Agencies warn of grant delays as Washington returns to backlog

Washington. A three-week shutdown of large parts of the US federal government ended this week, leaving science agencies warning of months of delays and uncertainty as their administrative staff returned to face huge backlogs of grant processing and other work.

Nature compounded the shambles at the Washington headquarters of the National Institutes of Health (NIH), the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA) on Monday, when 18 inches of snow pushed the anticipated reopening back to the middle of this week.

The unprecedented three-week shutdown ended with a retreat by Republican congressmen, who were being blamed by the public for the disruption that it was causing. Last Friday, 5 January, the Republicans

changed their strategy and passed bills to reopen the government, despite failing to reach agreement with President Bill Clinton on how to balance the government's budget.

For the NIH, the shutdown ended with an unexpected financial windfall. One of three 'continuing resolution' bills passed into law at the weekend will assure the biomedical research agency of funding to the end of the fiscal year, 30 September, of almost \$11.5 billion, up by 5.7 per cent from last year.

NIH and the Centers for Disease Control, based in Atlanta, Georgia, are included in a bunch of 'targeted programmes' which Congress decided should no longer be held hostage to budget negotiations. NSF and NASA failed to make the list, and are assured of funding — at the levels of the last financial year — only until 25 January, when the threat of yet another shutdown looms.

Grant processing at all of these agencies has been at a standstill now for almost a month, holding up hundreds of millions of dollars of funds for university research. At the NIH, 2,000 grants due to start or be renewed on 1 December and 1 January have not been issued. NIH officials say they are uncertain how quickly the return to work will enable the processing of these and a further 2,000 grants due on 1 February.

Harold Varmus, the director of the NIH, says even with assured funding for the rest of the year, the shutdown will have "a very significant fallout". NIH has "a very tightly orchestrated system" to process 30,000 grants a year. He appealed to grant recipients to be patient with NIH staff as they seek to get the process back on schedule.

Neal Lane, director of the NSF, says that the agency, which funds most non-biomedical university science in the United States, has delayed \$100-million worth of awards, and that this has been growing at a rate of \$10 million a day. "There's no way that we'll get through the backlog quickly," says Lane, who noted last Friday there were 42 large carts of mail in his mailroom.

After the agency failed to make the list of targeted programmes, another senior NSF official attacked universities for failing to complain loudly enough on its behalf. The NSF got "zero help" from academics in its bid to make the list, the official said. Asked how quickly NSF would clear its backlog, the official pointed to the looming threat of another shutdown on 25 January. "I don't know what we can do 'quickly'," he said. "We've got a two-week window to do ten weeks of work."

Most major universities have tried to ease the impact of the shutdown on researchers by providing temporary funds to enable the continuation of research for which grant support has been delayed. The Massachusetts Institute of Technology, for example, had last week committed \$11.5 million a year, or about \$1 million a month, to supporting such projects.

Mike Amey, assistant dean for research administration at the school of medicine at Johns Hopkins University, Baltimore, says the impact of the three-week shutdown is hard to calculate, because of the holiday season and the normally slow start to the financial year. "It's not that we are not feeling the pinch," he says. "But it is too soon to know how big the impact is, as there is normally a delay at this time of year."

NASA employees also returned to a huge backlog of paperwork this week, which ►

CERN greets detection of first anti-atom

London. **An announcement last week by the European Laboratory for Particle Physics (CERN) that its physicists have created anti-hydrogen — the first detected anti-atom — has set the stage for a new type of experiment designed to test fundamental physical principles.**

Those tests, which still require further experimental development, will cause an even greater stir if, contrary to most physicists' expectations, the principles — namely the equivalence principle (EP) and universal compliance with charge-parity-time (CPT) symmetry — are overturned.

The CERN physicists, headed by Walter Oelert of the Institute of Nuclear Physics at the National Research Centre in Jülich, brought together antiprotons and positrons in CERN's Low Energy Antiproton Ring (LEAR, above right). By studying the resulting particles ejected from the ring, the researchers were able to confirm that anti-hydrogen had been formed, albeit fleetingly.

The next challenge, to be pursued in other facilities, will be to carry out extremely precise spectroscopic measurements of the energy levels of anti-atoms, in order to look for differences between hydrogen and

anti-hydrogen spectra.

Such spectroscopy requires the development of anti-atom 'traps'. This is unlikely to be achieved at CERN before late 1998 — and then only if physicists can find about SFr7 million (US\$6 million) from external sources required to develop the necessary equipment. Meanwhile, physicists at Fermilab are hoping to carry out even more challenging spectroscopy of beams of anti-hydrogen atoms within a year or so.

Philip Campbell

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► will cause delays in processing some 2,000 research grants supporting university and federal scientists. Researchers whose NASA grants are scheduled for renewal in the first quarter of 1996 can expect delays in receiving their money, according to Henry Brinton of the agency's space science office.

Some spacecraft launches may also slip. Work on the TIMED (Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics) spacecraft is already three months late in getting started, as start-up funding is contained in the stalled 1996 appropriations bill.

That makes a slip in the launch date likely, says Stamatios Krimigis of the Johns Hopkins University Applied Physics Laboratory (APL), which is building the spacecraft. Other 'fast, cheap' spacecraft missions with tight deadlines may also have trouble meeting their schedules.

Two science missions scheduled for launch in February are expected to remain on schedule, however. APL's Near Earth Asteroid Rendezvous (NEAR), the first of NASA's small Discovery planetary missions, has adequate funding up to its launch, says Krimigis, as does the POLAR spacecraft that will study the Earth's magnetosphere.

NASA archival data have remained available to researchers through the Internet during the shutdown, which did not affect contractors working at the National Space Science Data Center at NASA's Goddard Space Flight Center in Maryland. NASA employees have also been allowed to work on key projects such as the Galileo mission to Jupiter and the X-Ray Timing Explorer spacecraft, launched on 30 December.

But Galileo scientists have been frustrated at being unable to release results from the probe's entry into Jupiter's atmosphere on 7 December. A press conference planned for 19 December had to be cancelled as several of the principal investigators for the probe are NASA civil servants.

Employees at the Jet Propulsion Laboratory in Pasadena, California, were spared most of the effects of the furlough, as they are employed by the California Institute of Technology, rather than directly by NASA. A threat of extensive lay-offs there was lifted with last weekend's deal in Washington to reopen the government.

Colin Macilwain & Tony Reichhardt

Systems analysis institute names new director

Vienna. Gordon Macdonald, currently professor of international relations at the University of California in San Diego, and formerly chief scientist of the MITRE Corporation in Bedford, Massachusetts, has been appointed the next director of the International Institute for Applied Systems Analysis, based at Laxenberg, near Vienna.

Macdonald, who will begin his three-year term of office in August, has chaired numerous scientific committees for the White House and various federal agencies,

AT&T rings out redundancies for Bell Labs' researchers

Washington. AT&T Bell Laboratories — the largest and most famous industrial research laboratories in the United States whose activities have already been under pressure for several years — are facing yet further retrenchment as the result of an announcement by AT&T last week that it is to cut 40,000 of its 300,000 employees.

Scientists at the laboratories' main site at Murray Hill, New Jersey, say that morale among the 6,000 staff there, already low as a result of earlier redundancies, has fallen still further. A round of voluntary redundancies at the end of last year failed to attract enough volunteers, leading to an unspecified number of involuntary sackings.

"It's like living through a bombing raid," said one physicist, who declined to be identified. "They are demolishing the best place ever [for doing research]." The recent redundancies will go some way to meeting the laboratories' share of the 40,000 job cuts. But a spokesman for the laboratories said that more would be needed in light of the latest announcement.

The AT&T Bell Laboratories network employs about 25,000 people, including 4,000 PhDs, around the world. Most of the 25,000 are engaged in product development for AT&T. But the laboratories still spend around \$500 million a year on a basic research programme, which is based entirely in the United States, and supports 2,000 principal investigators and their staff.

Even before last week's announcement, the laboratory network, which includes sites in eight US states and 21 smaller outposts abroad, was in the process of being divided into two components as part of a plan announced last September to split up the giant AT&T corporation.

Sam Bleecker, a spokesman for AT&T Bell Laboratories, said that the corporation was not ready to comment on the impact that the new announcement would have on the laboratories, which he said was expected to be "minimal". But he admitted that "there will be some lay-offs, not just

on the technical side but in all areas".

Bleecker said that it would be "premature" for management of the laboratories to talk about their future at this stage, adding that an announcement would be made "when the situation is less fluid".

The AT&T corporation, which has an annual turnover of \$75 billion, will split later this year into three parts. One will be a long-distance telephone corporation, which will keep the AT&T name and will have a turnover of \$50 billion. The second will be a systems and technology corporation, as yet unnamed, which will manufacture telephone exchanges and other high technology equipment, with an annual turnover of \$20 billion. And the third component will be a relatively small computer corporation.

The larger part of AT&T Bell Laboratories will re-adopt the name of Bell Laboratories, and will be part of the systems and technology corporation which, in a move intended to symbolize its commitment to technical innovation, will establish its headquarters at Murray Hill. But a substantial part of the laboratory network will be transferred to a new organization, to be called AT&T Laboratories, inside the telephone corporation.

According to sources at Murray Hill, AT&T intends to transfer about two-fifths of its \$500-million basic research programme — including teams working in systems design, software and applied mathematics — into the telephone corporation. That will leave \$300 million of basic research at Bell Laboratories, supporting a systems and technology corporation with annual sales of \$20 billion.

Apart from the immediate threat of redundancies, scientists fear that this amount of basic research will be too much for the new corporation to carry. "Being a tax on a \$75 billion corporation is better than being a tax on a \$20 billion corporation," says one. AT&T says that the systems and technology company will need a strong research programme. But a \$300-million programme, at 1.5 per cent of turnover, would be substantially above the industry norm of 1 per cent.

Bell Laboratories' emphasis has shifted away from basic research over the past decade. But the laboratories remain almost without equal in the industrial sector for the amount of good science they produce. With some of the best scientists accepting voluntary redundancy, and older, senior managers who have supported science at AT&T — "the guys who are protecting us" as one scientist describes them — being strongly encouraged to join the exodus, that may not stay true for long.

Colin Macilwain