

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
1520 H STREET NORTHWEST  
WASHINGTON 25, D. C.

OFFICE OF THE ADMINISTRATOR

8 September 1959

The President  
The White House

Dear Mr. President:

Based on analyses made by members of my staff, I would like to repeat the suggestion contained in my letter of August 25, 1959 that the United States offer to participate in a joint space research project with the U. S. S. R.

A possible wording for the proposal is suggested as follows:

"The United States proposes that the U. S. and the U. S. S. R. discuss the undertaking of a cooperative effort in an area of space research and development in which U.S. - U. S. S. R. cooperation can serve to contribute to an advancement in knowledge of the physical world or to explore an application of space technology for the benefit of mankind. Such an effort might involve the establishment of a joint or cooperative project in the space sciences or in meteorology or in some other area of research or of possible applications on which there could be mutual agreement."

We believe the nations of the world would applaud our taking the initiative in this matter. Such a move would give added credibility to our repeated statements that we urgently desire the exploration and exploitation of outer space for peaceful purposes. We have assumed that Russian agreement to a joint project would not be likely to deter them from seizing every opportunity to utilize for propaganda purposes any situation which would enhance the image of technological superiority they have worked so hard to create. Our proposal, therefore, should be one which would be difficult for them to refuse or to seize upon for their own purposes. We believe the suggested proposal meets these criteria.

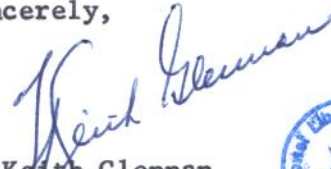
The pros and cons of this suggestion have been set forth in a document attached to this letter. There are included therein brief descriptions of the programs most likely to be considered favorably for a joint effort.



Should you decide to proceed with such an offer, timing becomes an important matter. We recommend that such a proposal be made to Mr. Khrushchev during his visit in Washington and prior to his U. N. address. An announcement to the press that the offer has been made would seem appropriate after the conference at which it is offered.

This suggestion has been discussed briefly with the Vice President. No discussions have been held with other agencies of government. We are prepared to be helpful in any way possible should you think favorably of this suggestion.

Sincerely,



T. Keith Glennan  
Administrator



DISCUSSION OF POSSIBLE PROPOSAL TO THE SOVIET UNION  
RELATING TO US-USSR COOPERATION IN SPACE RESEARCH

The more significant pros and cons of a proposal for cooperation between the US and the USSR in a space research project are as follows:

PROS

1. The United States would again demonstrate to the world its interest in exploring every avenue of possible cooperation in an effort to lessen world tensions.
2. A contribution could be made to the utilization of space techniques to benefit the people of the whole world.
3. A significant and influential element of Soviet society would be exposed to increased contact and intercourse with the outside world.
4. An increased insight into the quality and progress of Soviet technology should result. Something should be gained here even if negotiation on a specific project should fail of agreement.
5. The tremendous costs and the dangers of separate nationalistic programs for the conquest of space dictate strenuous efforts to lay the groundwork for international space exploration before national program developments make this more difficult, if not impossible.
6. A basically bilateral space project will present many opportunities for participation by other nations. In fact, such a development would be a natural consequence of a bilateral effort.

CONS

1. United States hardware items required for cooperative programs, particularly launching vehicles, are still in the development stage. Their use is likely to involve some failures. This will present an opportunity for Russian propaganda efforts to enhance an already existing image of superiority in this field. However, it should be remembered that our failures and successes are known to the whole world in any event. The fact that one of our vehicles fails in a cooperative program rather than in a US program does, however, add to the propaganda utility of a US vehicle failure. If the cooperative program involves launchings by both nations, a Russian success on the heels of a US failure would increase Soviet propaganda possibilities. This could be at least partly compensated for by the increased difficulty the Russians would experience





in keeping secret any failures connected with the cooperative project. And we are certain that they do not escape failures.

2. Bilateral cooperation with the Russians may be considered undesirable by our allies since their own participation in separate bilateral projects would necessarily be of a lower order of importance.

3. A bilateral effort could, by the nature of the US commitment and the pressure from a prestige standpoint to meet those commitments, distort our planned program by forcing application of greater than planned resources in the event of bad luck in achieving orbit or in developing a piece of hardware.

4. There is a basic incongruity in the existence of a cooperative program which lends an aura of respectability to the USSR and Soviet instigated brush wars and phony revolutions involving our allies and other friendly powers.

5. Such a proposal could be represented as inconsistent with the US position in the UN on space activities.



On the assumption that a proposal to the USSR for a joint or cooperative space project would be accepted, it seems clear that such an agreement would not deter the Russians from their propaganda efforts to utilize effectively any situation which might enhance the image of technological superiority they have worked so hard to create. It is believed that the competition for significant "firsts", such as launching a man successfully into orbit or landing an object on the moon, will continue unabated. The propaganda barrage which paints our space effort as largely or entirely for military purposes would probably continue including efforts to associate our civilian space efforts with reconnaissance objectives. Notwithstanding the disadvantages which accrue from this possible situation, it is believed that the advantages of achieving a cooperative activity and the potential for growth of such an activity to include other nations and more ambitious projects, if initial efforts are successful, warrant the United States taking the initiative in this matter.

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#### AREAS PROPOSED FOR DISCUSSION

The areas from which suitable projects might be chosen are wide. Three such areas--Passive Communications, Ionospheric Topside Sounder and Meteorology--are selected as most suitable for the United States to offer. The degree of cooperation and the particular project or projects



chosen for this effort should be the subject of negotiation. A particular level of cooperation is suggested in each case, but this may be adjusted up or down as circumstances dictate. The projects we recommend are derived from our program and plans; we should remain open to their suggestion of other projects for choice.

### Meteorology

Objective -- Explore through research and development the types of information best acquired through satellite flight which will contribute to the science of meteorology and to an improvement of the weather prediction process.

Description of Program -- Satellites such as U. S. Tiros and possibly Russian counterpart will take data on cloud cover and IR characteristics of atmosphere. These data are analyzed for

- a. Synoptic cloud maps of earth surface
- b. Heat budget of earth and atmosphere

Further meteorological analysis should provide a better understanding of the weather process and lead to more reliable long range weather forecasting.

Functions of Joint Task Force --

1. Composition - technical personnel from each country.
2. Budget - Ten million per annum to be supplied by each country.
3. Functions
  - a. To arrange for the flight of promising data gathering devices such as the U. S. Tiros satellite and any similar device the Soviets may have.
  - b. To receive copies of all data collected by these devices and to analyze them or arrange for them to be analyzed by agencies in the US, USSR or elsewhere as appropriate and to apply them to the meteorological problem.





- c. To make the results of the effort available to the world in usable form. This may be done in the World Meteorological Organization.
- d. To supplement the work done under "a" above through the design and construction of a "joint" satellite if this proves desirable. To design and arrange rocket sounding tests if this proves desirable.
- e. To review the national program and make use of other relevant data as it may be pertinent.
- f. To arrange, as necessary, for assistance in tracking or data acquisition to insure better coverage.
- g. Arrange and hold a joint conference at the end of 3 years for the purpose of reporting the results obtained and the new techniques developed during the course of the project and to review the project to determine the proposed future course of action.

Space Science - Ionosphere Topside Sounder



- Objective -- To determine the nature and variations of the outer ionosphere through sounding from a satellite outside the ionosphere.
- Description of Program -- Satellites radiating a swept frequency pulse transmission with a suitable sweep frequency receiver and a multifrequency pulsed transmitter with a multifrequency receiver will be flown in high polar orbits to observe in a synoptic fashion the outer ionosphere. Simultaneous ground measurements will tie the "topside" data into the normal picture and will give a more complete study of the ionosphere as a whole.
- Functions of Joint Task Force --
1. Composition - One supervisory technical person from each country.
  2. Budget - Less than \$100,000 - sufficient for salary and publication costs.



3. Functions -

- a. Acquaint participants with parameters of problem.
- b. Assist in the arrangements for tests.
- c. Request tracking assistance as required.
- d. Arrange and hold a joint symposium on the results of the tests carried out during the course of the project and new methods developed in the project.



Passive Communications Satellite

Objective --

To conduct research and development on microwave communication over long distances by means of reflection of signals from large spherical objects placed in orbit around the earth. To demonstrate the feasibility of this method by establishing a voice or TV contact between the U. S. and Russia.

Description of Program --

We would propose that the cooperation be carried out in several steps. As a first step, we would propose that we and the Russians make use of the initial 100-ft. balloon flights to develop within each country an ability to transmit and receive messages reliably by use of the balloons. It would be expected as a part of the project that the Russians would aid us through the provisions of tracking and ephemeris information which is so vital to the project and by helping to observe stability of the spherical structure. During this period of development we would keep the Russians informed of the techniques we were using and of any innovations brought into our program. We would ask them to do the same with the end in view of having developed in this period of time reliable and compatible ground equipment for communications relay purposes.

By the time the techniques were established it is anticipated that we would have available to us through the use of the Vega or Centaur vehicles a capability of launching a passive reflector in an orbit of 3,000

more  
or/ miles above the earth. When such a satellite has been placed in orbit then attempts at a demonstration of the relay link between such locations as say Boston and Leningrad, or Seattle and Vladivostok, can be made. These long range experiments will be very helpful in determining the bandwidth limitations of such a system and in determining the feasibility of communications by way of an object requiring precise tracking on the part of the transmitter and receiver. Implicit in this program would be an agreement on the frequency bands to be developed for this use.

Functions of Joint  
Task Force --

1. Composition - Few technical personnel from each country.
2. Budget - \$100,000, sufficient for salary and publication costs.
3. Functions -
  - a. Acquaint the project teams in each country with the parameters of the problem. These parameters would be such things as the nature of the reflector, the approximate dates when launchings might occur, the types of antennas, receivers and transmitters being used, the type of orbit to be expected.
  - b. When flight of low flying reflector is imminent to help each side arrange for tests with this object with the end in view of insuring the eventual development of compatible equipment.
  - c. Through discussions with the project teams to arrive at and choose certain frequency bands for tests.
  - d. To become acquainted with programs in the project on both sides and to serve as a medium for the exchange of information.
  - e. To arrange the ultimate test.
    - (1) Make final choice of frequency.
    - (2) Approve the location of the ground





transmitter-receiver stations.

- (3) Arrange and approve the type of transmission to be used.
  - (4) Choose the time of day for the test best suited to both countries and compatible with the motion of the reflector.
- f. Arrange and hold a joint symposium on the results of the tests carried out during the course of the project and new methods developed in the project.

