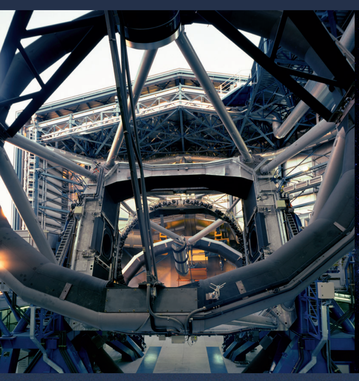
ESO’s VLT — The World’s Most Advanced Visible-Light Astronomical Observatory

The Very Large Telescope array (VLT) is ESO’s flagship facility and is located on Cerro Paranal, a 2600-metre-high mountain south of Antofagasta, Chile. Since the first of its telescopes went into routine scientific operations on 1 April 1999, **the VLT has made a huge impact on observational astronomy.**

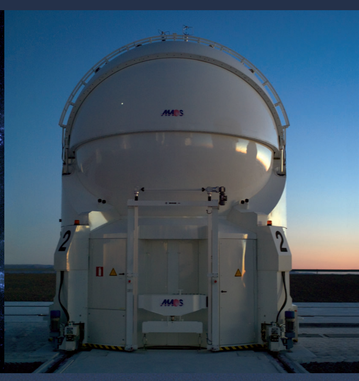
The VLT is the world’s most advanced optical instrument, consisting of four Unit Telescopes each with a main mirror of diameter 8.2 metres and four movable 1.8-metre Auxiliary Telescopes. The Unit Telescopes or Auxiliary Telescopes can work together to form a giant interferometer. Using state-of-the-art technology, adaptive optics and a laser guide star, **the VLT captures the sharpest possible images.** One VLT telescope can see objects that are four billion times fainter than can be seen with the unaided eye.

The VLT is the most productive individual ground-based astronomical facility, and results have led to the publication of, on average, more than one peer-reviewed scientific paper per day. The VLT has stimulated a new age of discovery, with several notable scientific firsts, including the first image of an exoplanet, the tracking of stars moving around the supermassive black hole at the centre of the Milky Way and observations of the afterglow of the furthest known gamma-ray burst.



The VLT Unit Telescope 2, Kueyen (The Moon).
Credit: ESO/H.H. Heyer

Spiral galaxy NGC 1232, as seen by the VLT.



The closed dome of the second 1.8-metre Auxiliary Telescope of the Very Large Telescope Interferometer at dusk on Paranal.
Credit: ESO/H.H. Heyer