Crisis Deepens as Scientists Fail To Rejigger Space Research

COLLEGE PARK, MARYLAND—With too many missions and not enough money, NASA's $5.5 billion science program is in a terrible fix. A 5-year plan that would cancel projects nearing completion, decimate disciplines, and slash funds to analyze data so upset space science researchers when NASA released it in February that officials gave the community an unprecedented shot at coming up with something better. But the scientists who met here last week as members of a newly expanded NASA advisory committee couldn't agree on an alternative approach that wouldn't bust NASA's proposed budget for 2007. That failure could leave the fate of the program to the whims of Congress.

The precarious state of U.S. space and earth sciences has become clear in the past several months, as several costly birds have come home to roost. The problems—the need for more money to get the space shuttle flying again, the White House push for a new launcher to send humans to the moon, and rising costs in science projects such as the James Webb Space Telescope—are not chicken feed. And NASA Administrator Michael Griffin accepts a portion of the blame. "I made a mistake," Griffin told NASA's new science advisory panel. "I made commitments in advance that I wasn't able to keep," referring to his 2005 promise not to shift money from science to human space flight. NASA's current budget request would trim more than $3 billion from space science through 2011.

A separate effort to confront the crisis came in a 4 May report from a National Academies' National Research Council (NRC) panel. The group, chaired by Lennard Fisk, an atmospheric scientist at the University of Michigan, Ann Arbor, concludes that the program is "fundamentally unstable [and] seriously unbalanced" and that it will fall far short of the research goals laid out in earlier academy surveys. Both the committee and the NRC report say the space agency should reverse proposed cuts to research grants, restore small missions, and move quickly to control spiraling costs. But neither tells NASA which programs or missions to cut. Both groups also criticized the agency for failing to consult regularly with researchers.

The gathering of the advisory panel at the University of Maryland last week was intended to remedy that situation and come up with concrete solutions to NASA's fiscal crisis. Dividing themselves into four groups—earth sciences, astrophysics, heliophysics, and planetary science—the 70 members set out to devise an alternative budget. But they were stymied by financial and legal hurdles. When it came time to discuss the fate of the 2011 Scout balloon mission to Mars, for example, a half-dozen members recused themselves because they had proposals pending. "We can't very well make a decision to cancel the Scout mission after all the qualified people have left the room," said a frustrated Sean Solomon, a planetary geologist at the Carnegie Institution of Washington and the subcommittee chair. "We're going to punt; our hands are tied by legal restrictions."

Despite much grumbling about NASA's planned cuts, the panels could not reach agreement on a different set of priorities. William Smith, president of the Washington, D.C.—based Association of Universities for Research in Astronomy, warned that canceling or deferring flagship missions would hurt the health of the research community, noting that three of NASA's large observatories in turn award $70 million a year in small grants. Physicist Glenn Mason of the University of Maryland, College Park, argued on behalf of small missions, saying they can provide focused data in a relatively short period. And NASA's acting earth science chief Bryant Cramer cast a vote for midsize spacecraft, which he says provide a great deal of affordable science.

The panel adjourned without reaching a consensus but agreed to meet again in July for additional discussions. Simultaneously, it will help NASA come up with a long-term science strategy, which Congress wants delivered by December.

The NRC report—an independent study also requested by Congress—hammered at NASA's management of science missions, which "are being executed at costs well in excess of the costs estimated at the time when the missions were recommended." Whereas the report urged NASA to undertake detailed cost evaluations of all its missions, the...
No Doubt About It, the World Is Warming

Global warming contrarians can cross out one of their last talking points. A report released last week settles the debate over how the atmosphere has been warming the past 35 years. The report, the first of 21 the Bush Administration has commissioned to study lingering problems of global climate change, finds that satellite-borne instruments and thermometers at the surface now agree: The world is warming throughout the lower atmosphere, not just at the surface, about the way greenhouse climate models predict.

“The evidence continues to support a substantial human impact on global temperature increases,” added the report’s chief editor Thomas Karl, director of the National Climatic Data Center in Asheville, North Carolina. The additional support for global warming will not change White House policy, however. Michele St. Martin, spokesperson for the White House Council on Environmental Quality, says President George W. Bush believes that greenhouse gas emissions can be brought down through better use of energy while the understanding of climate science continues to improve.

Critics who blasted research under the White House’s Climate Change Science Program (CCSP) (Science, 27 February 2004, p. 1269) as mere obfuscation might not have expected such a forthright conclusion from the report. Karl attributes the clarity to the CCSP approach. “For the first time, we had people [who initially disagreed] sitting down across the table. That’s a tremendous advantage,” he says. “The process is great for improving understanding. It led to not just synthesis but to advancing the science.” The CCSP synthesis and assessment process prompted new, independent analyses that helped eliminate some long-standing differences, Karl says.

The 21 authors of the report included researchers who for years had been battling in the literature over the proper way to analyze the satellite data. Meteorologists John Christy and Roy Spencer of the University of Alabama, Huntsville, were the first to construct a long record of lower-atmosphere temperature from temperature-dependent emissions observed by Microwave Sounding Units (MSUs) flown on satellites. By the early 1990s, Christy and Spencer could see little or no significant warming of the middle of the troposphere—the lowest layer of the atmosphere—since the beginning of the satellite record in 1979, although surface temperature had risen.

In the meantime, Griffin pledges to listen more closely to scientists. He spent several hours at the advisory committee meeting answering questions and chatting informally with committee members. “I’m not the world’s best communicator,” he told them. But “we don’t get out of bed, drive to headquarters, and try to screw the program up. … We’re not out to do a Lone Ranger act.”

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NASA officials, however, remain up against an immediate budget wall. They say they are considering canceling the Wide-Field Infrared Space Explorer, a $300 million mission well along in the planning. Also hanging by a thread is the Stratospheric Observatory for Infrared Astronomy, a joint project with Germany set for a first flight sometime next year. Scientists are hoping that Congress will step in to save the day by providing more money than the agency requested for the fiscal year that begins on 1 October. But given competing interests, lawmakers’ concerns about the growing federal deficit, and the departure next month of NASA’s key ally Representative Tom DeLay (R–TX), that hope may prove illusory. And without clear direction from the science community, the missions that survive may be the ones with the strongest political allies.

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SOURCE: NOAA

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