WSS-10

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LUNA - 10 COMPLETED ITS PROGRAM OF SCIENTIFIC INVESTIGATIONS

Press Release

(USSR)

6 JUNE 1966

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Communiques from
Newspaper Pravda,
No. 154 (17471),
Moscow, 3 June 1966

SUMMARY

The two communiques, presented hereafter, give an official account of scientific research accomplished by "Luna - 10," which completed its mission on 30 May 1966.

The Tass communique on the completion of operation is followed by an appraisal by the USSR Academy of Sciences of the scientific results achieved by "Luna - 10," which is preliminary.

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COMMUNIQUE TASS

The Soviet automatic station "Luna - 10" — the first artificial satellite of the Moon — has successfully completed its program of scientific investigations.

Two hundred nineteen radiocommunication sessions were conducted during which a large volume of scientific information and trajectory measurements have been obtained.

The last session was conducted on 30 May 1966 after which the reserve of energy of the on-board current sources has been fully exhausted and the communication with the station has ceased.

During its active existence time, the station effected 460 orbits around the Moon, having flown more than seven million kilometers.

The processing of the material obtained is now being carried out. The results of the investigations will be published in the press.

COMMUNIQUE BY THE USSR ACADEMY OF SCIENCES

The program of scientific investigations with the help of the automatic scientific station "Luna - 10," the first artificial satellite of the Moon in the world, has been successfully completed.

During the station's flight along the near-lunar orbit, nine spectra of γ-radiation of the lunar surface were obtained together with ten magnetographic cutaways of the near-lunar space in the 352 — 1 016 kilometer range.

During that period 74 sessions of trajectory measurements have been conducted, besides 17 prolonged sessions with measurements of radiation conditions, of properties of the near-lunar plasma, of micrometeoritic matter density and of thermal radiation of the Moon; three sessions were devoted to measurements of the X-ray fluorescent emission of the lunar surface. The trajectory measurements are utilized for the analysis of orbit evolution of the station " Luna - 10" and for the estimates of the anomalies of the Moon's gravitational field.

Implemented also were a large number of brief control sessions of scientific measurements and one session of radioset behind the Moon.

A series of sessions were adapted to passage by the Moon of particularly interesting sectors of the orbit, in particular of full moon and new moon regions, and also of those of quadratures.

The processing of the data obtained is being pursued, but, as was already communicated in the press, and to the press conference of 16 April 1966, the following preliminary conclusions may already be derived:

- the magnetic field in the near-lunar space is quite weak and its intensity fluctuates on various days between 17 and 35 gammas;
- the gamma-spectra of the lunar surface are close in their character to those of basaltic rocks;
- the spatial density of micrometeorites is higher in the near-lunar space than in interplanetary space;
- there is observed in the vicinity of the Moon an increase in intensity of low-energy particle fluxes, particularly of electrons;

— the anomalies of the Moon's gravitational field are not great.

Upon processing, the results of the program of scientific investigations will be published in scientific journals.

Inasmuch as upon completion of the program of scientific investigations, there still was a certain reserve of electric energy in the on-board sources, additional radiocommunication sessions were conducted during which data were obtained on trajectory measurements and on the operation of the on-board instrument systems.

On 30 May the reserve of electric energy was fully exhausted and the communication with the AMS ceased.

Two hundred nineteen radiocommunications were conducted in all.

By the time of the end of its active existence, the satellite completed 460 orbits around the Moon, having flown more than seven million kilometers.

According to telemetry data, the on-board systems and the apparatus operated normally during the entire active flight period. The pressure and temperature in the instrument compartment remained within the prescribed range and constituted respectively 850 - 860 mm Hg smd 21 — 23° C.

On May 30 the orbit parameters of the AMS were:

— minimum drifting from the Moon's surface (in periselion)— 378.8 km;
— maximum drifting from the Moon's surface (in aposelion)— 985.3 km;
— the revolution period the AMS around the Moon was two hours, 58 minutes and 3 seconds;
— the inclination angle of the satellite's orbit in the lunar equatorial plane was 72° 2.'

During the active existence period, the party tune "International" was broadcast seven times:

— on the day of its placement into orbit;
— on the closing day of work of the 23rd Assembly of the Soviet Union Communist Party;
— on "Cosmonauts Day;"
— on the remembrance of the 96th birthday of Lenin;
— on 1 May 1966;
— on Victory Day;
— on the opening day of the 15th Lenin omsomol Assembly.

The unique investigations, conducted with the help of the first artificial satellite of the Moon (AMS), constitute an important contribution to world science. They allow a significant expansion of our knowledge of the Moon and of the near-lunar space.

* * * THE END * * *

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