Budget Decision Threatens Planetary Plan

NASA officials have postponed a long-scheduled comet rendezvous mission; the planetary scientists feel betrayed

Officials of the National Aeronautics and Space Administration (NASA) have decided not to put a new comet rendezvous mission into the agency's fiscal year 1987 budget request, which will go to Congress in January. This decision has a significance that goes well beyond the upcoming budget, however. Because the mission is part of a carefully timed, long-term plan for planetary exploration, NASA's action leaves the scientists feeling betrayed, and raises serious questions about the viability of any such long-term plan in a capricious, real-world political environment.

In fairness, the decision was a tough judgment call on NASA's part. The Comet Rendezvous/Asteroid Flyby mission, or CR/AF, had long been scheduled for a new start in fiscal 1987 as part of a plan devised by the agency's Solar System Exploration Committee (*Science*, 12 November 1982, p. 665). The timing of CR/AF was particularly sensitive because a new start in fiscal 1987 would allow the engineering team now working on the Galileo Jupiter spacecraft to move intact to the new project after Galileo is launched in 1986. A delay could mean dispersing the experienced team and then rebuilding a new one later. In addition, CR/AF would be the first of the so-called Mariner Mark II spacecraft, whose modular design would allow the agency to fly a whole series of missions without having to redesign a spacecraft from scratch every time.

However, the agency's Office of Space Science and Applications also had other priorities, most notably an ocean-sensing satellite known as TOPEX and a series of three plasma-sensing satellites making up the U.S. portion of the International Solar Terrestrial Physics mission (*Science*, 6 September, p. 954). Both had been put forward as new starts in last year's budget request, and both had been deleted when congressional deficit-cutting measures mandated that the agency not have any new starts. They were accordingly at the front of NASA's science queue for this year's request. Moreover, the solar-terrestrial mission involved international commitments to both Europe and Japan. Thus, with the current fiscal climate offering no hope of NASA's getting three new starts in space science, NASA space science chief Burton I. Edelson decided in September to go with TOPEX and the solar-terrestrial mission, leaving CR/AF for another year. NASA administrator James M. Beggs backed him up.

"This was not a decision against CR/AF, but a decision in favor of TOPEX and ISTP," Edelson insists. CR/AF is a superb mission scientifically, he says, and if all goes well in this budget cycle, it will be at the head of the line next year.

Nonetheless, the planetary scientists find the action disturbing. Quite aside from their obvious disappointment, they had hoped that the plan devised by the Solar System Exploration Committee would represent not just a series of missions, but a whole new way of doing space science—"a new way of doing business, based on careful planning, a number of cost-cutting techniques, and considerable self-restraint in our requests to NASA," says committee chairman David Morrison of the University of Hawaii.

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Until the late 1970's, he explains, each space science mission was a thing unto itself, with the various communities fighting it out every year to see who got to fly. The operative principle was "Last year it was your turn, so this year it's *our* turn." Individual missions were loaded up with every instrument possible, since no one ever knew when their next chance would come, and in the planetary arena, especially, the cost per mission was approaching the billion-dollar level. In 1981, in fact, the Adminstration came very close to canceling the planetary program entirely (*Science*, 18 December 1981, p. 1322.)

The process devised by Morrison's committee was intended to break that cycle, at least for the planetary missions. At heart it involved a tacit bargain. The scientists would design a 15-year series of low-cost missions, focusing each one on a specific set of scientific questions. They would also agree on a timetable for the missions that would optimize the use of personnel and resources while keeping the overall funding requirement roughly constant at $300 million per year. NASA, meanwhile, would give the scientists some security and stability by maintaining the program at the agreed-upon level.

The committee's report was released in 1983, and until now it has been implemented without a hitch. NASA submitted the Venus Radar Mapper and the Mars Observer missions right on schedule, and both have been approved. The scientists, for their part, passed up an opportunity to send a spacecraft to Saturn using spare parts from the Galileo program, on the grounds that such a mission would disrupt the timetable.

"We have been assured by NASA, OSTP [the White House Office of Science and Technology Policy], and congressional committees that they liked the new way of doing business, and that other scientific constituencies should follow our example," says Morrison. Indeed, the astronomers, the earth scientists, and the solar-terrestrial physicists who work with NASA have been doing just that. In effect, the Office of Space Science and Applications has been evolving toward a master plan for all of space science.

But now comes the CR/AF decision, which dramatizes just how vulnerable such plans are to outside forces. The same carefully structured schedules that promise stability are also as fragile as a house of cards. Moreover, when budgets are tight and missions are expensive, as they are in the space sciences, cooperation among disciplines depends upon people having confidence that team players will be rewarded. "Now we're asking, Is there really a commitment to finding a less expensive way of doing space science?" says Morrison. "Or will we go back to the old approach of asking for more than we expect to get and treating each mission decision as a wide-open, knock-down competition?"

This current crisis hardly spells the end of planetary science, of course. While Edelson is in no position to promise anything, he is hopeful that money can be found to continue the Mariner Mark II development and to keep the Galileo engineering team intact. But the larger question—the viability of long-term planning—will not be answered so easily.—**M. MITCHELL WALDROP**