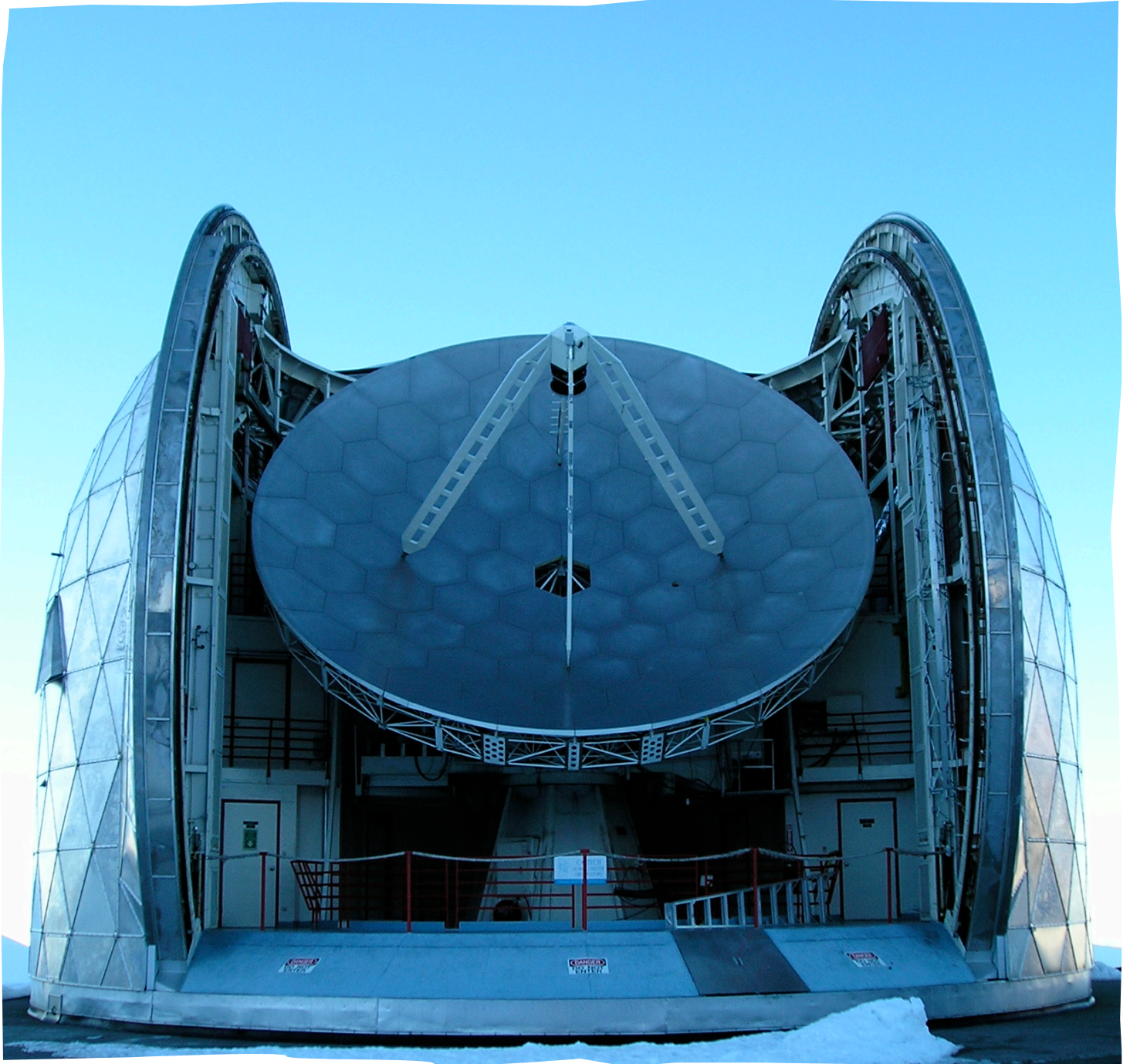


Catching Small Waves On The Big Island

Caltech Submillimeter Observatory

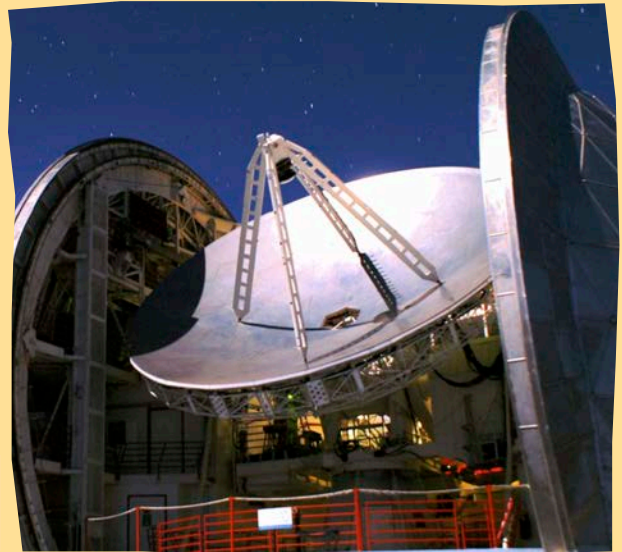


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cso.caltech.edu



CSO Specifications

<i>Observing wavelengths:</i>	2mm — 350 μ m
<i>Primary mirror diameter:</i>	10.4 m (34 feet)
<i>Surface accuracy:</i>	< 15 μ m r.m.s.
<i>Pointing accuracy:</i>	3 arcseconds
<i>Highest angular resolution:</i>	8 arcseconds
<i>Location:</i>	Mauna Kea, Hawai'i, at 4070 m (13360 ft) altitude



About the CSO

Astronomers use the CSO to observe objects in our Solar System, in our Galaxy, and in galaxies across the Universe. They study the chemical makeup of interstellar gas, the conditions surrounding star birth, the late stages of stellar evolution, and the history of star formation across cosmic time. The most distant galaxy observed with the CSO is 12 billion light years away.

The CSO receives natural radiation from celestial objects at short millimeter and submillimeter wavelengths. This spectral range is particularly important for the study of interstellar molecules. The CSO never transmits signals.

Because atmospheric water vapor interferes with submillimeter observations, the CSO is located high on Mauna Kea to take advantage of the very dry conditions. Most observations are made at night when the atmosphere is driest and most stable.

Prof. R. Leighton designed and built the CSO at Caltech. The eighty four hexagonal panels of the primary mirror are made of lightweight aluminum honeycomb. An active system maintains the panel alignment to provide the smooth surface needed for submillimeter observations.

The CSO is equipped with advanced spectrometers and cameras. For maximum sensitivity, the detectors in these instruments are cooled with liquid helium close to absolute zero temperature. The instruments are developed at Caltech and other universities with substantial graduate student involvement.

Astronomers from all over the world use the CSO. More than half the observing time is allocated to astronomers from the general US and international community. The balance of the time is used by Caltech, JPL, University of Hawai'i, and University of Texas scientists.

Since the first observations in 1986, the California Institute of Technology (Caltech) has operated the CSO under a cooperative agreement with the National Science Foundation. The University of Texas also supports the CSO. The CSO is located on Mauna Kea through an agreement with the University of Hawai'i. Professor T. G. Phillips is the director of the CSO.