

ments have had to be terminated.

One Reagan budgetary decision may have an impact beyond the scope of the US space science community. Carter had budgeted \$58 million for the International Solar Polar Mission, a joint mission with the European Space Agency in which each agency would fly a spacecraft around opposite poles of the Sun, to explore the relationship between the outer atmosphere of the Sun and the interplanetary medium. President Reagan's budget forced NASA to drop the US spacecraft from the budget, leaving only \$5 million to provide instruments, tracking and support services for the European craft. According to Cameron, the elimination of the second spacecraft precludes the separation of spatial and temporal effects that related plasma observations to their point of origin in the corona. The cancelled US spacecraft also provided the only capability to observe the solar corona, interstellar hydrogen and helium, and low-energy solar and interstellar cosmic ray isotopes.

But the cancellation of the US spacecraft may have implications beyond the loss of science. "The effect this is going to have on the ability of the US to be taken credibly as a cooperative partner in future space science endeavors is devastating," according to Levy. Johannes Geiss, chairman of the Space Science Committee of the European Science Foundation, has stated that he fears that cancellation of half of ISPM "would lead to a serious setback in the evolving cooperation between US and European scientists."

The ESA has gone so far as to protest the move to the Department of State, equating the cancellation with a breach of contract. (Both ESA and NASA have already invested tens of millions of dollars in the second craft.) As of this writing, the State Department had not yet responded to the protest, but the Europeans were able to draw some solace from the Flippo subcommittee's recommendation that \$15 million be restored to the NASA budget to allow continuation of development of the second spacecraft.

Another important deletion made by the Reagan budget officials is the removal of all funding for the Solar Electric Propulsion System, which promised to provide a very low-thrust, solar-powered propulsion system suitable for some possible future deep-space mission of very long duration. \$18 million has been deleted from the Carter budget for SEPS, and \$7 million is being rescinded from the 1981 budget as well. According to the Space Science Board, without solar electric propulsion the ability to explore Saturn or any other outer planet by orbiters and probes would be severely degraded, and the US will not have the capability to achieve the major

NASA program changes

During last year's NASA budget conference between the House and Senate appropriations committees, the conference committee expressed alarm over what they saw as NASA's inability to anticipate cost overruns, and they resolved to do something about it. As a solution, they called upon the National Research Council to oversee NASA program changes; beginning this year, NRC will evaluate all "major" program changes before the Committee will consider approving them. By "major," the committee means those that involve more than \$100 million and that would delay the program involved by more than a year, increase the cost of the program by more than 25% or change the scientific objectives of the program. At first, the Research Council was reluctant to accept complete oversight responsibility for these major programs, but an acceptable compromise has been worked out: NRC will consider only the scientific and technological factors involved in the program change, leaving Congress to deal with all the other factors entering into the decision.

scientific objectives of a rendezvous with a comet or asteroid.

Applications. Reagan's request for space applications in the 1982 NASA budget is \$373 million, \$100 million less than Carter's request. Reagan took \$10 million from the budget for the Upper Atmosphere Research Satellite Experiments, which are to study the interactions among the chemistry, radiation and dynamics of the upper atmosphere, but Flippo's subcommittee has recommended restoring the money, bringing the budget for UARSE to \$15 million. It is understandable that Congress would restore support for UARSE, since it is part of a Congressionally mandated program to develop and carry out research, technology development and monitoring of the stratosphere and mesosphere.

A new Geological Applications Program, which would use remote sensing satellites to study geological resources that might contribute to the discovery of oil and gas deposits, was proposed by Carter but deleted by Reagan. The subcommittee is in favor of its restoration. The budget cuts also curtail development of the National Oceanic Sat-

ellite System, a triagency program initiated in Fiscal 1981 to demonstrate operational global observation of the world's oceans from space. NOSS was cancelled completely by the Reagan budget analysts.

Among the applications programs left intact by the new Administration are:

► The Landsat D satellite, scheduled for launch in the third quarter of 1982. Landsat, funded at \$83.9 million, will extend and improve observations of Earth resources from space.

► Earth Radiation Budget Experiments spacecraft development, funded at \$24 million. ERBE will measure energy exchanges between Earth and space.

► Work on the Halogen Occultation Experiment to measure energy, temperature, chemical constituents and winds during the next period of low sunspot activity, funded at \$7.5 million.

The FY 1981 applications budget will also suffer some "feedback" from the 1982 cuts; \$27 million has been diverted from the 1981 applications budget to make this year's budget consistent with next year's.

—MEJ

DOD raises research budget for 1982

Among the many FY 1982 budgets that Congress is now considering is a request of \$716 million for basic research in the Department of Defense. According to DOD, approximately 44% of this will fund work at colleges and universities. DOD estimates that about \$88 million will be used for physics research, a 5% increase in real (inflation-corrected) dollars over this year's spending on physics projects. That is the smallest increase of all of the 13 basic research disciplines that the DOD identifies, but many of the other disciplines (such as electronics, which received a 16% increase after inflation) involve a large amount of physics as well. And the Pentagon funds a great deal of applied physics, too.

For example, DOD anticipates spending \$308 million to explore the techni-

cal feasibility of directed-energy weapons, including both high-energy laser weapons and particle-beam weapons. A 39% increase is planned for space-based laser defense system development, including large-aperture beam control technologies, and laser pointing and tracking technologies. The DOD particle-beam program funds both charged and neutral beams. The charged-particle beam program needs to demonstrate stable, predictable propagation of relativistic electron beams in the atmosphere. The purpose of neutral-particle beam research is to demonstrate the capability of generating low-divergence beams for potential space applications. Two important experimental tools for particle-beam research will be an Advanced Test Accelerator, under construction at Lawrence Livermore Labo-

ratory, and an accelerator test stand, at Los Alamos National Laboratory, both of which are to be completed during FY 1982.

A substantial increase is again planned in 1982 for the very-high-speed integrated circuit research program. DOD will spend \$42 million in 1982 on this five-year project to improve US high-speed, high-throughput signal and data processing capability. The Department expects to spend a total of \$225 million in contracts with industry and universities over the five-year period. DOD will also increase the budget for very-large-scale integration research in 1982.

The Defense Department is also pur-

suing the technology leading to electromagnetic rail guns (PHYSICS TODAY, December 1980, page 19), which it believes will offer higher projectile velocities, more precise control of projectile acceleration and range, and safer handling. The budget contains \$5 million for the development of such weapons in 1982.

The Pentagon is increasing the budget for Naval warfare technologies by 34%, to \$51 million, in FY 1982. Research goals in this area will include improving the performance of passive acoustic systems, development of active acoustic surveillance technologies, and, for the first time in 1982, exploring the possibility of nonacoustic submarine detection.

—MEJ



WESTERKAMP

Argentinian physicist arrested

José Westerkamp, a prominent Argentinian physicist, was arrested by Argentina's national police in February with other members of a human rights group there, the Center for Legal and Social Studies. At their arraignment a week later, Westerkamp and his colleagues were charged with possession of maps of military installations. They denied the charges and were released pending further investigation, according to the American Association for the Advancement of Science. If sentenced, Westerkamp can get up to eight years in prison.

Westerkamp received his PhD in 1949 from the University of Buenos

Aires. He was a postdoctoral fellow at Columbia University intermittently between 1952 and 1960, where he worked on microwave spectroscopy. He became involved in the Argentinian human rights movement about five years ago when his son was arrested. His son has been neither charged with any crime nor tried, but has been imprisoned nonetheless.

This is not the first official action taken against Westerkamp by the Argentinian government. Last year he was dismissed from his position at the University of Buenos Aires. He had been a full professor there since 1962, and has served as chairman of the

department. He directed the microwave and laser laboratories there as well.

According to the AAAS, an Argentinian law enacted in 1976 permits the universities to dismiss employees without explanation. Reports from Argentina say that this law has been used to fire all scientists with outspoken political leanings. An estimated 3000 scientists have so far been dismissed in the purge. Westerkamp, who frequently attends conferences in the US, says that this policy has led to a repressive climate of fear in Argentina's universities, and a lack of scientific freedom as well.

the physics community

AIP committee advises on public policy

The new AIP Committee on Public Policy is addressing broad issues of public affairs—technology transfer, the US R&D budget, science education—to supplement the more specialized and technical public affairs activities of AIP member societies.

The CPP was organized at a meeting of AIP staff and representatives of the member societies in January 1980. Its head is Philip Morse, who was the first chairman of the American Physical Society's Panel on Public Affairs and a former AIP Board Chairman. It was formed, according to H. William Koch, AIP Director, to fill the need of the AIP Governing Board "for a working panel of society representatives" that can participate in or initiate studies on relations of the AIP to the physics community, to government and to the public. It will address matters that affect the physics community or AIP.

Technology transfer. The CPP has reacted to the steps the US Commerce Department took to prevent scientists from the Soviet bloc from attending a February 1980 conference on magnetic bubble memories held in Santa Barbara. Commerce, citing Section 379 of the Export Regulations concerning technical data, pressured the American Vacuum Society, the sponsor of the conference, into disinviting the scientists and requiring other foreign nationals to sign letters assuring that they would not divulge information obtained at the conference to Soviet bloc nationals (PHYSICS TODAY, April 1980, page 81).

The CPP stated its position by altering a policy memorandum the White House prepared for members of the National Science Board concerning Soviets at US scientific meetings. A CPP subcommittee met with an AVS subcommittee to prepare the revision, which was discussed and approved by the CPP. Endorsed by the AIP Govern-

ing Board, it has been sent to the National Academy of Sciences, which is studying the matter.

The proposed revisions broaden the definition of "open" meetings (meetings in which information is "construed to be in the public domain"), over which the Commerce Department exercises no jurisdiction, from those whose papers are published beforehand or whose proceedings are published afterward to meetings that anyone who pays an appropriate registration fee can attend. The CPP revision would also restrict responsibility for the contents of papers to their authors and their employers, so that conference organizers would not share it. In the case of the magnetic bubble conference, the AVS and its 1980 president, John L. Vossen, were threatened with large fines and jail sentences if sensitive information were to be released at the conference to Soviet scientists.

Copyright laws and other topics. Concerning the need for changes in the