrees per hour. The central station's heater DSS-2 (5w) was commanded OFF at 0011 G.m.t., 29 August, following ripple-off of the suprathermal ion detector and cold cathode gauge experiments at 0007 G.m.t., 29 August. Coincident with the optical terminator crossing, the experiments package thermoelectric power source experienced slight fluctuations in output power as previously noted on the Apollo 12 and 14 ALSEP RTG's. These fluctuations resulted in the suprathermal ion detector/cold cathode gauge experiments being ripple-off on August 29, at 0000 G.m.t., and at 0007 G.m.t. A data playback of the Apollo 15 downlink on August 28, confirmed that the suprathermal ion detector/cold cathode gauge experiments rippled to standby status at 0951 G.m.t., 28 August (reference ALSEP status report of 28 August, page 2, first paragraph).

The RTG output power is steady at 74.1 watts, following slight fluctuations, as previously commented on. During the last 48 hours the signal strength from transmitter "A" was reported at -137.0 $\pm$ 0.5 dbm. At 2305 G.m.t., 28 August, and 2204 G.m.t., 29 August, respectively, the 37th and 38th 18-hour timer pulses were correctly verified by the four timer telemetry functions. The 18-hour timer reset command was transmitted at 0347 G.m.t., 29 August. The 1-minute and the 18-hour output pulses and the timer transmitter turnoff function (at 97 $\pm$ 5 days) is referenced to the timer reset.

The passive seismic experiment at the Apollo 15 station detected an event beginning at 0608 G.m.t., 27 August. This event, currently being analyzed, was also sensed by the 14 station seismometer. The signal was recorded by all of the long period components of the 15 seismometer, and indicated a duration of approximately 40 minutes. The pattern of noise sensed at the optical terminator crossing by the seismometer at the Apollo 15 site is similar to that observed during operations of the seismic instruments on previous missions.

The lunar surface magnetometer executed correctly the 36th and 38th flip calibration sequences via the 18-hour timer pulse on August 28 and 29. The experiment is using the revised operations schedule, as requested by the principal investigator. The operating plan is that the experiment's sensors be operated in the 100 gamma range during lunar day, and the 50 gamma range during lunar night. Also, that flip cal sequences be commanded at 9-hour intervals for two days after the sunrise terminator, and for one day preceding the sunset terminator and one day following the sunset terminator.

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

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF. The instruments high voltages were commanded OFF, per the agreeded operational plan, at 0945 G.m.t., 30 August, when the experiments internal electronics temperature (Temp 2) increased to 122.0°F. Preceding the high voltage OFF commands, the cold cathode gauge indicated range 2, and a pressure of 1.0×10^{-10} to 1.5×10^{-10} torr. With the upward temperature trend, the instruments will operate in the full automatic stepping sequence with the high voltages OFF until the subsequent sunset, 12 September. The experiments high voltages will remain OFF until the package's internal electronics temperature decreases to 131.0°F. At that point, downward temperature trend, the instruments will be commanded to the operate select mode with the high voltages ON until the experiments internal temperature increases to 140.0°F. The suprathermal ion detector and cold cathode gauge experiments will continue to be operated in this manner increasing the instrument's internal electronics temperature (Temp 2) by approximately 10 degrees each subsequent lunation.

The heat flow experiment continues to be operated in the gradient mode (mode 1), recording subsurface and surface temperatures normally from all probe sensors. Due to the delayed sunrise at the Apollo 15 site, changes in the working schedule for the heat flow conductivity measurements will be made. The heat flow's third low conductivity experiment, initiation of heater H11 in mode 2, will be delayed until 1700 G.m.t., 30 August, with the planned 36-hour observation period shortened to 24-hours. Also, the mode 3 (high conductivity) experiment at H23 will be deleted from the schedule. The timeline for completion of the remaining heat flow mode 2 and 3 experiment segements, during the next two weeks, remains unchanged. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 99.4°F.

Status as of 1000 G.m.t., 30 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	649	206	30
Total Commands to Date	10426	3481	1509
Sun Angle	359°	5°	26°
Input Power	71.5w	71.9w	74.1w
Heater and Power Dumps	DSS-1 ON(10w)	DSS-1 ON(10w)	OFF
Experiment Status	All ON	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	19.6°F	38.0°F	74.0°F
PSE Sensor Assembly Temp	125.9°F	124.2°F	125.7°F
LSM Internal Temp	Static	N/A	124.6°F
SWS Module 300 Temp	3.8°F	N/A	92.2°F
SIDE Temp	38.6°F	Invalid	124.7°F
CCGE Temp	Off-scale HIGH	Invalid	137.3°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-78.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	80.7°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

31 August 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP, functioning as planned, experienced no unusual scientific events during the previous 24 hours of lunar day operations. Systems engineering data indicates that all the experiments and central station components continue to experience a positive temperature excursion.

The central station's average thermal plate temperature is increasing at a rate of approximately 0.5 degrees per hour, and reached an average temperature of 89.6 °F at 1000 G.m.t., August 31. A steady output of 74.1 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter is steady. System telemetry data indicated that the 39th and 40th 18-hour timer pulses executed correctly at 1620 G.m.t., 30 August, and at 1037 G.m.t., 31 August.

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 seismometer's housekeeping data reflects that the sensor temperature is constant at 126.0 °F (instrument thermal control mode is auto ON).

The solar wind spectrometer continues to record plasma data in the extended range mode. The experiment's electronics temperature, module 300, is increasing at an average rate of 0.4 degrees per hour.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF. Experiment engineering data indicates that the ion detector's electronic temperature (Temp 2) is now reading 142.7 °F, and continuing to increase at a rate approximately 0.5 degrees per hour. Instrument telemetry data also indicates that the gauge's temperature is increasing at an average rate of 0.9 degrees per hour.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperatures resulting from the optical terminator crossing. The experiment's third low conductivity experiment was initiated at 1700 G.m.t., 30 August. The instrument's third mode 2 experiment is currently in the 19th hour, of a planned 24-hour observation period. The temperature of probe 1 at the bottom of the lowest probe section is -4.0 °F, with probe 2 indicating a temperature of -8.0 °F at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 138.1 °F.

The lunar surface magnetometer experiment experienced an abnormal flip calibration status indication following execution of the scheduled 40th flip cal command at 1620 G.m.t., 30 August. The experiment's housekeeping status bits indicated that the Y-axis sensor head failed to flip. Instrument engineering data indicated that the X-axis and Z-axis sensor head positions were at zero degrees, while the Y-axis sensor head position remainded fixed at 180 degrees. Contact with the principal investigator was established, and a commanding sequence was implemented on 30 August in an effort to unlock the Y-axis sensor head, and re-establish sensor head synchronization. The experiment responded leaving all three sensor heads in the correct orientation, zero degrees. Currently no special procedures implementation is planned, as the 18-hour timer pulse will be allowed to initiate flip cal sequences. There were no engineering, or other data out of tolerances as a result of the abnormal flip calibration sequence, and investigation of the Y-axis sensor head intermittent anomaly is continuing.

The magnetometer correctly executed its 43rd flip calibration sequence, via the timer pulse, at 1037 G.m.t., 31 August. The instrument's internal electronics temperature presently indicates 128.4^{o}F, and is continuing to increase at a rate of approximately 0.2 degrees per hour.

Status as of 1000 G.m.t., 31 August, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	650	207	31
Total Commands to Date	10456	3489	1541
Sun Angle	11°	17°	38°
Input Power	71.5w	71.1w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	54.5°F	62.3°F	89.6°F
PSE Sensor Assembly Temp	125.8°F	124.6°F	126.0°F
LSM Internal Temp	Static	N/A	128.4°F
SWS Module 300 Temp	81.9°F	N/A	109.9°F
SIDE Temp	71.6°F	Invalid	142.7°F
CCGE Temp	Off-scale HIGH	Invalid	165.9°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	25.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	92.0°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP experiments and central station are functioning as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within expected limits. The moon is entering the earth's bowshock region. Data pertaining to this region are being sensed by the lunar surface magnetometer and solar wind spectrometer experiments. All experiments and the central station continue to function properly in the lunar day environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate a temperature increase. The signal strength from transmitter "A" is constant, and the thermoelectric power source output remains steady. Telemetry data indicated that the 41st 18-hour timer pulse executed correctly at 0454 G.m.t., 1 September. The passive seismometer experiment is continuing to sense signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. The magnetometer correctly performed its 44th flip calibration sequence, initiated by the 18-hour timer pulse, 1 September. The suprathermal ion detector and cold cathode ion gauge experiments are operating in full sequence with the Channeltron high voltages commanded OFF, collecting engineering data only. The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface. The experiment's third low conductivity experiment was completed at 1702 G.m.t., 31 August, with data currently being analyzed. Cable thermocouple temperatures indicate a lunar surface temperature of approximately 166.1°F.

Status as of 1000 G.m.t., 1 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	651	208	32
Total Commands to Date	10476	3499	1579
Sun Angle	23°	29°	50°
Input Power	71.5w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	65.5°F	78.2°F	99.4°F
PSE Sensor Assembly Temp	126.1°F	125.0°F	126.0°F
LSM Internal Temp	Static	N/A	130.8°F
SWS Module 300 Temp	104.0°F	N/A	124.0°F
SIDE Temp	111.2°F	Invalid	157.8°F
CCGE Temp	Off-scale HIGH	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	68.5°F	N/A
HFE Temp Ref Junction	N/A	N/A	103.6°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

2 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The 15 station is transmitting uninterrupted scientific and engineering data as the moon continues passing through the earth's bow wave. The central station's average thermal plate temperature keeps on increasing at a rate of 0.28 degrees per hour. The experiments positive temperature excursion approximates that of the central station's. The RTG is supplying a constant output of power to the system. The radiated power of the package's transmitter remains basically constant, with slightly variable signal strengths reported from time to time depending on tracking station characteristics. The 42nd 18-hour timer pulse was correctly verified, in downlink, at 2311 G.m.t., September 1.

The passive seismic instrument, particularly the long period horizontal components (LPX &LPY), continues to detect settling of the instrument into the lunar surface. The indications of instrument settling or thermal shroud movement effects are normally coincident in time, but not in amplitude. The experiment, particularly the short period vertical component (SPZ), has continuously sensed activity generated by venting of the lunar module descent stage. These signals continue to intensify following lunar night. The instrument's thermal control was commanded to auto OFF, at 0124 G.m.t., September 2, when the sensor's temperature indicated approximately 127.1°F.

The lunar surface magnetometer, functioning with the revised operations plan, continues to measure the moon's passage through the bow shock created due to the interaction of the earth's magnetic field with the solar wind. The instrument executed correctly its 45th flip calibration sequence, via the 18-hour timer pulse, September 1.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF, outputting engineering data only. The instruments high voltages will be commanded ON when the experiments internal electronics temperature (Temp 2) decreases to approximately 131.0°F.

The heat flow instrument continues to monitor subsurface and surface temperature data from all probe sensors. The heat flow's fourth low conductivity experiment, initiation of heater H14 in mode 2, occurred at 0500 G.m.t., 2 September. The mode 2 experiment is currently in the 7th hour, of a planned 36-hour observation period. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 184.8°F.

Status as of 1000 G.m.t., 2 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	652	209	33
Total Commands to Date	10488	3509	1597
Sun Angle	35°	41°	62°
Input Power	71.1w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	75.7°F	88.9°F	106.2°F
PSE Sensor Assembly Temp	126.5°F	125.3°F	128.1°F
LSM Internal Temp	Static	N/A	131.6°F
SWS Module 300 Temp	128.3°F	N/A	131.2°F
SIDE Temp	OFF	Invalid	168.1°F
CCGE Temp	OFF	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	95.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	117.8°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

Scientific data continues being collected, including the effects of passing through the earth's magnetosheath. The central station and all experiments are operating as planned, experiencing a positive temperature excursion. The downlink signal strength from transmitter "A", and the thermoelectric power source output remains steady. A status change in the timer's hour counter telemetry point, AZ-01, at 1728 G.m.t., 2 September, and at 1146 G.m.t., 3 September, indicated arrival of the 43rd and 44th 18-hour timer pulses from the data subsystem timer. A status change in the seismometer's short period cal status (AL-07) and uncage status (AL-08), and the magnetometer's 46th and 47th flip cal sequences, also verified output of the timer pulses.

The passive seismic experiment continues recording characteristic wobbling as the instrument settles and thermally stablizes in the lunar day environment, plus interference from movement of thermal effects on the thermal shroud. The sensor's temperature (DL-07) continues to indicate a gradual instrument temperature increase of 0.16 degrees per hour. The instrument's thermal control mode was commanded to auto ON, at 0536 G.m.t., 3 September. The moon's September perigee will occur on 6 September, at approximately 0500 G.m.t.

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. The instrument continues to maintain sensor head synchronization without problem, and investigation of the Y-axis sensor head intermittent anomaly is continuing. The instrument's internal electronics temperature presently indicates 150.6 ^{o}F, and is continuing to increase at a rate of approximately 0.4 degrees per hour.

The solar wind spectrometer experiment continues to operate normally, collecting data for long term analyses. The experiment's electronics temperature, module 300, is increasing at an average rate of 0.2 degrees per hour.

The suprathermal ion detector/cold cathode gauge experiments are operating in full sequence with the Channeltron high voltages commanded OFF. Instrument telemetry data indicates that the gauge's temperature appears, at this point in time, to have stablized. Experiment engineering data indicates that the ion detector's electronic temperature (Temp 2) is continuing to increase at a rate of approximately 0.3 degrees per hour.

The heat flow experiment continues to acquire subsurface and surface temperature data normally from all probe sensors. Experiment data indicated that the probe 2 sequence measurement of the thermal plate indicated an intermittent off-scale HIGH output from 1315 G.m.t. to 1405 G.m.t., 2 September. A duplicate measurement, which is performed during the probe 1 sequence, is operating normally so that no data were lost. The instrument's fourth low conductivity experiment, heater H14, is currently in the 31st hour, of a planned 36-hour observation period. The temperature of probe 1 at the bottom of the lowest probe section is -3.1°F, with probe 2 indicating a temperature of -7.9°F at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 196.5°F.

Apollo 14 ?

Operational status from 27 August 1971, 1200 G.m.t., to 3 September 1971, 1200 G.m.t.

Central station	Sunrise of the seventh day, at the Fra Mauro landing site, occurred approximately at 0600 G.m.t., 30 August; DSS-1 heater was commanded OFF at 1118 G.m.t., August 30, when the station's average thermal plate temperature indicated 51.3°F; power output of the RTG is unvarying; and, transmitter "A" signal strength was reported as -137.5 ± 2.5 dbm.
Passive seismic experiment	Operation is with the auto thermal control mode commanded ON, and the feedback loop filter commanded OUT. Intermittent recurrence of the continuous undampened noise oscillation of the long period vertical (LPZ) axis was observed. Occasional transients generated by the LPZ oscillations do appear on the other long period components (LPX & LPY). The 14 station seismometer sensed a series of events: (1) 25 August, 1020 G.m.t., 20 minute duration, LPX, LPY and LPZ (2) 26 August, 2100 G.m.t., 60 minute duration, LPX, LPY and LPZ (3) 27 August, 0608 G.m.t., 35 minute duration, LPX, LPY and LPZ
Active seismic experiment	Currently in standby. On 27 August, experiment commanded ON at 1457 G.m.t., and to high bit rate ON at 1515 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 at 1545 G.m.t., and the instrument commanded to standby at 1547 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., today.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are 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 0530 G.m.t., 3 September (51° sun angle). Approaching the sunset optical terminator crossing, the Channeltrons of each instrument will be commanded ON (approximately at a 147° sun angle, which occurs on September 10). 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.

Apollo 1 SEP

Operational status from 27 August 1971, 1200 G.m.t., to 3 September 1971, 1200 G.m.t.

Central station	Sunrise of the 22nd lunar day occurred on August 30; the station's DSS-1 heater was commanded OFF, when the average thermal plate temperature increased to 60.6°F, August 31, at 0338 G.m.t.; RTG power output is constant; and, transmitter "B" signal strength was reported as -140.0 ± 2.0 dbm.
Passive seismic experiment	Seismometer operation is normal, in the auto thermal control mode, and with the feedback loop filter commanded OUT. The instrument's Z axis drive motor was commanded OFF at 0105 G.m.t., 31 August (DL-07 = 126.4°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 were valid as of 0655 G.m.t., 3 September. Empirical data indicates that the experiment's valid data output will probably remain until 14 September, sunset at the Apollo 12 station.
Solar wind spectrometer experiment	Normal operation in the extended range mode.
Suprathermal ion detector experiment	Initialization of the experiment's lunar day cycling sequence occurred at 2200 G.m.t., 1 September, when the instrument's internal electronics temperature (Temp 2) increased to 130.3°F (sun angle = 29°) and the experiment was commanded OFF. The instrument is cycled to operate select for two hours, and OFF for ten hours during lunar day. The experiment will be operated in this manner until approximately September 11 (150° sun angle).

Status as of 1000 G.m.t., 3 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	653	210	34
Total Commands to Date	10510	3526	1606
Sun Angle	47°	53°	74°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	82.7°F	102.4°F	111.0°F
PSE Sensor Assembly Temp	127.0°F	126.2°F	131.8°F
LSM Internal Temp	133.5°F	N/A	150.6°F
SWS Module 300 Temp	140.0°F	N/A	135.5°F
SIDE Temp	OFF	Invalid	174.6°F
CCGE Temp	OFF	Invalid	195.8°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	131.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	128.7°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

4 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 scientific station is in its 35th day of operation with the moon in the magnetosphere of the earth. All experiments and the central station continue to function properly in the lunar day environment. The electronics temperatures of each of the experiments packages components keep on experiencing a positive temperature excursion, as a result of the increasing sun elevation. Lunar noon at the Hadley Rille site will theoretically occur today. The signal strength from transmitter "A" is reported as constant, and the RTG power output is steady. Telemetry data indicated that the 45th 18-hour timer pulse executed correctly at 0602 G.m.t., 4 September.

The thermally generated seismic disturbances 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 instrument's thermal control was commanded to forced OFF at 2030 G.m.t., September 3, when the sensor's temperature indicated approximately 132.7°F.

The lunar surface magnetometer experiment is operating as planned, and continues to measure magnetic fields as the moon passes in and out of the tail of the magnetopause. The experiment correctly performed its 48th flip calibration sequence September 4, via the timer pulse. The magnetometer's sensors are operating in the 100 gamma range, in agreement with the revised operations schedule.

The solar wind spectrometer continues to record data in the magnetosphere, with no operational problems, for the investigation of long term statistical effects. The experiment continues to operate in its extended range mode, having been commanded to its increased range on August 7, per a revised operations plan.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF, outputting engineering data only.

The heat flow instrument continues to monitor subsurface and surface temperature data from all probe sensors. The heat flow's fourth low conductivity experiment, heater H14 in mode 2, was completed at 1700 G.m.t., 3 September, with the data currently being analyzed. Following completion of the fourth mode 2 experiment, the instrument was commanded to its gradient mode (mode 1) operations for 12-hours prior to the fifth low conductivity experiment. The instrument's fifth low conductivity experiment, activation of heater H12, was initiated at 0500 G.m.t., 4 September, and is in its 7th hour of a planned 36-hour observation period. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 201.6°F.

Status as of 1000 G.m.t., 4 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	654	211	35
Total Commands to Date	10518	3544	1652
Sun Angle	59°	65°	86°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	86.8°F	108.3°F	113.8°F
PSE Sensor Assembly Temp	127.5°F	124.4°F	132.9°F
LSM Internal Temp	153.9°F	N/A	157.1°F
SWS Module 300 Temp	146.3°F	N/A	138.4°F
SIDE Temp	OFF	Invalid	176.9°F
CCGE Temp	OFF	Invalid	195.8°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	147.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	131.4°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

6 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

This report covers the Apollo 15 ALSEP activity and data from the previous 48 hours. ALSEP telemetry data indicates that all experiments and the central station are functioning as planned. The moon is in the earth's magnetic tail, and data of this region is being gathered by the lunar station's instruments. The moon's September perigee occurred today, at approximately 0500 G.m.t.

Downlink data indicated that the average temperature of the central station electronics thermal plate peaked at 115.6°F. The thermal plate's peak temperature occurred at a sun angle of 100 degrees at the Hadley Rille site, September 5, and maintained thermal equilibrium for 12 hours. Currently, the electronics plate average temperature is 115.2°F; decreasing at an average rate of 0.04 degrees per hour. Power from the radioisotope source remains constant at 74.7 watts. Downlink signal strength is constant at -136.5 dbm, plus or minus one 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), and the magnetometer's flip calibration sequences, verified output of the timer pulses as follows:

(1) 5 September, 0019 G.m.t., 46th pulse.
(2) 5 September, 1836 G.m.t., 47th pulse.

The passive seismic experiment at the Apollo 15 station detected an event beginning at 2313 G.m.t., 2 September. This event was also sensed by the 14 station seismometer. The signal was recorded by the long period components of the 15 seismometer, and indicated a duration of approximately 20 minutes. The seismometer's housekeeping data reflects that the sensor temperature is decreasing, after having peaked at a temperature of 133.0°F. The instruments's peak temperature occurred at 1700 G.m.t., September 4, with a sun angle of 90 degrees. The sensor's thermal control mode is forced OFF, and the instrument is currently experiencing an average negative temperature excursion of 0.02 degrees per hour.

The lunar surface magnetometer experiment is operating normally, continuing to measure magnetic fields as the moon passes through the earth's geomagnetic tail, approaching the magnetopause. The experiment's 49th and 50th flip cal sequences were executed correctly, by the 18-hour timer pulses, on September 5. The instrument's internal electronics temperature reached thermal stabilization at 157.1°F, 4 September, with a sun angle of 84 degrees. The experiment's internal electronics temperature remained stabilized for 36 hours, and is presently decreasing at a rate of approximately 0.2 degrees per hour.

The solar wind spectrometer experiment continues to operate as planned, collecting data for long term analyses. The experiment's electronics temperature, module 300, stabilized at 139.8°F on September 4, at 1100 G.m.t., at a sun angle of 87 degrees, and remains unchanged.

The suprathermal ion detector/cold cathode gauge experiments are operating in full automatic stepping sequence with the Channeltron high voltages commanded OFF. Experiment engineering data indicates that the ion detector's electronics temperature (Temp 2) is stabilized at 179.1°F, having reached this temperature on September 4, at 2300 G.m.t., sun angle of 93 degrees. Presently the electronics temperature remains unchanged. Instrument telemetry data indicated that the gauge's temperature reached thermal equilibrium on 2 September, at a sun angle of 64 degrees. Currently, the gauge is experiencing an average negative temperature excursion of 0.2 degrees per hour.

The heat flow experiment's housekeeping data indicates that the instrument's electronics package thermal plate temperature stabilized on 4 September, sun angle of 93 degrees, at 135.0°F. Currently, the electronics package thermal plate temperature is experiencing a temperature decrease of approximately 0.09 degrees per hour. The heat flow's fifth low conductivity experiment, heater H12 ON, was completed at 1700 G.m.t., 5 September, with the data currently being analyzed. The instrument's sixth, and final low conductivity experiment, in this series, is planned to start at 0500 G.m.t., 7 September, for a 36-hour observation period. The instrument's sixth low conductivity experiment is activation of heater H24. Currently the experiment's thermalocouple cable temperatures indicate a lunar surface temperature of approximately 193.5°F.

Status as of 1000 G.m.t., 6 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	656	213	37
Total Commands to Date	10547	3556	1689
Sun Angle	84°	90°	111°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	89.1°F	112.0°F	115.2°F
PSE Sensor Assembly Temp	134.9°F	126.3°F	131.4°F
LSM Internal Temp	Static	N/A	150.6°F
SWS Module 300 Temp	149.4°F	N/A	139.8°F
SIDE Temp	OFF	Invalid	179.1°F
CCGE Temp	OFF	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	160.2°F	N/A
HFE Temp Ref Junction	N/A	N/A	128.1°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

7 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 lunar science station continues to operate, with the moon in the earth's magnetosheath and approaching the bow shock. Data pertaining to this region are being sensed by the lunar surface magnetometer and solar wind spectrometer experiments. All experiments and the central station continue to function properly in the lunar day environment, with the electronics and structural temperatures of each of the experiments package components continuing to indicate a gradual temperature decrease. The signal strength from transmitter "A" is constant, and the thermoelectric power source output remains steady. Telemetry data indicated that the 48th and 49th 18-hour timer pulses executed correctly at 1252 G.m.t., 6 September, and at 0709 G.m.t., 7 September, respectively. The passive seismometer experiment continues to return some signals due to settling of the instrument, plus interference from movement of thermal effects on the thermal shroud. The magnetometer correctly performed its 51st and 52d flip cal sequences. The suprathermal ion detector and cold cathode ion gauge experiments continue to transmit engineering data. The Channeltron high voltages used by the instruments to sense science data are OFF until near lunar sunset at the Apollo 15 landing site, 12 September. The heat flow's fifth low conductivity experiment, initiation of heater H24 in mode 2, occurred today at 0459 G.m.t. The mode 2 experiment is currently in the 7th hour, of a planned 36-hour observation period. The instrument is indicating a lunar surface temperature of approximately 178.9°F.

Status as of 1000 G.m.t., 7 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	657	214	38
Total Commands to Date	10555	3562	1726
Sun Angle	96°	102°	123°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	89.8°F	111.8°F	113.1°F
PSE Sensor Assembly Temp	139.7°F	128.0°F	127.4°F
LSM Internal Temp	Static	N/A	141.8°F
SWS Module 300 Temp	149.4°F	N/A	138.4°F
SIDE Temp	OFF	Invalid	176.9°F
CCGE Temp	OFF	Invalid	165.9°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	165.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	124.7°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 ALSEP central station and all experiments continue to function, with the instruments continuing to provide an uninterrupted flow of scientific and engineering data.

Power from the radioisotope source remains at 74.7 watts. The average temperature of the central station's electronics thermal plate is 107.5°F with a sun angle of 135 degrees at the ALSEP 15 lunar site, and presently indicating an average temperature decrease of 0.2 degrees per hour. Downlink signal strength is reported constant at -137.0 dbm, plus or minus one dbm. The 50th 18-hour timer pulse executed correctly at 0127 G.m.t., 8 September. Timer pulses have executed consistently at 18 hours and 17 minutes since initialization of the timer.

The experiments package instruments operations remains essentially unchanged from that of the previous 24 hours. The seismometer's engineering data continues to indicate a gradual temperature decrease of 0.06 degrees per hour. The instrument's thermal control mode was commanded to auto ON, at 1236 G.m.t., 7 September, per the revised operational procedure. The magnetometer's 53rd flip cal sequence was executed correctly, by the 18-hour timer, September 8. The solar wind instrument continues to operate in its extended range mode. The suprathermal ion detector/cold cathode gauge experiments are operating with the high voltage power supplies OFF. The heat flow experiment's sixth low conductivity experiment is currently in the 31st hour, of a planned 36-hour observation period. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 157.1°F.

Status as of 1000 G.m.t., 8 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	658	215	39
Total Commands to Date	10567	3572	1739
Sun Angle	108°	114°	135°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Ave Thermal Plate Temp	91.1°F	108.3°F	107.5°F
PSE Sensor Assembly Temp	142.5°F	128.6°F	126.0°F
LSM Internal Temp	Static	N/A	133.5°F
SWS Module 300 Temp	147.7°F	N/A	132.6°F
SIDE Temp	OFF	Invalid	170.2°F
CCGE Temp	OFF	Invalid	151.5°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	165.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	117.1°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

9 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The 15 station is transmitting uninterrupted scientific and engineering data as the moon continues exiting the earth's bow wave. The central station's average thermal plate temperature keeps on decreasing at a rate of 0.4 degrees per hour. The experiments negative temperature excursion approximates that of the central station's. The RTG is supplying a constant output of power to the system. The radiated power of the package's transmitter remains basically constant, with slightly variable signal strengths report from time to time depending on tracking station characteristics. As of 0300 G.m.t., 30 August, the MSFN stopped scheduling two tracking stations in support of the command uplink and telemetry downlink to the three operating ALSEP's and the subsatellite, returning to a common tracking station to support between three ALSEP's and the subsatellite. The 51st 18-hour timer pulse was correctly verified, in the downlink, at 1944 G.m.t., September 8.

The passive seismic instrument, particularly the long period horizontal components (LPX & LPY), continues to detect the typical pattern of disturbances generated by thermal effects on the sensor's thermal shroud during the lunar day. The instrument's Z axis drive motor was commanded on at 0822 G.m.t., 9 September, when the sensor's temperature decreased to 125.8°F, per the agreed operational procedure. Presently the experiment's sensor assembly remains thermally stabilized at 126.0°F, and the instrument's thermal control mode is auto ON.

The lunar surface magnetometer, functioning with the revised operations plan, continues to measure the moon's passage through the bow shock created due to the interaction of the earth's magnetic field with the solar wind. The instrument executed correctly its 54th flip calibration sequence, via the 18-hour timer pulse, September 8.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded OFF, outputting engineering data only. The instruments high voltages will be commanded ON when the experiments internal electronics temperature (Temp 2) decreases to approximately 131.0°F.

The heat flow instrument continues to monitor subsurface and surface temperature data from all probe sensors. The heat flow's sixth low conductivity experiment, activation of heater H24 in mode 2, was completed at 1700 G.m.t., September 8. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 124.3°F.

Status as of 1000 G.m.t., 9 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	659	216	40
Total Commands to Date	10578	3578	1777
Sun Angle	120°	126°	148°
Input Power	71.1w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Avg Thermal Plate Temp	90.7°F	102.2°F	98.0°F
PSE Sensor Assembly Temp	Off-scale HIGH	127.3°F	126.0°F
LSM Internal Temp	Static	N/A	138.9°F
SWS Module 300 Temp	146.2°F	N/A	122.6°F
SIDE Temp	OFF	Invalid	157.9°F
CCGE Temp	OFF	Invalid	137.3°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	160.2°F	N/A
HFE Temp Ref Junction	N/A	N/A	99.3°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 September 1971
G.m.t.: 1330

Apollo 15 ALSEP

Mission control center real time support of the ALSEP's was temporarily suspended at 2005 G.m.t., 9 September, following notification of the tentative landfall of hurricane Fern. ALSEP phase II operations were resumed at 1248 G.m.t., today, and will continue to approximately 1700 G.m.t., 13 September, ending 24 hour real time operations of the Apollo 15 lunar laboratory.

The Apollo 15 experiments package operation remains essentially unchanged from the previous 25 hours, with the exception of a temperature decrease as a function of sun elevation at the Hadley Rille site. The moon is now in the free-streaming solar wind region, and will remain so until October 3.

Central station telemetry downlink data indicates that the data subsystem electronics are experiencing an average temperature decrease of 0.6 degrees per hour. The RTG output continues steady at 74.1 watts. Signal strength of transmitter "A" is reported as steady. At 1400 G.m.t., 9 September, the 52d 18-hour timer pulse was correctly verified by the systems four telemetry functions. System status at the resumption of real time operations, September 10, indicated that the timer's 53rd pulse was executed today.

The passive seismic experiment at the Apollo 15 station detected an event beginning at 0612 G.m.t., 9 September. This event, currently being analyzed, was also sensed by the 14 station seismometer. The signal was recorded by the long period horizontal components, LPX and LPY, of the 15 seismometer, and indicated a duration of approximately 45 minutes. The seismometer's housekeeping data reflects that the sensor assembly temperature is indicating 125.5°F. The instrument's thermal control mode is auto ON, and the Z axis drive motor OFF. The sensor's Z axis drive motor was commanded OFF, per the revised operational plan, at 1603 G.m.t., 9 September, when DL-07 indicated a temperature of 127.7°F and increasing.

The lunar surface magnetometer experiment's sensors are presently operating in the 100 gamma range, indicating the moon's passage through the magnetosphere region into interplanetary space. The experiment's 55th flip cal sequence was executed correctly, by the 18-hour timer, September 9. The instrument's internal electronics temperature presently indicates 138.9°F.

The solar wind spectrometer continues to record plasma data in the extended range mode. The experiment's electronics, module 300, temperature is decreasing at an average rate of 0.9 degrees per hour.

The suprathermal ion detector and cold cathode gauge experiments are currently operating in full automatic sequence with the Channeltron high voltages commanded OFF. The instruments high voltages are scheduled to be commanded ON, per the agreed operational plan, at approximately 2100 G.m.t., today. Experiment engineering data indicates that the ion detector's electronic temperature (Temp 2) is now reading 133.7°F, and continuing to decrease at a rate of approximately 0.9 degrees per hour. Instrument telemetry data also indicates that the gauge's temperature is decreasing at an average rate of 1.6 degrees per hour.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperature as the optical terminator approaches. Presently the instrument's cable thermocouples indicate a temperature of approximately 71.2°F, with the temperature of probe 1 at the bottom of the lowest probe section as -4.0°F, and probe 2 indicating a temperature of -8.0°F at its lowermost point.

Status as of 1305 G.m.t., 10 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	660	217	41
Total Commands to Date	10585	3589	1802
Sun Angle	134°	140°	161°
Input Power	71.1w	71.1w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Avg Thermal Plate Temp	83.7°F	94.9°F	81.8°F
PSE Sensor Assembly Temp	Off-scale HIGH	120.7°F	125.5°F
LSM Internal Temp	147.6°F	N/A	138.9°F
SWS Module 300 Temp	140.0°F	N/A	99.0°F
SIDE Temp	OFF	Invalid	133.7°F
CCGE Temp	OFF	Invalid	96.4°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	145.2°F	N/A
HFE Temp Ref Junction	N/A	N/A	80.2°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

Apollo 14 ALSEP

Operational status from 3 September 1971, 1200 G.m.t., to 10 September 1971, 1330 G.m.t.

Central station

Sunset of the eighth lunar night, at the Apollo 14 landing site, will occur on September 13; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -140.5 ± 3.0 dbm.

Passive seismic experiment

Operation is with the auto thermal control mode commanded ON, and the feedback loop filter commanded OUT. The instrument's Y-axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem September 3. The Y-axis was centered after a 12 minute motor driving period. Intermittent recurrence of the continuous undampened noise oscillation of the long period vertical (LPZ) axis was observed. Occasional transients generated by the LPZ oscillations do appear on the other long period components (LPX & LPY). The 14 station seismometer sensed a series of events:

(1) 27 August, 1016 G.m.t., 13 minute duration, LPY
(2) 27 August, 2348 G.m.t., 15 minute duration, LPY
(3) 28 August, 0218 G.m.t., 10 minute duration, LPX and LPY
(4) 28 August, 2034 G.m.t., 20 minute duration, LPX and LPY
(5) 29 August, 0134 G.m.t., 18 minute duration, LPX and LPY
(6) 29 August, 0233 G.m.t., 15 minute duration, LPX and LPY
(7) 29 August, 1716 G.m.t., 15 minute duration, LPX and LPY
(8) 29 August, 2145 G.m.t., 20 minute duration, LPX and LPY
(9) 29 August, 2324 G.m.t., 20 minute duration, LPX and LPY
(10) 31 August, 1713 G.m.t., 15 minute duration, LPX and LPY
(11) 2 September, 1944 G.m.t., 11 minute duration, LPX and LPY
(12) 2 September, 2313 G.m.t., 25 minute duration, LPX and LPY
(13) 9 September, 0614 G.m.t., 57 minute duration, LPX and LPY

Active seismic experiment

Currently in standby. On 3 September, experiment commanded ON at 1245 G.m.t., and to high bit rate ON at 1300 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 at 1330 G.m.t., and the instrument commanded to standby 1332 G.m.t. Next "listening mode" operation is scheduled for 1400 G.m.t., today.

Apollo 14 ALSEP (continued)

Operational status from 3 September 1971, 1200 G.m.t., to 10 September 1971, 1330 G.m.t.

Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded OFF. Approaching sunset the Channeltrons of each instrument will be commanded ON, approximately at a 147° sun angle, which occurs at 0300 G.m.t., 11 September. 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.

Apollo 12 ALSEP

Operational status from 3 September 1971, 1200 G.m.t., to 10 September 1971, 1330 G.m.t.

Central station	Sunset of the 23rd lunar night should occur on September 14; RTG power output is constant; and, transmitter "B" signal strength was reported as -140.0 ± 2.5 dbm.
Passive seismic experiment	The instrument's thermal control mode is auto ON. The sensor's temperature telemetry point, DL-07, indicated off-scale HIGH, as in past lunations, on 8 September, at 1231 G.m.t. 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 static as of 0657 G.m.t., 5 September, and became valid again at 1907 G.m.t., 9 September. Experiment operation similar to this has been previously observed during past lunations.
Solar wind spectrometer experiment	Normal operation in the extended range mode.
Suprathermal ion detector experiment	Initialization of the experiment's lunar day cycling sequence occured on 1 September, when the instrument's internal electronics temperature (Temp 2) increased to 130.3°F (sun angle = 29°) and the experiment was commanded OFF. The instrument is cycled to operate select for two hours, and OFF for ten hours during lunar day. The experiment will be operated in this manner until approximately September 11 (150° sun angle).

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

11 September 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning properly, as all the experiments and central station components continue to experience a negative temperature excursion with the approach of lunar night. Sunset at the Hadley Rille site should occur today at approximately 2250 G.m.t.

The 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 54th 18-hour timer pulse executed correctly at 0233 G.m.t., 11 September.

The pattern of noise sensed just before terminator crossing by the passive seismometer experiment at the Apollo 15 site is similar to that observed during previous operations of the seismic instruments on previous missions. The operation of the experiment is as planned; thermal control mode is auto ON; sensor's z-axis drive motor commanded OFF; and, the feedback loop filter commanded OUT in order to match seismic response at the three ALSEP stations in operation.

The lunar surface magnetometer's science and housekeeping data output discloses that the moon is in the free-streaming solar wind region, and that the instrument is operating correctly using the revised operations schedule, which is that the experiment's sensors be operated in the 100 gamma range during lunar day, and the 50 gamma range during lunar night. Also, that flip cal sequences be commanded at 9-hour intervals for two days after the sunrise terminator, and for one day preceding the sunset terminator and one day following the sunset terminator. The instrument executed correctly the 58th flip calibration sequence via the 18-hour timer pulse September 11.

The solar wind spectrometer continues to record plasma data in the extended range mode, with no operational problems, for the investigation of long term statistical effects. The ALSEP 12 solar wind spectrometer also is operating in the extended range mode in order to match the solar plasma response of the two instruments. The current plan is operate both experiments throughout lunar day and night in the extended range mode.

11 September 1971

The suprathermal ion detector and cold cathode gauge experiments were operating per the agreed to schedule, in the full automatic stepping sequence with the Channeltron high voltages commanded OFF to preclude any mode change problems associated with the initial operation of the experiments as observed on previous missions. The suprathermal ion detector's Channeltron high voltage power supply (-3.5 kv) and the cold cathode gauge's high voltage power supply (4.5 kv) were re-initialized, by command, at 1632 G.m.t., 10 September. The instruments electronics temperature (Temp 2) was 130.3°F at re-initialization. With re-activation, the gauge stabilized in range 1, indicating a turn-on pressure of approximately 4×10^{-12} torr. The experiments will remain in the operate select mode with the high voltages ON until near sunrise, which occurs on September 26. Presently the ion detector experiment is operating correctly in its full automatic sequence, and the cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow instrument continues to sense subsurface and surface temperature data normally from all probe sensors. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 26.6°F.

Status as of 1200 G.m.t., 11 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	661	218	42
Total Commands to Date	10590	3603	1830
Sun Angle	146°	152°	173°
Input Power	71.1w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	78.1°F	83.1°F	65.8°F
PSE Sensor Assembly Temp	142.6°F	125.3°F	125.2°F
LSM Internal Temp	136.1°F	N/A	130.8°F
SWS Module 300 Temp	134.1°F	N/A	42.1°F
SIDE Temp	OFF	Invalid	115.8°F
CCGE Temp	OFF	Invalid	58.3°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	131.7°F	N/A
HFE Temp Ref Junction	N/A	N/A	75.1°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

13 September 1971
G.m.t.: 1800

Apollo 15 ALSEP

The Apollo 15 ALSEP forty-five day phase II operations were terminated at 1800 G.m.t., 13 September, when the Mission Control Center'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 and 15 stations. Phase III operations require that all ALSEP scientific and engineering data be recorded continuously at the receiving stations for subsequent analysis. Intermittent periods of real time data monitoring, phase II operations, at mission control are basically scheduled at a minimum of one hour every other day during lunar night, and two hours per day during lunar daytime. 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 15 station activity and data from the previous 54 hours. All experiments and the central station continue to operate properly in the lunar night environment, sunset having occurred on September 11, with the electronics and structural temperatures of some of the experiments package components continuing to indicate a temperature decrease.

Central station telemetry data indicates that the average temperature of the thermal plate continues to be subjected to a negative temperature excursion of 0.1°F per hour. System telemetry data also indicates virtually no change in the thermoelectric power source output, or the reported transmitter "A" signal strength. It should also be noted that due to the implementation of commanding ON the seismometer's Z axis drive motor for the lunar night, that this procedure will result in probable non-availability of the central station's DSS-2 heater (5 watt heater) during lunar night. 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), and the magnetometer's flip calibration sequences, verified output of the timer pulses as follows:

(1) 11 September, 2050 G.m.t., 55th pulse.
(2) 12 September, 1506 G.m.t., 56th pulse.
(3) 13 September, 0923 G.m.t., 57th pulse.

The passive seismic experiment sensed signals of various amplitudes, characteristic of instrument shroud movement from the optical terminator's thermal transients. Currently the thermally generated seismic disturbances continue to diminish with the approach of lunar midnight, as the thermal gradients across the instrument's thermal shroud are at a minimum. The instrument's Z axis drive motor was commanded ON at 0244 G.m.t., 12 September, per the agreed operational procedure. The sensor's temperature, DL-07, indicated 124.7°F, when the drive motor ON command was transmitted. Presently the experiment's housekeeping data reflects that the sensor assembly temperature is decreasing at a gradual rate of 0.01 degrees per hour, and the instruments thermal control mode is auto ON.

The lunar surface magnetometer, functioning as planned, continues to measure time-dependent solar fields and induced lunar fields. The remanent magnetic field at the Apollo 15 site, if any exists at all, is low in magnitude. The instrument executed correctly its 60th, 62nd, and 64th flip calibration sequences via the 18-hour timer pulses. The instrument's 59th, 61st, and 63rd flip cal sequences were ground commanded to the experiment in accordance in the revised operations schedule. The experiment's sensors were commanded to the 50 gamma range at 0801 G.m.t., 12 September. The instrument's internal electronics temperature presently is continuing to decrease at a rate of approximately 0.2 degrees per hour.

The solar wind spectrometer continues to record plasma data in the extended range mode. The experiment's electronics, module 300, temperature is decreasing at an average rate of 0.1°F degrees per hour.

The suprathermal ion detector and cold cathode gauge experiments are operating in full sequence (0-127 frames) with the Channeltron high voltages commanded ON. Experiment engineering data indicates that the ion detector's electronic temperature, Temp 2, is stabilized at 43.8°F, having reached this temperature on September 12, at 1100 G.m.t. Instrument telemetry data indicated that the gauge's temperature appears to have reached thermal equilibrium at 0800 G.m.t., 13 September. The cold cathode gauge is currently in range 1, indicating a pressure of less than 10^{-12} torr.

The heat flow experiment continues to return valid temperature measurements from all sensors in the drill holes, and on the surface. Currently, the experiment's housekeeping data indicates that the electronics package thermal plate temperature is stabilized at 50.9°F. The present temperature of probe 1 at the bottom of the lowest probe section is -4.0°F, with probe 2 indicating a temperature of -8.1°F at its lowermost point. The thermocouple cable temperatures indicate a lunar surface temperature of approximately -286.2°F.

Status as of 1800 G.m.t., 13 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	663	220	44
Total Commands to Date	10615	3646	1916
Sun Angle	173°	179°	200°
Input Power	71.1w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	44.4°F	45.0°F	1.1°F
PSE Sensor Assembly Temp	129.5°F	124.6°F	124.6°F
LSM Internal Temp	Static	N/A	48.0°F
SWS Module 300 Temp	83.1°F	N/A	1.9°F
SIDE Temp	98.3°F	Invalid	43.8°F
CCGE Temp	Off-scale HIGH	Invalid	-309.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	68.5°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.9°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE WEEKLY STATUS REPORT

17 September 1971
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 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. Systems engineering data indicates that all experiments and central station components temperatures have reached thermal equilibrium in the lunar night environment. Lunar midnight at the Hadley Rille site will occur on September 19.

A steady output of 74.1 watts from the RTG is being received by the experiments package. The signal strength from the ALSEP transmitter is steady. The average thermal plate has stabilized in the lunar night environment at -1.2°F.

The Apollo 15 ALSEP central station executed its 4th spurious functional change between 1100 G.m.t. and 1400 G.m.t., 13 September. The Texas tracking station was unable to locate a command verification word for octal 102 (passive seismic course leveling sensor IN). At 2000 G.m.t. 14 September, the course leveling sensor was commanded OUT. There were no engineering, or other data out of tolerances as a result of this spurious change.

During phase III operations (receive and record all ALSEP data continuously) the Madrid tracking station received a downlink command verification word at 1026 G.m.t., 15 September, indicating that the experiments package had executed its fifth spurious command, octal 056 (heat flow experiment standby power). Madrid notified mission control of the spurious command execution, and were subsequently directed to uplink, via mode 1 (using the tracking stations command computer), an erroneous command octal 057 (heat flow experiment standby OFF) at 1130 G.m.t., 15 September. At 1350 G.m.t., 15 September, mission control directed the Texas tracking station to utilize its mode 1 capability to command the heat flow experiment to operational power ON mode (octal 055). Phase II operations (mission control real time support) were activated at 1517 G.m.t., 15 September, and the heat flow experiment's electronics package thermal plate temperature indicated -7°F, and increasing at a rate of approximately 7.2 degrees per hour. Presently, an analysis of the negative temperature excursion the experiment experienced is under investigation.

The passive seismic experiment is operating, as planned in the auto thermal control mode and feedback loop filter commanded OUT. The instruments Z axis drive motor was commanded ON at 0244 G.m.t., 12 September, at an instrument temperature (DL-07) of 124.7°F. The Z motor will remain ON for the remainder of the lunar night cycle in an effort to maintain thermal equilibrium of the instrument. No lunar seismic signals have been observed during the limited real time support for the Apollo 15 station.

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 correctly using the revised operations schedule, which is that the experiment's sensors be operated in the 50 gamma range during lunar night. The instrument executed correctly its 65th through 69th flip calibration sequences via the central station 18-hour timer.

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

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The H_2 cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow instrument continues to sense subsurface and surface temperature data from all probe sensors. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -297.4°F.

Apollo 14 ALSEP

Operational status from 10 September 1971, 1200 G.m.t., to 17 September 1971, 1200 G.m.t.

Central Station	Sunset of the eighth lunar night occurred 13 September; DSS-1 heater (10 watt) was commanded ON at 1659 G.m.t., 12 September, the station's average thermal plate temperature was 44.9°F; power output of the radioisotope power source is unvarying; and, transmitter "A" signal strength was reported as -142.5 dbm ± 2.0 dbm.
Passive Seismic Experiment	Operation is in the auto thermal control mode, and feedback loop filter OUT. 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 the limited real time support for the Apollo 14 station.
Active Seismic Experiment	Currently in standby. A high bit rate listening mode was attempted at 1502 G.m.t., 10 September, and terminated at 1507 G.m.t. when the Guam tracking station was unable to maintain decom lock due to site characteristics and/or unfavorable lunar libration pattern. The high bit rate signal strength was -144.5 dbm.
Suprathermal Ion Detector Experiment	The experiments are operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The high voltages were commanded ON at 2216 G.mt., 10 September, at a normalized sun elevation angle of 145 degrees. 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 experiment.
Charged Particle Lunar Environment Experiment	Presently in standby.

Apollo 12 ALSEP

Operational status from 10 September 1971, 1200 G.m.t., to 17 September 1971, 1200 G.m.t.

Central Station	Sunset of the 23rd lunar night occurred 14 September; DSS-1 heater (10 watt) was commanded ON at 0538 G.m.t., 14 September, the station's average thermal plate was 29.5°F; RTG power output is constant; and transmitter "B" signal strength was reported as -139.0 dbm ± 2.0 dbm.
Passive Seismic Experiment	Seismometer operation is as planned; auto thermal control mode; feedback loop filter commanded OUT; and, the Z axis drive motor commanded ON at 0541 G.m.t., 14 September. 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 0050 G.m.t., 13 September. Static data are characteristic of the Apollo 12 instruments lunar night operation.
Solar Wind Spectrometer Experiment	Normal operation in the extended range mode.
Suprathermal Ion Detector Experiment	Operating in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltage commanded ON. The high voltage was commanded ON at 1300 G.m.t., 11 September, at a normalized sun elevation angle of 170 degrees. At 0100 G.m.t., 13 September, the instrument experienced a mode change to X10 accumulation mode. The experiment's internal electronics temperature (Temp 2) indicated 118.9°F when the mode change occurred. The instrument was re-initilized to the full automatic Mode at 0107 G.m.t., 13 September.

Status as of 1700 G.m.t., 16 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	666	223	47
Total Commands to Date	10683	3660	1997
Sun Angle	209°	215°	236°
Input Power	71.5 watts	71.9 watts	74.1 watts
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	21.1°F	38.8°F	-1.2°F
PSE Sensor Assembly Temp	126.2°F	124.3°F	124.3°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	5.4°F	N/A	-0.4°F
SIDE Temp	25.4°F	Invalid	43.9°F
CCGE Temp	Off-scale HIGH	Invalid	-260.9°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-68.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.7

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

24 September 1971
G.m.t.: 1300

Apollo 15 ALSEP

The engineering data being received and processed from the Apollo 15 ALSEP indicates continued stable operation in operating power, radiated power, and temperature characteristics. Lunar sunrise at the Hadley Rille site will occur on September 26. The solid-state timer is producing pulses on schedule every 18 hours.

The passive seismic experiment is operating, as planned in the auto thermal control mode and feedback loop filter commanded OUT. On 22 Sept. at 1535 G.m.t., it was discovered that the PSE X axis leveling motor was running. The motor was commanded OFF at 1543 G.m.t. It was later determined that a spurious command (octal 2A/070) had occurred at 1659 G.m.t. on 21 Sept., turning the X motor ON. The Z motor will remain ON for the remainder of the lunar night cycle in an effort to maintain thermal equilibrium of the instrument. No lunar seismic signals have been observed during the limited real time support for the Apollo 15 station.

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 correctly using the revised operations schedule, which is that the experiment's sensors be operated in the 50 gamma range during lunar night. The instrument executed correctly its 70th through 78th flip calibration sequences via the central station 18-hour timer.

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

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

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 -306.3°F, with the temperature of probe 1 at the bottom of the lowest probe section as -4.0°F, and probe 2 indicating a temperature of -8.2°F at its lowermost point.

Apollo 14 ALSEP

Operational status from 17 September 1971, 1200 G.m.t., to 24 September 1971, 1200 G.m.t.

Central Station	DSS-1 heater (10 watt) is ON; power output of the radioisotope power source is unvarying; and, transmitter "A" signal strength was reported as varying between -140.0 dbm and -135.8 dbm.
Passive Seismic Experiment	Operation is in the auto thermal control mode, feedback loop filter OUT. 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 the limited real time support for the Apollo 14 station.
Active Seismic Experiment	Instrument currently in standby. On 17 Sept., experiment commanded ON at 1315 G.m.t., and to high bit rate ON at 1330 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 at 1400 G.m.t., and the instrument commanded to standby at 1401 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., 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. It is currently planned to command it to OPERATE today for a short time only in order to observe the performance of the Channeltron high voltages.

Apollo 12 ALSEP

Operational status from 17 September 1971, 1200 G.m.t., to 24 September 1971, 1200 G.m.t.

Central Station	DSS-1 heater (10 watt) is ON; RTG power output is constant; and transmitter "B" signal strength was reported as -139.0 dbm + 2.0 dbm. Two spurious commands were executed by this package during the past week. They were, in order of occurrance, a PSE course leveling sensor IN command, and a central station timer output INHIBIT command. The PSE course sensor was removed by ground command and the timer output was returned to ACCEPT similarly.
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 0050 G.m.t., 13 September. Static data are characteristic of the Apollo 12 instruments lunar night operation.
Solar Wind Spectrometer Experiment	Normal operation is 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 1700 G.m.t., 22 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	672	229	53
Total Commands to Date	10705	3674	2133
Sun Angle	283°	289°	310°
Input Power	71.5 watts	71.9 watts	74.1 watts
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	19.6°F	38.0°F	-2.2°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	124.5°F
LSM Internal Temp	Static	N/A	43.6°F
SWS Module 300 Temp	3.9°F	N/A	-0.4°F
SIDE Temp	38.6°F	Invalid	42.8°F
CCGE Temp	Off-scale HIGH	Invalid	-264.5°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-85.0°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.4

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

1 October 1971
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning properly, as all the experiments and central station components continue to experience a positive temperature excursion since sunrise at the Hadley Rille site occurred on September 27. Central station telemetry data currently indicates that the average temperature of the thermal plate is subjected to a positive temperature excursion of 0.5 degrees per hour. The signal strength from transmitter "A", as reported by the various tracking stations, is unchanging; and, the thermoelectric power source output remains constant. The solid-state timer is producing pulses on schedule every 18 hours. The timer was reset, by command, on 27 September at 2031 G.m.t.

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. At the resumption of real-time support on 27 September, at 1424 G.m.t., the instrument was detecting a seismic event in all axes. This event continued to be sensed for approximately 35 minutes.

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 correctly in the 100 gamma range. The instrument executed correctly its 79th through 89th flip calibration sequences as a result of ground commands and as a function of the central station 18-hour timer.

On 27 September at 1248 G.m.t., the Ascension Island ground station reported a change in the status of parameter AB04, indicating that the magnetometer had shifted from operate to standby status. A command verification word was observed in the downlink indicating a spurious command (octal 043) had been executed, placing the magnetometer in standby. At 1426 G.m.t., the experiment was commanded to operate select. The instrument responded properly and no adverse effects were observed.

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

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded OFF. On 27 September at 1519 G.m.t., it was noted that the instrument command register contained command load 010 (LECPA HIVOLTAGE ON/OFF). The command register was cleared (000) at 2030 G.m.t. On 28 September at 0245 G.m.t. the command register again reflected command load 010. The instrument's high voltages were commanded OFF at 0543 G.m.t., September 28.

During the period of October 2nd through 9th it is presently planned to operate the suprathermal ion detector and cold cathode gauge experiments for four hours per day with high voltages ON. This period will yield scientific data during that portion of the lunar day around lunar noon which have previously been precluded by constraints imposed due to a history of mode changes characteristic of the instruments at higher temperatures. At the end of each four hour session for that day, the high voltages will be commanded OFF prior to reconfiguration of the remoted site for Phase III operations. Phase III operations are those in which the tracking stations monitor and record the ALSEP downlink only.

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 154.2°F, with the temperature of probe 1 at the bottom of the lowest probe section as -4.0°F, and probe 2 indicating a temperature of -8.1°F at its lowermost point.

Apollo 14 ALSEP

Operational status from 24 September 1971, 1200 G.m.t., to 1 October 1971, 1200 G.m.t.

Central Station	Sunrise occurred at the Apollo 14 ALSEP site at approximately 1800 G.m.t., 28 September; DSS-1 heater (10 watt) was turned OFF at 0806 G.m.t. on 29 September; power output of the radioisotope power source is unvarying; and, transmitter "A" signal strength was reported as varying between -139.0 dbm and -136.4 dbm.
Passive Seismic Experiment	Operation is in the auto thermal control mode and feedback loop filter OUT. The instrument sensed signals of various amplitudes, characteristic of shroud movement from the optical terminator's thermal transients. A lunar seismic event was in progress at the resumption of real-time support on 27 September.
Active Seismic Experiment	Instrument currently in standby. On 24 September, experiment commanded ON at 1548 G.m.t., and to high bit rate ON at 1601 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 at 1630 G.m.t., and the instrument commanded to standby at 1632 G.m.t. On 30 September, experiment again commanded ON at 0840 G.m.t., and to high bit rate ON at 0855 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 at 0925 G.m.t., and the instrument commanded to standby at 0928 G.m.t. Next listening mode operation is scheduled for 8 October.
Suprathermal Ion Detector/Cold Cathode Gauge Experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Instrument high voltages are to be commanded OFF at a normalized sun angle of approximately 50° (2 October). 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. On 24 September at 1439 G.m.t. the CPLEE was commanded to operate select. Analyzer A Channeltron high voltage (AC-03) remained substantially constant at the 2500 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. Total operate time was 55 minutes. It is planned to place the experiment in operate select mode again on 16 October, during lunar night.

Apollo 12 ALSEP

Operational status from 24 September 1971, 1200 G.m.t., to 1 October 1971, 1200 G.m.t.

Central Station	Sunrise occurred at the Apollo 12 ALSEP site on 29 September; DSS-1 heater (10 watt) was commanded OFF at 0814 G.m.t., 29 September; RTG power output is constant; and transmitter "B" signal strength was reported as -139.0 dbm ±2.0 dbm.
Passive Seismic Experiment	Seismometer operation is as planned, auto thermal control mode; feedback loop filter commanded OUT. The Z axis drive motor was turned OFF at 0816 G.m.t., 29 September. 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 0050 G.m.t., 13 September. Static data are characteristic of the Apollo 12 instrument's lunar night operation and at low sun elevation angles.
Solar Wind Spectrometer Experiment	Normal operation 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. The experiment high voltages will be commanded OFF at a normalized sun angle of 31° (1 October).

Status as of 1000 G.m.t., 30 September, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	680	237	61
Total Commands to Date	10754	3714	2303
Sun Angle	22°	28°	49°
Input Power	71.5 watts	71.1 watts	74.1 watts
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON*
Avg Thermal Plate Temp	55.9°F	69.1°F	94.9°F
PSE Sensor Assembly Temp	125.9°F	124.8°F	126.1°F
LSM Internal Temp	Static	N/A	128.3°F
SWS Module 300 Temp	92.7°F	N/A	118.3°F
SIDE Temp	95.5°F	Invalid	151.9°F
CCGE Temp	Off-scale HIGH	Invalid	180.7°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	42.6°F	N/A
HFE Temp Ref Junction	N/A	N/A	96.8°F

*Apollo 15 ALSEP SIDE/CCGE channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

8 October 1971
G.m.t.: 1300

After 69 days of operations, the Apollo 15 ALSEP continues to transmit scientific and engineering data. Sunset of the third lunar night at Hadley Rille will occur on October 11.

The present schedule of real-time support does not permit a quantitative assessment of ALSEP scientific results. All data recorded at the tracking stations are forwarded to the experiment principal investigators for analysis. One of the rare exceptions occurred during this past week when the Apollo 15 suprathermal ion detector/cold cathode gauge experiments, as well as the Apollo 14 and 12 particle experiments, were operated with the Channeltron high voltages ON during the lunar noon period, thus allowing the gathering of science data not ever previously measured by all three instruments simultaneously. Results of this test may allow a more flexible operation of the Apollo 15 station's suprathermal ion detector and cold cathode gauge during future lunar days.

Central station telemetry data currently indicates that the average temperature of the thermal plate is subjected to a negative temperature excursion of 0.4 degrees per hour. The signal strength from transmitter "A" is reported by the various tracking stations at -138.0 dbm, plus or minus three dbm. The thermoelectric power source output remains constant. The data subsystem timer is producing pulses on schedule every 18 hours.

On 4 October the eighth and ninth unexpected functional changes occurred on this ALSEP. The passive seismometer responded to the two spurious functional changes between 1242 G.m.t. and 1443 G.m.t. The supporting ground station was unable to locate a command verification word for either command, octal 073 (PSE uncage arm/fire) or octal 076 (PSE thermal control mode). The status of the experiment was reset by command with no problems. These spurious commands are attributed to RF noise effects.

The passive seismic experiment is operating, as planned in the forced OFF 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 lunar surface magnetometer experiment's sensors are presently operating in the 100 gamma range, indicating the moon's passage through the magnetosphere region. The instrument's digital filter was commanded IN at 1816 G.m.t., 5 October, in an attempt to obtain one complete lunation of filtered data. At the beginning of phase II support, 1530 G.m.t., 6 October, the filtered science data were unuseable and the filter was commanded OUT at 1550 G.m.t., 6 October. The filter was again commanded IN at 1547 G.m.t., 7 October and the data were still unuseable and the filter was commanded OUT at 1549 G.m.t., 7 October. The instrument executed correctly its 90th through 99th flip calibration sequences as a result of ground commands and as a function of the central station 18-hour timer.

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

During the period of October 2nd through 9th it is presently planned to operate the suprathermal ion detector and cold cathode gauge experiments for four hours per day with high voltages ON. At the end of each four hour session for that day, the high voltages will be commanded OFF. This period will yield scientific data during that portion of the lunar day around lunar noon which have previously been precluded by constraints imposed due to a history of mode changes characteristic of the instruments at higher temperatures. Through 7 October, the ion detector and gauge have not experienced any mode changes. The suprathermal ion detector's internal electronics reached a high temperature of 181°F at lunar noon and the gauge temperature reached 196°F. The cold cathode gauge indicated a lunar atmospheric pressure of 9×10^{-10} torr during the noon 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 164.1°F, with the temperature of probe 1 at the bottom of the lowest probe section as -4.0°F, and probe 2 indicating a temperature of -8.3°F at its lowermost point.

Apollo 14 ALSEP

Operational status from 1 October 1971, 1200 G.m.t., to 8 October 1971, 1300 G.m.t.

Central station	Sunset of the ninth lunar night, at the Apollo 14 landing site, will occur on October 13; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -141.5 ± 3.0 dbm.
Passive seismic experiment	Operation is in the forced OFF thermal control mode, and the feedback loop filter commanded OUT. The instrument's Y-axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during this reporting period. **No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.**
Active seismic experiment	Currently in standby. Next "listening mode" operation is scheduled for 1400 G.m.t., today.
Charged particle lunar environmental experiment	Presently in standby.
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. During this reporting period, the Apollo 14 instrument has operated with Channeltron high voltages commanded ON, coincident with the Apollo 15, without any spurious mode changes. The suprathermal ion detector's internal electronics reached an approximate maximum temperature of 176°F and the gauge indicated a lunar atmospheric pressure of 1.3×10^{-9} torr near lunar noon.

Apollo 12 ALSEP

Operational status from 1 October 1971, 1200 G.m.t., to 8 October 1971, 1300 G.m.t.

Central station	Sunset of the 23rd lunar night will occur on October 13; RTG power output is constant; and, transmitter "B" signal strength was reported as -141.0 + 2.5 dbm. At the start of real time support, 1530 G.m.t., 2 October, the 43rd unexpected functional change had occurred. The remoted sites supporting ALSEP phase III operations could not locate an octal 071 (PSE Y motor ON) command verification word on their tape histories. No data out of tolerances were noted due to this spurious change.
Passive seismic experiment	The instrument's thermal control mode is auto ON. The sensor's temperature telemetry point; DL-07, indicated off-scale HIGH, as in past lunations near lunar noon. 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 as of 2038 G.m.t., 2 October, and became invalid again at 1237 G.mt., 4 October. Experiment operation similar to this has been previously observed during past lunations.
Solar wind spectrometer experiment	Normal operation in the extended range mode.
Suprathermal ion detector experiment	The instrument's Channeltron high voltage has been commanded ON in the full automatic stepping sequence, during each daily four hour support period and allowed to operate until the instrument internal electronics temperature reached 131°F. During real time support, 6 and 7 October, the instrument temperature was allowed to increase to 136°F before commanding OFF. The instrument experience 16 mode changes at an instrument temperature of between 132°F and 136°F.

Status as of 2000 G.m.t., 7 October, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	687	244	68
Total Commands to Date	10846	3844	2600
Sun Angle	107°	113°	134°
Input Power	71.0w	71.5w	74.7w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	Side OFF	**CPLEE & ASE Standby	*All ON
Avg Thermal Plate Temp	73.3°F	108.8	109.6°F
PSE Sensor Assembly Temp	Off-scale HIGH	130.4	128.1°F
LSM Internal Temp	Invalid	N/A	136.0°F
SWS Module 300 Temp	149.4°F	N/A	135.5°F
SIDE Temp	OFF	Invalid	174.6°F
CCGE Temp	OFF	Invalid	165.9°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	188.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	116.4°F

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.
**Apollo 14 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

15 October 1971
G.m.t.: 1200

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning properly, as all the experiments and central station components continue to experience a negative temperature excursion in the lunar night environment. The moon is presently in interplanetary space, and will remain so until October 26.

The RTG output continues steady at 74.1 watts. Signal strength of transmitter "A" is reported, to have varied over the past week, at -137.0 +4.5 dbm. At 2030 G.m.t., 13 October, the 96th 18-hour time pulse was correctly verifield by the systems four telemetry functions, during phase II support, confirming consistent timer pulse execution since initialization of the timer. Effective 14 October, the data subsystem's 18-hour timer outputs will be eliminated by uplinking the timer's reset command, octal 150, twice daily during lunar night. The commands will be transmitted during phase II operations by mission control, or by the remoted sites mode I capability if mission control operations are not scheduled at 1300 G.m.t. and 2100 G.m.t. The remoted site will also uplink a magnetometer flip calibration sequence command, octal 131, in conjunction with the timer reset command.

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 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 for the Apollo 15 station.

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. The experiment's 109th flip cal sequence was executed correctly, by the 18-hour timer, on October 13. Currently the experiment has executed 111 flip calibration sequences since activation, as a result of ground commands and as a function of the central station timer. The experiment was commanded to the 50 gamma range at 1627 G.m.t., October 11. The magnetometer's digital filter was commanded IN during each phase II support period from October 8-11, with the resulting filtered science data being unuseable. However, since October 12, the magnetometer's filtered science appears to be valid. The experiment's digital filter is commanded OUT at the termination of each phase II support period.

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

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 experiment's high voltages were commanded ON at 1604 G.m.t., October 9, when the instrument's internal temperature indicated 146.3°F. The experiments will remain in the operate select mode with the high voltages ON until near sunrise, which occurs on October 26. Presently the ion detector experiment is operating correctly in the full automatic sequence, and the cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperatures resulting from the optical terminator crossing. The temperature of probe 1 at the bottom of the lowest probe section is -3.96°F, with probe 2 indicating a temperature of -8.23°F at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately -273.8°F.

Apollo 14 ALSEP

Operational status from 8 October 1971, 1200 G.m.t., to 15 October 1971, 1200 G.m.t.

Central station	Sunset of the ninth lunar night, at the Apollo 14 landing site, occurred October 13; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -141.2 + 4.7 dbm. On 12 October the station's 11th unexpected functional change occurred. At 0114 G.m.t. the Madrid tracking reported loss of telemetry downlink during phase III operations (track and record of ALSEP data only). At 0241 G.m.t., mission control, during phase II operations, executed transmitter ON (octal 013). There were no engineering, or other data out of tolerances as a result of this spurious change. The central station's DSS-1 heater was commanded ON at 1756 G.m.t., October 13, when the average thermal plate temperature indicated 19.5 °F.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. The instrument's Y-axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during this reporting period. On 9 October a recurrence of the continuous, undamped noise oscillations of the long period vertical (LPZ) axis was observed. 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 9 October, experiment commanded ON at 1821 G.m.t., and to high bit rate ON at 1845 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 at 1915 G.m.t., and the instrument commanded to standby at 1919 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., today.
Charged particle lunar environmental experiment	Presently in standby.
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 experiment's high voltages were commanded ON at 1555 G.m.t., October 9, at a sun angle of 135° degrees.

Apollo 12 ALSEP

Operational status from 8 October 1971, 1200 G.m.t., to 15 October 1971, 1200 G.m.t.

Central station	Sunset of the 23rd lunar night occurred October 13; RTG power output is constant; and, transmitter "B" signal strength was reported at -141.3 ± 2.3 dbm. The DSS-1 (10 watt) heater was commanded ON 13 October, 1749 G.m.t., when the average thermal plate temperature indicated 32.7°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and feedback loop filter commanded OUT. The Z axis drive motor was commanded ON at 1748 G.m.t., 13 October. 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 as of 1242 G.m.t., 10 October. The experiment's science data were invalid at 0258 G.m.t., 12 October and the instrument's engineering were unuseable at 1515 G.m.t., the same day. Experiment operation similar to this has been previously observed during past lunations.
Solar wind spectrometer experiment	Normal operation in the extended range mode.
Suprathermal ion detector experiment	The instrument's Channeltron high voltage has been commanded ON in the full automatic stepping sequence. The high voltage was commanded ON at 1322 G.m.t., 11 October, when the experiment's internal temperature indicated 86.4°F.

Status as of 2000 G.m.t., 14 October, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	694	251	85
Total Commands to Date	10939	3921	2830
Sun Angle	192°	198°	219°
Input Power	71.5w	71.9w	74.1w
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	22.6°F	38.6°F	-0.8°F
PSE Sensor Assembly Temp	126.5°F	124.4°F	124.4°F
LSM Internal Temp	Invalid	N/A	45.1°F
SWS Module 300 Temp	13.1°F	N/A	-0.4°F
SIDE Temp	39.6°F	Invalid	42.8°F
CCGE Temp	Off Scale High	Invalid	-253.6°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-42.5°F	N/A
HFE Temp Ref Junction	N/A	N/A	50.3°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE WEEKLY STATUS REPORT

22 October 1971
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 ALSEP, functioning as planned, experienced no unusual scientific events during the limited Phase II operations. Systems engineering data indicates that all the experiments and central station components temperatures have reached thermal equilibrium in the lunar night environment. Lunar midnight at the Hadley Rille site occurred on October 19.

A steady output of 74.1 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 -137.5 + 2.0 dbm. The average thermal plate temperature is stabilized at -2.7°F. The operational procedure, implemented on 14 October, of eliminating the data subsystem's 18-hour timer outputs during the lunar night continues in effect.

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 for the Apollo 15 station. The seismometer's arm/fire circuit is being maintained in the out of tolerance state by resetting the timer daily. This procedure which adds 0.1 watt is holding the sensor unit's thermal stability at 123.7°F.

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. Flip calibration sequences have been executed twice daily in conjunction with the timer reset command. The digital filter will continue to be commanded IN and OUT during planned Phase II operations until lunar noon, approximately 2 November.

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

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

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 -304.2°F, with the temperature of probe 1 at the bottom of the lowest probe section as -4.1°F, and probe 2 indicating a temperature of -8.2°F at its lowermost point.

Apollo 14 ALSEP

Operational status from 15 October 1971, 1200 G.m.t., to 22 October 1971, 1200 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 -135.8 dbm and -140.0 dbm. Lunar midnight occurred on 20 October.
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 15 October, experiment commanded ON at 1337 G.m.t., and to high bit rate ON at 1355 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 at 1425 G.m.t., and the instrument commanded to standby at 1427 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., 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. On 16 October, 1345 G.m.t., the experiment was commanded to operate select. Analyzer A Channeltron high voltage (AC-03) remained substantially constant at the 2500 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. Total operate time was 135 minutes. Presently, there are no scheduled high voltage turn on plans.

Apollo 12 ALSEP

Operational Status from 15 October 1971, 1200 G.m.t., to 22 October 1971, 1200 G.m.t.

Central station	The DSS-1 heater (10 watt) is ON; power output of the radioisotope power source is unvarying, and transmitter "B" signal strength was reported as -138.9 dbm ± 3.6 dbm. Lunar midnight occurred on 21 October 1971.
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 1515 G.m.t., 12 October. Static data are characteristic of the Apollo 12 instruments lunar night operation.
Solar wind spectrometer experiment	Normal operation is 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.

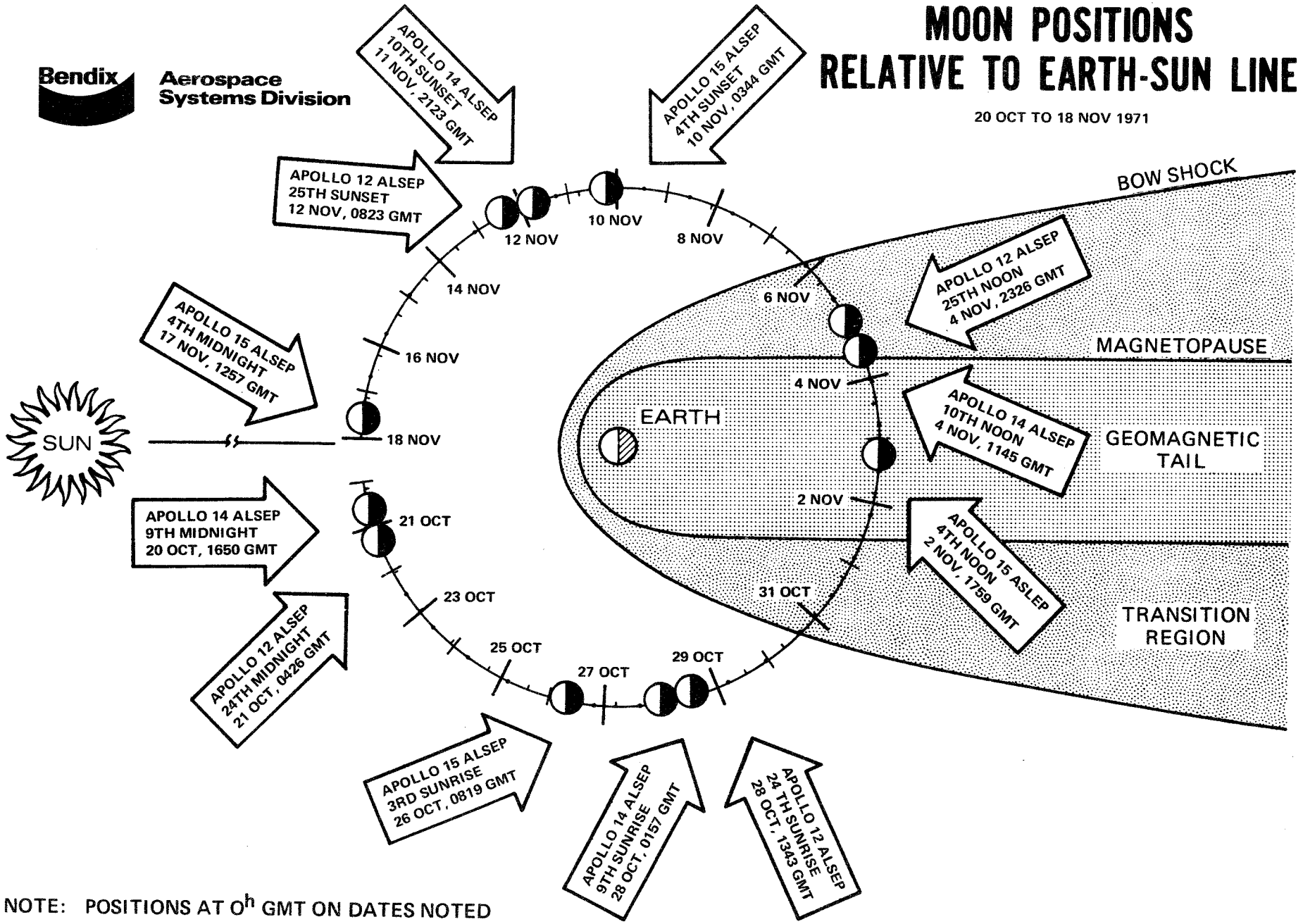
Status as of 1200 G.m.t., 20 October, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	700	257	81
Total Commands to Date	10985	3949	2995
Sun Angle	262°	267°	289°
Input Power	71.5w	71.9w	74.1w
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	19.8°F	38.0°F	-2.7°F
PSE Sensor Assembly Temp	126.3°F	124.3°F	123.7°F
LSM Internal Temp	Invalid	N/A	42.1°F
SWS Module 300 Temp	-6.2°F	N/A	-64.4°F
SIDE Temp	39.7°F	Invalid	41.7°F
CCGE Temp	Off Scale High	Invalid	-264.4°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-85.0°F	N/A
HFE Temp Ref Junction	N/A	N/A	49.8°F

Bendix Aerospace Systems Division

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

20 OCT TO 18 NOV 1971



NOTE: POSITIONS AT 0^h GMT ON DATES NOTED

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

29 October 1971
G.m.t.: 1300

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning, as all the experiments and central station components continue to experience a positive temperature excursion since sunrise at the Hadley Rille site occurred on October 6. Central station telemetry data currently indicates that the average temperature of the thermal plate is subjected to a positive temperature excursion of 0.5 degrees per hour. The signal strength from transmitter "A", as reported by the various tracking stations, is unchanging; and, the thermoelectric power source output remains constant. The operational procedure, implemented on 14 October, of eliminating the data subsystem's 18-hour timer outputs continues in effect.

The Apollo 15 ALSEP executed its tenth spurious functional command at 2058 G.m.t., 24 October. The octal 101, passive seismic experiment feedback loop filter IN, was noted in the downlink by the Bermuda ground station. The filter was commanded OUT at 1900 G.m.t., 26 October.

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 seismometer's arm/fire circuit is being maintained in the uncaged state by resetting the timer daily.

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 100 gamma range. Flip calibration sequences have been executed twice daily in conjunction with the timer reset command. The digital filter will continue to be commanded IN and OUT during planned Phase II operations until lunar noon, approximately 2 November.

The lunar surface magnetometer experiment experienced an abnormal flip calibration status indication following execution of a flip cal command at 0940 G.m.t., 29 October. The experiment's housekeeping status bits indicated that the Y-axis sensor head failed to flip. Instrument engineering data indicated that the X-axis and Z-axis sensor head positions were at zero degrees, while the Y-axis sensor head position remained fixed at 180 degrees. A command sequence was implemented in an effort to unlock the Y-axis sensor head, and re-establish sensor head synchronization. The Y-axis sensor head did not respond to the command sequence, and the X-axis and Z-axis sensor heads were returned to the 180 degree position in order to maintain sensor head synchronization. There were no engineering, or other data out of tolerances as a result of the abnormal flip calibration sequence, and investigation of the Y-axis sensor head intermittent anomaly is continuing.

The magnetometer's digital filter was commanded IN during the phase II support period on 29 October, with the resulting filtered science data being unuseable. However, from October 12-28, the magnetometer's filtered science data appears to be valid. The experiment's digital filter is commanded OUT at the termination of each phase II support period.

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

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The experiments are scheduled to operate continuously this lunation up to 158°F, at which time the high voltages will be commanded ON during phase II operations only. As the instrument temperature declines to 167°F, the real time high voltages will again be allowed to remain ON continuously.

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 122.5°F with the temperature of probe 1 at the bottom of the lowest probe section as -4.0°F, and probe 2 indicating a temperature of -7.7°F at its lowermost point.

Apollo 14 ALSEP

Operational status from 22 October 1971, 1200 G.m.t., to 29 October 1971, 1200 G.m.t.

Central station	Lunar sunrise for the 10th lunation occurred 28 October. DSS-1 heater (10 watt) was commanded OFF at 2015 G.m.t., 28 October, at an average thermal plate temperature of 69.4 °F. Power output of the RTG is 71.9 watts; and, transmitter "A" signal strength was reported as varying between 136.0 dbm and 141.0 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 22 October, experiment commanded ON at 1433 G.m.t., and to high bit rate ON at 1451 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 at 1520 G.m.t., and the instrument commanded to standby at 1524 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., 30 October.
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 experiments 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 continue, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently in standby. The experiment is scheduled to be commanded ON for the duration of the tenth lunar night, November 11-26.

Apollo 12 ALSEP

Operational status from 22 October 1971, 1200 G.m.t., to 29 October 1971, 1200 G.m.t.

Central station	Lunar sunrise for the 25th lunation occurred 28 October. DSS-1 heater (10 watt) was commanded OFF at 2034 G.m.t., 28 October, at an average thermal plate temperature of 39.4 °F. Power output of the radioisotope power source is unvarying, and transmitter "B" signal strength was reported as -138.5 dbm ± 1.5 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 2029 G.m.t., 28 October at an instrument temperature of 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 1515 G.mt., 12 October. Static data are characteristic of the Apollo 12 instruments lunar night operation.
Solar wind spectrometer experiment	Normal operation is 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. Cyclic commanding of the instrument's high voltage power supply during the current lunar day period will be unchanged from the previous operational procedure of two hours ON each schedule support period.

Status as of 2000 G.m.t., 28 October, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	708	265	89
Total Commands to Date	10997	3957	3019
Sun Angle	3°	9°	30°
Input Power	71.5w	71.9w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	39.4°F	69.4°F	82.8°F
PSE Sensor Assembly Temp	126.2°F	124.5°F	126.0°F
LSM Internal Temp	Invalid	N/A	125.8°F
SWS Module 300 Temp	34.9°F	N/A	103.0°F
SIDE Temp	53.5°F	Invalid	137.2°F
CCGE Temp	Off Scale High	Invalid	151.4°F
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-10.8°F	N/A
HFE Temp Ref Junction	N/A	N/A	79.8°F

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

5 November 1971
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 ALSEP, now in its fourth 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, November 2. The station's radioisotope thermoelectric generator is supplying a constant output of 74.1 watts of power to the experiments package. Downlink signal strength remains steady at -136.0 ± 2.0 dbm, a slightly higher value than the other two ALSEP's. 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, twice daily continues in effect. The commands are transmitted during phase II operations by mission control, or by the remoted sites mode I capability, under the direction of mission control, if mission control operations are not scheduled. Effective 27 October, the remoted sites terminated uplinking a magnetometer flip calibration sequence command, octal 131, in conjunction with the timer's reset command.

The Apollo 15 ALSEP executed its 11th spurious functional command at 1928 G.m.t., 31 October. The octal 065, passive seismic experiment short period cal ON, was noted in the downlink by the Madrid ground station. The status of the experiment was reset by command with no problems.

No lunar seismic events have been observed by the seismometer during the intermittent phase II support periods of the past week. The experiment's thermally generated seismic disturbances have diminished with lunar noon, as the instrument is fully illuminated and the thermal gradients across the seismometer's thermal shroud are at a minimum. The instrument's thermal control mode is forced OFF, and the feedback loop filter is commanded OUT. The seismometer's arm/fire circuit is being maintained in the uncaged state by resetting the timer daily.

The magnetometer's sensors are currently in the 100 gamma range, as the moon passes through the earth's magnetosheath. Effective 1 November, commanding of the experiment's digital filter IN was terminated. No further plans are contemplated at the present time for commanding the digital filter back IN. At 1423 G.m.t., 2 November, the instrument's Y axis sensor output dropped off scale LOW, coincident with the first cal raster of a scheduled flip calibration sequence. A subsequent command sequence proved unsuccessful in restoring valid science data output from the Y axis sensor. Investigation of this anomaly is continuing. 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.

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

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence with the Channeltron high voltages commanded ON during all phase II operations. As the instrument temperature declines to 75.0°C (167.0°F) which will occur about November 7, the experiments high voltages will be commanded ON continuously.

The heat flow experiment continues to acquire subsurface and surface temperature data from all probe sensors. Experiment data indicates that the probe 2 sequence measuremnt of the thermal plate indicated an off scale HIGH output at the start of phase II support on 3 November. A duplicate measurement, which is performed during the probe 1 sequence, is operating normally so that no data is lost. 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 250.5°K (-7.7°F) at its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 369.9°K (206.4°F).

Apollo 14 ALSEP

Operational status from 30 October 1971, 1400 G.m.t., to 5 November 1971, 1400 G.m.t.

Central station	Lunar noon at the Apollo 14 landing site, occurred on November 4; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -140.9 ± 2.9 dbm.
Passive seismic experiment	Operation is in the auto OFF thermal control mode, and the feedback loop filter commanded OUT. The instrument's Y axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during this reporting period. 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 29 October, experiment commanded ON at 0850 G.m.t., and to high bit rate ON at 0905 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 at 0935 G.m.t., and the instrument commanded to standby at 0937 G.m.t. Next listening mode operation is scheduled for November 5.
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 continue, is having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	Presently in standby. The experiment is scheduled to be commanded ON for the duration of the tenth lunar night, November 11-26.

Apollo 12 ALSEP

Operational status from 30 October 1971, 1400 G.m.t., to 5 November 1971, 1400 G.m.t.

Central station	Lunar noon occurred on November 4; RTG power output is constant; and, transmitter "B" signal strength was reported as -140.6 ± 2.6 dbm. On 30 October, at 1149 G.m.t., the station's 44th functional change occurred unexpectly. The remoted site at Canarvon reported this change as octal 103, passive seismic experiment leveling mode change. No data out of tolerances were noted due to this spurious change.
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.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since October 12. Experiment operation similar to this has been previously observed during past lunations. Continuing to double flip cal the experiment during scheduled support periods.
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 on Novermber 2 during phase II operations. The instrument's internal temperature was 52.8°C (126.9°F) at the time of the unexpected mode change.

Status as of 2000 G.m.t., 3 November, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	714	271	95
Total Commands to Date	11109	4011	3361
Sun Angle	76°	82°	103°
Input Power	71.1w	71.5w	74.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	SIDE OFF	CPLEE & ASE Standby	*All ON
Avg Thermal Plate Temp	91.1°F	113.5°F	116.8°F
PSE Sensor Assembly Temp	133.9°F	131.3°F	138.7°F
LSM Internal Temp	Invalid	N/A	73.3°C(163.9°F)
SWS Module 300 Temp	66.1°C(150.9°F)	N/A	61.5°C(142.6°F)
SIDE Temp	48.3°C(118.9°F)	Invalid	84.3°C(182.7°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	369.9°K(206.4°F)

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF during periods of no real time support.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

12 November 1971
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning, 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 9 November.

The signal strength from transmitter "A", as reported by the network tracking stations, has varied over the past week between -139.5 dbm and -135.0 dbm. The operational procedure, implemented on October 14, of eliminating the data subsystem's 18-hour timer outputs by uplinking the timer's reset command, octal 150, twice daily continues in effect.

Today the 12th unexpected functional change occurred on this ALSEP. The passive seismometer responded to the spurious functional change at 0648 G.m.t. The supporting ground station, Madrid, located a command verification word for octal 067 (PSE short period gain change). The status of the experiment was reset by command without incident.

Experiment 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 1541 G.m.t., 10 November. Currently the experiment has executed 170 flip calibration sequences since activation. At the beginning of phase II support on 5 November, 1500 G.m.t., it was noted that the instrument y-axis sensor was outputting valid science data. The y-axis sensor's output had been off scale LOW since November 2. The experiment's y-axis sensor head also 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. Investigation of the anomalies is continuing.

The solar wind spectrometer continues to record plasma data in the normal range mode for the investigation of long term statistical effects. The experiment was commanded to the normal range mode at 1709 G.m.t., 5 November, at the request of the principal investigator. 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. No further plans are contemplated at the present time for commanding back to the instrument's extended range mode.

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 experiment's high voltages were commanded ON at 1346 G.m.t., 8 November, when the instrument's internal temperature indicated 59.4°C (139.0°F). The experiments are to remain in the operate select mode with the high voltage power supplies ON continuously during all subsequent lunar day periods per the agreed operational procedure. Currently the ion detector experiment is operating in the full automatic sequence, and the cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperatures resulting from the optical terminator crossing. 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 94.6°K (-279.0°F). Since November 3, the probe 2 sequence measurement of the thermal plate temperature has indicated off scale 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 is lost.

Apollo 14 ALSEP

Operational status from 5 November 1971, 1400 G.m.t., to 12 November 1971, 1400 G.m.t.

Central station

Sunset of the tenth lunar day at the Apollo 14 landing site, occurred November 11; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -141.7 ± 2.7 dbm. The central station's DSS-1 heater (10 watts) was commanded ON at 0702 G.m.t., 12 November, when the average thermal plate temperature indicated 21.3°F.

Passive seismic experiment

Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. The instrument's y-axis leveling motor experienced a recurrence of the intermittent and/or sluggish response problem during this reporting period. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.

Active seismic experiment

Currently in standby. A high bit rate listening mode was attempted at 1722 G.m.t., 5 November, and terminated at 1726 G.m.t., when the Guam tracking station was unable to maintain decom lock due to site characteristics and/or unfavorable lunar libration pattern. On 12 November, experiment commanded ON at 0725 G.m.t., and to high bit rate ON at 0740 G.m.t., for 30 minute listening mode operation. During the listening mode a significant seismic signal was noted on the geophone 2 data output. Data output of geophone 1 appeared normal, and geophone 3 data was continuously off scale high. No geophone calibration pulses were sent during the listening mode operation. High bit rate terminated at 0810 G.m.t., and the instrument commanded to standby at 0811 G.m.t. The next listening mode operation is scheduled for 19 November. Also, plans are presently being formulated for a special 3-hour high bit rate listening mode operation which will occur on 26 November, during the next sunrise optical terminator crossing of the 14 station.

Apollo 14 ALSEP (continued)

Operational status from 5 November 1971, 1400 G.m.t., to 12 November 1971, 1400 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. The experiment's high voltages were commanded ON October 9, and have remained ON continuously since that time.
Charged particle lunar environmental experiment	Per the agreed operational procedure the experiment was commanded to operate select at 0800 G.m.t., 12 November. 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 leave the experiment in operate select throughout the lunar night (November 12-26).

Apollo 12 ALSEP

Operational status from 5 November 1971, 1400 G.m.t., to 12 November, 1400 G.m.t.

Central station	Sunset of the 24th lunar day occurred 12 November; RTG power output is constant; and, transmitter "B" signal strength was reported at -141.3 ± 2.3 dbm. The station's DSS-1 heater was commanded ON 12 November, 0712 G.m.t., when the average thermal plate temperature indicated 34.3°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 0710 G.m.t., 12 November. No lunar signals have been observed during the limited real time support for the Apollo 12 station.
Lunar surface magnetometer experiment	Instrument engineering data became valid at 1348 G.m.t., 9 November; science data remained invalid. The experiment's science and engineering data had been invalid since October 12. Magnetometer's engineering data were again invalid at the start of phase II support on November 11. Experiment operation similar to this has been previously observed during past lunations.
Solar wind spectrometer experiment	Currently operating in the normal range mode. Experiment commanded back to normal range on 5 November, at 1711 G.m.t.
Suprathermal ion detector experiment	The instrument's Channeltron high voltage has been commanded ON in the full automatic stepping sequence. The high voltage was commanded ON for continuous support at 1353 G.m.t., 9 November. The instrument has experienced two mode changes (X10 mode) since 9 November. The changes were noted at the start of real time support on November 10 and 11. In each case the instrument was returned to the full automatic stepping sequence by command without any noticable degredation of instrument operation.

Status as of 0900 G.m.t., 12 November, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	723	280	104
Total Commands to Date	11180	4108	3652
Sun Angle	180°	186°	207°
Input Power	71.1w	71.1w	74.1w
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	33.6°F	20.2°F	-0.8°F
PSE Sensor Assembly Temp	127.5°F	124.4°F	124.5°F
LSM Internal Temp	Invalid	N/A	6.4°C(43.6°F)
SWS Module 300 Temp	24.5°C(76.1°F)	N/A	-17.6°C(0.3°F)
SIDE Temp	28.1°C(82.6°F)	Invalid	6.6°C(43.9°F)
CCGE Temp	Off scale HIGH	Invalid	116.5°K(-249.7°F)
CPLEE Electronic Temp	N/A	-32.5°C(-26.5°F)	N/A
ASE GLA Temp	N/A	-13.0°C(8.6°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.2°K(50.4°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

19 November 1971
G.m.t.: 1200

There will be no ALSEP status report published on 26 November, in observance of the Thanksgiving holidays. The status report to be published on 3 December will cover the previous two weeks of ALSEP operations.

Apollo 12 ALSEP

Today marks the completion of two 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 one year 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 two years ago. To date more than 11,285 commands have been received and executed by the central station and experiments. Currently the Apollo 12 ALSEP is in its 25th 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 are at present invalid as has been characteristic of the instrument during previous lunar nights. 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 off-scale high. No significant scientific events have been detected during the intermittent periods of phase II support this past week.

Apollo 15 ALSEP

The Apollo 15 ALSEP, functioning as planned, experienced no unusual scientific events during the limited phase II operations. Systems engineering data indicates that all the experiments and central station components temperatures have reached thermal equilibrium in the lunar night enviroment. Lunar midnight at the Hadley Rille site occurred on November 17.

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 -137.5 ± 1.5 dbm. The average thermal plate temperature is

stabilized at -3.1°F. The operational procedure, implemented on 14 October, of eliminating the data subsystem's 18-hour timer outputs during the lunar night continues in effect.

On 18 November, at 2258 G.m.t., the Hawaii ground station observed a command verification word in the downlink, indicating a possible spurious command execution of octal 033 (central station timer output inhibit). The execution was subsequently verified by mission control as a result of the passive seismometer's arm/fire circuit changing from the out of tolerance state to the uncaged state. The timer output status was returned to output accept and the seismometer's arm/fire circuit was returned to the out of tolerance state, by ground commands from mission control. A second spurious functional change was also verified after the ground station at Hawaii indentified a command verification word for octal 056 (Heat Flow Experiment to standby) in the downlink at 0026 G.m.t. on 19 November. This was simultaneously accompanied by a change in status of parameter AB-05 (Experiments standby status), which is monitored by the remote ground stations, thus confirming that the Heat Flow Experiment was in standby. The experiment was commanded back to operate select by mission control. No problems resulted from this spurious command execution. A third spurious command was apparently executed on 19 November when the Lunar Surface Magnetometer executed its 179th flip-calibration sequence. This unexpected functional change was discovered at the resumption of real-time support by mission control at 1330 G.m.t. on 19 November. The supporting ground stations were unable to locate a command verification word for this command (octal 131).

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

The solar wind spectrometer continues to record plasma data in the normal range mode. At this time it is thought that a possible anomaly may exist within the spectrometer. It appears as if science data associated with the cup sums in levels 13 and 14 are being interrupted intermittently. A cursory review of spectrometer data by mission control traces first indications of the phenomenon back to early August 1971. Similarly, it appears as if the Apollo 12 ALSEP instrument is experiencing the same intermittent phenomenon, also traced back to early August 1971. The full nature of these occurrances is not yet understood and further investigation is underway by the principal investigator.

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

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 87.2°K (-302.5°F), with the temperature of probe 1 at the bottom of the lowest probe section at 253.0°K (-4.0°F), and probe 2 indicating a temperature of 250.6°K (-8.3°F) at its lowermost point. At the resumption of real time support on 13 November at 2141 G.m.t., the probe 2 sequence measurement of the thermal plate temperature had returned on scale, and was outputting valid data. The TREF 2 measurement had been indicating off scale HIGH since November 3.

Apollo 14 ALSEP

Operational status from 12 November 1971, 1400 G.m.t., to 19 November 1971, 1200 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 -135.4 dbm and -140.0 dbm. Lunar midnight occurred today, November 19, at 0600 G.m.t.
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. Next "listening mode" operation is scheduled for today, November 19.
Suprathermal ion detector/cold cathode gauge experiment	The experiments are operating in the full automatic stepping sequence with the Channeltron high voltages commanded ON. Positive engineering data in one section of the analog-to-digital filter remain invalid, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. On 12 November, 0817 G.m.t., the experiment was commanded to operate select. Analyzer A Channeltron high voltage (AC-03) remained substantially constant at the 2500 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. It was planned to leave the experiment in operate select throughout the lunar night (November 12-26) when mission control suspended real-time support that morning at 16:30 G.m.t. (12 November). However, when real-time support by mission control was resumed later that same day at 1950 G.m.t., the instrument's high voltage (AC-03) had fallen to near 2200 VDC. The experiment was subsequently commanded to standby at 2203 G.m.t. in compliance with the agreed-to operational procedure. Playback data later revealed that the high voltage had decayed slowly during the three hour period

between real-time support sessions.

On November 13 at 1010 G.m.t. the experiment was again commanded to operate select for a spot check. The high voltage had returned to the 2500 VDC level. After ten minutes of operation the instrument was returned to standby. The charged particle experiment has remained in standby since that time. Currently, consideration is being given to various possible modes of instrument operation that would minimize high voltage decay and permit optimum science data return.

Status as of 1700 G.m.t., 17 November, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	728	285	109
Total Commands to Date	11,292	4135	3757
Sun Angle	245°	251°	272°
Input Power	71.5w	71.9w	73.5w
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	19.9°F	38.0°F	-3.1°F
PSE Sensor Assembly Temp	126.1°F	124.3°F	124.1°F
LSM Internal Temp	Invalid	N/A	5.6°C (42.0°F)
SWS Module 300 Temp	-15.6°C (3.9°F)	N/A	-18.4°C (-1.2°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.6°C (43.9°F)
CCGE Temp	Off Scale High	Invalid	108.3°K (-264.4°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-64.0°C (-83.2°F)	N/A
HFE Temp Ref Junction	N/A	N/A	282.9°K (49.9°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

3 December 1971
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 as planned, with scientific and engineering measurements from the data subsystem and all experiments indicating operational status within expected limits. The moon is in the earth's magnetosphere, 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 have stabilized from the effects of passing through lunar noon, December 2. 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 -136.7±1.7 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, November 25. Per agreement the 18-hour timer was configured to function after lunar sunrise, and will be eliminated at lunar sunset. At 1245 G.m.t., 2 December, the 108th 18-hour timer pulse was correctly verified by 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 have diminished with lunar noon, as the instrument is fully illuminated and the thermal gradients across the seismometer's thermal shroud are at a minimum. The instrument's thermal control mode is forced OFF, and the feedback loop filter is commanded OUT. On 2 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.

The magnetometer's sensors are currently in the 100 gamma range, as the moon passes through the earth's magnetosheath. At 1400 G.m.t., 1 December, the instrument's Y axis sensor output dropped off scale LOW, coincident with the first cal raster of a scheduled flip calibration sequence. This anomaly occurred previously from November 2-5. 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 210 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 OFF. The ion detector's high voltage power supply (-3.5 Kv) experienced an unexpected mode change to the OFF state, 2 December. The ion gauge's high voltage power supply (4.5 Kv) was subsequently commanded OFF at 1311 G.m.t., 2 December, in order to preclude further mode changes at elevated temperatures. The instrument's electronics internal temperature, T2, reached 86.85^{o}C (188.3^{o}F) prior to the unexpected mode change. Currently, plans are being formulated for time of commanding the instrument's high voltages ON. Investigation of this unexpected mode change is continuing.

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^{o}K (-4.0^{o}F), with probe 2 indicating a temperature of 250.7^{o}K (-8.1^{o}F) its lowermost point. The instrument's cable thermocouples on the lunar surface indicate a temperature of approximately 367.5^{o}K (202.0^{o}F).

Apollo 14 ALSEP

Operational status from 19 November 1971, 1200 G.m.t., to 3 December 1971, 1300 G.m.t.

Central station	Lunar noon at the Apollo 14 landing site, will occur on 4 December; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -140.8 ± 3.3 dbm.
Passive seismic experiment	Operation is in the auto 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 26 November, experiment commanded ON at 2015 G.m.t., and to high bit rate ON at 2030 G.m.t., for a 3 hour listening mode operation 1 hour before terminator crossing. There were 5 significant events noted as well as numerous small events. No calibration pulses were sent during the listening mode operation. High bit rate was terminated at 2330 G.m.t., and the instrument was commanded to standby at 2343 G.m.t. The instrument was again commanded ON 2 December at 1416 G.m.t., and to high bit rate at 1430 G.m.t., for a 30 minute listening mode. All three geophones were functioning properly and calibration pulses were executed with a normal response being received from each geophone. It should be noted that geophone 3 has been continuously erratic since 11 May 1971, until this support period.
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.

Apollo 12 ALSEP

Operational status from 19 November 1971, 1200 G.m.t., to 3 December 1971, 1300 G.m.t.

Central station	Lunar noon will occur on 4 December; RTG power output is constant; and, transmitter "B" signal strength was reported as -138.8 ± 2.3 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.
Lunar surface magnetometer experiment	Scientific and engineering data outputs have been invalid since 11 November. Experiment operation similar to this has been previously observed during past lunations. Continuing to double flip cal the experiment during scheduled support periods.
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 on 1 December during phase II operations. The instrument's internal temperature was 51.8°C (125.2°F) at the time of the unexpected mode change.

Status as of 1700 G.m.t., 2 December, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	744	301	125
Total Commands to Date	11,417	4234	4091
Sun Angle	77°	83°	104°
Input Power	70.6 W	71.5 W	74.1 W
Heater and Power Dumps	Off	Off	Off
Experiment Status	SIDE Off	CPLEE & ASE Standby	All On*
Avg Thermal Plate Temp	91.2°F	113.6°F	117.2°F
PSE Sensor Assembly Temp	131.9°F	126.7°F	Off Scale High
LSM Internal Temp	Invalid	N/A	73.3°C (163.9°F)
SWS Module 300 Temp	65.2°C (149.4°F)	N/A	60.7°C (141.3°F)
SIDE Temp	46.6°C (113.9°F)	Invalid	86.9°C (188.4°F)
CCGE Temp	Off Scale High	Invalid	364.1°K (201.4°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	80.4°C (176.7°F)	N/A
HFE Temp Ref Junction	N/A	N/A	327.1°K (129.4°F)

*Apollo 15 ALSEP SIDE/CCGE Channeltron high voltages OFF, engineering data only.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

10 December 1971
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning, 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 9 December.

The signal strength from transmitter "A", as reported by the network tracking stations, has varied over the past week between -139.0 dbm and -135.8 dbm. The operational procedure, implemented initially on 14 October, of eliminating the data subsystem's 18-hour timer outputs by uplinking the timer's reset command, octal 150, twice daily during lunar night, was resumed on 9 December.

On 8 December between 2200 and 2330 G.m.t., the central station implemented an apparent spurious command and switched from data processor "x" to processor "y". No command verification word was processed into the downlink as a result of the switchover. There is no plan to switch back to processor "x" and all data appear nominal.

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 the100 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 will be commanded to the 50 gamma range today, 10 December. Currently the experiment has executed 224 flip calibration sequences since activation. At the beginning of phase II support on 5 December, 1330 G.m.t., it was noted that the instrument y-axis sensor was outputting valid science data. The y-axis sensor's output had been off scale LOW since 1 December. 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-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 anomalies is continuing.

The solar wind spectrometer continues to record plasma data in the normal range mode for the investigation of long term statistical effects. The experiment was commanded to the normal range mode at 1709 G.m.t., 5 November, at the request of the principal investigator, following the discovery of an intermittently faulty output at the two highest energy steps. Investigation of these anomalies is continuing.

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.

On 2 December at 0729 G.m.t., the ion detector's Channeltron high voltage suddenly dropped to zero. This internal mode change occurred during phase III operations (downlink receive and record by the remote sites only). At the resumption of real-time support by mission control that day, the cold cathode gauge experiment's Channeltron high voltage was commanded OFF at 1312 G.m.t.

As a result of this mode change, it was decided that in the future, the Channeltron high voltages (both instruments) would remain ON until the electronics internal temperature rose to 82°C (179.6°F). The high voltage would then be commanded OFF and would remain OFF until the temperature fell to 80°C (176.0°F); at which time the high voltages would again be commanded ON. The instrument's high voltages were commanded ON at 1647 G.m.t., 7 December, when the instrument's internal temperature indicated 65.6°C (150.1°F). Currently the ion detector experiment is operating in the full automatic sequence, and the cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow experiment's thermocouples, in the cables, are continuing to track the lunar surface temperatures resulting from the optical terminator crossing. The temperature of probe 1 at the bottom of the lowest probe section is 253.0°K (-3.9°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 138.2°K (-210.6°F). Since 9 December, the probe 2 sequence measurement of the thermal plate temperature has indicated off scale 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 is lost.

Apoll ALSEP

Operational status from 3 December 1971, 1300 G.m.t., to 10 December 1971, 1400 G.m.t.

Central station	Sunset of the eleventh lunar day at the Apollo 14 landing site, will occur, tomorrow, 11 December; power output of the radioisotope source is unvarying; and, transmitter "A" signal strength was reported as -142.3 ±2.3 dbm.
Passive seismic experiment	Operation is in the auto ON thermal control mode, and the feedback loop filter commanded OUT. On 4 December at 2323 G.m.t. the seismometer was placed in the auto ON thermal control mode by a spurious command. Normal thermal control mode is forced OFF for this instrument at this portion of lunar day to minimize internal temperature rise. Thermal control was therefore returned to forced OFF at 2335 G.m.t. No lunar seismic signals have been observed during the limited real time support for the Apollo 14 station.
Active seismic experiment	Currently in standby. Next "listening mode" operation is scheduled for today, 10 December.
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 experiment's high voltages were commanded ON 9 October, and have remained ON continuously since that time.
Charged particle lunar environmental experiment	Presently in standby. On 8 December at 0214 G.m.t., the instrument responded to a spurious command (octal 052), placing it in operate select mode. The experiment was returned to standby mode at 0252 G.m.t. Next planned operational sequence as yet undetermined.

A7 12 ALSEP

Operational status from 3 December 1971, 1300 G.m.t., to 10 December, 1400 G.m.t.

Central station	Sunset of the 26th lunar day will occur on 11 December; RTG power output is constant; and, transmitter "B" signal strength was reported at -141.3 ±1.8 dbm.
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	Instrument engineering data were valid at 1548 G.m.t., 8 December; science data remained invalid. The experiment's engineering data had been invalid since 11 November; science data have been invalid since 12 October. Experiment operation similar to this has been previously observed during past lunations.
Solar wind spectrometer experiment	Currently operating in the normal range mode. Experiment commanded back to normal range on 5 November, at 1711 G.m.t. The instrument continues to display intermittent outputs in the two highest energy steps. Investigation continues.
Suprathermal ion detector experiment	The experiment is ON in the full automatic stepping sequence. The instrument was commanded ON for continuous support at 1653 G.m.t., 9 December.

Status as of 1800 G.m.t., 9 December, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	751	308	132
Total Commands to Date	11,468	4270	4298
Sun Angle	153°	159°	180°
Input Power	70.6w	71.1w	75.1w
Heater and Power Dumps	OFF	OFF	OFF
Experiment Status	All ON	CPLEE & ASE Standby	All ON
Avg Thermal Plate Temp	73.1°F	79.1°F	39.5°F
PSE Sensor Assembly Temp	Off scale HIGH	125.2°F	124.9°F
LSM Internal Temp	53.5°C(128.3°F)	N/A	42.4°C(108.3°F)
SWS Module 300 Temp	53.5°C(128.3°F)	N/A	16.1°C(61.0°F)
SIDE Temp	22.7°C(72.9°F)	Invalid	30.9°C(87.6°F)
CCGE Temp	Off scale HIGH	Invalid	210.9°K(-79.7°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	55.4°C(131.7°F)	N/A
HFE Temp Ref Junction	N/A	N/A	292.3°K(66.7°F)

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

17 December 1971
G.m.t.: 1400

Apollo 15 ALSEP

The Apollo 15 lunar science station is functioning, as all the experiments and central station components temperatures have reached thermal equilibrium in the lunar night environment.

A steady output of 74.7 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 -138.8 ±1.3 dbm. The average thermal plate temperature is stabilized at 0.2°F. The operational procedure of eliminating the data subsystem's 18-hour timer outputs during lunar night is in effect. The Apollo 15 ALSEP executed its 17th spurious functional command octal 101, PSE feedback filter IN. The Texas tracking station notified mission control that the command verification word had appeared in the downlink at 1801 G.m.t., 16 December. Mission control commanded the instrument to the feedback filter OUT mode at 1846 G.m.t. There were no scientific data out of tolerances due to this spurious functional command.

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. One seismic event of 35 minutes duration was noted on the sensor's long period X and Y axis on 12 December.

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 236 flip calibration sequences since activation.

The solar wind spectrometer continues to record plasma data in the normal range mode. At this time, it appears as if science data associated with the cup sums in levels 13 and 14 continues being interrupted intermittently. The full nature of these occurrences is not yet understood and further investigation is underway by the principal investigator.

The suprathermal ion detector and cold cathode gauge experiments continue to operate, as planned, in the full automatic stepping sequence (0-127 frames) with the Channeltron high voltages commanded ON. The cold cathode gauge continues to indicate a pressure in the low 10^{-12} torr range.

The heat flow instrument continues to sense subsurface and surface temperature data from all probe sensors. Presently the instrument's cable thermocouples indicate a lunar surface temperature of approximately 88.8°K (-299.6°F), with the temperature of probe 1 at the bottom of the lowest probe section at 252.2°K (-4.0°F), and probe 2 indicating a temperature of 248.6°K (-8.3°F) at its lowermost point. At the resumption of real time support on 11 December, the probe 2 sequence measurement of the thermal plate temperature had returned on scale, and was outputting valid data. The TREF 2 measurement has been intermittent off scale HIGH since August, 1971. A duplicate measurement in the probe 1 sequence is operating normally so that no data is lost.

Apollo 14 ALSEP

Operational status from 10 December 1971, 0 G.m.t., to 17 December 1971, 1400 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 -137.0 dbm and -141.0 dbm. Lunar sunset occurred on 11 December. The Apollo 14 science package executed its 13th and 14th spurious functional changes this week. At 1848 G.m.t., 11 December, the Texas tracking station noted a command octal 046, SIDE to standby power, in the downlink. The SIDE was commanded to operate select by mission control at 1858 G.m.t. At 1056 G.m.t., 15 December, the Ascension tracking station noted the second command octal 046 in the downlink. The SIDE was commanded to operate select by mission control at 1106 G.m.t.
Passive seismic experiment	Operation is in the auto thermal control mode, feedback loop filter OUT. A one hour seismic event was recorded, 11 December, by the instrument's long period X and Y axis sensors.
Active seismic experiment	Currently in standby. On 10 December, experiment commanded ON at 1756 G.m.t., and to high bit rate ON at 1815 G.m.t., for 30 minute "listening mode" operation. Data output of all geophones appeared normal. No geophone calibration pulses were sent during the "listening mode" operation. High bit rate terminated at 1845 G.m.t., and the instrument commanded to standby at 1848 G.m.t. Next "listening mode" operation is scheduled for 1500 G.m.t., 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. Positive engineering data in one section of the analog-to-digital filter remains invalid, having no adverse effect on the scientific outputs of the experiments.
Charged particle lunar environmental experiment	The experiment is presently in standby. On 11 December, 1334 G.m.t., the experiment was commanded to operate select and the instrument heater commanded OFF. Analyzer A Channeltron high voltage (AC-03) remained fairly constant at the 2500 VDC level. Analyzer B Channeltron high voltage remained below nominal levels. The instrument was commanded to standby at 2018 G.m.t. when real time support was terminated. During all subsequent real time support periods, the instrument has been commanded ON with the instrument heater ON for the duration of the support period. Science data from Analyzer A has been valid. This operational procedure will continue throughout lunar night (until 26 December).

Apollo ALSEP

Operational status from 10 December 1971, 1400 G.m.t., to 17 December 1971, 1400 G.m.t.

Central station	Sunset of the 26th lunar night occurred 11 December; RTG power output is constant, and transmitter "B" signal strength was reported at -140.0 ±2.0 dbm. The DSS-1 (10 watt) heater was commanded ON 11 December, 2042 G.m.t., when the average thermal plate temperature indicated 33.8°F.
Passive seismic experiment	The instrument's thermal control mode is auto ON, and feedback loop filter commanded OUT. The Z axis drive motor was commanded ON at 2035 G.m.t., 11 December, when the instrument's sensor temperature (DL-07) reached 135.6°F. This experiment did not observe the seismic event that was detected by the Apollo 14 and 15 ALSEP seismometers during Phase II operations on 13 December as data was not displayed in mission Control.
Lunar surface magnetometer experiment	The magnetometer's engineering data output was invalid on 11 December; the data had been valid since 8 December. Intermittent experiment operation similar to this has been previously observed during past lunations. The experiment's science data has been invalid since 12 October.
Solar wind spectrometer experiment	Normal operation in the extended range mode.
Suprathermal ion detector experiment	The instrument's Channeltron high voltage is ON and is operating in the full automatic stepping sequence.

Status as of 1400 G.m.t., 17 December, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	758	315	139
Total Commands to Date	11,550	4328	4451
Sun Angle	250°	256°	277°
Input Power	71.9 W	71.9 W	74.7 W
Heater and Power Dumps	DSS-1 ON	DSS-1 ON	Off
Experiment Status	All On	CPLEE & ASE Standby*	All On
Avg Thermal Plate Temp	19.9°F	38°F	0.2°F
PSE Sensor Assembly Temp	126.16°F	124.3°F	124.3°F
LSM Internal Temp	Invalid	N/A	5.8°C (42.4°F)
SWS Module 300 Temp	-15.2°C (4.6°F)	N/A	-1.8°C (28.8°F)
SIDE Temp	4.3°C (39.7°F)	Invalid	6.0°C (42.8°F)
CCGE Temp	Off Scale High	Invalid	110.3°K (-260.8°F)
CPLEE Electronic Temp	N/A	Standby	N/A
ASE GLA Temp	N/A	-62°C (79.6°F)	N/A
HFE Temp Ref Junction	N/A	N/A	283.4°K (50.7°F)

*CPLEE ON during scheduled lunar night support periods.

APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE STATUS REPORT

23 December 1971
G.m.t.: 1400

There will be no ALSEP status report published on 31 December, in observance of the holidays. The status report to be published on 7 January will cover the previous two weeks of ALSEP operations.

Apollo 15 ALSEP

After 144 days on the lunar surface, ALSEP is approaching sunrise of its sixth lunar day (24 December). Power output of the RTG is steady at 73.5 watts. The signal strength from the package's transmitter, as reported, was -137.3 ± 1.8 dbm. The solid state timer has produced its output pulses at 18-hour intervals, as expected, but during lunar night the output is inhibited by the timer reset command. This action is taken to avoid thermal perturbations of the passive seismometer resulting from timer-induced functional changes.

On 18 December, at 2313 G.m.t., the central station implemented an apparent spurious command and switched from data processor Y back to processor X. No command verification word was processed into the downlink as a result of the unexpected switchover. There is no plan to command back to data processor Y, and all data appear nominal.

Central station telemetry downlink data indicates that the temperatures of all experiments and data subsystem components are stabilized. No unusual science events were observed during the intermittent periods of real time support since the last reporting period.

The passive seismic experiment is operating properly except that the sensor temperature is slightly lower than planned during the lunar night. This temperature condition affects the accuracy of tidal measurements; seismic data are not affected.

Data pertaining to the free-streaming solar wind region continues being sensed by the lunar surface magnetometer, the solar wind spectrometer and the suprathermal ion detector/cold cathode ion gauge experiments. The magnetometer data continues to show that the steady field is much lower at the Apollo 15 site than at the Apollo 12 site. The spectrometer continues to record plasma data in the normal range mode. Investigation of the magnetometer's anomalous Y axis sensor head operation, and the science data associated with the cup sums in levels 13 and 14 of the solar wind spectrometer continues underway by the principal investigators. The suprathermal ion detector and cold cathode ion gauge experiments are operating normally, with the Channeltron high voltages commanded ON, in the full operational sequence. The cold cathode gauge is presently in range 1, indicating a pressure of approximately 4×10^{-12} torr.

The heat flow experiment is performing well and is achieveing its scientific goals. Currently the experiment's cable thermocouples indicate a lunar surface temperature of approximately 84.0°K (308.2°F), with the temperature of probe 1 at the bottom of the lowest probe section at 253.0°K (-4.0°F), and probe 2 indicating a temperature of 249.3°K (-8.3°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 14 ALSEP

Operational status from 17 December 1971, 1400 G.m.t., to 23 December 1971, 1400 G.m.t.

Central Station	DSS-1 heater (10 watt) is ON; power output of the radioisotope power source is unvarying; and, transmitter "A" signal strength was reported as varying between -136.0 dbm and -141.0 dbm. Sunrise of the 12th lunar day will occur on 26 December.
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 17 December, experiment commanded ON at 1936 G.m.t., and to high bit rate ON at 1949 G.m.t., for 20-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 at 2010 G.m.t., and the instrument commanded to standby at 2036 G.m.t. Next listening mode operation is scheduled for 24 December.
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 instrument was commanded to operate select on 18 December for 6 hours, during which time the experiment's high voltage experienced minor degradation (89.6 volts change).

Apollo 12 ALSEP

Operational status from 17 December 1971, 1400 G.m.t., to 23 December 1971, 1400 G.m.t.

Central Station	Sunrise of the 27th lunar day will occur on 26 December. DSS-1 heater (10 watt) is ON; RTG power output is constant; and transmitter "B" signal strength was reported at -138.7 dbm ± 1.5 dbm.
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 are invalid. Science data have been invalid since 12 October, and engineering data since 11 December. Static data are characteristic of the Apollo 12 instrument's lunar night operation.
Solar Wind Spectrometer Experiment	Operation is the normal range mode. The instrument continues to display intermittent outputs in the two highest energy steps. Investigation continues.
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., 22 December, was as follows:

TM POINT	APOLLO 12 ALSEP	APOLLO 14 ALSEP	APOLLO 15 ALSEP
Total Days of Operation	763	320	144
Total Commands to Date	11,568	4351	4515
Sun Angle	309°	315°	336°
Input Power	71.5 watts	71.9 watts	73.5 watts
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	37.5°F	-3.6°F
PSE Sensor Assembly Temp	126.0°F	124.3°F	123.8°F
LSM Internal Temp	Static	N/A	5.6°C (42.1°F)
SWS Module 300 Temp	-15.6°C (4.0°F)	N/A	-18.4°C (-1.1°F)
SIDE Temp	4.2°C (24.4°F)	Invalid	6.0°C (21.2°F)
CCGE Temp	Off-scale HIGH	Invalid	106.5°K (-267.7°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	282.9°K (49.8°F)