

LUNAR DATA PROJECT – INTERIM REPORT ON RESTORATION OF APOLLO DATA.

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The Lunar Data Project (LDP) is an ongoing effort at NASA's National Space Science Data Center (NSSDC) to put relevant, scientifically important Apollo data into accessible digital form for use by researchers and mission planners. We will report on progress made since last year and plans for future data restorations.

The Apollo missions returned a wealth of information from the Moon, including long-term (1969-1977) surface data collected by autonomous ALSEP (Apollo Lunar Surface Experiment Package) stations emplaced by the crews of the Apollo 12, 14, 15, 16, and 17 missions. The data, meant primarily for evaluation of the engineering aspects of lunar bases, represent the only long-term information on the lunar surface environment, and as such are ideal for studying the lunar domain and planning future lunar exploration.

Much of the ALSEP and other surface and orbital data housed at NSSDC are in forms which are not readily usable, such as microfilm, hardcopy, and magnetic tapes with older, seldom-used formats. The LDP has prioritized these data based on scientific and engineering value and level of effort required and is in the process of restoring these data collections.

The Apollo 15 and 16 Soil Mechanics data, consisting of handwritten charts and plots of penetrometer data, have been digitized, put online, and are being prepared for submission to the Planetary Data System (PDS).

The Apollo 15 and 16 X-Ray Spectrometer data, comprising x-ray readings over energy levels relevant to common elements expected on the lunar surface, have been put into tabular form, posted online and are being prepared for submission to PDS.

The Apollo 14 and 15 ALSEP Cold Cathode Ion Gage data, consisting of plots of ion concentrations in the tenuous lunar atmosphere over time, have been digitized and put online and will be submitted to PDS.

The Apollo 12 and 15 Solar Wind Spectrometer data, measurements of solar wind

ions and electrons striking the lunar surface, have been read from magnetic tape, converted to Common Data Format, put online in the NSSDC CDAWeb system, and are being submitted to PDS.

The Apollo 14 and 15 Dust, Thermal, and Radiation Engineering Measurements data, consisting of tables of solar cell voltages over time on microfilm which give information on the degradation of solar cells and the lunar dust environment, are being scanned. We are planning to use optical character recognition software to produce digital tables of this data.

The Apollo 14 Charged Particle Lunar Environment Experiment data, energy spectra of charged particles striking the lunar surface, have been read from magnetic tape and are being reformatted into Common Data Format for addition to the CDAWeb system and archive with PDS.

Other data currently being restored include the Apollo 14 and 15 Suprathermal Ion Detector Experiment and the Apollo 15 and 16 Gamma-Ray Spectrometer data. Future plans include the Apollo 15 and 16 Alpha Particle Spectrometer, Apollo 17 Far-Ultraviolet Spectrometer, and Apollo 15 and 16 Subsatellite Lunar Particle and Boundary Layer Experiment.

Metadata, ancillary information to aid in the use and understanding of the data, have been compiled and are included in these online data collections. These cover complete descriptions of the data sets, formats, processing history, and relevant references and contacts, as well as descriptions of the instruments used to collect the data and mission history. At the end of this multi-year effort we will have the relevant data and associated metadata online and easily accessible to interested users from the lunar scientific and exploration communities.

The data sets and more information on the Lunar Data Project can be found online at nssdc.gsfc.nasa.gov/planetary/lunar/lunar_data/. This poster will outline progress on the overall project.