

Gemini North “Cloaked” Dome



Gemini Observatory Legacy Image

Image Credit: Gemini Observatory/AURA/Peter Michaud



The Gemini Observatory is operated by the Association of Universities for Research in Astronomy, Inc., under a cooperative agreement with the National Science Foundation on behalf of the Gemini Partnership.



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Gemini North “Cloaked” Dome

The dome of Gemini North almost vanishes in this magical image that utilizes a trick of photography to create the illusion.

The “invisible” dome was made by taking a series of digital images of the Gemini North dome as it rotated with the shutter open. The images were then merged into a single frame to create the illusion of a half shell.

The effect presents a fully unobstructed view of the 8-meter Gemini North telescope nestled on its altazimuth mount — a view that would be impossible to capture otherwise.

Approximately 40 individual 5-second exposures were stacked to produce the transparent dome effect, and one additional one-minute exposure was obtained of the sky following the dome rotation.

The sky itself is impressive, showing the hub of the Milky Way galaxy looming over the transparent dome. The stinger stars in the tail of the constellation Scorpius appear as two close and obvious stars near the center of the frame. Early Hawaiians knew the distinctive curve of stars in the tail of Scorpius as Māui’s Fishhook — the magic *makau*, or fishhook, that the demigod Māui used in his attempt to unite the Hawaiian islands.

Gemini Observatory Facts

PRIMARY MIRRORS:

Diameter: 8.1 meters; 26.57 feet; 318.84 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 STRUCTURES:

Height: 21.7 meters; 71.2 feet; 7 stories (from “Observing Floor”)

Weight: 380 metric tonnes; 419 U.S. tons

Optomechanical Design: Cassegrain; Alt-azimuth

DOMES:

Height: 46 meters; 151 feet; 15 stories (from ground)

Weight: 780 metric tonnes; 860 U.S. tons (moving mass)

Rotation: 360 degrees in 2 minutes

Thermal Vents: 10 meters; 32.8 feet (width – fully open)

GEOGRAPHICAL 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

To see this, and many other images, please visit: <http://www.gemini.edu/legacyph>