OMB Jeopardizes U.S.–Soviet Satellite Accord

It wants to save money by reneging on a U.S. commitment to launch two weather satellites with search-and-rescue receivers

The Office of Management and Budget (OMB) has directed the Department of Commerce to reduce U.S. commitments to an international search and rescue satellite system, known as SARSAT, that is the basis of one of the few remaining cooperative agreements involving both the United States and the Soviet Union. The system will be discussed at a meeting in Leningrad next month, and if OMB prevails the United States is likely to be perceived as backing down on a humanitarian effort that the Soviets—and U.S. allies—are eager to continue.

Begun as an experimental program in 1977, SARSAT is essentially a satellite relay system that gives rescue services a precise location of ships or aircraft in distress. The agreement was that Canada and France would provide the SARSAT receivers; the United States would fly them on its two polar-orbiting weather satellites; and the Soviet Union, in a parallel program called COSPAS, would fly two equivalent receivers on its own polar satellites.

Seven years later, the experiment has proved an enormous success. The United States has launched one SARSAT-equipped satellite and the Soviets have launched three, including one failed satellite they have temporarily revived. As of 15 July the system has been credited with saving 247 lives worldwide, of which 177 were in North America. (None of them have been Soviet citizens, ironically enough, although most of the rescues have in fact been attributable to the Soviet satellites.) In the United States alone there are emergency locator transmitters in some 200,000 civilian aircraft and 6000 ships. Five more nations have joined the program and are building ground stations, while discussions are under way with several others.

The only disappointment, in fact, has been the premature failure last June of the first SARSAT-equipped American satellite, NOAA-8. However, a second SARSAT-equipped weather satellite is scheduled for launch in November, and another could follow in the late spring of 1985 to bring the United States up to its full complement of two. (There is actually a whole series of back-ups available; satellites have a finite lifetime and have to be replaced like multimillion-dollar light bulbs.)

In Washington, meanwhile, the National Aeronautics and Space Administration (NASA) is preparing to hand over operational responsibility for SARSAT to the National Oceanic and Atmospheric Administration (NOAA), which operates the weather satellites under the Department of Commerce. And in Leningrad, the Soviet Union is preparing to host the COSPAS/SARSAT partners during the week of 1 to 5 October, when they will work out the arrangements for continuing the program through the 1980's.

On 26 July, however, OMB director David Stockman sent a letter to Commerce Secretary Malcolm Baldrige. It had come to his attention, said Stockman, that NOAA intended to negotiate with the Soviet Union on the basis of having *two* polar-orbiting weather satellites. Yet the Administration's policy, as reflected in the last three budgets, has been to cut the civil system back to *one* polar orbiter for a savings of $300 million between 1985 and 1989. While Congress has refused to go along so far, "in my view, we should improve our efforts to secure congressional support for reductions in NOAA programs—not propose international agreements that will make it only more difficult to succeed during the second Reagan Administration."

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Stockman's letter left NOAA and NASA with some problems. First, having only one American satellite would sharply limit the effectiveness of SARSAT. Even with two Soviet satellites in the system, it would mean the difference between rescue in 2 hours on the average and rescue in 3 to 6 hours—a critical difference when someone takes an unexpected swim in, say, the Gulf of Alaska. In the United States the SARSAT rescues are the responsibility of the Coast Guard and the Air Force; both have agreed that an acceptably low rate of mortality requires at least four satellites, which means two American satellites.

(It is worth noting that the Air Force has two polar-orbiting meteorological satellites of its own, but has refused to consider putting civil SARSAT equipment on them.)

Second, Stockman to the contrary, the official policy of the U.S. government is to have two polar-orbiting weather satellites. The OMB has indeed cut the second orbiter out of the budget 3 years running. But Congress has put it back in 3 years running, on the grounds that two satellites make for better weather forecasts and for redundancy in case of failure—as dramatized by NOAA-8, and again on 29 July by the premature failure of the GOES-East weather satellite in the 35,900-kilometer geostationary orbit. Congress shows no inclination to change its position. Moreover, President Reagan has signed all three of those spending bills, the last of which, for fiscal year 1985, goes into effect the day the Leningrad conference begins. Are the American delegates supposed to tell their counterparts that neither Congress nor the President really meant it?

Finally, the Leningrad meeting, which was supposed to celebrate the continuation of SARSAT, has suddenly become fraught with foreign relations problems. As things stand now, the delegates will have to go to the meeting talking about a system involving only one polar-orbiter. The United States might then be perceived as backing down on a humanitarian agreement with the Soviet Union, not to mention with some of its own allies. The Soviets could choose to retaliate by cutting back on their own search and rescue effort, in which case everyone will be hurt. Or else they might choose to forge ahead with a strong program and bask in the favorable publicity, in which case the rescue forces of the COSPAS/SARSAT member nations—including the United States—will become more and more dependent on Soviet technology and Soviet commitment.

An alternative is for the American delegates to go to Leningrad and ask that any agreement on a COSPAS/SARSAT system be deferred until the U.S. government can get its act together. Such a position would be embarrassing to say the least.

As a final alternative, NOAA, NASA, and the OMB could resolve their differences before the Leningrad meeting, and the delegates could go back to talking about a two-satellite system. Some of the principals are optimistic, others are not. The outcome remains to be seen.

—M. MITCHELL WALDROP

Scientists Warm to the Space Station

The space science community seems to be growing more reconciled to the National Aeronautics and Space Administration's (NASA's) plans for a permanently manned space station. A gathering at Stanford University during the week of 13 to 17 August saw flashes of outright enthusiasm—together with continued concerns about the station's flexibility, its cost, and its impact on ongoing space science.

The occasion was a meeting of NASA's Task Force on Scientific Uses of a Space Station, chaired by Stanford's Peter Banks. The 29 task force members were joined by some 100 guests from NASA and all the major space science disciplines, and their recommendations will soon be submitted formally to agency administrator James M. Beggs.

The primary conclusion is that a manned space station will indeed be a beneficial tool for research—which would be a motherhood statement except that so many space scientists have been so dubious about the station in the past (*Science*, 7 October 1983, p. 34). The two factors cited most often at Stanford were the station's capability for the assembly and repair of satellites, and the crew's ability to interact with the experiments directly.

NASA's cost estimate of $8 billion neglects some items; the true cost could be closer to $12 billion, Banks says.

However, the participants also remembered quite clearly what happened to their programs during the development of the space shuttle. To avoid a repeat of that experience while NASA builds the space station, they want the agency to simultaneously maintain a strong program of research with the shuttle and Spacelab. "It would provide protection for space science," points out Banks, "and it would give us some leeway for the arrival of the station."

In the same vein, the task force would also like to see the shuttle's stay-time on orbit extended from its current limit of a week or so, to 20 days. The modifications to the shuttle orbiter would be fairly straightforward, the extra time would be very useful both for scientific missions and for assembly of the station itself, and the longer missions would provide a base of experience for the permanent habitation of the space station.

As for the design of the space station, the scientists' major bone of contention with NASA involves the so-called platforms. The idea of a platform is to get the more sensitive instruments away form the vibration and outgassing of the manned station, while keeping them together on a single structure where they can share power, communications, and stabilization. NASA's current plan is to have two quite large platforms, one in polar orbit and one in equatorial orbit near the manned station.

However, "large" in this case also translates as "expensive" and "inflexible," with lots of potential for instruments to interfere with one another. What the scientists at Stanford favored instead were mid-sized platforms in polar orbit for earth observations and space plasma physics, and a spectrum of small- to mid-sized platforms in equatorial orbit for astronomy and perhaps materials science.

For the interior of the station, it was clear that a lot of specialized laboratory modules will be needed. For example, the people in life sciences want to work with animals, and they were concerned about having a place to keep the animals separate from humans. They also talked about having a centrifuge to control the gravitational forces precisely.

In another example, the Stanford participants suggested having a pressurized module for doing satellite repair in a shirt-sleeves environment. NASA has always assumed that such work would be done by astronauts in space suits. However, the experience so far on missions like the Solar Maximum repair indicates that extravehicular activity is exhausting, both physically and mentally; moreover, work time is sharply limited by the spacesuits' fuel and air supply.

Meanwhile, the planetary scientists at Stanford wanted NASA to take an early look at using the space station to stage advanced missions to the moon and to Mars—including possible manned missions. This is interesting, since some of the most persistent critics of the space station have also come from the planetary science community.

The cost of all this is very difficult to project, says Banks. NASA estimates $8 billion for the initial operating capability of the space station in the early 1990's. But that includes neither the launch costs nor the cost of scientific instrumentation. Banks told the Stanford gathering that his best guess for the total cost of the station is closer to $12 billion in 1985 dollars, with operating costs to be added in on top of that.

All in all, however, the Stanford meeting demonstrated a notable shift in scientists' opinions about the space station. "The working group as a whole began with great caution," agrees Banks, "but at this point we feel more optimism." It has become clear that the science community *will* have a voice in planning the station, he says, and that furthermore the budgetary aspects are receiving a great deal of attention at NASA headquarters. No one there wants a repeat of the shuttle experience, either.—M. MITCHELL WALDROP