

## History and Status of ALSEP and the Apollo Lunar Data Project

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A suite of automated scientific instruments (the Apollo Lunar Surface Experiment Package, or ALSEP) was installed at each of the landing sites of Apollo 12, 14, 15, 16, and 17 from 1969 to 1972. They operated from deployment until decommissioning on 30 September 1977. These data were continuously transmitted to Earth and saved on the Range Tapes, which were recorded at the Manned Space Flight Network stations. These data were also broken out by experiment and sent to the experiment Principal Investigators on what were called the P.I. Tapes. Starting in April 1973 the Range Tape data were stored in digital format on 7-track magnetic tapes, the ARCSAV Tapes. In February 1976, the handling of the Range Tapes was transferred to UT Galveston. They produced 9-track tapes referred to as the Work Tapes.

Following the Apollo program the Range and ARCSAV tapes, which were never archived, were lost. The Work Tapes were archived at the National Space Science Data Center (NSSDC). Some investigators archived their individual experiment data with NSSDC as well, but much of the data had minimal documentation, were not in digital form, or were stored in difficult to translate formats. Data from many experiments were never delivered to the NSSDC.

The Lunar Data Project was started to address the problem of both missing and not readily usable data. Our effort has resulted in recovery of some of the ARCSAV tapes, recovery and digitization of a large volume of Apollo scientific and technical documentation, and restoration of many ALSEP and other Apollo data collections. Restoration involves deciphering formats, assembling necessary ancillary data (metadata), and packaging data in digital format to be archived with the Planetary Data System (PDS). Recovery of the data from the ARCSAV tapes involved having the tapes read on special equipment and extracting the individual experiment data out of the integrated data stream. We will report on the history and status of the various recovery efforts.

Restored data validated by PDS are located at:

<http://pds-geosciences.wustl.edu/missions/apollo/>

More on the Lunar Data Project and data sets in progress can be found at:

[https://nssdc.gsfc.nasa.gov/planetary/lunar/lunar\\_data/](https://nssdc.gsfc.nasa.gov/planetary/lunar/lunar_data/)

The ALSEP Document Portal link is:

<https://repository.hou.usra.edu/handle/20.500.11753/2>