Executive Summary

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On October 30, 1984, President Reagan signed a Joint Resolution of Congress, now Public Law 98-562, in support of renewing cooperation in space with the U.S.S.R. Since then, a number of specific proposals have been put forward for prospective U.S.-Soviet joint projects—including a congressional resolution introduced by Senator Matsunaga in February 1985 in support of U. S.-Soviet cooperation on Mars exploration missions.

Public Law 98-562 marks the outcome of several years of debate on the merits of cooperation with the U.S.S.R. in space and other activities. This technical memorandum, written at the request of Senators Matsunaga, Mathias, and Pen, is intended to sort out the issues of implementing Public Law 98-562 as they apply to debates in Congress today. It is not intended to determine whether cooperation should be pursued, nor to prescribe optimal methods for doing so. Instead, it is intended to sketch out the broad issues surrounding the implementation of U.S.-Soviet cooperation in space, and to provide a basis for discussing guidelines and specific policy approaches in the future.

U.S.-Soviet cooperation in space comprises a combination of scientific, foreign policy, and national security issues. It is influenced by a background of strained, unpredictable, and ambiguous relations between the two countries overall, and by the fact that international scientific and technological cooperation and the civilian and military uses of space have become more complex and contentious issues in their own right.

In light of conflicting currents in U.S.-Soviet relations, therefore, balancing competing objectives and different perceptions of the U.S.S.R. will be a major challenge in determining the shape and magnitude of future U.S.-Soviet cooperation in space. Four issues are central:

- the scientific and practical benefits that can be gained from space cooperation,
- the potential transfer of militarily sensitive technology or know-how between the two countries,
- the effect of space cooperation on foreign policy, and
- perceptions about Soviet motivations and behavior and the course of U.S.-Soviet relations overall.

From a scientific and practical point of view, past experience has shown that cooperation in space can lead to substantive gains in some areas of space research and applications, and can provide the United States with improved insight into the Soviet space program and Soviet society as a whole. As discussed in chapter 3, scientists in OTA'S workshop concluded that the scientific return from U.S. space exploration activities could be expanded significantly by cooperation with the Soviet Union. The scientists also suggested that cooperation be initiated with modest exchanges of solid scientific substance in relatively well-bounded areas, and that the possibility of a large-scale mission might be held out as a long-term goal, provided that it, too, offered rewards of solid scientific substance.

Past experience also suggests that technology transfer from the United States to the U.S.S.R. will remain a major countervailing concern in any future space cooperation. Should cooperation be renewed or expanded, the challenge facing U.S. planners will be to minimize these concerns; but concerns will continue to arise regardless of the scale or level of cooperation. Most people agree that precautions must be taken to prevent transferring militarily sensitive technology and know-how to the U.S.S.R. The difficulties will lie in determining what should be considered militarily sensitive, who should be authorized to make such decisions, and the extent to which potentially sensitive technology or know-how can be protected in any particular exercise.

Past experience, both in low-level cooperation with the U.S.S.R. and in more extensive cooperation with our allies, suggests that this will be a difficult and controversial challenge. The Soviets have no doubt been pursuing an aggressive campaign to acquire Western technology and know-how, particularly in the area of space systems and technology; severely limiting cooperation in space is one way of protecting Western security against such efforts. But Soviet scientists are also conduct-

ing innovative and high caliber work in certain areas of space research and applications. Overly stringent controls could threaten the free interchange of scientific and technical ideas and information in areas complementary to, but not always addressed in, the U.S. space program. In addition, since the Soviets are already cooperating with other Western countries in space research and applications, the United States could find it increasingly difficult to control the flow of information to the U.S.S.R. without isolating itself from the rest of the world space community. A key challenge, then, will be to craft cooperative arrangements that diminish the possibility of aiding Soviet military capabilities but that keep space cooperation substantive and viable.

Perhaps the most difficult challenge will be to assess how space cooperation can be effectively used to support U.S. foreign policy objectives. Space cooperation, on both low and high levels, is inherently symbolic. The main areas of controversy concern whether space cooperation can alter Soviet behavior, and so ease U.S.-Soviet conflicts; and whether starting and/or stopping space cooperation is an appropriate political symbol to underscore other U.S. foreign policy objectives.

The extent to which space cooperation can alter Soviet behavior, and in that way reduce tension in U.S.-Soviet relations overall, is hard to predict. One viewpoint suggests that this is entirely plausible, and cooperation should be pursued toward this end. An opposing viewpoint suggests that there is no reason to believe the Soviets would alter their behavior as a result of U.S.-Soviet cooperation in space and that cooperation might even be dangerous: from this perspective, any reduction in tension would be superficial, and would only lead the United States to lower its guard against an adversary that uses cooperation solely for its own purposes. In between are a range of views, including the belief that a low level of interchange among scientists at a working level, removed from the realm of superpower politics, can be the most effective way for keeping channels of communication open and reducing tensions between the two countries in the long run. Another belief is that space cooperation has no fundamental positive or negative effect on U.S.-Soviet relations, and must be weighed simply on its own merit. Although there is no evidence from past experience that space cooperation can affect foreign policy in any far-reaching way, many believe the future can be different.

Regardless of whether space cooperation can alter Soviet behavior, another question is whether it is smart to exploit its symbolic value to achieve other U.S. interests. Symbolic value has always been a key component in both the U.S. and Soviet space programs, on low as well as high levels of cooperation. The question of whether cooperation should be initiated or terminated primarily to pursue symbolic goals has generated a controversy of its own. *Creating* a large-scale cooperative effort in space, for example, could bring positive benefit to the United States, by illustrating to other countries the U.S. desire to work with our adversaries to promote peace. But it could also bring risks: 1) it may provide the U.S.S.R. with a great deal of symbolic benefit by casting them as technological equals; and 2) should a large-scale joint project fail, the symbolic cost could be damaging to U, S. interests. The symbolic benefits and risks from U.S.-Soviet cooperation in space would increase with the size, scale, and visibility of any cooperative effort.

Similarly, severely *curbing* or *terminating* cooperation may be an appropriate symbolic measure to show displeasure with egregious Soviet behavior, but it also carries risks. U.S.-Soviet cooperation in space inevitably occurs in the context of U.S.-Soviet relations overall, and the tendency of U.S. policy in the past has been to utilize space cooperation for foreign policy ends. The assumption has been that an abrupt reduction in space cooperation can be an effective means of protesting Soviet behavior: when the Soviets do something morally reprehensible at home or abroad, some believe the United States has a moral responsibility to respond, and space cooperation is an effective way of doing so. But as this will generally result in scientific and practical losses, many question this approach, preferring other methods of protest that show displeasure at less cost, They believe that curtailing or terminating space cooperation with the U.S.S.R. brings little benefit, and in fact may harm scientific inquiry and/or U. S.-Soviet relations overall. There is a notable lack of agreement on how past experience might clar-

ify these debates, and the degree to which past experience may be useful in assessing potential fu*ture* cooperation.

Underlying all of these viewpoints are different assumptions about Soviet objectives and behavior. The Soviet approach to cooperation has tended to mirror its overall approach to U. S.-Soviet relations, reflecting both an official commitment to cooperation in space, and a basic competition between the two superpowers. Soviet leaders have consistently used their space program not only to enhance cooperation, but also to pursue other foreign policy objectives more competitive and confrontational in nature (such as weakening the prestige and influence of the United States while enhancing that of the U. S. S. R., and developing a strong militarily related space capability of their own). This has led to vastly different interpretations of Soviet motivations and actions among U.S. observers, and different interpretations of the lessons of past U.S.-Soviet cooperation. A central U.S. foreign policy challenge, therefore, will be to assess how U.S. objectives may be attained independent of Soviet intentions.

Other countries with space programs of their own are grappling with these same issues. Many of these countries have developed different approaches to cooperating with the U.S.S.R. that may be instructive for U.S. planners, and that will certainly have an impact on the effectiveness of U.S. policy choices in the future. OTA reviewed the issues in French-Soviet space cooperation—the most continuous and extensive East-West cooperation in space science research—to examine whether they might offer insights for U.S. policy.

French-Soviet space cooperation was begun with political aims paramount. As the political climate has become less opportune for promoting such cooperative efforts, however, and as the scientific base of the French space program has grown, scientific and economic aspects have been increasingly emphasized.

In the 1980s, therefore, French policy reflects the view that the scientific and economic benefits, and the political advantages gained from keeping lines of communication open with the U.S.S.R. through space cooperative efforts, offset any benefits that may be attained by terminating cooperation in symbolic protest. Accordingly, space cooperation has not been dramatically interrupted in response to broader political events. While believing that no area of cooperation with the U.S.S.R. can be totally depoliticized, French planners argue that it is important to seek an area for cooperation where political considerations are reduced as much as possible, but where scientific benefit can be substantial and continuous. In terms of technology transfer, the French believe they have effective mechanisms in place to control the transfer of militarily sensitive technology to the U. S. S. R., and they provide briefings to French scientists who work with Soviet scientists to better control the flow of sensitive information. But the French differ markedly from the United States in defining "militarily sensitive" technologies as only those with direct military application—as opposed to more extensive U.S. definitions—and by tending to be more confident about special "packaging" and other ways in which sensitive technology can be protected.

Because of several factors, then—the conflicts between the gains of cooperation and the risks of technology transfer; disagreement over the relative importance of scientific and practical benefits and foreign policy goals; and possible inconsistencies among foreign policy objectives —there will always be a multiplicity of views about East-West cooperation in space. The ways in which these viewpoints are reflected in policy will determine the size, shape, scope, and effectiveness of any potential space cooperation with the U.S.S.R.

It would clearly be useful to further examine the costs and benefits of past cooperation, as a basis for considering the establishment, cancellation or continuation of cooperative arrangements in the future. At the same time, however, it is important to remember that views on how much cooperation to pursue will necessarily reflect judgments about broader issues of world tensions, Soviet objectives, and the overall course of U.S.-Soviet relations at least as much as they will reflect judgments about the costs and benefits of U.S.-Soviet space cooperation itself.