

JPRS 50941

15 July 1970

SOVIET-BLOC RESEARCH IN GEOPHYSICS, ASTRONOMY, AND SPACE

No. 232



**JOINT PUBLICATIONS RESEARCH SERVICE**

appeared to have no applicability to their basic work. Now, however, meteorologists and geneticists, geologists and geographers are directly participating in preparing and analyzing the results of scientific and technical investigations and observations made aboard the "Soyuz-9."

For example, consider photography from space. For meteorologists even today this is not only a means for scientific research but also the solution of a problem of great practical importance. Consider the "Meteor" system of meteorological satellites. Using them it has been possible to detect many interesting atmospheric phenomena and it has already been used in weather forecasting. Even now the "Soyuz-9" crew has just participated in a new complex experiment organized by the Hydrometeorological Service USSR.

A. Nikolayev and V. Sevast'yanov photographed the cloud cover in the western Indian Ocean at the same time that a "Meteor" satellite surveyed this region with its television cameras and while measurements of atmospheric characteristics were being made from aboard the scientific research vessel "Akademik Shirshov." Comparison of the jointly collected data, according to the meteorologists, will enable us to study atmospheric phenomena with an earlier unattainable completeness. This is very important for improving weather forecasts.

The possibilities which space photography are affording us are so broad that today it is difficult to completely evaluate them: refinement of the geological characteristics of large regions, ice reconnaissance in the polar latitudes, evaluations of water resources and the snow cover, determination of the state of sown fields, study of ocean currents, and many other phenomena.

The following words are frequently heard at a session of the technical operations staff: "Today the ship's crew made observations and took photographs." The earth is better visible from a distance. (Complete translation: "The Earth is Better Visible from a Distance," by Engineer Major L. Nechayuk; Moscow, Krasnaya Zvezda, 18 June 1970, p 3)

### Neil Armstrong Interviewed by Soviet Newspapermen

The man who was the first to step onto the moon entered the white marble conference hall of the Presidium of the Academy of Sciences USSR surrounded by outstanding Soviet scientists and cosmonauts. He was met with applause, recognition for the achievements of his crew and himself. Neil Armstrong was introduced by Academician A. Blagonravov, who noted the importance of the Apollo 11 flight, the knowledge and bravery of the crew.

The successful flight of Apollo 11 for Armstrong was not a matter of chance or luck. His route to the moon was complex and thorny. He

encountered the waywardness of space equipment already during the flight of Gemini 8; at that time he was able to tame the flightcraft when it suddenly went out of control. Later in a training flight in a lunar trainer over the earth itself the vehicle went out of control and only a fraction of a second and the presence of courage saved his life.

Armstrong was given the podium. He slowly approached the speaker's stand. He has an open and strong face. His movements reveal restraint and modesty. He somewhat resembles Gagarin. Armstrong thanks A. N. Kosygin, Chairman of the Council of Ministers USSR, for receiving him and for their heart-to-heart conversation, and the Soviet government for enabling him to become acquainted with our country and the life of the Soviet people.

"I find it particularly pleasing to tell of the results of my flight right now," said the astronaut, "during the flight of 'Soyuz-9.' I would like to wish its crew the best of success and luck in implementing all its assigned missions."

"As you recall, the Apollo 11 flight lasted approximately eight days. We had good enough luck, experienced no significant technical malfunctions, none of us became ill or experienced unpleasant sensations. Flight to the moon is really extremely awe-inspiring. The appearance of the earth, growing increasingly smaller through the port, is unforgettable. Possibly the most memorable spectacle was the moon, becoming larger and larger as we approached it."

"In my opinion the most difficult stage in the flight was the landing. Before we could sit down on the moon we had to make a whole series of maneuvers. The final landing required about eleven minutes maneuvering. During the lunar landing we met with the first serious difficulty; the computers malfunctioned, but the failures were not so serious as to stop the landing."

"Directly prior to the landing we discovered that the automatic system was carrying us away from the intended landing point to a very uneven terrain near one of the lunar craters. This site was unsuitable for a landing. We switched off the automatic system and shifted to manual control. Approximately a kilometer to the west of the earlier proposed landing site we found a level site and successfully sat down." (We can insert here that the situation was by no means so free of stress: Neil Armstrong, with his characteristic self-command, selected the landing site at the risk of overexpending his fuel. -- M. R.)

"Five hours later we emerged from the lunar cabin. First it should be noted that the moon is a pleasant place to work. Lunar attraction is quite favorable for walking. The lunar surface is quite firm, good enough to hold our weight and we left footsteps. It is a mixture, nine-tenths

consisting of dust and one-tenth of rocks of different sizes and shapes. The dust is very fine, similar to flour. Although the ground material is of different colors, the general background of the surface is dark. We collected approximately 20 kg of samples of lunar rocks and after spending the night on the moon, on the morning of the next day we left its surface."

"The trip back took a little more than two days. I can say that it was a great satisfaction to see the earth approaching once again..."

A mountain of notes is rapidly rising in front of Armstrong. Almost every one of them is a request to tell in greater detail about the hours spent on the moon.

"What made the strongest impression on you during the time you spent on the moon?"

"The view of the earth. The same opinion was shared by all the astronauts who were on the moon."

"With what can you compare the sensation of lunar attraction?"

"Those who were on the moon feel that it is very easy to walk on the moon; one gets the sensation of light swimming. Initially this seems unusual, but within ten minutes you grow accustomed to it."

"Did the lunar landscape correspond to your preconceptions?"

"I formed my general ideas concerning the lunar landscape from photographs which were taken from lunar probes. Nevertheless, I found the moon to be completely different from what I expected. In general, the lunar surface was more uneven and rugged, with craters, rocks and hills all about. The sunlight was very bright, although the sky, naturally, was dark. The light sensation was like that in our stadiums when games are played under the lights. The colors were predominantly black, white and gray. Brownish tones became more conspicuous when the sun rose higher.

"Was your historic phrase 'This is a small step for one man but a giant step for mankind as a whole' prepared ahead of time, on the earth, or during flight?"

"Evidently I am guilty of thinking up this phrase while on the moon." (Laughter in the hall).

"What moment during flight was most stressful for you?"

"Awaiting the opening of the parachute."

"What are your future plans?"

"I propose to work in the field of aeronautics and aircraft construction, but I think that this will be after a new flight into space."

"What would you answer if it was proposed that you head a three-year trip to Mars?"

"I would ask, first of all, permission to take along my family!"  
(Approving laughter in the hall).

With respect to the current flight of Soviet cosmonauts, Neil Armstrong noted that as far as he knew the principal objective of the "Soyuz-9" was a study of the earth's resources. This is a very important objective and within two years such investigations will evidently be made in the United States as well.

"What were your impressions upon arrival in the Soviet Union?"

"The strongest impression remained from my visit to Zvezdnyy Gorodok and a meeting with the wives of Gagarin and Komarov. I would like to come here again."

(Complete translation: "Armstrong Speaks," by M. Rostarchuk; Moscow, Izvestiya, 5 June 1970, p 4)

#### "Soyuz-9" Completes 300th Revolution

The second week, the 14th day of flight of the spaceship "Soyuz-9," was completed on 15 June at 2200 hours. At the control center you already sense some additional rise in spirits. An additional boost, because the day-to-day successes in implementing the program from the very beginning of this prolonged space experiment have created a high psychological background.

I recall the first discussion between newspapermen and the chief designer of the "Soyuz" ships. He stated that during a long flight it is necessary to study the behavior of the human body and thoroughly investigate the "man—machine system" under spaceflight conditions, its long-term effect... In this connection we should mention an experiment whose objective was to determine man's performance when implementing a complex and precise experiment. I refer to a series of investigations in which a cybernetic device participated. A report like this is very limited and we cannot go into the complexities of an electronic circuit. It is more important for us to comprehend the essence of the experiment. Long prior to the flight the cosmonauts practiced definite operations with this cybernetic device. Now they are performing the same work during flight. Comparison of the results (in which the machine itself participated), both on the ground and in space, will make it possible to draw the necessary conclusions on how the "man—machine system" works after prolonged stay in a ship flying in orbit...