

# Manned vs. Unmanned Space Exploration (Part 2)

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Watching the Apollo landings on the moon as a child I could hardly have imagined I was seeing the end of an era – that of manned exploration of space. Shuttle trips to low earth orbit notwithstanding; the human race has stopped reaching for the stars – with manned missions, of course. Now, the new explorers are robots. Will they be the ultimate space traveler? Or will man, with all faults and flexibility, take back this role?

[Read Part 1](#)

## Part 2

### The Case for Human Spaceflight

While no scientist can deny the value of robotic space exploration, many feel the need for complementary manned programs. Most agree that, for basic survey missions, robotic probes produce dramatic results. It's in field study that

scientist crewed missions could do better. Ironically, it is the same people who run the unmanned space missions that are clamoring for human crewed missions to follow them up.

Part of the problem is the limited abilities and scope of each robotic mission. To save money and reduce failure rates to a minimum, robotic probes are stripped down to essentials. Although these probes gather important data, much of it is ambiguous for lack of the probe's ability to do follow up tests. Today's robots cannot start up new lines of investigation.

Raw data is useful but often raises more questions. Even worse, the data is often completely unexpected leaving the scientists at a loss to explain the results. They need further missions to run different tests and, the cornerstone of all good science – verification by repeatedly testing the same area over time.

This repeated testing of results becomes difficult with unmanned mission failure rates. Take the Mars exploration programs: out of 31 missions by the USSR, Russia, the US and Japan since 1960, all but 10 failed and only 5 met their original goals. Compare that to the high success rates of astronaut crewed missions – almost 90%.



*Right: Japan's failed Nozomi (Planet B) mission*

Crewed missions are more costly, but also more effective. Human calibrated experiments setup up on the moon by Apollo missions functioned perfectly for 8 years until shut down for fiscal reasons in 1977. Robotic missions, while they may carry similar instruments, are incredibly difficult to place and calibrate. Ruggedness wins over accuracy so instruments are less sensitive and deliver fewer details in the data they collect.

Robots must rely on redundancy to deal with any problems while astronauts can creatively solve almost any problem. The Hubble Space telescope was repaired by teams from the Space Shuttle making it one of the most successful missions ever.

Geologists make up the most vocal group of proponents for manned missions. While probe data is useful, they contend one mission with a live geologist could answer all their questions in a few weeks, while endless robotic probes may never be able to provide a clear picture of Mars.

A geologist can apply all his or her senses to quickly make determinations as to what to study and what to ignore. Robotic probes could easily miss important clues and waste time on unproductive lines of exploration and study. A human still has much acuter vision than even the best video cameras and, more importantly, can process data with to the solar system's best supercomputer – the human brain – on the spot.

It's understood the shuttle has outlived its usefulness and new programs are needed. Even NASA Chief Administrator Michael Griffin has suggested the development of the Space Shuttle and International Space Station was a mistake by saying, "It is now commonly accepted that was not the right path. We are now trying to change the path while doing as little damage as we can."

Scientists aside, public opinion has done much to keep manned spaceflight alive. Poll shows a resounding 80% or more people support continuation of manned programs like the shuttle on and the International Space Station despite accidents and lack of worth as space labs. Humanity sees itself conquering space directly, not by proxy.

Indeed, support for astronauts extends well beyond simple polling. People are spending money to go into space as tourists. Chapters of the Mars Society exist in almost every major country - all pushing for manned missions with goals like the human exploration of Mars.

"Although some aspects of exploring and colonizing Mars still need refining and fine tuning, the lion's share of the technology and the understanding of the human condition are already in existence. The major missing factor is simply the realization and the commitment necessary to begin. The people of the Mars Society are working to educate and convince the political powers, the industry leaders, and you and me. We all have a stake in this." – Dr. Robert Zubrin, author "On to Mars 2", founder Mars Society.



communications satellites— before 2007. Like in the days of early pioneering, private initiative is becoming the mainstay of space exploration. The question is: can manned space exploration pay? After all, corporations are about by profit for their shareholders.

We must go to space – if not now, later, as the living area and resources on Earth dry up. Will we be on the forefront of this exploration, living in space and adapting it to our will like the hardy pioneers of old? Or will we stay at home to see these new horizons via virtual reality – only moving in to our new space bound homes when they are safe and comfortable?

*by Chuck Rahls, Copyright 2005 PhysOrg.com*

*Right: FMars habitat undergoing tests at Devon Island, Nunavut, Canada*

President Bush has even stepped up with a promise finish the International Space station by 2010 – only five years late – and for a manned mission to the moon by 2020. Much political wrangling will need to be done, however, if the funding is to materialize. Safety problems with the shuttle program continue to dog NASA as well, further putting in doubt these goals.

It will take more than just the words of a few politicians to keep manned spaceflight alive. The will of the people needs to be felt through their representatives on Congressional budget committees – we have the money and the technology. Do we have the will?

One avenue now being actively explored by space enthusiasts is private funding. Corporate spending in spaceflight has been greater than governments since 1996 when \$77 billion dollars was invested. Private industry has more than 1,200 launches - mostly

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