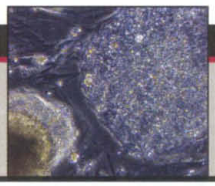


lobbyist for the Washington, D.C.–based Association of American Universities, which represents 61 top research institutions.

Exactly how those programs will be managed, however, is still up in the air. The initial proposal from the Bush Administration in June (*Science*, 14 June, p. 1944) would have rolled an array of government research programs into DHS. But the White House dropped some of its most controversial ideas—such as transferring DOE's Lawrence Livermore National Laboratory—when it presented its formal plan to Congress. Since then, scientific organizations have made plenty of suggestions.

Biomedical research groups, for instance, oppose the Administration's proposal to give DHS control of the National Institutes of Health's (NIH's) $1-billion-plus bioterrorism research portfolio, saying that it would hinder efforts to develop needed vaccines and drugs. "Adding a layer of bureaucracy isn't helpful if your goal is a better anthrax vaccine," says Pat White, a lobbyist for the Federation of American Societies for Experimental Biology (FASEB) in Washington, D.C. "An experienced science agency needs to be in charge," says Janet Shoemaker of the American Society for Microbiology (ASM), also in Washington.

The House agreed. A panel led by Representative Dick Armey (R–TX) shifted control of bioterror research back to NIH but gave DHS a strong advisory role. In contrast, the Senate bill, crafted by Senator Joe Lieberman (D–CT), gives DHS the upper hand in setting spending priorities—largely because the White House and some senators worry that NIH might stray from studies directly related to bioterror threats. "NIH sometimes can be too curiosity driven," says one Senate aide. ASM and FASEB are urging lawmakers to adopt the House version in the final measure.

The two bills also differ on which agency should regulate research involving potential bioweapons. The Senate bill calls for DHS to swallow two oversight programs being established by the Centers for Disease Control and Prevention and USDA. But biomedical groups support the House approach, which leaves them where they are.

There is greater agreement among legislators on other issues. Both bills call for using merit-based competition to award grants and encourage the department to keep the fruits of its research unclassified. They also create advisory bodies to be stocked with outside scientists and add a high-level science czar to oversee the department's R&D portfolio. The new position "will help ensure that science has a seat at the policy-making table," says lobbyist Phillip Harman of Lewis-Burke, who pushed the idea on behalf of the California Institute of Technology in Pasadena and other clients. Harman also pushed the $200 million security research agency in Lieberman's bill, which is aimed at accelerating targeted technologies. Dubbed the Security Advanced Research Projects Agency, the agency is modeled on the Pentagon's DARPA.

Neither the House nor the Senate is eager to see the new department create its own centralized laboratory, something that the Administration had proposed bestowing upon Livermore. New Mexico politicians have criticized the idea, and both bills now require the department to give that state's national laboratories—Los Alamos and Sandia—a shot at becoming the lead lab. Lawmakers are also wary of the possible transfer of any of DOE's pathogen sequencing and research projects to DHS. Such politicking is sure to continue as Congress nears the finish line in a race for what some historians say is the most significant reorganization of the U.S. government since the Great Depression.

–DAVID MALAKOFF

HOMELAND SECURITY: TWO VIEWS

Issue	House	Senate
Who will manage bioterror research	NIH	DHS
Who will regulate bioterror agents	CDC, USDA	DHS
Tech research fund	No	Yes
Homeland Security Institute	Yes	No
University-based research centers	Yes	No
Science czar	Yes	Yes
Merit review for outside proposals	Yes	Yes
Limited classification	Yes	Yes
External advisers	Yes	Yes

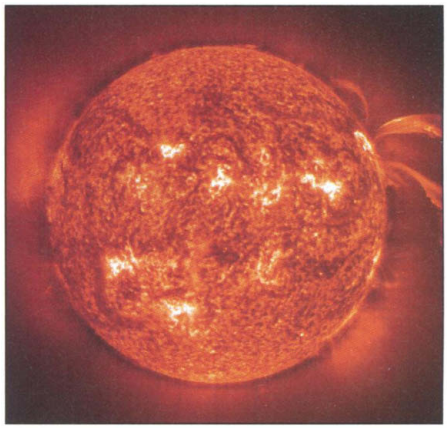
CREDIT: (RIGHT) GSFC/NASA

SOLAR PHYSICS

Panel Shines Light On Exploring the Sun

NASA should revive plans to send a spacecraft into the solar atmosphere, concludes a National Academy of Sciences panel that this week unveiled the first-ever strategic plan for the next decade of solar and space physics. Its report recommends that NASA and other government agencies launch probes throughout the solar system to study the sun and its interaction with the planets and the interstellar medium.

The study—18 months in the making—offers a concrete set of priorities for solar research (see table). The panel's recommendations should help researchers obtain funding in a field that has traditionally lagged behind planetary exploration in the space sciences but that has enjoyed recent successes such as the U.S.-European SOHO mission (*Science*, 28 July 2000, p. 528).



Sizzling science. Experts endorse canceled mission to the sun's atmosphere.

By and large, the 15-member panel endorsed NASA's vision of a flotilla of spacecraft of various sizes, as well as a handful of ground-based efforts. But it urged the space agency to resurrect a $650 million solar probe that will fly into the solar atmosphere to measure the sun's tumultuous plasmas, fields, and waves, despite technological and cost hurdles that include enduring temperatures of 2400 kelvin and an extra wallop of radiation. The panel, chaired by Lou Lanzerotti, a physicist at Lucent Technologies in Murray Hill, New Jersey, also puts a high priority on an as-yet-unfunded spacecraft,

TOP-RANKED MISSIONS

Large

Solar Probe: A $650 million spacecraft that will come within 4.8 million kilometers of the sun

Medium

1. Magnetospheric Multiscale: Four satellites to measure phenomena associated with Earth's magnetosphere

2. Geospace Network: Four satellites to observe how Earth is affected by solar storms

3. Jupiter Polar Mission: Spacecraft to study Jupiter's magnetic fields

Small

1. Frequency Agile Solar Radio Telescope: Wide-band radio telescope for studying solar features

2. Relocatable Atmospheric Observatory: Mobile radar designed to study magnetosphere-ionosphere interactions

3. L1 Monitor: Solar-wind instrument stationed at the L1 libration point

the Jupiter Polar Mission, that would study the interplay between the sun, Jupiter, and Jupiter's moons.

"The Solar Probe, right now, is canceled, and we're telling them to change course," says panel member James Burch, vice president of the Southwest Research Institute's Instrumentation and Space Research Division in San Antonio, Texas. "The Jupiter Polar Mission is not in the program right now. [The changes] might mean that they have to reshuffle the order of their solar terrestrial probes."

As with a recently released study on planetary exploration (*Science*, 19 July, p. 317), the Lanzerotti panel grouped its ranked recommendations into large ($400 million–plus), medium ($250 million to $400 million), and small (less than $250 million) missions. Some of the experiments, such as the top-ranked Solar Probe, will study the sun directly. Others, such as the second-place Geospace Network, a group of satellites that will monitor Earth's environs, are intended to illuminate how Earth is influenced by the sun. The Solar Probe was the only large mission ranked, whereas nine missions each were included in the small and medium categories.

The panel's plan includes missions for which NASA does not yet have funding. But it will all "fit within the budget we think is going to be available," says Burch, from a current $400 million to $650 million in 2008 and beyond. The panel also concluded that the technical hurdles facing these missions require a new level of cooperation among five government agencies—NASA, the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration, and the departments of Defense and Energy—on basic research as well as operational programs. For example, it recommends that NASA continue research into advanced power, propulsion, and electronics for spacecraft while NSF improves the reliability of ground-based sensors and networks, some of which also operate in extreme environments.

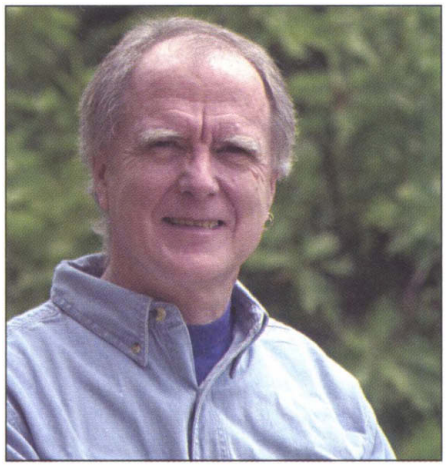
"I think it will help maintain the vitality and health" of the field, says Michael Calabrese, a program manager at Goddard Space Flight Center in Greenbelt, Maryland, who notes that a NASA-sponsored panel is working on a 25-year road map that will supplement the 10-year scope of this report. "That way you get two looks at this," he says. In the meantime, the academy report gives NASA a way to lift missions out of the budgetary frying pan and into the solar fire.

–ANDREW LAWLER AND CHARLES SEIFE

ENVIRONMENTAL SCIENCE

NIEHS Toxicologist Receives a 'Gag Order'

A toxic tiff at the National Institute of Environmental Health Sciences (NIEHS) seems to have escalated into a cause célèbre that has even caught the attention of a member of the House Committee on Government Reform. At the center of the dispute is James Huff, a 23-year veteran of NIEHS's carcinogen testing program and an outspoken critic of the chemical industry. Last month, after clashing with his supervisor, Huff received what he calls a "gag order," a proposed agreement forbidding him from criticizing NIEHS in public. The agreement



Promoted? Amid controversy, NIEHS's James Huff was offered a job in the director's office.

CREDITS: (TOP TO BOTTOM) SOURCE: NATIONAL RESEARCH COUNCIL; STEVE MCCAW/NIEHS

ScienceScope

Patent Protest Academics at the University of Cambridge, U.K., are protesting an administration plan to claim all intellectual property (IP) generated by campus researchers. Critics say the change will stifle innovation and stall the "Cambridge phenomenon": the dramatic growth of university-spawned high-tech companies.

Currently, Cambridge lays claim only to research findings generated using external funds, whereas staff members can independently patent and control IP produced with university grants. But the governing council last week proposed that the university gain control of all campus IP created after January 2003. Any patent profits would be shared among the inventor, the inventor's department, and the university.

The new policy would bring Cambridge into line with most U.K. universities, administrators say. And any connection between the university's hands-off approach to patenting and the commercial success of its spin-offs is "unprovable," they add.

Cambridge computer scientist Ross Anderson disagrees and is drumming up opposition to the plan. Regent House, the university's democratic decision-making body, could vote on the issue as soon as October.

Intramural Introspection National Institutes of Health director Elias Zerhouni is taking a look at NIH's intramural programs to make sure they hew to their official mission. Zerhouni, who's been at NIH 2 months now, told *Science* that the intramural program "plays a very important role" and that he "agrees" that its 10% share of NIH's total $23.5 billion budget is about right. However, he wants to be sure that each institute's intramural portfolio is "second to none" in quality and consists of "programs only the NIH [intramural program] can do."

Michael Gottesman, NIH's intramural research deputy director, has been gathering responses from the directors of NIH's 27 institutes and centers on what "unique things" their intramural programs do. Gottesman says the review is part of "an ongoing process" in which an outside board reviews each institute's intramural component. Zerhouni, he says, simply wants to "be certain" that the program "is used to support high-impact research and training activities which would be difficult to conduct elsewhere."