NASA ponders new missions for spare spy telescopes

Irene Klotz, Reuters

CAPE CANAVERAL, Fla., November 27 - NASA is looking for new ideas on what to do with two space telescopes left over from a once-secret U.S. spy satellite program.

The U.S. space agency asked the scientific community on Tuesday for its input into possible missions for a pair of space telescopes donated last year to NASA by the National Reconnaissance Office, which operates the nation's spy satellites.

"NRO offered us their leftover hardware if we want it. They've been totally open in allowing us to study whether this hardware would be of advantage to NASA," said Paul Hertz, who oversees NASA's astrophysics programs.

Topping the list of existing proposals is to use one telescope for a mission to learn more about an anti-gravity force known as "dark energy," which is believed to be responsible for speeding up the universe's rate of expansion.

The phenomenon was discovered in the 1990s by two teams of researchers who shared the 2011 Nobel Prize in Physics for their work.

The National Academy of Sciences has made that mission, known as the Wide-Field Infrared Survey Telescope, its top choice for an astrophysics space mission for the next decade.

NASA estimates the WFIRST mission would cost $1.5 billion to $2 billion, but it cannot begin a major new astrophysics project until spending winds down on the over-budget and delayed James Webb Space Telescope, which is a successor to the Hubble Space Telescope and is scheduled for launch in 2018.

The NRO telescopes, which were built to peer down at Earth, each have a primary mirror that is 7.9 feet in diameter, much larger than the 4.3-foot (1.3-meter) observatory originally proposed for the WFIRST mission.

While a larger telescope may allow for more detailed observations, it could be more expensive to outfit with instruments and launch into space.

"There's a whole lot of ways that a larger telescope might benefit you, even if it doesn't save you money," Hertz said.

Another option is to pair the WFIRST mission with a new initiative to view Earth-sized planets beyond the solar system, said Princeton University researcher David Spergel, who organized a workshop for scientists in September to discuss telescope proposals.

The extra-solar planet hunter also could be a stand-alone mission.

Another idea is to use one of the telescopes to study how the sun affects Earth's magnetic field.

Like the Hubble observatory, the NRO telescopes are capable of producing extremely high-resolution images. Although they are declassified, NASA is prohibited from using the donated telescopes to produce visible-light images of Earth.

Looking beyond astrophysics missions may get at least one of the telescopes out of storage sooner.

"Astrophysics is limited in its ability to do anything based on pre-existing project developments in our budget. The rest of the agency has potentially more flexibility," said Michael Moore, NASA's assistant director for innovation and technology.

"Can you use the hardware to address things that are being done in advanced technology development or with humans or with robotics? That expands the universe of potential users," he said.

NASA said responses to its request for mission proposals are due by January 7.

The telescopes are being stored for NASA by ITT Exelis in Rochester, New York, at a cost of less than $100,000 a year, Hertz said.

"We can keep them in storage as long as we want to keep paying the rent," he said.

(Editing by Jane Sutton and Eric Beech)

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