ment experience to head the new office. Arnauld Nicogossian, the longtime head of the life and microgravity office, was to remain head until his replacement was named, but in mid-July he was relieved of that duty. (Nicogossian is now the chief health and safety officer for NASA.) NASA Chief Scientist Kathie Olsen, a biologist who was instrumental in the reorganization, has been named acting chief while a search is begun for a permanent boss. But sources say she will not apply for the job. Swain, trained as a physician, is said to be a candidate.

As for what kind of research will be done once the station is complete, Swain says that "we're not even sure what questions we will be answering in terrestrial laboratories. But I think we're going to have a dynamite research program to help find some fundamental answers." **–ANDREW LAWLER**

X-RAY ASTRONOMY

Solar Storm Knocks Out Japanese Satellite

TOKYO—Japan's x-ray astronomy program was dealt a new blow last month when a solar geomagnetic storm left an orbiting x-ray telescope spinning out of control. Scientists are dubious about their chances of saving the 7-year-old Advanced Satellite for Cosmology and Astrophysics (ASCA), whose replacement—the ASTRO-E x-ray satellite—was lost shortly after launch in February. "We haven't given up," says Hajime Inoue, head of space astrophysics research at Japan's Institute of Space and Astronautical Science (ISAS) in Sagamihara, outside Tokyo. "But we don't have a great amount of hope."

ISAS scientists believe a solar storm on 14 July expanded Earth's atmosphere to the point that it increased atmospheric drag on the satellite, which was orbiting at an altitude of about 440 kilometers. The drag disturbed the angular momentum of the satellite, which sent it spinning out of control. The next day it went into a safe mode, spinning in such a way that its solar panels are not facing the sun. Inoue says the best chance for regaining control of the satellite will come in a month or so, when ASCA moves into a better position for generating solar power.

CREDITS: (LEFT TO RIGHT) ISAS AND NASA-GODDARD; A. KING/AP

Premature ending. Solar storm increased atmospheric drag on ASCA, sending the spacecraft spinning out of control.

Developed jointly with NASA's Goddard Space Flight Center and several American and Japanese universities, ASCA had been a key component of ISAS's relatively small but carefully targeted space program. Its observations have generated more than 700 papers, Inoue notes proudly. One major finding was the detection of iron in the x-ray emissions from accretion disks, the swirls of gas and dust that orbit black holes. These iron emissions bore telltale evidence of the enormous gravitational pull of the black hole, something expected but never before observed. "ASCA had already been a very big success," Inoue says.

ASCA would have lasted only another year before falling into Earth's atmosphere. And a replacement for the lost ASTRO-E is still 4 to 5 years away. In the meantime, Japan's x-ray astronomers are trying to borrow time on other instruments. "There is a big gap in our [observational] program," Inoue says. **–DENNIS NORMILE**

BIOTECHNOLOGY

USDA to Commercialize 'Terminator' Technology

For the past year, the U.S. Department of Agriculture (USDA) has been juggling a political hot potato: whether to pursue commercialization of a controversial biotech discovery that can render seeds sterile. A diverse group of opponents, including some scientific groups and companies, have disavowed this so-called "terminator" technology as an unconscionable threat to poor farmers. But last week USDA officials announced they will move ahead with the technology because of its scientific promise—albeit with conditions negotiated with its industry partner to guard against it being used in harmful ways. Antibiotech activists adamantly oppose the decision, which runs counter to the intentions even of biotech giant Monsanto.

At issue is what is formally called a "technology protection system," developed by USDA and Delta & Pine Land Co. (DPL) of Scott, Mississippi, which are co-inventors on related patents. The intended application is to protect a company's investment in developing genetically engineered plants by preventing farmers from using their seeds for the next year's planting. This is done by adding three genes to a plant. If the seeds from the modified plants are treated with an antibiotic, the plants that grow from those seeds will pro-

ScienceScope

Costly Conference An animal genetics conference has sparked the costliest police action in Minnesota history. Police spent nearly $1 million providing security for the recent International Society for Animal Genetics conference in Minneapolis, state officials said last week.

Animal-rights protesters had threatened to shut down the 5-day meeting of 650 scientists, which ended 26 July. But disruptions proved minimal as riot-ready police generally outnumbered protesters, who mustered just 100 people for their biggest march against biotechnology and animal experimentation. Still, "the experience was tense," said one attending scientist.

Some local politicians aren't sure the money was well spent. "The fact that [police spent $770,000] to control a couple of hundred protesters seems crazy to me," city councilman Jim Niland told the Minneapolis *Star-Tribune*. Officials plan to finish a protest postmortem this fall.

Switchback AIDS researchers in Italy are celebrating a government decision to rescind a 36% cut in extramural funding for HIV research. The change of heart leaves intact last year's grants budget of about $10 million, which mostly comes from the Istituto Superiore di Sanità (ISS) in Rome.

Last week's reversal came less than a month after *Science* reported—on the eve of the international AIDS meeting in Durban, South Africa—that authorities planned to gut the program (*Science*, 7 July, p. 28). "No sooner was the ink dry on the pages of *Science*," commented the Italian weekly magazine *L'Espresso* in its 3 August issue, than "as if by magic [health] minister Umberto Veronesi put everything back in place."

But Stefano Vella, director of the ISS's clinical research program and president of the International AIDS Society—which organized the Durban meeting—laments that the restored funds will come from within the agency's own budget rather than from additional government spending. "This is not a permanent solution, because it causes continuous conflict within the institute" between AIDS researchers and other scientists, Vella says. "It is a war among the poor for research money."

AIR POLLUTION

Panel Backs EPA and 'Six Cities' Study

The Environmental Protection Agency (EPA) has won a major victory in the fierce battle over its tough new standard for particulate air pollution. Dealing a sharp blow to critics from industry, a nonpartisan research group has reevaluated key data that EPA relied upon to set that standard and has come out firmly behind the agency. Although all scientific debate isn't over, the reanalysis "puts to bed many of the concerns that were raised" 3 years ago, asserts John Vandenberg, an EPA environmental scientist.

At issue was EPA's 1997 decision to extend its regulation from particles 10 micrometers or less in size to those a mere 2.5 micrometers or less across ($PM_{2.5}$). EPA based its decision largely on two controversial studies that linked these tiny particles, released mainly by motor vehicles and power plants, to higher death rates.

In the Six Cities study, Harvard researchers examined the relation between levels of PM and sulfates (a component of fine particles) and death rates among more than 8000 people in six U.S. cities, following them for 14 to 16 years. The American Cancer Society (ACS) study followed over 500,000 people in 154 cities for 8 years. Both found a slight rise in death rates from heart and lung disease in cities with higher levels of $PM_{2.5}$, although the mechanism remained unclear. Based largely on the ACS death count, EPA calculated that the benefits of cutting $PM_{2.5}$ to 65 $\mu g/m^3$ over 24 hours would far outweigh the multibillion-dollar costs.

After EPA proposed the standard in 1996, the American Petroleum Institute (API) and other industry groups blasted the two studies. Some scientists also argued in congressional hearings that the apparent link might result from other air pollutants, a less healthy lifestyle in dirtier cities, or other confounding factors. Industry groups sued to block the new regulations. A federal court decided that the science was sound but threw out the rules based on legal arguments, which will be heard by the Supreme Court this fall. At the same time, skeptical industry groups and some lawmakers demanded that the Harvard researchers turn over their raw data. The researchers refused, saying that subjects' confidentiality would be breached.

To resolve the scientific and data-sharing issues, Harvard turned to the nonprofit Health Effects Institute (HEI) in Cambridge, Massachusetts. HEI assembled an expert panel to reanalyze both studies. In a report released last week, that panel concluded that the association between $PM_{2.5}$ and excess mortality is real. The team, led by statistician Daniel Krewski of the University of Ottawa, replicated the studies from original data sets and got essentially the same results: slightly higher death rates in the dirtier cities (see table). The team probed the data for more than 30 possible confounders, from altitude to health services, and tested the link "in nearly every possible manner" with various analytical techniques. The results still held.

	Increase in $PM_{2.5}$ across cities	Increased Death Rate	
		Original Investigators	Reanalysis
Six Cities	18.6 $\mu g/m^3$	1.26	1.28
ACS	24.5 $\mu g/m^3$	1.17	1.18

Confirmation. Reanalysis yielded results almost identical to the original studies: a rise in death rate of 28% (in the Six Cities study) and 18% (in the ACS study) from cleanest to most polluted city.

Bill Frick, an attorney with the API, agrees that the reanalysis has "eliminated some of the uncertainty." Another major epidemiology study released by HEI that looked at daily PM levels and deaths in 90 cities has also cleared up earlier doubts (*Science*, 7 July, p. 22). But Frick argues that researchers still need to figure out which component of $PM_{2.5}$ causes harm and hence what problem needs to be fixed—power plants or diesel trucks, for instance. A slew of new federally funded research is addressing those questions and will feed into EPA's assessment of $PM_{2.5}$ science this fall. Until EPA decides whether to adjust the standard next year, it won't ask states to comply with the regulations.

Meanwhile, the legal scuffle over access to research data continues. In the wake of the controversy, Congress in 1998 passed a law, sponsored by Senator Richard Shelby (R–AL), mandating that federally funded researchers release their raw data if requested under the Freedom of Information Act. To the relief of scientific groups, the White House interpreted the law narrowly, limiting it to grants awarded after fall 1999 and only to data used to support regulations. The U.S. Chamber of Commerce threatened to sue to broaden that interpretation and began the process by filing requests last December for the Harvard data. So far, EPA has refused to turn over the data because the study predates the law. Keith Holman, an attorney with the Chamber of Commerce, says the group hasn't yet decided whether to litigate the case. **–JOCELYN KAISER**

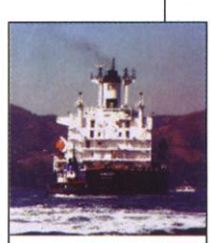
CREDITS: (LEFT TO RIGHT) HEI; BLUEWATER NETWORK

ScienceScope

Money and Management The chair of the House Science Committee, James Sensenbrenner (R–WI), is worried that the National Science Foundation (NSF) might receive too much of the first despite a shortage of the second. However, his desire to correct the perceived imbalance has stalled a bill to reauthorize NSF's programs.

Last week the committee announced that it would mark up H.R. 4901, a 3-year blueprint for NSF to replace one that expires next month. It's the committee's fourth stab this year at a reauthorization bill (*Science*, 2 June, p. 1564). But moments before the panel convened, Sensenbrenner pulled the bill, citing his failure to reach an agreement on how to respond to "ethical lapses at NSF." Sensenbrenner is incensed at the agency's response to a government finding that Luther Williams, former head of education programs, improperly accepted outside honoraria, and he has written into the bill a tough new ethics program. But Democrats and NSF officials believe the language is unnecessary. Sensenbrenner also objects to proposed language that would double NSF's budget over 5 years, saying it would undermine his panel's credibility with appropriators.

Going to Sea Drawing on research showing that supertankers and other big ships are a major source of air pollution (*Science*, 31 October 1997, p. 823), two California-based environmental groups are pushing the Environmental Protection Agency (EPA) to clamp down on the problem. Lawyers with the Earthjustice Legal Defense Fund are negotiating with EPA to settle a lawsuit that calls for tougher controls on seagoing vessels, the Bluewater Network said last week.



In a 17 July report (www.bluewaternetwork.org), the network notes that big ships typically use high-sulfur fuels that produce prodigious amounts of sulfur and nitrogen oxides and particulate matter. The lawsuit, filed last February on the network's behalf, challenges EPA plans to regulate the emissions through an international agreement. The groups say EPA's plan is unenforceable and would allow emissions to increase by 13% by 2030. EPA officials, however, predict that tougher U.S. rules would cause captains to sail to other ports to refuel.

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