

Re-analysis of Apollo Lunar Heat-flow value (1): Archiving all of the existing data

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Lunar surface Heat-flow value was measured directly by Apollo mission. This experiment was carried out in a part of ALSEP (Apollo Lunar Surface Experiments Package) of Apollo 15 to 17, which are started on July 31, 1971 and December 12, 1972, respectively. The data of All ALSEP experiments including Heat-flow experiments (HFE) had been obtained until September 30, 1977, the time all of the stations were commanded to stop data transmission.

Langseth and Keihm (1976) concluded that the lunar surface heat-flow values were 21 mW/m² at the 15 landing site and 14 mW/m² at the Apollo 17 by using the data until December 29, 1974. These values have been widely accepted as the appropriate measured ones. The HFE data are archived at NSSDC (National Space Science Data Center). Recent progress in analytical techniques and advance in computer technology gave us high potential to re-evaluate the Apollo HFE data.

An analysis method and computer power advanced considerably from the Apollo mission. Therefore we can said that re-analysis of the Apollo HFE data is still highly valued.

We could confirm the presence the un-archived data in the acquisition process of HFE data. It contains the data from all ALSEP experiments including HFE from all Apollo stations (12, 14, 15,16, and 17) from March 1, 1976 to September 30, 1977. We have already succeeded in archiving the HFE data, and we are converting them to the physical values.

Although the HFE had been carried out for about 6 years from July 31, 1971 to September 30, 1977, the data for 14-month from the beginning of 1975 to February 29, 1976 have not still found. We have started to analyze the obtained data and looking for the absent data at the present.