SPACE SCIENCE

Europe Set to Work on Hubble's Replacement

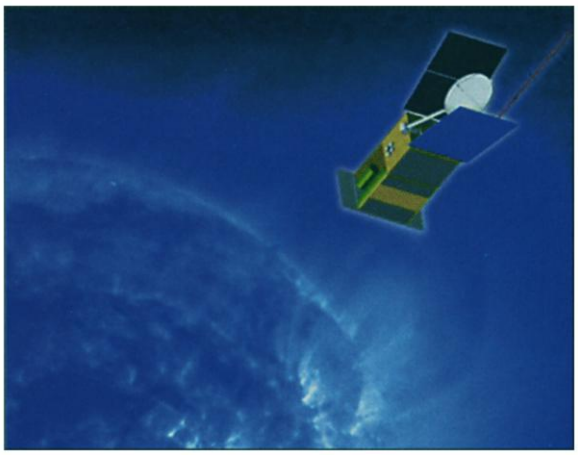
NASA scientists and engineers working on the Next Generation Space Telescope (NGST) got a boost from across the Atlantic last week. On 15 September in Paris, the European Space Agency's (ESA's) top science advisory committee recommended that the agency become a major partner in the project. The recommendation puts NGST—along with a handful of other missions the committee also endorsed last week—one short step away from officially becoming part of Europe's space program.

"We couldn't be happier," says Bernard Seery, NGST project manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland. ESA's involvement is "critical to NASA's being able to achieve the objectives of NGST," agrees Rick Howard, NGST's project executive at NASA headquarters in Washington, D.C. In the past, funding problems have threatened to curtail European participation in the space telescope (*Science*, 31 January 1997, p. 606). But now, says ESA's science director, Roger Bonnet, "it is clear that both the Americans and the Europeans are very keen on this mission."

The NGST, an 8-meter optical and infrared telescope scheduled to be launched around 2008, is on NASA's drawing board as a replacement for the aging Hubble Space Telescope. ESA's contribution would consist of a Near Infrared Multi-Object Spectrograph, an instrument for measuring the distance to remote galaxies, and a midinfrared camera-spectrometer to be built by several European countries. The agency will also help construct and operate the spacecraft itself.

Such active participation is a "must for astronomy in Europe," as it will secure European access to NGST, says Giovanni Bignami, science director of the Italian Space Agency. ESA plans to spend 180 million euros (about $150 million) on the telescope, but individual countries are expected to chip in additional money, Bignami says. The 180-million-euro figure is the maximum that ESA rules allow the agency to spend on any of its "fleximissions"—projects that the agency develops simultaneously and only later schedules for launch. ESA introduced fleximissions a year ago as a cost-cutting measure (*Science*, 1 October 1999, p. 21).

Along with the NGST partnership, three other fleximissions won approval from ESA's Space Science Advisory Committee (SSAC) in Paris. LISA, another NASA collaboration, is an orbiting laser interferometer for detecting gravity waves. Solar Orbiter will study the sun from a close-in orbit. Eddington, a satellite designed to search for extrasolar planets, is a "reserve mission" to be launched if future funding and the schedules of NGST and LISA permit. Two other fleximission candidates—MASTER, a planned study of Mars and asteroids, and STORMS, a satellite designed to monitor storms in Earth's magnetosphere—were turned down but may still win approval later. In addition, the SSAC selected the next two "cornerstone missions" in its Horizons 2000 science program: Bepi-Colombo, a spacecraft that will orbit Mercury, and GAIA, a mission to determine the positions of stars with high precision. The projects, budgeted at 550 million euros (about $470 million) each, are scheduled to be launched in 2009 and 2012. All the proposals still need the go-ahead from ESA's Science Program Committee, which will meet on 11 and 12 October. In the past, the committee—made up of representatives of European governments—has generally approved projects recommended by the SSAC.



Hot prospect. Solar Orbiter is one of six missions a European Space Agency panel approved last week.

CREDITS: ESA

–ALEXANDER HELLEMANS

Alexander Hellemans writes from Naples, Italy.

EUROPEAN SCIENCE

Research Behemoth Slated for Overhaul

BRUSSELS—Disaffection with the European Union's (E.U.'s) flagship research effort has found a sympathetic ear in the program's upper echelons. Last week, the E.U.'s top two research officials said they are pushing for big changes in the successor to Europe's 5-year, $17 billion Framework 5, including stronger efforts to coordinate research across the conti-

ScienceScope

Attractive Facility Their darling faces no competition, but congressional supporters of the National High Magnetic Field Laboratory in Tallahassee, Florida, are pulling out all the stops to win another 5-year grant from the National Science Foundation (NSF). Last week a Senate spending panel dropped a heavy hint favoring renewal, exploding a normally secret review process.

"The committee strongly supports the laboratory and hopes that the Foundation continues its support," lawmakers wrote last week in a bill that sets the agency's 2001 budget. Although the bill notes that NSF is reviewing the request this fall, a Senate aide says the panel wasn't trying to "influence the decision. But it's a popular project." And lab director Jack Crow says he "had nothing to do with this," although he has encouraged other scientists to write legislators on behalf of NSF's budget because "if NSF does poorly, then I know what will happen to us."

The lab, created in 1990, is asking for a 30% hike in its current 5-year, $88 million grant to accommodate a 60% growth in users. "It's an incredible facility," says physicist Chuck Agosta of Clark University in Worcester, Massachusetts. Agosta heads the lab's user group, which has lobbied for more funding. "But it's a political entity, too," he adds.

Genome Giveaway Does the human genome sell magazines? *Prospect*, a British monthly for intellectuals, thinks genes are so marketable that it has pasted a CD-ROM of the entire "rough draft" onto the cover of its current issue, out this week.

"This is not a scientific publication. ... It's just a gimmick," says Tim Hubbard, head of human genome analysis at the Sanger Centre in Hinxton, U.K., one of the world's top DNA sequencing institutions. At the magazine's request, Hubbard helped squeeze the data onto a single CD-ROM and created browsing software that allows users to "click on a chromosome and jump to that bit of DNA," he says. The CD-ROM also contains information on the provisional identification of 10,000 human genes.

Prospect marketing chief Hugh MacLeman, who came up with the idea, says the magazine wasn't aiming for a scoop. "We wanted to get [the genome project] into the public sphere," he says, because "people who don't work in science have little idea about what has been achieved. It may also help sell more copies of *Prospect*."

Contributors: Eliot Marshall, Richard A. Kerr, Jeffrey Mervis