

## **Bush space proposals jeopardize successful unmanned program**

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*This guest column was written by Alex R. Dzierba, a professor of physics at Indiana University.*

President Bush recently unveiled his administration's plan to re-invigorate the manned space flight program starting with the establishment of a base on the moon and eventually a manned mission to Mars. Some scientists might applaud this announcement but others are skeptical about the president's motives and the overall wisdom of such an initiative. The administration's initiative is based on politics, economically unsound, and will jeopardize our spectacularly successful unmanned space program.

Exploration of space is without question a noble goal — probably an essential goal. What makes us what we are as humans drives us to explore and to learn. An ambitious space program, based on science, gives us an aspiration we can all share in, inspires young people and encourages and motivates new technologies. So we should take bold new directions that build on our impressive accomplishments in unmanned space research.

Who could not be awed by the high-resolution images from the most current mission on Mars — the Spirit Rover? The images include impressive panoramic pictures and now the robot is examining Martian soil with a microscope. Equally inspiring was to see the joy, energy and enthusiasm on the faces of scientists and engineers, young and old alike, in the control room of the Jet Propulsion Lab (JPL). This comes at the heels of another recent JPL success. Earlier this month the Stardust probe captured particles from a comet and will return them to Earth. To learn more about these missions and nearly 50 other JPL missions starting from 1958 visit [www.jpl.nasa.gov/missions/](http://www.jpl.nasa.gov/missions/).

The Hubble Space Telescope is another success story. It has provided us with spectacular images and scientific discoveries about our solar system, stars, galaxies, quasars and cosmology. To view catalogs of HST images on the web go [www.ast.cam.ac.uk/HST/press.html](http://www.ast.cam.ac.uk/HST/press.html).

Of course there were some failures. Two missions to Mars within a one-month period in late 1998-early 1999 were lost. With ambitious goals comes the real chance of failure. But the important thing was that lives were not lost and the overall program was not traumatized.

Human flight is a risky business, even when we stay in our own little neighborhood within the confines of Earth orbit. NASA's shuttle flight program has suffered two disastrous accidents. Two percent of U.S. and Russian manned flights have ended in fatal disasters — not surprising given the complexity of space flight. And the science payoff per dollar of the moon flights, the shuttle program and the International Space Station is far below that of the unmanned space program.

Establishing a moon base will likely cost hundreds of billions of dollars — perhaps a trillion. There's no way to estimate the costs of a manned Mars mission. The technical hurdles are huge, not the least of which is protecting

humans from cosmic radiation.

Mr. Bush plans to kick-start his new initiative by increasing NASA's budget by \$1 billion a year and re-directing resources within NASA. Hubble is the first victim. Tragically the decision has already been made to no longer service the Hubble — it will die in orbit around 2007. NASA scientists are devastated. Senator John Glenn, the first American in space, and others fear that the International Space Station also likely be abandoned despite the billions that have already been invested in it. It is also likely that the current unmanned space science programs will also suffer.

According to a Jan. 16 article in the Washington Post, aerospace and energy companies have long lobbied NASA to push for manned missions to Mars and these companies include Lockheed Martin, Boeing and Halliburton, which Vice President Dick Cheney headed before his current job. Reportedly Dick Cheney and Karl Rove both played key roles in moving Mr. Bush towards his manned flight to Mars initiative.

The war in Iraq and its follow-up has put a huge strain on the national budget and the deficit is growing. The I.M.F. has recently issued a report noting that the U.S.'s staggering foreign debt threatens the world's economy. According to the current plan, the really big bills for Mr. Bush's ambitious Mars program will not start coming in until long after he is out of office. Hopefully his plan will wither before it does too much damage. Our science policy should not be decided by the likes of Mr. Cheney and Mr. Rove — it should be decided by scientists. Eventually humans will go to Mars, it is inevitable, but for now we should continue the real exploration of space using robots.

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