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Telescope plan loses funding

By [Kevin Dayton](#)
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HILO, Hawai'i — After spending \$15 million to \$20 million, a decision by NASA to yank further funding for the proposed Outrigger telescopes on Mauna Kea makes it a "long shot" that the project will ever be completed, scientists said.

It would cost \$25 million to \$50 million to complete the project, which would put four to six smaller telescopes around the existing twin 33-foot telescopes of the W.M. Keck Observatory, said Frederic Chaffee, observatory director.

He said astronomers and their supporters are trying to persuade NASA or private sources to provide financing, but Chaffee and others said it will be difficult to replace the lost NASA funding.

The Outrigger was to improve the clarity of Keck's images to allow astronomers for the first time to see planets orbiting the stars closest to Earth. The observatory has the most powerful optical telescope in the world.

The University of Hawai'i began developing the Mauna Kea summit in the 1960s, and there are now 13 observatories there, operated by 11 countries. There are more major telescopes on Mauna Kea than on any other mountain peak.

The mountain is also regarded as the meeting place of the sky god Wakea and the earth mother Papa, who in legend eventually became the parents of the first ancestor of the Hawaiian people.

While the loss of the Outrigger telescopes would be a multimillion-dollar setback for science, experts said it hardly spells the end of astronomy on the mountain. Nor will it end the debate over continued development on 13,796-foot Mauna Kea, which is traditionally considered sacred for Hawaiians.

Hawaiians and environmentalists who opposed the Outrigger project used the courts and the state administrative procedures to delay the project for years. They raised questions about the management of the mountain, the protection of its cultural and environmental resources, and the combined impact on Mauna Kea when the scientific community seems determined to build one astronomy project after another there.

Big telescope planned

In the meantime, design work is under way for a huge new project Hawai'i astronomers hope will be built on the mountain, a telescope 10 times more powerful than any that now exists. The Thirty Meter Telescope, or TMT, would allow astronomers to watch planets orbit distant stars, a feat never before accomplished by mankind.

Plans for new telescopes on the mountain will be watched closely by people like Kealoha Pisciotta, president of Mauna Kea Anaina Hou, an organization of Hawaiian cultural practitioners with ties to the mountain. The name of her organization means "People who Pray for the Mountain."

'UNDER SIEGE'

PBS Hawai'i's Pacific Showcase will air a documentary on issues surrounding Mauna Kea, called "Mauna Kea — Temple Under Siege," at 8 p.m. July 13. The documentary was produced by Big Island-based filmmakers Puhipau and Joan Lander of Na Maka o ka 'Aina.

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"You're going to come up with anything you want to come up with, but the bottom line is, if you can't take care of what you have now, why should anyone consent to further?" she asked.

Environment an issue

Many of the issues raised during the dispute over the Outrigger project remain unresolved, Pisciotta said.

She said flora and fauna surveys still haven't been completed, and scientists need those studies for baseline data so they can monitor how 11 endemic species on the mountain fare over time.

It may take up to another three years to complete the archeological surveys of the mountain, and no plan has been developed to map out how burials that are uncovered are to be treated, Pisciotta said.

Pisciotta also contends that the state Board of Land and Natural Resources still has not formally approved a management plan for the mountain. And she objects to cesspools and "sub-standard" systems that are used to dispose of human waste from the observatories, which her group considers desecration of a sacred site.

Especially important to Pisciotta are the findings of the environmental impact statement done for the Outrigger telescopes, which found that the three decades of astronomy development on the mountain had a "substantial and adverse" impact on the cultural and natural resources on the mountain.

"You can incrementally cause such great impact that you eliminate a whole species or its habitat," she said. "Nobody's against astronomy, but we're requiring better management and better protections for the rest of the uses of the mountain."

improvements planned

Astronomers are moving ahead with plans to redevelop two existing astronomy sites on Mauna Kea to replace aging or outdated telescopes with new equipment.

The Pan-STARRS project financed by the U.S. Air Force will replace UH's 36-year-old 88-inch telescope on Mauna Kea.

Pan-STARRS, or the Panoramic Survey Telescope & Rapid Response System, is a cluster of relatively small telescopes designed to search the sky for dangerous asteroids or other unexpected phenomena. It is expected to be completed in 2009.

Meanwhile, the University of Hawai'i-Hilo plans to tear down an existing 24-inch telescope and replace it with a more modern 36-inch telescope.

Once the 37-year-old existing telescope is replaced, the new facility would be transferred to UH-Hilo to provide more observatory time to its students.

That project is being funded by the National Science Foundation, and Pisciotta said her group did not oppose the UH-Hilo effort to replace the 24-inch telescope.

Mauna Kea Anaina Hou wants no further disturbance of the mountain, but "we've been open to considering removing one (telescope) to use the same footprint" for a new project, she said.

However, that suggests the Thirty Meter Telescope may be controversial. If the TMT is built on Mauna Kea, it will require about an acre of land, said Rolf Kudritzki, director of the University of Hawai'i Institute for Astronomy.

Kudritzki said one promising potential site is a lava flow northwest of the Keck Observatory and 50 to 100 yards below the summit. That site is being considered because "it's a less environmentally fragile area, and I've been told that area is of less cultural significance" than the summit itself," he said.

However, sites in Chile are also being considered for the TMT, and Kudritzki said final site selection probably won't happen until the end of 2008.

The design concept work for TMT is well under way, but Kudritzki said the estimated \$1 billion it would cost to build such a

telescope has not yet been secured. If international partners and private sources quickly step up to provide money, construction could begin as early as 2009, he said.

The future

Kudritzki said scientists and UH officials learned a great deal from the dispute over the Outrigger telescopes, and that management and protection of the mountain has improved in recent years.

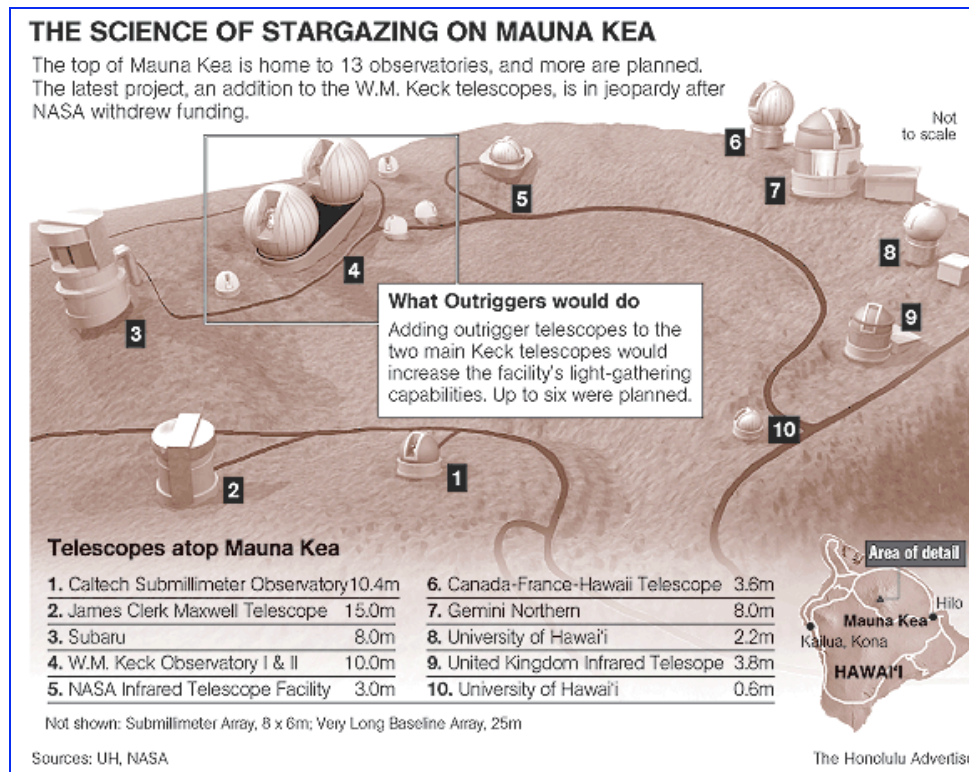
He also said there would "absolutely" be an environmental impact statement prepared for the TMT, a hard lesson scientists learned from the delays in the Outrigger project.

He said there is more community focus today on preserving the environment and cultural heritage, and that there is always skepticism when astronomers announce they want to build yet another telescope on the mountain.

Astronomers will have to take time to explain why the TMT project is so critical, he said. "If you ask me, that is the future of modern astronomy, the most important project in modern astronomy."

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