

# AMERICA'S SPACE PROGRAM: WHAT WE SHOULD DO NEXT

BY BUZZ ALDRIN

My thoughts about our next steps in space remain fundamentally the same as they were before the *Columbia* accident on Feb. 1. It has crystallized a bit more since serving as a presidential appointee on the U.S. Aerospace Commission. After the commission report was completed last fall, I began organizing a conference to discuss alternative approaches to space exploration. Tentatively scheduled for late October or mid-December, the conference will be part of the nation's celebration of the centennial of flight. The participants will include a symbolic representation of lunar astronauts, space experts and leading futurists. Broadcasting the event on C-SPAN and NASA TV will open deliberations to the public. Now, in the wake of *Columbia*, I believe that I cannot wait to have these alternatives introduced for wide consideration.

Crew-escape enhancement must be NASA's first priority. My colleagues at Starcraft Boosters have been working on a plan to upgrade the present fleet of orbiters with a crew-escape module. At any time from the countdown on the launchpad to re-entry, the crew-escape module could be separated from the orbiter and make a parachute landing.

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A high-priority, similar-designed crew-return module also could solve the crew-staffing problem aboard the International Space Station (ISS). Currently the station is limited to three, the number of people that can escape in the Soyuz capsule. Since a certain amount of hours must be devoted to routine station maintenance, having only a 3-person crew cuts extensively into time available for scientific experiments.



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Starcraft has designed a fly-back-booster-based launch system to reduce costs.

With a crew-return module with six seats, the ISS could operate with a full crew after the shuttle returns to flight status. Modules could be transported to the ISS inside the shuttle cargo bay or launched unmanned atop a Delta 4.

Up to now, many people have believed that the purpose of the space program was science. But a science program, or one that is almost exclusively science, has never been that popular with the American people. What everyone has on their minds is some kind of exploration. To me, there are three destinations. The closest is the moon. There



Aldrin believes a mission to Mars should begin with a landing on one of its moons.

are many who think returning to the moon would be a good thing. I believe that lunar missions could lay the groundwork for Mars missions. The third destination could be an asteroid—in fact, this could be an attractive, early public commitment.

### Mission To Mars

I do not use the question “Is there life on Mars?” as the reason for whether we should go. Mars is a deserving place for people to visit regardless

of whether life exists there. If there is no life on Mars, then we should probably ask, “Why isn’t there?” Answering that question will take extensive investigation.

A more important question is: How should we explore Mars? I absolutely agree with the idea that when humans go to Mars, they should first go to the moons of Mars, not the planet itself. There is great logic in having human intelligence at the Martian moons. From there, astronauts could control robots on the planet’s surface without the time delay that accompanies sending radio signals from Earth.

The chief advantage of first going to the red planet’s moons is safety. If a mission-ending problem were to develop, it would be much easier to return to Earth from a moon. From the surface of the planet you would have to lift off, get into orbit, and rendezvous with a spacecraft that could bring you back. On

a moon, you are already in orbit and in a relatively secure place where you could be rescued at some time in the near future. Mars is not a place where you can come home at any time. Launch windows occur only every 26 months. I envision that the first mission would involve an 18-month stay on a moon, with a possible sortie to the surface of Mars itself by two or three astronauts. It is critical that we not go to Mars unless we are committed to a gradual, evolutionary buildup of a permanent base. We should not go once, twice or three times and then say we have done that and end exploration. It is too expensive an endeavor for it to be temporary.

Asteroids are attractive destinations for science



*Aldrin envisions a multimodule space station, perhaps similar to the one shown here, as essential to future space exploration.*

and the public at large. It may be scientifically valuable to establish a temporary human colony on one of these small planets, which you might visit a few times with human missions. Building a temporary base on an asteroid would be a good way to test the long-duration capabilities of operating on another planet and would not require the long-term commitment or permanence of a moon or Mars base.

Steering asteroids is an idea that captures the imagination of the public. Perhaps it is because we recognize that understanding and controlling asteroids could be pivotal to our long-term survival. As an advanced civilization, we owe it to future generations to ensure the survival of the human race. That may involve having a growing settlement off Earth in case something happens to life here. It also means doing what we can to prevent a collision of an asteroid with the Earth's oceans or land mass. We need to do a lot of searching—it should be a combined effort between the Air Force and NASA with high-resolution telescopes that can observe near-Earth objects. We should catalog these objects and find out their composition. Then to assure ourselves that we know what to



*To prevent collisions, Aldrin suggests learning to alter the paths of asteroids.*

do if we find one that is on a collision course with Earth, we should visit an asteroid that is not on a collision course. Once there, we should demonstrate our ability to alter its course, without blowing it into pieces, then of course return potential resources to Earth.

### **Immediate Concerns**

A more pressing survival need is that of the space program itself. Until the *Columbia Accident Investigation Board* makes its report, we will not know the fate of the present fleet of orbiters—whether they can be fixed and how long shuttles will have to be grounded. With half of the original orbiter fleet lost to the *Challenger* and *Columbia* accidents, these are indeed tough times for NASA.

These are equally crucial times for the future of the space program. NASA must resist the temptation for a quick fix, such as building a space plane that serves as a taxi to and from the space station on expendable launch rockets. We need to consider carefully our next destinations and the vehicles that will take us there. What we decide in the next two years will influence our space program for the next 20 to 30 years.

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