National Aeronautics and Space Administration is set to climb from $10.9 billion to $13.3 billion. A dominant factor in the increase is the $1.1-billion addition to the budget for the space station.

Congress last year decreed that some of the fiscal 1989 funds for the space station could not be spent before 15 May 1989, to give the new Administration a chance to review the program. Presidential candidate George Bush voiced early support for a manned space station, however, and he is expected to proceed with the program. But a recent call by a committee of the National Academies of Sciences and Engineering to take another look at the rationale for and scope of NASA's design (see page 164), could make the project more vulnerable on Capitol Hill.

Elsewhere in NASA's budget, funds are included for a start on the Cassini mission to Saturn and its moon Titan, a project that will be conducted jointly with the European Space Agency.

■ **Department of Energy.** The item in DOE's R&D budget that is likely to draw most political attention is the $250-million request for the SSC. The funds would be used to support continuing research, particularly on superconducting magnets, and to begin construction of the facility at a site recently selected in Texas—Congress willing.

Although the SSC would account for a substantial fraction of the increase in DOE's basic research budget, funding for other high energy physics programs would grow by 10% and nuclear physics programs would get a 15% increase. DOE's budget would also permit construction to begin on a 7- to 9-billion-electron-volt synchrotron at Argonne National Laboratory and the Compact Ignition Tokamak, a next-generation fusion machine at Princeton.

Less favored are a variety of R&D programs on fossil fuels, energy conservation, and renewable energy technologies, which are again slated for radical surgery.

■ **Global environment.** A priority in this budget is a coordinated set of research programs aimed at gaining a better understanding of human impacts on global processes such as climate change, ozone depletion, and desertification. A committee under the chairmanship of Dallas Peck, head of the U.S. Geological Survey has drafted a preliminary program spanning seven federal agencies, and the budget would boost spending for these activities from $134 million this year to $191 million in fiscal 1990.

■ COLIN NORMAN

With reports from William Booth, Mark Crawford, Marjorie Sun, and M. Mitchell Waldrop.

U.S.–Soviets Sign Collaboration

Paris

After months of negotiation, a 5-year agreement to promote increased collaboration between the United States and the Soviet Union in eight fields of basic scientific research was signed in Paris last Sunday by U.S. Secretary of State George Schultz and the Soviet Foreign Minister, Eduard Shevardnadze.

The agreement is a major step in rebuilding formal ties between the U.S. and U.S.S.R. scientific communities—ties the United States ended when the Soviet Union invaded Afghanistan in 1979. Schultz and Shevardnadze welcomed the agreement as a sign of improved relations between the two countries.

Under the terms of the new agreement, a joint commission will be established to oversee and encourage joint activities in the fields of geosciences, engineering sciences, scientific problems of the Arctic, life sciences, science policy, chemistry, mathematics, and theoretical physics.

Specific projects will be defined in separate memorandums of understanding negotiated between individual agencies or scientific organizations in the two countries. According to Soviet officials, two of these are currently under discussion—one between the National Science Foundation and the Soviet Academy of Sciences, the other between the U.S. Geological Survey and the U.S.S.R. Ministry of Geology. The others are expected to follow shortly.

The text of the agreement makes it clear that activities such as exchange visits, conferences and joint projects in "basic scientific research," rather than research "designed for the transformation of new discoveries into applied technologies," are the focus.

U.S. concerns over possible Soviet access to U.S. technological know-how are addressed in a detailed, seven-page appendix setting out the rules that will govern the intellectual property rights covering all scientific activities carried out within the framework of the agreement.

The 5-year agreement can be renewed for a further 5 years through mutual agreement, but it can also be terminated at 6 months' notice by either side. ■ DAVID DICKSON

Europe Bans Boeuf à l'Estradiol

Europe is imposing bogus safety standards on beef, according to U.S. officials who are caught up in a 7-year-old wrangle with the Common Market over the practice of doping cattle with sex hormones.

The European Community (EC) banned the sale of meat from hormone-treated cattle on 1 January as a health risk, blocking imports from the United States valued at $100 million a year. Most U.S. cattle are given hormone implants because they accelerate growth without greatly increasing the demand for feed.

The EC claims that its ban is designed to protect citizens from overdosing on sex hormones, but American officials think it is designed to protect European farmers from competition. Last week, a trade war loomed on the horizon as U.S. and EC officials threatened one another with retaliatory tariffs.

The EC's agricultural counselor in Washington, Derwent Renshaw, says that "our consumers have expressed a strong preference to eat hormone-free meat," and the ban on treated beef imports is simply a manifestation of this health concern. He maintains that Europe has not raised a trade barrier, and that the U.S. retaliation is "illegal." While there may be no evidence that hormone-treated beef is risky, Renshaw says, neither is there any evidence that it is safe.

Lester Crawford, director of the U.S. Department of Agriculture's Food Safety and Inspection Service, blasts the EC policy as disingenuous. First, he says, it cannot be enforced. Methods of hormone use are so sophisticated now that it is often impossible to tell whether or not meat in the supermarket comes from a treated animal. Three of the five hormones used in the United States are identical to those the animal produces itself, and residues are within the natural range. For the two synthetic hormones, residues are so low as to be barely detectable—in the range of 1 to 20 parts per billion. No excess residues have been found in U.S. beef in the past 6 years of government monitoring.

The EC insists, however, that it will accept only beef that the exporting government certifies has come from animals that were never given hormones. Crawford's response: "We cannot certify a lie." He says that analytical tools permit one to identify traces of synthetic hormones in some cases, but they cannot support the categorical statement that an animal has never received