



Mauna Kea, the planned site of the Thirty Meter Telescope, is sacred to many Native Hawaiians.

ASTRONOMY

Embattled telescope scores big win

Hawaii's supreme court rules that the Thirty Meter Telescope's construction permit is valid.

BY ALEXANDRA WITZE

Hawaii's supreme court has ruled in favour of building the Thirty Meter Telescope (TMT) atop the mountain Mauna Kea. The decision removes the last legal hurdle preventing the US\$1.4-billion project from resuming construction.

"This clears the way for the TMT to begin construction," says Doug Simons, executive director of the Canada-France-Hawaii Telescope, which is located on Mauna Kea. "So,

yeah, it's a really big deal."

For years, the next-generation astronomical observatory has been mired in public protests and legal challenges. Some Native Hawaiians say that building the mega-telescope would further desecrate a sacred mountain that is already home to multiple observatories. In April 2015, protesters blocked the road to Mauna Kea's summit as construction of the TMT was set to begin. That December, the state supreme court revoked the project's construction permit, saying that the state

government had granted it before opponents of the telescope could have their full say.

Hawaii's Board of Land and Natural Resources issued a fresh construction permit in September 2017, prompting opponents to appeal. The latest ruling upholds that permit.

A separate legal issue, involving the University of Hawaii's sublease of land on Mauna Kea for the TMT site, was resolved in August. The state supreme court ruled in the project's favour in that case, as well.

TMT opponents have few legal options; they include petitioning the US Supreme Court.

One of the groups opposing the TMT, the environmental advocacy organization KAHEA in Honolulu, said it was "disappointed" by the latest ruling. "Thousands of Hawaiian cultural practitioners have affirmed the sacredness of the entirety of Mauna Kea," the group said in a statement.

TMT officials have been considering an alternative site for the telescope, in Spain's Canary Islands, in case they cannot resolve the obstacles to building in Hawaii. It could take months before project leaders decide whether to go ahead in Hawaii, now that they have the supreme court's backing. Among the issues they face is how to restart construction on Mauna Kea, given the protests that broke out the last time they tried to do so.

"We remain committed to being good stewards on the mountain and inclusive of the Hawaiian community," said Henry Yang, chair of the TMT International Observatory board of governors, in a statement.

In Hawaii, the battle over how Mauna Kea is used may soon shift from the TMT to the University of Hawaii's master lease, which covers all land on the mountain that is used for astronomical observatories. The lease expires in 2033, and Shelley Muneoka, a representative of KAHEA, says that the group is considering a challenge to the lease's renewal. ■

ASTROPHYSICS

Mystery supernova known as 'Cow' spills its secrets

A superbright explosion in a galaxy far, far away has drawn astronomers' full attention.

BY DAVIDE CASTELVECCHI

For many astronomers, 2018 will be remembered as the year of the cow — after the nickname of a spectacular stellar explosion that has kept them busy for months.

The unusual event has offered an unprecedented window on to the collapse of a star, two

teams of researchers suggest in papers submitted to the arXiv preprint server on 25 October^{1,2}. In contrast to the slow ramp-up of a typical supernova, Cow became stupendously bright essentially overnight, leaving astronomers perplexed. "It popped up out of nowhere," says Stephen Smartt, an astronomer at Queen's University Belfast, UK, who discovered the

explosion on 16 June. He named it according to an alphabetical protocol that just happened to spell out the word 'Cow' — technically, it is the event AT2018cow.

Iair Arcavi, an astrophysicist at the University of California, Santa Barbara, says that "pretty much everything about its emission is something we haven't seen before." This is "the