Controversy Flares Up Over NASA Solar Project

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Solar scientists are scrambling to put their stamp on NASA's new Living With a Star initiative, a billion-dollar program to study the sun that faces obstacles in Congress.

Ancient astronomers thought the sun was the most important object in the heavens. But in recent times, solar astronomy has been left in the shade by dramatic images of celestial wonders ranging from colorful nebulae to channels cut by springlike seeps on Mars. NASA, the primary federal source of funding for studies of the sun and its impact on the solar system, devotes only about 10% of its annual $2 billion space science budget to such research.

This year, however, was supposed to be solar physicists' moment in the sun. In February, the president requested a $20 million downpayment on a 12-year, $1-billion-plus effort, called Living With a Star, to launch a flotilla of satellites to study the sun and the streams of particles it hurls into space. The data are expected to give researchers critical insight into the sun's inner workings as well as a window on space weather, which has a profound effect on Earth's climate as well as terrestrial communications. The program seemed to have everything going for it, including the backing of space scientists, NASA chief Dan Goldin and the White House, and influential senators.

But instead of ushering in a new dawn for solar science, the initiative has become mired in controversy that includes a bureaucratic tug-of-war, a debate over research goals, and questions about the propriety of a lucrative contract to manage it. The saga shows how, in the trenches of Washington politics, what seem like assets can quickly turn into liabilities, and how researchers must compete with other interests for organizing and running a big science program. NASA officials are convinced that the project will survive, but the rough-and-tumble politics have upset and perplexed the effort's scientific supporters, a community generally naïve in the ways of Washington. "I thought I was buying a ticket to the ballet, but I ended up at a wrestling match," says Arthur Poland, the lead scientist for sun-Earth programs at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

What Poland and other researchers have proposed is a network of satellites ringing the sun and Earth that would monitor solar variability, solar wind, and the interactions of the sun with Earth's magnetosphere and ionosphere (see gallery of images). The first mission, a spacecraft with four main instruments to study solar dynamics, would be launched late in 2006. Two years later, NASA would begin launching several satellites to examine how the sun affects Earth's magnetic field and atmosphere, followed by a series of spacecraft that would closely circle the sun and study the solar cycle. "This will provide terrific data and great opportunities for scientists to understand space weather," says Richard Behnke, a program manager at the National Science Foundation (NSF). The price tag is

SOLAR SENTINELS

Focus: Solar surface, wind, and seismology
Cost: $600 million
Spacecraft: Five
Launch Date: 2008–09
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estimated at $500 million over the next 5 years and between $1 billion and $1.5 billion over its lifetime, according to Gilberto Colon, the Goddard program manager.

The idea for such a network goes back to the mid–1980s. But other missions with wider popular appeal, like the Hubble Space Telescope or Mars Pathfinder, repeatedly pushed it down the priority list. “We are a field accused of studying wiggles on a graph,” says Dan Baker, a space physicist at the University of Colorado, Boulder. “To convey our work in a visual way was difficult.” Graduate students were drawn to more vibrant fields, leaving in place gaps created by a spate of retirements. In addition, the field’s interdisciplinary nature hindered an effective grassroots lobbying campaign. As a result, as other areas of space exploration blossomed, Baker laments, “we were going out of business.”

The turnaround came after Europe’s Solar and Heliospheric Observatory (SOHO), launched in 1995, began returning stunning pictures taken by a Goddard telescope. Other small spacecraft have since filed other images. Researchers hoped to parlay the popularity of those pictures and interest in the current peak in solar activity into a 2002 budget initiative. But NASA did them one better. A presentation last August by George Withbroe, who manages NASA’s sun–Earth programs, was so successful that Goldin decided to jam Living With a Star into this year’s request, and the White House agreed.

Home–field advantage

Maryland politicians, apprised in January of the new initiative, were enthusiastic. With a nod from the White House, Democratic Senators Barbara Mikulski and Paul Sarbanes announced the effort just before President Bill Clinton released his budget request on 7 February. “This means jobs today and jobs tomorrow,” declared Mikulski. Nine days later, Goddard managers published a notice of their intent to award a sole–source contract to manage the project to the Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland. The contract, according to the notice, would run for 12 years and be worth $600 million.

The announcement upset much of the solar science community. Goddard scientists, caught by surprise, wondered if the arrangement signaled a diminished role for their center. Industry officials complained that they were being blocked from competing for the contract. Republican House members bridled at a major government program moving forward without competition. The notice even rattled the White House, which sought an explanation.

“It was terrible,” says Andrew Christensen, chair of NASA’s sun–Earth advisory panel and a space physicist at The Aerospace Corp. in El Segundo, California. The decision, he says, “unfortunately has politicized the program.” Judith Karpen, chair of the American Astronomical Society’s solar physics division and a Naval Research Laboratory researcher, warned that “the likelihood for success for any mission will be greatly compromised” if APL is given control over the initiative. In a 3 March letter to William Townsend, Goddard deputy director, she also noted Goddard’s success in planning and managing previous sun–Earth missions, including SOHO, and criticized “the unprecedented degree of secrecy” surrounding the choice of APL.

Researchers, industry lobbyists, and congressional staffers see the arrangement as a bid by Goldin to curry favor with an influential legislator—Mikulski is the ranking Democrat on NASA’s spending panel—by propping up a key research facility in her state. APL, with 3000 employees, has seen its mainstay military contracts dwindle in recent years. As evidence, an industry source cites a meeting this spring with Mikulski in which the senator told corporate leaders to accept the fact that APL had won. “We were told not to disrupt the program,” adds one industry official. But Mikulski aides dismiss such talk. “There was no deal,” says a spokesperson. “She has nothing to do with assigning contracts.”

The arguments over the contract quickly caught the attention of House Republicans. After getting wind of industry and research community concerns, Representative James Sensenbrenner (R-WI), who chairs the House Science Committee, asked NASA's Inspector General (IG) in April to look into the matter. In May, at Sensenbrenner’s urging, the House spending panel with oversight of NASA's budget denied funding in part because of its concerns surrounding the contract. Earlier this month, NASA’s IG issued a report finding “insufficient justification for NASA’s decision to award this contract on a sole–source basis to APL.” Last week, Sensenbrenner wrote a letter to Goldin asking him to “remove the cloud of uncertainty” hovering over the program by holding a competition.

But, true to the smoke–and–mirrors nature of Washington politics, some congressional sources say the House criticism is not what it seems. Instead, they see the attacks as part of an effort to win concessions from Mikulski and her Senate colleagues on other programs when the two bodies meet this
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