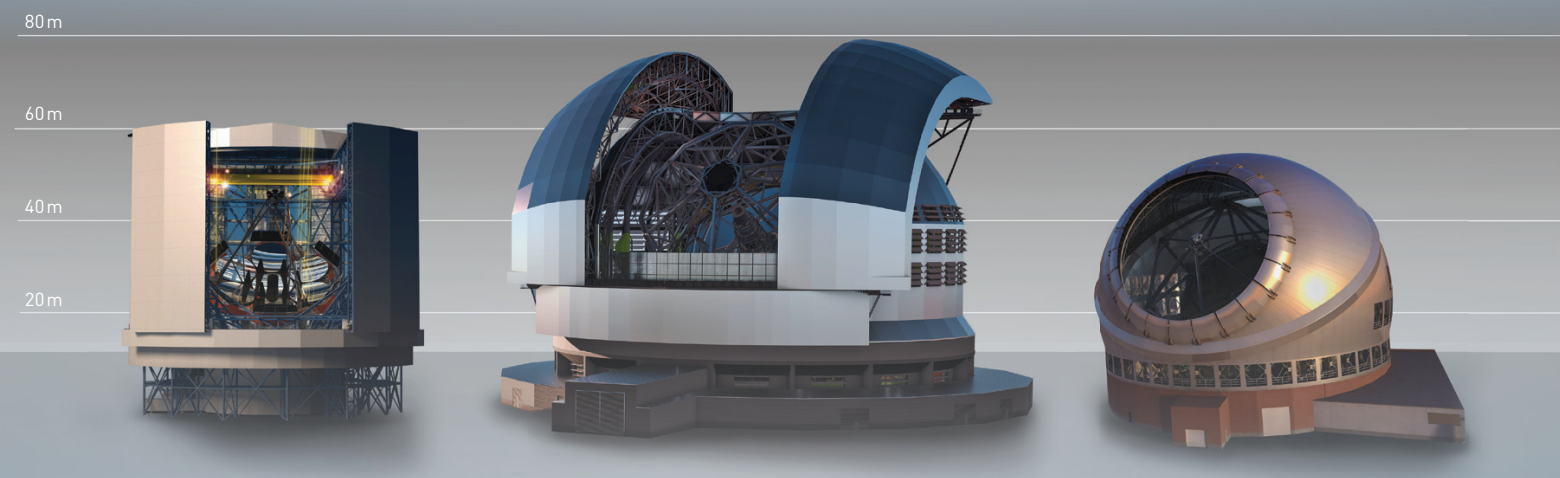
Extremely Large Telescopes

The next generation of ground-based infrared telescopes will have resolving power far beyond what is available today—potentially expanding our astronomical reach to the edges of the universe. For more on astrophotonics, see this month's cover article beginning on p. 26.

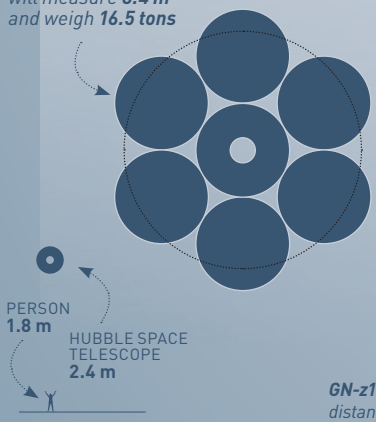


Giant Magellan Telescope (GMT)

The GMT will have **80×** the collecting area and resolving power **10×** greater than the Hubble Space Telescope.

FIRST LIGHT: **2024**
LOCATION: **Las Campanas, Chile**
ALTITUDE: **2,500 m**
WAVELENGTH: **0.32–25 μm**
COLLECTING AREA: **368 m²**
APERTURE DIAMETER: **24.5 m**

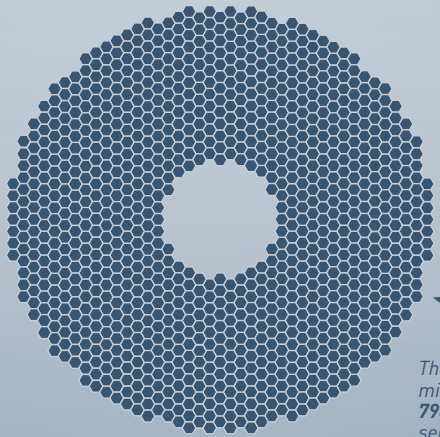
*Each of the GMT's mirror segments will measure **8.4 m** and weigh **16.5 tons***



The Extremely Large Telescope (ELT)

The ELT will have **256×** the light gathering area and provide images **16×** sharper than those from the Hubble Space Telescope.

FIRST LIGHT: **2025**
LOCATION: **Cerro, Chile**
ALTITUDE: **3,060 m**
WAVELENGTH: **0.37–14 μm**
COLLECTING AREA: **978 m²**
APERTURE DIAMETER: **39.3 m**

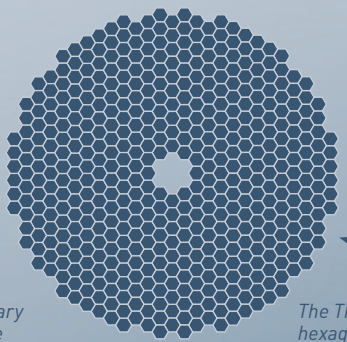


*The ELT's primary mirror will have **798** hexagonal segments*

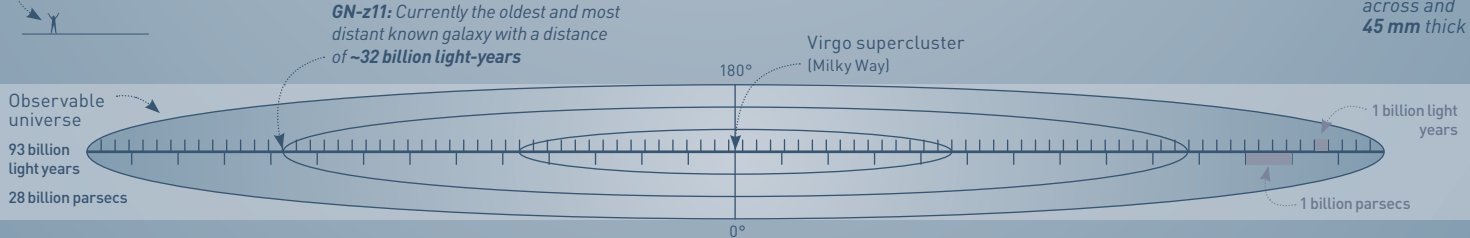
Thirty Meter Telescope (TMT)

The TMT will have **156×** the collecting area and resolution **12×** sharper than that of the Hubble Space Telescope.

FIRST LIGHT: **2027**
LOCATION: **Mauna Kea, Hawaii, USA**
ALTITUDE: **4,050 m**
WAVELENGTH: **0.31–28 μm**
COLLECTING AREA: **655 m²**
APERTURE DIAMETER: **30 m**



*The TMT's hexagonal segments will each be **1.44 m** across and **45 mm** thick*



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