NEWS

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FOR RELEASE: IMMEDIATE
March 31, 1971

RELEASE NO: 71-57

U.S. - SOVIET AGREEMENT

The text of an agreement, attached, between the National Aeronautics and Space Administration and the Academy of Sciences of the USSR which was announced Jan. 21, has now been confirmed by an exchange of letters between Dr. George M. Low, Acting Administrator of NASA; and Academician M. V. Keldysh, President of the Soviet Academy. The agreement provides for initiating an exchange of lunar samples obtained by the two countries and establishes procedures to produce recommendations for joint consideration of the objectives and results of space research, the improvement of existing weather data exchanges, research with meteorological rockets, techniques for studying the natural environment, and the expanded exchange of data on space biology and medicine.

-end- 3/31/71

Summary of Results

of

Discussions on Space Cooperation

Between

The Academy of Sciences of the USSR

and

The US National Aeronautics and Space Administration

Moscow, January 18-21, 1971

1. The Academy of Sciences of the USSR (hereinafter called the Academy) and the US National Aeronautics and Space Administration (hereinafter called NASA) consider that the expansion of cooperation between the Soviet Union and the United States in space research and exploration can speed acquisition of knowledge of the earth's environment and surface features, increase opportunities to apply that knowledge for the benefit of man on earth, contribute to the efficient planning of the scientific exploration of the universe, enhance the safety of man in space and permit application of biomedical knowledge gained from manned space flight to the well-being of man on earth.

2. Accordingly, the President of the Academy and the Acting Administrator of NASA, with leading representatives of other concerned agencies (a list of participants is attached), have

held a series of meetings during the period indicated above to exchange views on possible directions for increased cooperation between the Soviet Union and the United States in the exploration and use of outer space for peaceful purposes. During these meetings, they took note of the significance of past agreements between them and in particular the understanding of October 28, 1970 with regard to the question of providing for the compatability of rendezvous and docking systems of manned spacecraft and space stations of both countries.

3. In the current series of meetings, the Academy and NASA have agreed to undertake certain cooperative actions and to consider jointly further possibilities for cooperation, including:

-- In the field of meteorological satellites, to work jointly to make improvements in the current exchange of data and to consider alternative possibilities for coordinating satellite systems of both countries so as to achieve the economies and other advantages of complementary systems.

-- In the field of meteorological rocket soundings, to formulate provisions for a program of soundings along selected meridional lines in cooperation with other countries.

-- In the field of the natural environment, to study the possibility of conducting coordinated surface, air and space research over specified international waters and to exchange results of measurements made by each country over similar land sites in their respective territories so as to advance the potential applications of space and conventional

survey techniques for investigating the natural environment in the common interest.

-- In the fields of exploration of near-earth space, the Moon and the planets, to work jointly to define the most important scientific objectives in each area, to exchange information of the scientific objectives and results of their national programs in these fields, to consider the possibilities for coordination of certain lunar explorations, and, in particular, to initiate an exchange of lunar surface samples by performing an agreed exchange of samples already obtained in the Apollo and Luna programs.

-- In the field of space biology and medicine, to develop appropriate procedures and recommendations to assure a more detailed and regular exchange of information including biomedical data obtained in manned space flights.

4. The details of the considerations described generally in paragraph 3 are provided in Attachments I - IV to this Summary of Results. These Attachments shall be understood to constitute an integral part of this Summary of Results.

5. To provide for the specific actions with respect to agreements and further cooperative possibilities which are set forth in the Attachments noted immediately above, the Academy and NASA agree to designate representatives to Working Groups in connection with each Attachment. Such designations shall be made by the President of the Academy and the Administrator of NASA at the same time that each

acts to confirm this Summary of Results under the provisions of paragraphs 6 - 8 below. Each Joint Working Group shall commence to consider, as a Group, the tasks assigned it under the applicable Attachment within 90 days of the date that confirmation of this Summary is established. After commencing its assignment, each Joint Working Group will report its required actions and recommendations to the President of the Academy and the Administrator of NASA within a further period of six months. The Joint Working Groups shall conduct their work by correspondence and direct meetings in an expeditious manner within the schedules prescribed.

6. The President of the Academy and the Acting Administrator of NASA have indicated their preliminary agreement to this Summary of Results by initialing it below. It is agreed that they shall have a further period of 60 days from this date in which to provide for further consideration. By the end of that period, they shall communicate to each other their written and final confirmation of this Summary, or, in the alternative, their possible specific proposals for altered language to modify any of its provisions.

7. In the case that full and mutual confirmation shall be established, the procedures provided in paragraph 5 above for implementation shall automatically go into effect.

8. In the case that the President of the Academy or the Administrator of NASA is not prepared to give full confirmation of the Summary, he may confirm certain Attachments and reserve confirmation with respect to others. In that case, the Attachments which are mutually confirmed

shall go into full effect. The remaining Attachments shall be considered expeditiously by the President and the Administrator, by correspondence if possible and by meetings if necessary, in order to reach agreement on changes which will permit their early confirmation and implementation.

Initialed: _____

Academician M. V. Keldysh
President
Academy of Sciences of the USSR

January 21, 1971

Initialed: _____

George M. Low
Acting Administrator
US National Aeronautics and Space Administration

January 21, 1971

Attachment I

SPACE METEOROLOGY

I. Meteorological Satellites

A. Agreements and Objectives

The Academy and NASA noted the usefulness of cooperation in the field of meteorology within the Bilateral Agreement between AS USSR and NASA USA of 1962 and Memoranda of Understanding of March and May 1963 and June 1964 and the value of application of artificial earth satellites for global observational information for the benefit of the meteorological services of both countries, and also for the World Weather Watch.

For the purpose of further development of the cooperation in space meteorology the Academy and NASA consider it useful to discuss and coordinate their activities in the following fields:

1. Immediate steps to expand and improve the current exchange of information from US and USSR artificial earth satellites, specifically:

- to increase the volume and quality of original TV and IR pictures of clouds and surface transmitted;
- to improve the forms of presentation of satellite information in combination with other types of meteorological data;
- to improve further the technical performance of the communication link between Moscow and Washington;
- to convert to high speed exchange of conventional data with resulting expansion of its volume;

Coordination of the activity in data exchange shall be arranged directly between the Hydrometeorological Service of the USSR and the National Oceanic and Atmospheric Administration of the USA to include the

questions of schedules, data content, data format, international communications procedures to be followed, etc.

B. Proposals for Further Discussion

1. Cooperation in scientific investigations for further development of methods of meteorological measurements from satellites, data interpretation, data processing, and application of the data. Such problems as the following should be considered:

- development and improvement of methods for sounding of vertical temperature and humidity distribution, observation of precipitation areas and intensity etc.;
- development of optimum methods for mathematical solution of inversion problems in satellite meteorology;
- application of information from meteorological satellites to numerical forecasting techniques;
- methods of automatic data processing of meteorological satellite data.

2. Cooperation in establishment of space meteorological systems with the purpose of sharing of effort.

NASA and the Academy consider important the coordination of their efforts in the establishment of complementary space meteorological systems which take into account the requirements of the World Weather Watch. Exchange of opinions resulted in agreement to continue consideration of the problems in order to work out in the future decisions acceptable to both sides.

II. Meteorological Rockets

A. Agreements and Objectives

1. Cooperation in research on upper layers of the atmosphere

by means of meteorological rockets. In this field NASA and the Academy agreed as desirable coordination of programs to conduct meteorological rocket firings along selected meridians in the Eastern and Western Hemispheres (about 60°E and 90°W), together with other countries concerned.

B. Proposals for Further Discussion

NASA and the Academy agree to consider and coordinate the following problems, always giving consideration to interests of other countries involved:

- definition of the scientific objectives of the two networks;
- preparation of the necessary plans and procedures required to coordinate the launchings in the two networks and provide for the analysis of the data from both networks on a synoptic basis;
- determination of the appropriate measurement instrumentation systems and techniques to be used.

The two Working Groups (one for the problems of satellite meteorology and the other for meteorological rocket soundings of the atmosphere) shall consider and coordinate the problems mentioned in this attachment above in accordance with the procedure established in the document, taking into account also the appropriate recommendations of the World Meteorological Organization and the International Council of Scientific Unions.

Attachment II

STUDY OF THE NATURAL ENVIRONMENT

A. Agreements and Objectives

1. The survey of a wide variety of earth features and conditions from space, primarily on a spectral basis, may be scientifically useful and economically advantageous. The capability to conduct such surveys is in an early stage and requires intensive surface, air and space investigations, studies, testing, and intercomparisons on an experimental basis.

2. In this field the Academy and NASA agree to make every effort to develop cooperation in the following principal directions:

a. Discussions, and the exchange of scientific information, on the use of space technology for investigating the natural environment;

b. Studies of different techniques of measuring parameters of the natural environment, using space and conventional means, and studies of the interpretation of results of these measurements. In this regard, use will be made of the results of research conducted within the framework of existing international space and conventional programs;

c. Study of questions involved in the use of instrumentation required for the registration of electromagnetic radiation of Earth from outer space in various spectral ranges;

d. The possibility of coordinating selected integrated experiments involving space and conventional technology in selected areas of the international ocean; and also the exchange of results of coordinated research above selected areas of the earth surface, with initial emphasis on vegetation, carried out in accordance with national programs.

B. Proposals for further discussions

In performing its assigned tasks, it is suggested that the Working Group on the Natural Environment shall:

- review and consider results already obtained,

- discuss additional data which appear to be required,

- discuss the kind of instrumentation considered necessary to achieve desired results,

- in the case of study of vegetation, recommend the selection of similar sites in the USSR and the US, which each side on its own territory will use for ground analysis and its own air and space surveys,

- in the case of study of the oceans, recommend specific international ocean areas of prime interest for the conduct of research,

- recommend the parameters to be measured and the kind of data to be gathered by both sides, as well as the formats and schedules which shall be used for data exchanges,

- recommend a mechanism for the exchange by each side with the other of the surface, air, and space data obtained by each for the agreed sea and its own land areas,

- recommend a procedure and schedule for the joint review and consideration of such data in symposia open to other countries,

- recommend mutually acceptable schedules for the coordinated programs.

Attachment III

EXPLORATION OF NEAR-EARTH SPACE, THE MOON AND THE PLANETS

A. Agreements and Objectives

I. The Academy and NASA agree that their respective programs of scientific investigation of the Moon can be substantially enhanced by exchanges of samples and other scientific information obtained by each side from the Moon.

II. The Academy and NASA agree to exchange small quantities of such materials to permit their comparative analysis in the laboratories of both countries, to make available to both sides materials from all sites visited on the Moon, and to facilitate analysis in unique or special facilities which may exist in either country. The Academy will provide NASA about 3 grams of regolith brought back by Luna-16 from different parts of the core. In return NASA will provide the Academy about 3 grams from the regolith in the core sample of Apollo 12 and about 3 grams from Apollo 11 samples. The samples to be selected in each case will be agreed by appropriate NASA and Academy representatives.

III. The Academy and NASA agree to support in their respective national programs the "International Magnetosphere Survey" being organized by the IUCSTP-COSPAR Special Study Group.

IV. The Academy and NASA agree to use, along with the existing international scientific channels, such as COSPAR, direct channels for the exchange of scientific information in those cases where the existing channels are inadequate or too slow for the purpose, and where it is in the mutual interest to do so.

B. Proposals for Further Discussion

The Academy and NASA agree that the following points should be discussed by the Working Group on the Exploration of Near-Earth Space, the Moon and the Planets:

I. In the Study of the Magnetosphere

1. Define the problems of the Magnetosphere which should be investigated in the next several years.

2. Determine the ground-based observations which each side could conduct during the period of a particular satellite investigation.

3. Investigate the possibility of standardizing the presentation of data and methods of measurement in studies of the Magnetosphere.

4. Examine the possibility of joint analysis of data from two or more simultaneously operating satellites.

5. Examine the feasibility of and steps required to jointly produce a "standard magnetosphere" for periods of minimum solar activity.

6. Arrange for periodic and timely joint reviews of the status of knowledge of X-ray radiation from the sun and the processes on the sun associated with solar activity.

II. Exploration and Use of the Moon.

1. Define the scientific problems of the Moon which should be investigated over the next several years.

2. Recommend procedures for the reciprocal exchange of future lunar samples and describe the documentation which will be required.

3. Recommend procedures for the reciprocal exchange of lunar photographs, from both orbital and landed spacecraft.

4. Conduct a joint study of the methods of analyzing lunar photographs and preparing lunar maps, and prepare an agreement on a standard lunar coordinate system.

5. Recommend procedures for a reciprocal exchange of data on lunar dynamic processes under observation.

6. Discuss the possibility of a reciprocal exchange of information on the scientific problems under investigation in the Luna and Apollo programs, so that NASA and the Academy can take advantage of their knowledge of the other's scientific objectives as they plan their specific lunar flights.

7. Initiate a joint discussion of the problems of the use of the Moon for astrophysical studies.

III. Exploration of the Planets.

1. Discuss the principal scientific problems in the exploration of the solar system.

2. Arrange for periodic and rapid exchange of scientific information from planetary experiments, so that NASA and the Academy can take these results into account in the planning of their future experiments.

3. Examine the possibilities of one side conducting experiments

in its program, which may be proposed for that purpose by the other.

4. Examine the possibility of joint complementary activity by one side during the conduct of planetary investigations by the other; such as radio occultation experiments, monitoring of solar activity, simultaneous sounding rocket or balloon observations, or ground-based astronomical observations.

SPACE BIOLOGY AND MEDICINE

A. Agreement and Objectives

1. There are increased possibilities for the extension of the exchange of space biomedical data. This exchange should be expanded and made more regular in order to make maximum contributions to the safety and efficiency of manned space flight and to general medical knowledge which may be used for the benefit of all mankind.

2. The Academy and NASA agree that a Working Group shall develop recommendations and procedures to implement the expanded exchange of information. This Working Group will consider the arrangements for regular meetings of competent representatives for the detailed and timely exchange and evaluation of data associated with manned space flight. This exchange should include sufficiently detailed pre- and post-flight data, operational information, and other considerations necessary for full understanding of the results obtained.

3. The exchange of scientific information of mutual interest shall include:

a. biomedical data characterizing the adaptation of man to the conditions of space flight,

b. the development of recommendations concerning the internal environment of manned spacecraft,

c. radiation effects and considerations applicable to manned space flight,

d. directions and methods of biological investigations.

4. The Academy and NASA further agreed that such meetings shall take place as data accumulate but should occur at least once per year in the major problem areas recommended by the Working Group. The first of such meetings

should be held as soon as possible and should be dedicated to the examination of data and results obtained from the Soyuz and Apollo programs.

5. The Academy and NASA encourage the earliest possible completion of the joint publication, Foundations of Space Biology and Medicine.

B. Proposals for Further Discussion

As new knowledge is shared through this program, and new problems associated with manned space flight develop, the Working Group should expand the scope of its recommendations for further information exchange accordingly.

COMPOSITION OF THE SOVIET DELEGATION

1.	M. V. Keldysh	- President, Academy of Sciences of the USSR
2.	A. P. Vinogradov	- Vice-President of the Academy of Sciences of the USSR
3.	B. N. Petrov	- Chairman of the "Intercosmos" Council of the Academy of Sciences of the USSR
4.	G. I. Petrov	- Director of the Institute for Space Research of the Academy of Sciences of the USSR
5.	I. P. Rumyantsev	- Member of the "Intercosmos" Council of the Academy
6.	I. V. Meshcheryakov	- Member of the "Intercosmos" Council of the Academy
7.	A. I. Tsarev	- Member of the "Intercosmos" Council of the Academy
8.	M. Ya. Marov	- Scientific Staff Member of the Institute of Applied Mathematics
9.	Ye. K. Fedorov	- Chief of the Main Administration of the Hydrometeorological Service of the Council of Ministers of the USSR
10.	L. A. Aleksandrov	- Deputy Chief of the Directorate of the Main Administration of the Hydrometeorological Service of the Council of Ministers of the USSR (for Technology)
11.	N. N. Gurovskiy	- Chief of the Directorate of the Ministry of Health of the USSR
12.	O. G. Gazenko	- Director of the Institute of Medical-Biological Problems of the Ministry of Health of the USSR
13.	Yu. A. Mozzhorin	- Professor of the Moscow Physics-Technical Institute
14.	V. P. Minashin	- Chief of the Main Administration of Space Communication of the Ministry of Communications of the USSR

15. I. Ya. Petrov - Deputy Chief of the Main Administration for Space Communications of the Ministry of Communications of the USSR

16. K. G. Fedoseyev - Deputy Chief of the USA Section of the Ministry of Foreign Affairs of the USSR

COMPOSITION OF THE UNITED STATES DELEGATION

1.	George M. Low	- Acting Administrator, National Aeronautics and Space Administration
2.	William Anders	- Executive Secretary, National Aeronautics and Space Council
3.	John E. Naugle	- Associate Administrator for Space Science and Applications, NASA
4.	Arnold W. Frutkin	- Assistant Administrator for International Affairs, NASA
5.	Robert F. Packard	- Director, Office of Space-Atmospheric and Marine Science Affairs, Department of State
6.	Arthur W. Johnson	- Deputy Director, National Environmental Satellite Service, NOAA
7.	William Krimer	- Interpreter, Department of State