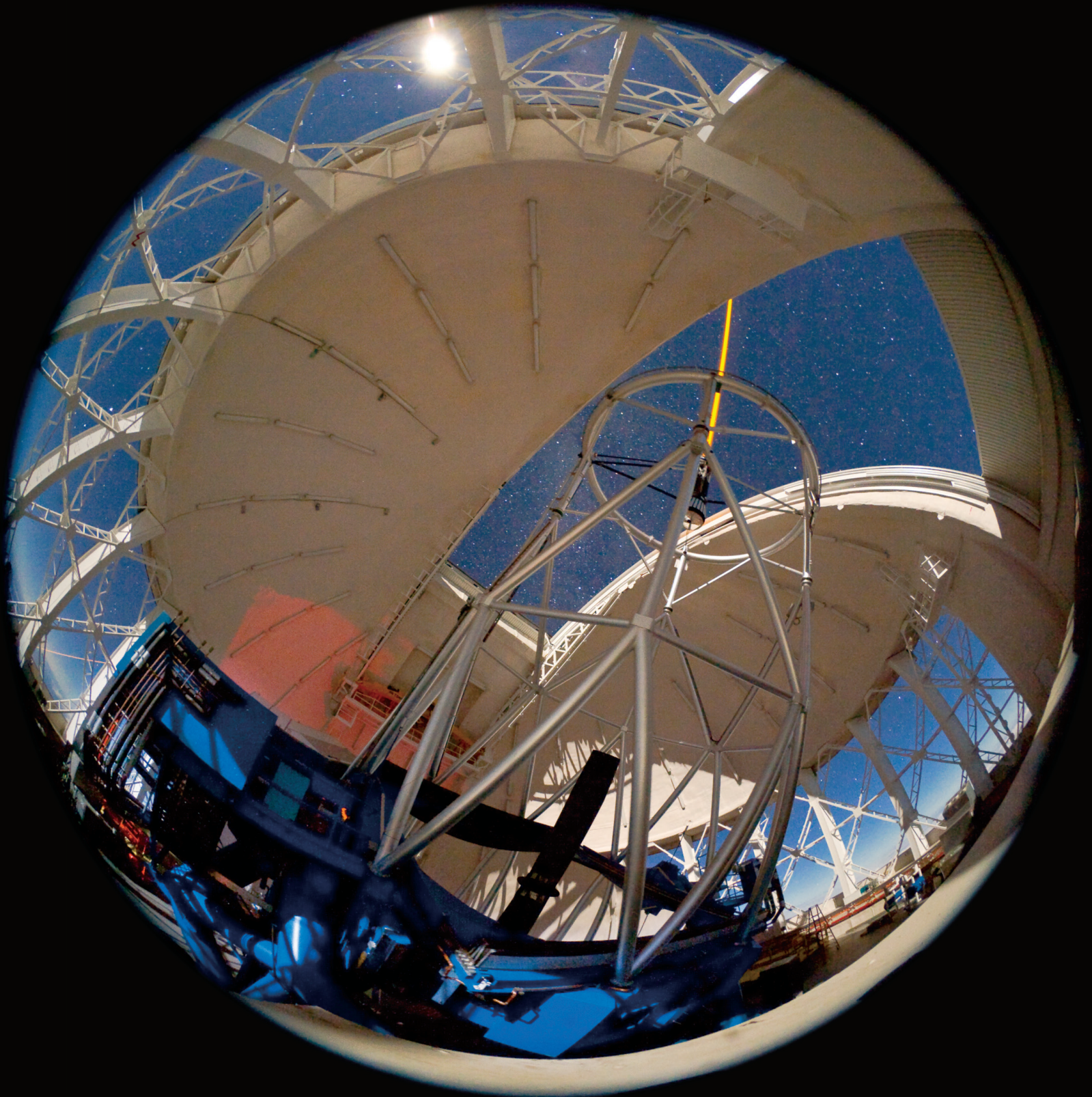


GEMINI OBSERVATORY

Exploring the Universe, Sharing its Wonders



AURA 
www.gemini.edu

Laser Guide Star on the Northern Sky



Laser Guide Star on the Gemini North Telescope

This image shows the Gemini North Laser Guide Star system in operation during December of 2006. The yellow/orange beam of the laser is seen at the top of the telescope. The laser creates an artificial star by exciting a thin layer of sodium about 90 kilometers above the ground. This artificial star is used as a reference to allow most of the distortions caused by the Earth's atmosphere to be removed and result in very sharp, high resolution near-infrared images.

The Moon and the night sky are seen through the open vent gates in this 55-second exposure.

Gemini Observatory – Facts and Figures:

Primary Mirror:

Diameter: 8.1 meters/26.58 feet/319 inches
Mass: 22.22 metric tonnes/24.5 U.S. tons
Composition: Corning Ultra-Low Expansion (ULE) Glass
Surface Accuracy: 15.6 nm RMS (Between 1/1000 – 1/10,000 thickness of human hair)

Telescope Structure:

Height: 21.7 meters/71.2 feet/7 stories (from “Observing Floor”)
Weight: 380 metric tonnes/418 U.S. tons
Optomechanical Design: Alt-azimuth/Cassegrain

Dome:

Height: 46 meters/151 feet/15 stories (from ground)
Weight: 780 metric tonnes/858 U.S. tons (moving mass)
Rotation: 360 degrees in 2 minutes
Thermal Vents: 10 meters/32.8 feet (width – fully open)

Other Data:

Elevation: Gemini North: 4,214 meters/13,824 feet
Gemini South: 2,737 meters/8,980 feet
Location: Gemini North: 19°49.4'N/155°28.1'W
Gemini South: 30°14.5'S/70°44.8'W

Go to: www.gemini.edu/images to see this and other images.