NASA delays big missions in space science shakeup

■ Outrage at solar observatory decision

■ Lunar lander may be split up

Washington

At least no one can accuse the National Aeronautics and Space Administration (NASA) of reacting slowly this time. Less than two months after the Senate Appropriation Committee passed a spending bill that restricts NASA space science to 5 per cent growth over the next three years — after a growth of nearly 20 per cent a year for five years — NASA has already halted one major mission and is in the process of redesigning another.

In a 22 August memorandum to the Goddard Space Flight Centre, Lennard Fisk, NASA's associate administrator for space science and applications, ordered all work on the \$750 million Orbiting Solar Laboratory (OSL) to be stopped "as soon as possible". Although the solar laboratory programme had not yet been approved by Congress (it had been scheduled as a 'new start' in the 1994 budget) NASA has already spent \$51 million on its design. Fisk argued that it was better to retain the current design for the solar laboratory in the hope of a better economic climate late in the decade than to slash it to an affordable programme today.

NASA is also considering scrapping the planned lunar lander — an important early component in the current plans for a manned mission to Mars — in favour of smaller and cheaper lunar probes, assistant associate administrator Joseph Alexander said last week. No memorandum has gone out cancelling the lander, however, because little is being spent on it at present. For the second consecutive year, Congress has deleted all funding for the Mars mission. Until Congress decides "to take the initiative seriously", says Alexander, the lunar lander will remain a low priority.

The space science changes come on the advice of the Space Science and Applications Advisory Committee, a NASA advisory panel that had already been scheduled to meet in Woods Hole, Massachusetts, on 29 July, less than two weeks after the Senate vote. Shortly before the meeting, Fisk changed the ground rules to reflect the unexpected new budget restrictions. Rather than set priorities based on the assumption of continued healthy growth in space sciences, Fisk asked the panel to cut back the current 'core programme' until it could be contained within 5 per cent annual growth.

Faced with that challenge, the Woods Hole panel recommended a radical restructuring of the 'queue' of planned space

missions. With top priority given to keeping the space physics disciplines healthy, the panel chose to favour frequent launches of small and relatively cheap platforms that could keep many scientists busy. NASA should complete its 'Great Observatory' quartet, the panel said, by adding the Space Infrared Telescope Facility in 1995 to the three already up or under construction — Hubble Space Telescope, the Advanced X-Ray Astrophysics Facility and the Gamma Ray Observatory. But the solar laboratory — another 'big-ticket' item — would have to wait.

"They found themselves in the situation where they had a project that is of unquestionable merit but is rather expensive," Alexander says. "You can have OSL or a series of smaller missions, about one new start a year starting in 1994. If you're talking about discipline vitality, it's important to get those new starts." Typically it takes about five years for a spacecraft to go from new start to actual launch, he says.

In planetary science, the panel gave its approval for a 'flagship' mission to one of the planets. But unless the budget picture improves, NASA will have to choose between a Pluto flyby and a Neptune orbiter for a programme start in 1996, but it will not be able to begin both.

Solar scientists have reacted with almost uniform outrage to the cancellation of OSL. A letter-writing campaign is already under way to protest both Fisk's decision and the rapid reversal of the Woods Hole panel's priorities.

"We have built facilities, trained students, hired postdoctoral scientists and focused our careers on the kind of science OSL can do, all based on your strong support of OSL," Robert Noyes of Harvard University and Robert Rosner of the University of Chicago wrote to Fisk. "Now with this centrepiece of solar research lost (or at least postponed beyond the horizon), we believe there is significant danger that the solar community will fragment, and all this investment will be lost."

Lockheed Corporation has already set up a \$6 million facility at its Palo Alto Research Laboratory to build a instrument package for the OSL. Three other aerospace companies as well as Germany and Italy have all invested money in the project. "None of these investments would have occurred without the assurance that OSL would be NASA's next new start," wrote David Cauffman, manager of the Lockheed solar and astrophysics laboratory.

"How can the heritage of more than a decade of thoughtful NAS [National Academy of Sciences] and NASA strategic planning be tossed out in a single afternoon?" asked Jack Harvey, a member of a predecessor of the Woods Hole panel, the Space and Earth Science Advisory Committee.

The Woods Hole panel will refine the new space science priorities before submitting final recommendations in November. But as for the solar laboratory, the writing is already on the wall. Despite the protests of the shocked solar physics community, NASA officials have no plans to reconsider their decision to halt the project.

Christopher Anderson

ASTRONOMY

Insult to injury

Washington

THERE must have been a better way to break the news. Ohio State University officials, accompanied by their (American) football team, arrived in Tucson last weekend to tell the University of Arizona that Ohio State was withdrawing from the \$60 million Columbus telescope project atop Mount Graham. The environmental controversy surrounding the endangered Mount Graham red squirrel had nothing to do with it, they said; they had simply been unable to raise enough money to meet their \$15-20 million commitment. And then the Ohio State team, the Buckeyes, trounced the Arizona Wildcats, 38-14.

The announcement came as a surprise to the University of Arizona, which, along with Italy's national observatory, is a one-quarter partner in the project. Arizona officials say they had been discussing the possibility of partnership with four other institutions, of which only the University of Toronto has so far been named. "We were already looking for a fourth partner," says Peter Strittmatter, head of the Arizona astronomy department. "Now we're looking for a third and fourth."

Ohio State's withdrawal may delay telescope construction a year, to a 1994 start. But Strittmatter is not taking the Ohio State decision lying down. "I believe that Ohio State made a legal and moral commitment to the project," he says, adding that legal options are being discussed.

Early this week, C. William Kern, Dean of the Ohio State college of Math and Physical Sciences, resigned his position to protest his university's decision. Ohio State astronomy professor Eugene Capriotti announced his retirement, also in protest.

This is only the latest of the troubles to befall astronomy on Mount Graham. After several years of legal battles with environmentalists who feared that the telescopes would further endanger the red squirrel, Arizona received permission to begin construction of two other telescopes on the site early this year. Christopher Anderson