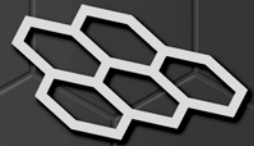
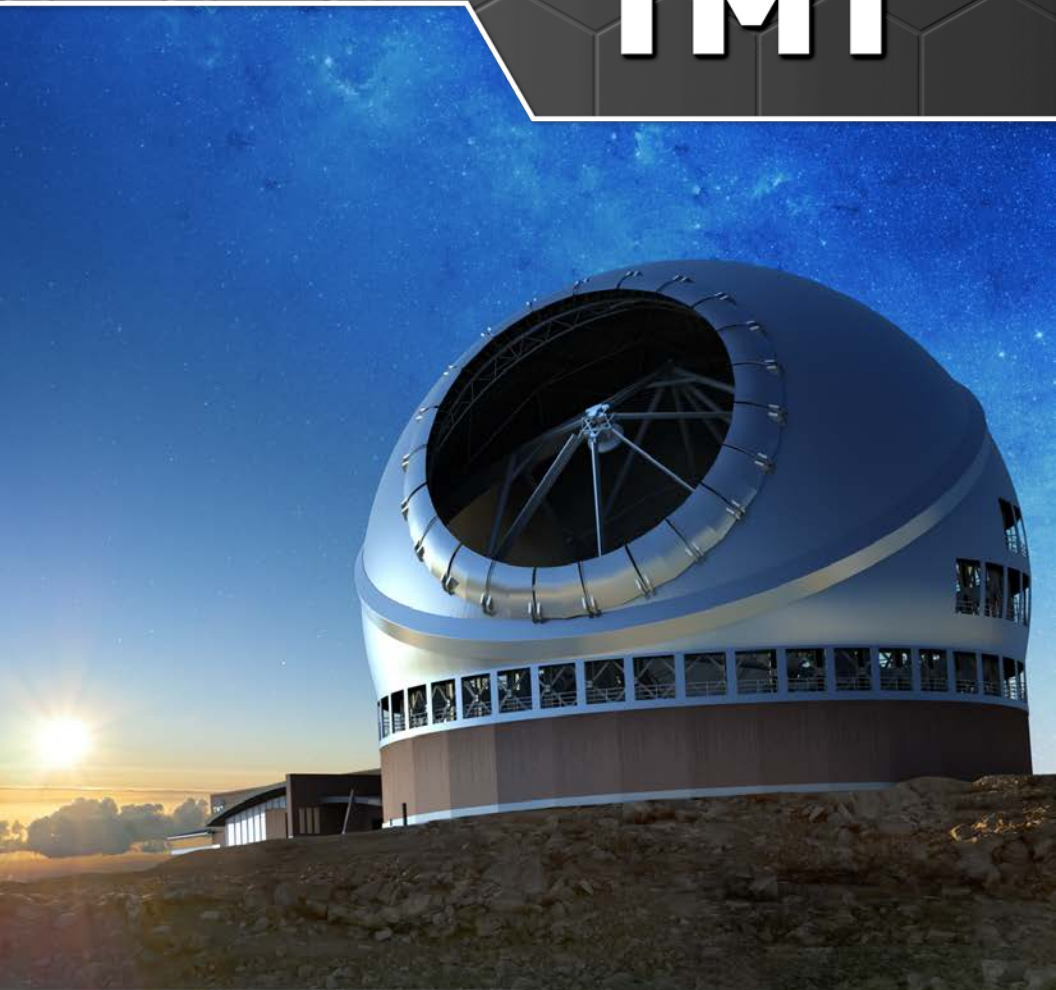


ALTERNATE SITES
STUDIES



TMT



30 m 望遠鏡
三十米望远镜
तीस मीटर दूरबीन
Thirty Meter Telescope
Télescope de Trente Mètres

Where should TMT go?

The Thirty Meter Telescope International Observatory (TIO) selected Maunakea, in Hawaii, as the preferred site to build and operate TMT. However, in December 2015, the Hawaii Supreme Court ruled that the state's permitting process was flawed, and the State Board of Land and Natural Resources was ordered to re-do the permit process. TMT is currently working to regain the required permit and start onsite construction in Hawaii. While Maunakea continues to be TIO's preferred site, TMT has investigated alternative sites to ensure construction can begin in a timely fashion.

Characteristics of TMT sites considered

	Maunakea (USA)	La Palma (Spain)	San Pedro Martir (Mexico)	Chilean Site #1 (Chile)	Chilean Site #2 (Chile)
Altitude of site (m)	4050	2250	2790	3110	5400
Yearly usable time fraction (%)	72	72	80	86	79
Median seeing at 60m (")	0.50	0.55	0.57	0.50	0.51
Isoplanatic angle (")	2.55	2.33	1.99	2.05	1.78
Atmospheric coherence time (ms)	7.3	6.0	5.1	5.0	5.21
PWV (% of time pwv is < 2mm)	54	≥20	25	50	75
Mean nighttime Temperature (°C)	+2.3	+7.6	+5.4	+7.5	-7.3

PWV: Precipitable Water Vapor

Each site considered would enable all of the core TMT science programs. The final site decision was based on several factors including site quality, construction and operations costs, and the schedule to first light.

TMT science & first-light instrumentation

The Thirty Meter telescope will combine adaptive-optics corrected wavefronts with powerful imaging and spectroscopy capabilities to significantly transform how ground-based exploration of our universe is carried out.

With its thirty meter aperture, and diffraction limited imaging capabilities, TMT will provide dramatic improvement in sensitivity and spatial resolution across the visible, near- and thermal-infrared regimes. First-light instrumentation will include:

- An LGS assisted adaptive optics facility (NFIRAOS) delivering diffraction-limited images in the J,H and K bands to three instrument ports.
- An AO-fed near-infrared (0.8-2.5 μ m) imager and IFU spectrograph (IRIS).
- A UV/visible [0.31-1.0 μ m] wide-field imaging multi-object spectrograph (WFOS).