

NASA Seeks European Space Partners

NASA head James Beggs recently reminded European governments that a decision on space station collaboration is needed soon

Paris. Boosted by the recent technical and commercial success of the launcher Ariane, pressure is building on European governments to significantly increase their current joint spending of \$1.7 billion a year on space activities. Such an increase will be necessary if they wish both to participate in the National Aeronautics and Space Administration's (NASA) space station and to maintain a balanced program of activities in other space related fields.

NASA administrator James M. Beggs, visiting a number of European capitals recently to solicit foreign collaboration in the construction and ultimate use of the space station, made it clear that he was hoping Europe would agree to provide between 20 and 25 percent of the final cost. This money would be in addition to the \$8 billion for which NASA plans to ask Congress over the next 10 years.

Beggs also emphasized that, in order to be fully integrated into the phase B studies expected to begin early in 1985, Europe needs to make up its mind soon on whether or not it wishes to collaborate. "The end of the year is a date that one ought to shoot for if Europe is going to be on board the train by the time we start moving out of the station," he said in Paris, after meeting with the council of the ten-member European Space Agency (ESA) through which the collaboration is likely to be organized.

In return, however, ESA officials point out that a significant contribution to the space station, if it is not to undermine other activities—such as space science, or the further development of Ariane—will require an expanded budget for the agency. Even a 10 percent level of participation, which both sides accept as the lowest at which European participation would be meaningful, could eventually put considerable strain on ESA's other projected activities.

"It is a political question how far one wants to go," Erik Quistgaard, director general of ESA, said after last week's meeting, adding that, in the light of negotiations lying ahead on the whole shape of Europe's space effort, "I do not believe we will get a dramatic increase in funding immediately." However, he said that, pending any decision on the overall budget, discussions with NASA on the space station were already intensified.

NASA's proposals are said to have been received enthusiastically in Bonn by the German minister for research and technology, Heinz Riesenhuber. Building on the success of Spacelab, for which it carried the bulk of financial and political responsibility in Europe, West Germany is already preparing proposals with Italy (the other main Spacelab collaborator) to be discussed by the ESA council in June for a major new program aimed at developing components for a space station, known as Project Columbus (*Science*, 9 December 1983, p. 1099).

France has been less enthusiastic

Beggs tried to calm fears that access to the space station would be limited by military secrecy.

about collaborating with NASA on the construction of a predominantly U.S. space station. However, a meeting between Beggs and President François Mitterand confirmed France's interest in securing ESA's participation as part of a purely European agreement on a broader package of joint long-term developments. This package would also include support from other ESA countries for plans from France's National Center for Space Studies to build a larger and more powerful version of Ariane, Ariane V.

Encouraging French interest, Beggs said afterwards that it was quite possible that cargo based on the space station could be designed to accommodate the small manned shuttle, Hermes, which France is currently designing to be launched from Ariane V. In principle, Hermes could be used for ferrying cargo between the earth's surface and the station; "No options have yet been foreclosed," in the design of the space station, Beggs added.

In London, concern in discussions with the minister for information technology, Kenneth Baker, focused on the overall cost of participation, its impact on space science, and the possible industrial spin-off. Here Beggs is said to have emphasized the opportunities offered by the space station for the development of advanced robotics and information handling; both, an official from the United

Kingdom's Department of Trade and Industry later agreed, could be "very good drivers" for private sector technology, and both are already receiving considerable government support.

In each capital visited, Beggs tried to calm fears that access to the space station by foreign collaborators might be restricted for reasons of military or industrial secrecy. Despite wooing by NASA, he said, the U.S. Department of Defense had shown little interest in using the station in its currently planned orbit, and free access to all potential users, with preferential rights to major collaborators in the construction phase, "is our intent."

More of a problem, he said, was the question of technology transfer. Some European engineers have already expressed concern that the United States might not be prepared to discuss sensitive technologies involved in either the construction or the operation of the space station; Beggs admitted that there are potential difficulties over questions of intellectual property but suggested that these are "not insurmountable."

Replying to criticism from Europe's space scientists that expenditure on the space station could result in a squeeze on funds for other, potentially more scientifically productive research projects, Beggs used the results of the Spacelab mission to argue that the important question was no longer the relative merits of manned and unmanned space flights but the optimal balance between the two. ESA had already been invited, he said, to send an observer—and ultimately to join, if it decided to support the whole project—a new advisory committee being created to look at the scientific opportunities of the space station.

Finally, Beggs said that he saw no conflict between NASA's proposal and President Mitterand's recent suggestions that European nations should collaborate in the construction of their own station with explicitly military goals.

"The station we are proposing will be the first of a number of facilities in space," Beggs reported later that he had told President Mitterand. "It may be the case that individual countries or groups of countries may join together to have a station of their own."

"It seems to me, however, that it pays

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all of us to develop the first one together so that we can develop the basic technology and understanding. It is certainly the cheapest way of doing it, and we get access to all the best brains that way. The President nodded affirmation, but whether he agreed is up to him."

As Beggs left to fly on to Tokyo,

where the Japanese government has already expressed much informal interest in collaboration, thoughts in Europe were already turning to the summit meeting of the heads of state of advanced nations, which will take place in London at the beginning of June (and is the successor to last year's meeting in Williamsburg). An endorsement at this

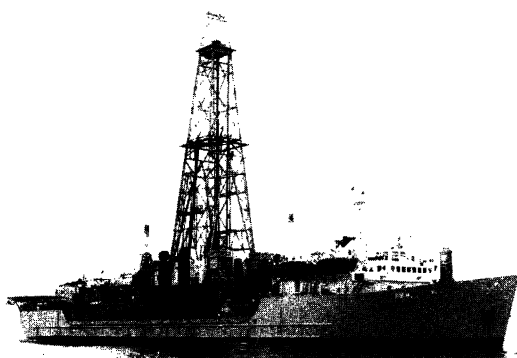
meeting of international collaboration in NASA's plans, combined with a commitment to maintain a separate, balanced research program in Europe, would mark a significant step in European space policy, because it could provide the political leverage needed if both of these goals are to be reached.

—DAVID DICKSON

NSF Gets Up Steam on Drilling Program

The National Science Foundation (NSF) has announced the chartering of a drilling ship for its new deep ocean drilling project. The 471-foot vessel will be operated for NSF by the Texas A&M Research Foundation in behalf of a consortium of ten major U.S. oceanographic institutions. Jointly owned by SEDCO Inc., of Dallas and British Petroleum, the ship has a no-nonsense name, *SEDCO/BP 471*, a less evocative one than that of the ship it replaces—the *Glomar Challenger*. But the owners have given NSF the option of changing the name.

The ship will be used in a new Ocean Drilling Program (ODP) which is the successor to NSF's successful Deep Sea Drilling Program (DSDP) that is credited with enabling researchers to substantiate the theory of continental drift and make significant contributions to the long-term understanding of climatic change.



Derrick on ship chartered for NSF towers 200 feet

The ODP is planned as a major international drilling project to study the origins and evolution of the earth and the oceans and ocean resources. Well along in the process of becoming participants are Canada, the United Kingdom, West Germany, and a European Science Foundation consortium which includes Italy, the Netherlands, Norway, Sweden, and Switzerland. And France and Japan are expected to sign on. The Soviet Union was active in the DSDP, but the connection was dissolved after the occupation of Afghanistan.

Each participant will contribute \$200,000 in the current year to carry out planning activities and will pay \$2.5 million a year when full operations begin. Scientific planning for the program will be done by the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES), an international organization which performed the same function for the DSDP. Participant countries will be represented on all JOIDES committees and panels and will be

guaranteed places for a certain number of their scientists on each scientific cruise.

In searching for a successor to the *Challenger*, NSF at one point seriously considered as a candidate the *Glomar Explorer*, the intelligence ship that under CIA auspices recovered part of a Soviet submarine from the seabed in a deep part of the Pacific. Estimates of the costs of conversion, however, were steep and interest shifted to commercial drilling ships when the current slump in commercial ocean prospecting made such ships available for long-term charter on attractive terms. The contract for the SEDCO/BP vessel, which was built in 1979 in Halifax, Canada, calls for an initial 5-year term with an option for extension.

NSF estimates the cost of running the ship at some \$18.4 million a year compared with about \$15.7 million for the *Challenger*. Total costs of operating the program are put at about \$30 million a year, and NSF anticipates that contributions from its international partners will defray up to a third of the total. Immediate costs for conversion of the ship are put at about \$10 million.

The new ship will accommodate 50 scientists, almost twice as many as the *Challenger*, and will have larger and better equipped laboratory facilities. Its drilling capabilities represent a marked advance over those of its predecessor. A positioning system controlled by computer will enable the ship to maintain its position while drilling at depths of up to 27,000 feet. And new electronic measuring equipment will make it possible to gather chemical and geophysical data during drilling that will enhance the value of the core samples obtained. The ship's drilling rig will outshine the *Challenger's* by having a "riser" enclosing the drill string and providing a conduit for drilling "mud" to be returned to the ship. The system, which will permit core drilling in coastal waters up to 6000 feet deep, also offers protection against blowouts. The new ship is regarded as sturdy enough to be "ice classed," which means, for example, that it could operate in the summer season in the Antarctic Weddell Sea, an area of high interest to geophysicists.

The ODP will have headquarters at Texas A&M at College Station, Texas, from which drillship operations will be managed. Texas A&M is lead member of the Joint Oceanographic Institutions Inc., made up of ten major oceanographic institutions, which will be program manager for ODP. Consortium management is new to oceanography but is used familiarly by NSF in its astronomy and atmospheric research programs. Program managers say that refitting and shakedown runs are expected to be completed this year and the first scientific cruise is scheduled for January 1985.—JOHN WALSH