

This NASA budget won't get us to Mars

by Marsha Freeman

At the very moment that the United States should be taking the steps necessary to get mankind to Mars in the second decade of the next century, the lack of commitment by the Reagan administration to even keeping NASA's existing programs on schedule, puts in question whether that trip will ever happen.

On Feb. 27, White House Science Adviser Dr. William Graham (a former NASA administrator) assured the Senate that the administration would finally respond to the recommendations of the National Commission on Space "in a matter of weeks." The program the Commission has outlined centered on a return to the Moon after the year 2000, and a manned landing on Mars by 2025. When President Reagan was given the report in July, he promised a response in 90 days.

It is hard to imagine what either Graham or the President might say about the long-term future of U.S. space exploration, considering that the \$9.5 billion fiscal year 1988 NASA budget request will slow down two of the prerequisites for the lunar and Mars missions—the space station and the unmanned Mars probes.

According to the March 2 issue of *Aviation Week* magazine, Graham "has become increasingly skeptical of the station program," following in the footsteps of his predecessor, George Keyworth. Graham is coordinating the White House review of the space station, and is reportedly going to present Reagan with "alternatives" to spending what the station will cost.

Will there be a space station?

Less than two years after President Reagan initiated the space station project, that is the question that is being asked by the Congressional Budget Office (CBO), some congressmen and senators, the Office of Management and Budget

(OMB), and the White House itself.

A permanently manned station in low-Earth orbit will consist of the series of laboratories, factories, transportation nodes, repair facilities, and construction capabilities that will be required to go anywhere beyond Earth orbit. In his State of the Union address in 1984, President Reagan gave NASA the mandate to build such a station within a decade. It is likely that the station could have actually been built in half as much time.

Later, the OMB added a proviso—that the station must be built for \$8 billion, which was the first, ball-park estimate by NASA of what it might cost. This rough estimate quickly became the ceiling for the program.

For FY88, NASA originally requested \$1.1 billion for the space station, to do the final design work, and to start building the modules for a 1994 operational capability. The OMB slashed that figure in half in the fall of last year, and only through NASA head James Fletcher's direct appeal to the President, was the funding upped to \$767 million.

In the meantime, it was becoming clear to NASA managers, engineers, and industry contractors who will build the station, that the cost could not be held to \$8 billion. Though the estimates vary, and NASA has not released its final estimate, it appears that the cost has risen to at least \$12 billion. Why?

First, in a misguided attempt to "micro-manage" the program, Congress has placed requirements on the space station which were not part of the original NASA design. For example, to satisfy those who wanted an unmanned robotic space station, the lawmakers have added a Flight Telebotonic Servicer, capable of precision manipulations to aid in assembly, servicing, and maintenance.

Though certainly an important capability to have, the FTS was not included in the original cost projections. In FY88, NASA has requested \$22 million to start its development, and expects to flight test it on the Space Shuttle.

In a budgetary sleight of hand, station costs have "risen" \$1 billion per year, for operating costs. Those costs should not even be included in the research, development, and deployment calculations for this or any project, and are akin to adding projected gasoline costs to the dealer sticker price of a new car.

The same is true of those trying to pile the Shuttle launch costs into the station budget. If the Shuttle were not carrying space station payloads in the early 1990s, it would likely be ferrying other NASA payloads, which are an assumed part of the space agency's budget already.

About \$1 billion is needed to pay for design and assembly changes for the station, which came largely from safety concerns by the astronauts. This includes a redesign which will greatly reduce the amount of extra-vehicular activity (space walks) done by astronauts, and a possible \$1-2 billion is expected to be spent for a "lifeboat" emergency rescue system

for the space station. Only one year after the Challenger explosion, it is difficult to imagine that the same mistake will be repeated, making cost a major factor in safety.

An extra \$500-750 million is reportedly needed because a decision was made, due to pressure from the Congress, to contract out systems engineering work, instead of doing it in house in NASA field centers. According to Andrew Stofan, NASA associate administrator for the space station, another \$1.5 billion has been added to the "cost" because of a change "in accounting systems."

NASA has also decided to more than double the reserve account it budgets for the project, to \$3.8 billion, to provide for unforeseen cost growth and any unexpected expenses. In addition, \$3.6 billion that will be needed for ground-based testing facilities, simulators, and operating capabilities, is being counted into the space station cost.

Testifying before the Congress during the first week in February, Dr. Fletcher said that he thought the United States had already "lost the competitive edge" to the Soviets in manned space flight, and reported that the increased cost of the station, compared to the funding level budgeted, will likely delay its operation to 1995 or 1996.

Just as the Congress began hearings on the budget early last month, the CBO released its report on "Reducing the Deficit," which stated that \$8 billion could be "saved" over the next five years if the space station were canceled. They also recommended scrapping the orbiter NASA plans to build to replace the Challenger, to "save" money. And, of course, the fourth orbiter wouldn't even be necessary, if you canceled the station!

The last week in February, OMB head James Miller sent a memo to President Reagan, according to the *Defense Daily*, which estimates the new station costs at between \$14.5-15.1 billion. Congressmen Bill Nelson (D-Fla.) and Robert Walker (R-Pa.) also revealed that a second Miller memo recommended that the NASA budget be decreased from the current \$10.5 billion to \$10 billion, over the next five years.

Nelson, the chairman of the Space Science and Applications subcommittee of the House Committee on Science and Technology, stated that that amount would be "woefully inadequate," and that NASA should have a "\$15 billion budget by 1990."

So far, a request for proposals from industry to build the station components has been delayed. Originally due from NASA on Feb. 3—already a six-month delay because of redesign efforts—the more recent date was not met either, because of the indecision now stemming from the cost increases.

If a decision is not forthcoming on going ahead with the project, it is possible the Europeans, Japanese, and Canadian partners who are committed to putting more than \$2 billion of their own funds into the station, will finally get fed up and pull out.

Are we going to Mars?

Long before anyone can go to Mars, a series of unmanned spacecraft have to be sent, to further explore the surface, atmosphere, weather and climate, and other characteristics of the planet. NASA has been planning to send the Mars Observer to orbit Mars for one year (nearly two Earth years), to greatly enhance what we have learned from the 1970s Viking spacecraft.

That mission, along with many other space science payloads, was to be launched from the Space Shuttle. With only three orbiters and a reduced flight schedule when the Shuttle resumes missions in 1988, all of the science payloads have been delayed. It is precisely during this period, when the Shuttle is not flying, that the space science programs should be geared up to leap ahead and be ready for an aggressive series of missions in the future. However, the FY88 planetary exploration budget request has been cut \$50 million from FY87.

The Mars Observer mission is now scheduled to be launched from the Shuttle in 1992—a two-year delay. But for \$50 million, an expendable Titan III rocket could be purchased from the Air Force, and necessary modifications made to the spacecraft, to launch it on time in 1990. This money, however, was not part of the FY88 NASA budget request.

Representative Nelson is proposing to add funding to the NASA request, in order to launch the Mars Observer on time. He pointed out at hearings on March 3, that keeping the spacecraft on the ground for two years, will cost between \$4-6 million per month, or potentially \$120 million over two years. Certainly no money is saved in delay.

In addition, the House committee is recommending the purchase of two additional expendable rockets, to launch the Röntgen x-ray satellite, and a Tracking and Data Relay Satellite, in order to prevent further delays.

The Soviets are on schedule for the 1988 launch of their Phobos mission, which will explore both Mars and its tiny moon, and they announced last month that they have accelerated the development of a follow-up unmanned Mars mission, to fly in 1992, not 1994. This mission will use balloons to land cameras on the surface of Mars.

Last August, NASA announced that astronaut Dr. Sally Ride was detailed to the position of special assistant to the administrator for strategic planning, at NASA headquarters in Washington. She and Dr. Fletcher have been holding a series of planning meetings with NASA managers, to prepare a 10 to 15 year long-range plan for the space agency.

Programs including a return to the Moon, and manned missions to Mars are under consideration. This spring, the NASA response to the National Commission on Space recommendations, in the form of this long-range plan, will be released. But without a dramatic show of support from the President himself, where the plan will go is doubtful.