

NASA's new leader comes aboard with a deceptively big budget for science. But size is no substitute for a healthy portfolio. Can Michael Griffin remake the agency's human space flight program without eviscerating research?

Balancing the Right Stuff

Solar physicist Yohei Yamauchi dreams of finding a permanent job in his field. But his boss at the New Jersey Institute of Technology in Newark recently told him that NASA was cutting the modest grant supporting his work analyzing data on the solar corona, leaving the 38-year-old Japanese-born researcher scrambling for another position. A scientist at another research institute who would like to hire Yamauchi is instead laying off a postdoc because of the same budget constraints.

Yamauchi's straitened circumstances are a sign of a quiet crisis in NASA's science program that poses a formidable challenge to Michael Griffin, who took over last week as NASA's new administrator. Space agency managers are now chopping more than \$400 million out of the 2005 science budget to cover congressional earmarks and shuttle

overruns. That means cutting grants, turning off satellites, and postponing nearly a score of planned missions. And the situation is likely to grow more dire in the coming year, as shuttle costs continue to rise and NASA pushes ahead on programs designed to send humans to the moon and eventually to Mars—all on a budget slated to remain nearly flat.

"There is the potential for serious damage to the future of science at NASA," says Lennard Fisk, a geophysicist at the University of Michigan, Ann Arbor, who chairs the National Academies' Space Studies Board. Fisk, who led the agency's science program during the Administration of

President George W. Bush's father, was one of 17 prominent scientists to sign an unusual manifesto the day before Griffin's Senate confirmation hearing urging NASA to retain its broad-based science program while it pursues the human exploration of the moon and Mars. "The balance between the two modes of exploration, human and robotic, is now threatened," the manifesto states.

Griffin—who spoke with some of the concerned researchers a few days before that hearing—echoed that concern at the 12 April hearing. "We as a nation can clearly afford well-executed, vigorous programs in both robotic and human space explo-



"We Can Do the Program That the President Has Proposed"

Calling him "a rare combination of scientist, engineer, and manager," Senator Barbara Mikulski (D-MD) gave voice to the thoughts of colleagues on both sides of the aisle in speeding Michael Griffin through a Senate confirmation process that took all of 1 day. "He is a rocket scientist—thank god we'll have someone who understands what it is all about!" she proclaimed about the new NASA administrator during his hearing on 12 April.

That understanding will be put to the test as the 55-year-old aerospace engineer faces a slew of tough decisions (see main text). Sources close to Griffin predict sweeping changes by this summer in NASA's senior management, including new chiefs of science, space flight, and legislative and public affairs. Their boss has already received White House approval to send a shuttle mission to service the Hubble Space Telescope if he deems it to be safe, they add. During the hearing, Griffin laid out his views on several pressing issues facing the agency.

Here are excerpts from his testimony:

- **On the space station:** "A human space-flight program focused only upon the completion of the space station and the servicing of that station with the shuttle does not qualify as a goal which is worth the expense, the risk, and the difficulty of human space flight. ... The president is pledged and I ... am pledged to bring the space station to a level of completion consistent with our obligations to our international partners."

- **On balancing human and robotic programs:** "If we continue to receive the president's budget allocations, we can do the program that the president has proposed. We know that we can do it because we've done it. The Apollo years are often looked at as a period when the

agency had a single mission focus. That [is] incorrect. During the Apollo years, in addition to executing that program, ... we also executed a host of planetary missions in the Mariner, Ranger, Surveyor, Voyager, and Viking Series. We executed earth science missions. ... We executed astronomy missions [and an] orbiting solar observatory."

- **On the Hubble Space Telescope:** "I would like to take the robotic mission off the plate. ... And so I believe that the choice comes down to reinstating a shuttle servicing mission or possibly a very simple robotic deorbiting mission. The decision not to execute the planned shuttle servicing mission was made in the immediate aftermath of the loss of Columbia. When we return to flight, it will be with essentially a new vehicle, which will have a new risk analysis associated with it and so forth. At that time, I think we should reassess the earlier decision."

- **On a new human launcher:** "Two nations [China and Russia] have now put people into space since the United States has last done so. I don't like that. The program that NASA has outlined so far features a new crew exploration vehicle—we can call it what we will—and it nominally comes online in 2014. I think that's too far out. President Bush said not later than 2014. He didn't say we couldn't be smart and do it early. And that would be my goal." **—A.L.**

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