

► 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**