Long-Term Mars Exploration Under Threat, Panel Warns

While astronomers fret about the fate of the Hubble Space Telescope and earth scientists fear that NASA’s budget woes will sink their current projects, their colleagues who study Mars are busy operating or planning an ambitious flotilla of rovers, orbiters, and robotic science labs. But their relatively good fortune may be short-lived, a National Research Council (NRC) panel warned last week.

NASA currently spends $650 million a year on Mars exploration, and that figure was projected to double by 2010. But as a result of the demands of the space shuttle, President George W. Bush’s human exploration initiative, and cost overruns among other science projects, Mars spending now is slated to remain flat through that period. The agency recently canceled a telecommunications orbiter, halted efforts to develop a Mars sample return, and proposed scaling back some smaller missions. “We’re in pretty good shape in the near term,” says Reta Beebe, an astronomer at New Mexico State University in Las Cruces who chaired the 15-member NRC panel. “But the future is pretty nebulous, and the entire Mars program is under threat.”

Beebe’s panel recommended that NASA resurrect the telecommunications orbiter and add a science component to study the martian upper atmosphere as well. The agency in recent months has quietly been considering a Mars Science and Telecommunications Orbiter (MSTO) to do just that. The spacecraft, which could be launched as early as 2013, would get data from the martian surface to Earth. The NRC committee also suggested that NASA consider building a seismic network in 2016 to ensure that researchers recognize that the fiscal constraints mean such a multibillion-dollar effort likely won’t happen in the coming decade.

NASA’s chief Mars exploration scientist, Michael Meyer, says the proposed cuts to future years forced the agency to push sample return and geophysical rovers into the unbudgeted future. But he’s confident that building the MSTO is realistic and that international partnerships could make the other projects doable. But he warns that conducting both a 2016 mission and an astrobiology flight in 2018 might prove too costly.

Reaction from outside researchers was mixed. “We need to get our act together, but we are hamstrung by our budget,” says Ray Arvidson, a planetary scientist at Washington University in St. Louis, Missouri. He praised the report as an important step in laying out a long-term plan. But Noel Hinners, a geochemist, former NASA manager, and now executive at Lockheed Martin Astronautics in Denver, Colorado, questions the need for a telecommunications orbiter. He adds that a sample return is still possible by 2016 or 2018 if NASA and Mars researchers made it a top priority.

* Mars Architecture Assessment Committee
(newton.nap.edu/catalog/11690.html#toc)

members are upset that the sample-return mission is no longer on the books, they also recognize that the fiscal constraints mean such a multibillion-dollar effort likely won’t happen in the coming decade.

The panel sidestepped the question of where funding for the orbiter would come from. But Beebe warned that sticking with a flat budget would mean that “we may not be able to sustain what we’ve developed” during the past decade. And she added that scientists are willing to be realistic. Although committee

---ELI KINTISCH

SOFIA Returns

NASA’s Stratospheric Observatory for Infrared Astronomy (SOFIA) is officially off the chopping block. Space agency chief Michael Griffin told scientists at a Washington, D.C., meeting on 6 July that the project would go forward, despite cost overruns and delays in engineering an aircraft and its accompanying telescope. Those troubles led Griffin to not fund SOFIA in the agency’s 2007 budget request released in February (Science, 23 June, p. 1729). But researchers in both the United States and Germany—a major partner on the project—objected strongly.

Griffin also said that the Space Interferometry Mission, a complex effort to study extrasolar planets slated for the next decade, would be “refocused.” NASA spokespeople said they were not sure what that means, but some scientists expect the comment to effectively mark the mission’s death knell.

---ANDREW LAWLER

Report Fuels Biomass Excitement

One-third of U.S. cars and trucks on the road in 2030 would be powered by biofuels under a Department of Energy (DOE) road map that spells out President George W. Bush’s vision for breaking the country’s addiction to oil, much of it foreign.

Released last week, the 200-page document sets interim and long-range goals for cellulosic ethanol research. According to the plan, researchers would aim within 5 years to allow refiners to make ethanol from cellulose derived from waste or plants such as switchgrass, poplars, or eucalyptus, assuming technological advances in the breakdown of cellulose and the fermentation of its sugars. That would be followed by entirely new energy crops with better ranges, and temperature and pest tolerances.

Justin Adams of British Petroleum, who participated in a 2005 workshop to develop the plan, calls the final result a “step forward.” In the meantime, the president’s request to spend $150 million next year on biomass research has been approved by the House and raised to $213 million by the Senate, which is still debating its version of DOE’s 2007 budget.

---ANDREW LAWLER