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Astronomers concerned by plan to give NASA ground control

Tony Reichhardt, Washington

A White House proposal to consider merging space-based astronomy funded by NASA with ground-based astronomy funded by the National Space Foundation (NSF) is alarming US astronomers. But they concede that without some such radical change their funding may be at risk.

As part of its 2002 budget request, the Bush administration called for a panel of experts to investigate "the pros and cons of transferring NSF's astronomy responsibilities to NASA". The panel — whose members will be named this week — is free to suggest other options for managing the government's astronomy portfolio. Its investigation will be overseen by the National Academy of Sciences and should be completed by September.

NASA and NSF provide more than 90% of all funding for US astronomy. But NASA's share is much larger because of the high cost of putting instruments such as the Hubble Space Telescope and the Chandra X-Ray Observatory into orbit. Indeed, NSF's budget request for astronomy next year is \$156 million, compared with the space agency's \$1 billion. NASA has also recently eclipsed NSF in becoming the primary sponsor of individ-



Pair of eyes: the Hubble Space Telescope and (inset) the Gemini South telescope, Cerro Pachon, Chile.

ual investigator grants in astronomy — twenty years ago, most came from NSF, but now three-quarters are from NASA.

NSF has taken on an increasing number of large commitments, such as the twin Gemini telescopes in Hawaii and Chile. And new projects recommended by the latest 'decadal review' for astronomy (see *Nature* 405, 381–382; 2000), whose ground-based component alone is expected to cost \$1 bil-

lion over the next ten years, could strain NSF's astronomy budget to breaking point.

Giving NASA, with its greater budget and experience with big-ticket projects, responsibility for all US astronomy might appear to make sense. But a discussion at a meeting of the academy's Committee on Astronomy and Astrophysics last week suggested that astronomers will resist the idea.

Astronomers at the meeting questioned whether the two agencies' philosophies and management styles could be matched. NASA is a mission-orientated agency focused primarily on launching hardware, whereas NSF takes its cues from the research community. "Science does not always come in as the number one priority" at NASA, said University of Wisconsin astronomer Blair Savage.

One option would allow NASA to handle the construction of all large facilities and leave investigator grants to NSF. But this might marginalize astronomy at NSF, warned Ellen Zweibel of the University of Colorado.

Committee co-chair Richard McCray of the Joint Institute for Laboratory Astrophysics in Colorado also saw value in having two competing agencies. But NASA's big budget may tempt ground-based astronomers used to making do with less. A project such as the Atacama Large Millimeter Array (ALMA) "is going to stretch the capacity of NSF in a big way", said McCray, but "would probably get done a lot faster" at NASA.

EU plans global positioning system

Jim Giles, London

The European Union (EU) is planning a satellite-based global navigation system that will rival the US-operated Global Positioning System (GPS).

Transport ministers from EU states agreed last week to spend 100 million euros (\$88 million) on developing the new system, called Galileo. The EU and European Space Agency (ESA) are expected to release a further 1 billion euros later this year. Another 2.1 billion euros will be needed for the system, which will involve launching at least 20 satellites between 2005 and 2008.

Europe aims to depend less on GPS for transportation, science and other purposes, partly because the US military restricts

access to its highest-precision capabilities.

Jim Davis, a geologist at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts, who uses GPS, says the European system will be welcomed if it delivers more resolution than GPS.

"Scientists need more accurate knowledge about the position of the satellites than the military does," he says.

Galileo could provide quick, precise measurements. "Its real difference is speed," says Hans Fromm, head of navigation at ESTEC, an ESA laboratory in Noordwijk, the Netherlands. "It takes hours to get an accurate fix from GPS. Galileo should be able to do it in ten minutes or so." Researchers are expected to have free access to the system. ■