ELECTION 2008

Obama and McCain Are Swept Up In a Surprising Space Race

Space policy may not be on the minds of most Americans, but it’s become an important issue in the race for the White House. How did that happen, and what does it mean for President Bush’s 2004 vision for exploration?

Stem cells, climate change, energy research, the teaching of evolution—these are today’s hot-button science and technology issues. But in the contentious U.S. presidential race, the human space exploration program stole the limelight last month.

A savvy group of business boosters in electoral-vote-rich Florida and a small band of determined space advocates have convinced the Republican contender, Arizona Senator John McCain, and his Democratic rival, Illinois Senator Barack Obama, that NASA’s fortunes are intertwined with their quest for the Oval Office. Vying last month to prove their space-friendly credentials, the two men visited the area around NASA’s Kennedy Space Center in Florida, issued dueling policy statements, and insisted that they were eager to boldly go where humans have not been since geologist Harrison Schmitt closed the hatch on the lunar module in 1972. Returning to the moon even made it into the Republican Party platform finalized last week in St. Paul, Minnesota.

The impetus for the debate is the job losses connected to a 2010 phaseout of the aging space shuttle. Both candidates say they will consider postponing that retirement date while pushing for a new launcher that could speed humans to the moon by 2020. Both also want to bolster scientific research aboard the international space station still under construction—and question the Bush Administration’s decision to mothball it in 2016.

The unusual bout of political one-upmanship has broadened the debate over the agency’s future beyond its traditional audience of university researchers and aerospace engineers who benefit from NASA’s annual $17 billion largesse and their congressional supporters. It also promises to brighten the agency’s current gloomy fiscal picture. “Raising the profile of space as a campaign issue in Florida is an excellent way to increase the budget of NASA,” says Dale Ketcham, director of the Spaceport Research and Technology Institute, a consortium based at Kennedy that backs research and commercialization efforts. The debate provides a rare glimpse into how politics, economics, and science and technology interact to make a campaign issue. “It’s lucky we’re a swing area in a swing state,” says Lynda Weatherman, president and chief executive officer of the Economic Development Commission of Florida’s Space Coast, which played a starring role in placing space on the presidential candidates’ agenda.

Campaign sweet spot

The business group represents a region along the state’s central Atlantic coast that depends heavily on Kennedy, where the space shuttle orbiters are refurbished, mated with solid rockets and a large external tank, and launched. Although the center employs fewer than 2000 civil servants, tens of thousands of locals work for NASA contractors and subcontractors. In addition, shuttle launches draw large numbers of tourists, pumping more money into the local economy.

That prosperity, however, is threatened by the 2004 initiative put forward by President George W. Bush. Under that plan, the shuttle is slated to be retired in 2010 to free up funds for a successor launcher that eventually would take humans back to the moon. On 24 June, NASA Administrator Michael Griffin told a

New Institute Shoots for the Moon

MOUNTAIN VIEW, CALIFORNIA—The home of the new NASA Lunar Science Institute, which opened its doors here on 1 March, is a shadow of its former glory. Once the centerpiece of the Navy’s now-abandoned Moffett Field, the stately stucco building currently sits on the periphery of NASA’s Ames Research Center. The two-story structure lacks air conditioning, a conference room, and a working water fountain. But lunar scientists hope to refurbish the shabby surroundings—which now reflect the tattered state of the discipline—as part of a larger renovation that will set the agenda for a new generation of scientific exploration.

Whether that happens depends in large part on the next U.S. president (see main text). The 500 scientists, engineers, and students who gathered here in July to lay out an ambitious new agenda for lunar science are hoping that he retains President George W. Bush’s 2004 initiative to return humans to the moon. Lunar scientists hope to ride the coattails of that exploration effort, which will require robots to scout out the lunar environment before astronauts land and conduct extensive research on the surface, beginning in 2020.

But U.S. scientists aren’t taking any chances. European, Japanese, and Canadian representatives stayed after the meeting to hammer out plans for an International Lunar Network to coordinate the plethora of lunar missions planned by several nations in the next several years (Science, 16 March 2007, p. 1482). So even if the United States ultimately were to bow out of human exploration, its researchers could still have a hand in the field. “During the next 5 years, there will be an astounding amount of data” coming back from the moon, says Carlé Pieters, a planetary scientist at Brown University who co-chaired a National Research Council study last year on lunar research. “There will be a
Senate panel meeting in nearby Port Canaveral that Kennedy alone will lose between 6000 and 7000 shuttle-related jobs. That loss, he added, will be offset by 3000 new jobs at or near the center associated with the space station and the new launcher. An estimated 1000 people converged the night before the hearing for an emotional rally decrying the impact of the shuttle’s retirement on local jobs and urging legislators to extend the program.

“Families are anxious,” says Ketcham, who began to woo the campaign staffs of presidential candidates as early as March 2007. “This is not rocket science but simple political arithmetic. This is a critical corridor, and this is an issue which could decide who wins the state.” Florida played the decisive role in the tight 2000 race between Bush and Democrat Al Gore and again in 2004 in the race between Bush and John Kerry. Its 27 electoral votes are the fourth biggest prize in the country, a total likely to rise in 2012 after reapportionment following the 2010 census.

Although the demographic trends brought erstwhile Republican candidates Rudy Giuliani and Mitt Romney to the Kennedy Space Center in January, Weatherman knew that simply complaining about job losses was not enough to make space matter in the campaign. “A bigger issue was needed for national leadership to take note,” she says. By the time a delegation of Space Coast businesspeople met with McCain staffers in Washington, D.C., in April and 1 month later with Obama staffers in Chicago, Illinois, the commission had found the answer: the projected 5-year gap in access to the international space station between the time the shuttle flies its last mission in 2010 and the new Constellation rocket begins operations by 2015.

To bridge the gap, the White House initiative assumes that U.S. astronauts will hitch rides on the Russian Soyuz vehicles to service the space station. That dependence initially

## WHERE THEY STAND ON SPACE

**OBAMA**
- Add shuttle flight for AMS
- Reestablish National Aeronautics and Space Council
- New generation of planetary probes, space-based observatories
- Eventually send humans to Mars

**MCCAIN**
- Fund Constellation
- Prevent earmarks
- Space exploration as a top priority
- Complete and use space station
- Return to the moon

**BOTH**
- Minimize the gap between shuttle and Constellation
- Maintain space infrastructure

**WHERE THEY STAND ON SPACE**

 feast—and there are not enough people to analyze it.”

With a current budget of $1.5 million, the institute will design neither instruments nor missions, says astronomer David Morrison, its acting director pending the appointment of a permanent head by the end of the year. (NASA has a separate fund for peer-reviewed lunar basic research by individual investigators.) Instead, Morrison says, the institute hopes to be a nexus for a growing number of lunar research teams, complementing other organizations like the Lunar and Planetary Institute in Houston.

The first visible signs of that commitment will come later this year with the signing of 4-year cooperative agreements with several universities and research institutes. Morrison hopes the institute’s 2009 budget will grow to $10 million, split between NASA’s science and exploration offices. In addition to funding more data analyses, says Morrison’s deputy, Greg Schmidt, the additional resources will help “create a community” of lunar scientists.

That community is eager to provide input for human missions that would explore the moon in far more detail and subtlety than is possible with robotic missions like the current Mars rovers. Scientific questions include the extent and nature of the massive bombardment that took place 3.9 billion years ago, leaving the lunar surface pockmarked; how the lunar crust separated itself from the mantle; and the impact of the ancient solar wind on the lunar surface. Answering such questions requires a human touch. “You can’t just send a robot out to collect rocks,” says G. Jeffrey Taylor, a planetary scientist at the University of Hawaii, Manoa.

Robotic probes will dominate NASA lunar exploration during the next decade, however. NASA plans to launch the Lunar Reconnaissance Orbiter early next year, a mission that includes Ames’s Lunar Crater and Observation and Sensing Satellite. The Gravity Recovery and Interior Laboratory, twin spacecraft designed to map the lunar gravity field in unprecedented detail, will follow in 2011, along with the Lunar Atmosphere and Dust Environment Explorer. Last year, NASA canceled a series of rovers designed to conduct science and provide data on potential human landing sites, but scientists hope to persuade a new Administration to revive them. In the meantime, workers are getting an old building ready for a new mission.

―A.L.
in the space industry in Florida do not lose their jobs.” He also promised to reestablish a presidential aeronautics and space council “so that we can develop a plan to explore the solar system—a plan that involves both human and robotic missions, and enlists both international partners and the private sector.”

Standing beside a beaming Nelson, Obama said that “under my watch, NASA will inspire the world, make America stronger, and help grow the economy here in Florida.” Nelson and sources close to Obama’s campaign say that the candidate wants to boost NASA’s budget by $2 billion, although they aren’t clear whether that would be a one-time or an annual increase.

McCain didn’t wait long to reply. On 12 August, he released a two-page statement in which he promised to finish the space station, support Constellation, and ensure that space exploration “is a top priority.” He also touted his history of pressing NASA to control costs and promised to prevent pork-barrel spending from sapping the agency’s research muscle. And on 18 August, McCain spent an hour in a closed-door session with space industry representatives adjacent to Kennedy, where Weatherman says he questioned them on NASA’s future. At a press conference the same day, he criticized Obama for having a “short, thin record” on space.

By then, however, Obama had released a seven-page paper laying out in surprising detail his plan for space. Along with backing a new generation of science probes and observatories, the plan endorsed sending humans to the moon by 2020—as Bush proposed—and eventually on “to more distant destinations, including Mars.” To get there, Obama backed a new launcher, though he did not endorse the specific Constellation effort, which faces technical and budgetary hurdles. Two weeks later, he repeated that message in a reply to questions from a grassroots science advocacy campaign, calling it part of “a 21st century vision of space” (Sciencedebate2008.com).

McCain has also continued to speak out. Two days after his visit to the Space Coast, he told a Florida television station that “I stand for not cutting any of the NASA budget, which Senator Obama proposed and then reversed himself, as he has on a number of things.” On the same day, Obama explained that he changed his view after consultations.

Making the case
Obama’s attention to detail, say several Democratic insiders, owes much to a small group of space advocates led by Lori Garver, a former NASA official under President Bill Clinton, director of the National Space Society, and currently a consultant with Washington’s Avascent Group, an organization that works primarily for aerospace companies. Garver, who advised Senator Clinton’s campaign until her defeat this spring, declined to discuss how that policy was formulated. Her counterpart on the McCain campaign, former Apollo astronaut Walter Cunningham, isn’t so shy. He calls Garver “the architect” of Obama’s space policy, which he said shows “a good understanding of space science and exploration.”

Meanwhile, the conflict between Russia and Georgia, which broke out in early August, provided an unexpected boost to those hoping to make the launch gap a campaign issue. The resulting deterioration in U.S.-Russian relations led a growing number of politicians to question NASA’s dependence on the Soyuz. McCain and two other senators sent Bush a 25 August letter warning that retiring the shuttle promptly could endanger U.S. access to the space station even if it makes financial sense. Speeding up the new launcher program, which already faces technical hurdles, or encouraging private launchers won’t be enough to close the gap, they warned. Instead, they recommended that NASA “take no action for at least one year from now that would preclude the extended use of the space shuttle beyond 2010.” The message, says Cunningham, is “we gotta keep the shuttle flying.”

Griffin complained bitterly in a recent e-mail that White House officials are conducting a “jihad” against the shuttle and that the only “politically tenable course” for the next president is to extend the shuttle, according to a report in the 7 September Orlando Sentinel. Garver admits that she is “thoroughly amazed” the gap has emerged as a contentious national issue.

Unlike in past campaigns, space has even become part of each party’s platform, a nonbinding compilation of positions. There’s a brief mention in the Democratic version of a “strong and inspirational vision” for space and a sentence in the Republican document declaring that “we look toward our country’s return to the moon.” That’s nice, say the Florida Space Coasters, but it’s not enough. “[The candidates] are competing with one another, which is good for us,” says Ketcham. Adds Weatherman, “Now we need specifics.”