



ESO

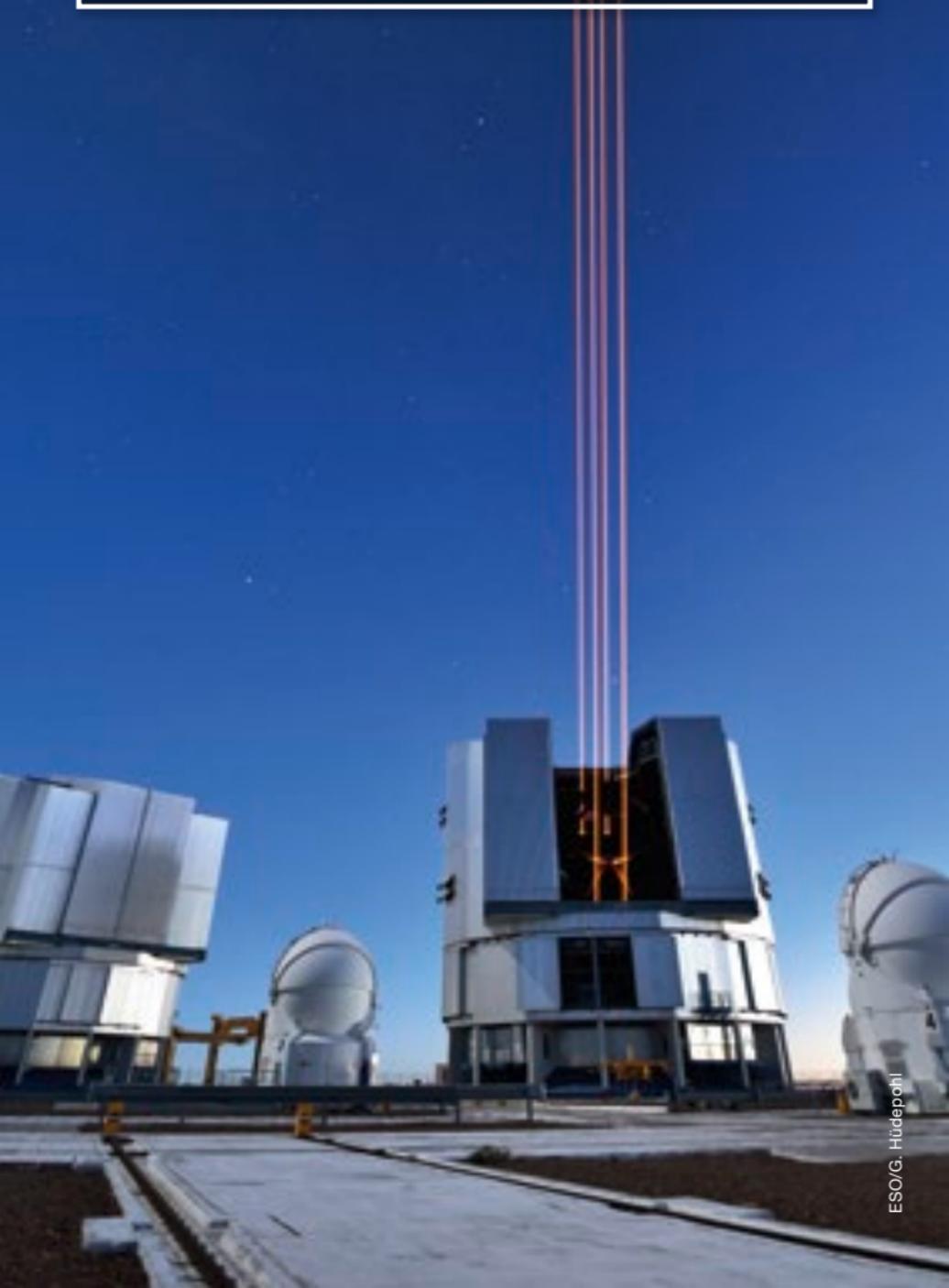
Reaching New Heights in Astronomy

Created in 1962, ESO, the European Southern Observatory, carries out an ambitious programme focused on the design, construction and operation of powerful ground-based observing facilities.

The Very Large Telescope

The World's Most Advanced Optical Instrument

With four Unit Telescopes, each with a main mirror 8.2 metres in diameter, and four movable 1.8-metre Auxiliary Telescopes, the Very Large Telescope array (VLT) is the flagship facility of European ground-based astronomy. Each of the Unit Telescopes can see objects that are four billion times fainter than those visible to the naked eye. The Unit Telescopes and the Auxiliary Telescopes can also work together to form the giant VLT Interferometer (VLTI) that allows astronomers to see details up to 25 times finer than with the individual telescopes. The VLT has achieved many firsts, including the first image of a planet around another star. The VLT is the most productive ground-based astronomy facility in the world and its instrumentation programme is the most ambitious ever conceived.



ALMA

In Search of our Cosmic Origins

High on the Chajnantor Plateau, at 5000 metres above sea level in the C ESO and its international partners are operating the Atacama Large Mill in existence. ALMA is composed of 66 high-precision 12- and 7-metre a ALMA is the largest radio telescope in the world and studies the millime most distant objects in the Universe. ALMA is a partnership of ESO, Nor

The ELT

The World's Biggest Eye on the Sky

ESO, in conjunction with its community and industry, is constructing the Extremely Large Telescope, the ELT. With a 39-metre main mirror, the ELT will be able to gather about 15 times more light than the largest optical telescopes operating today and it will be the largest optical telescope in the world. The ELT will tackle the biggest scientific challenges of our time, and may, eventually, revolutionise our perception of the Universe as much as Galileo's telescope did 400 years ago. First Light for the ELT is expected in 2024.

A wide-angle photograph of the ALMA observatory site in the Chilean Andes. Numerous white, dome-shaped antennas are scattered across a vast, dark, and desolate landscape under a twilight sky with orange and blue hues. The antennas are arranged in a pattern, some pointing towards the horizon.

Chilean Andes, some 50 kilometres east of San Pedro de Atacama, millimeter/submillimeter Array, ALMA — the largest astronomical project of antennas acting together as a single telescope — an interferometer. It detects millimetre and submillimetre radiation emitted by some of the coldest and most distant objects in the Universe. The project is a collaboration between North America and East Asia in cooperation with the Republic of Chile.

Y. Beletsky/ESO

La Silla

ESO's First Observatory

A night-time photograph of the La Silla observatory. The scene is illuminated by the warm glow of sunset or sunrise, with a deep orange and red sky. Several large, white telescope domes are visible on a dark, rocky hillside. A winding road leads up the slope, and the overall atmosphere is one of quiet scientific activity in a remote, high-altitude location.

Located 600 kilometres north of Santiago de Chile, at the edge of the Atacama Desert and at 2400 metres above sea level, La Silla has been an ESO stronghold since the 1960s. Here, ESO operates two of the most productive 4-metre-class telescopes in the world. The ESO 3.6-metre telescope is home to the world's foremost exoplanet hunter, HARPS (High Accuracy Radial velocity Planet Searcher). The 3.58-metre New Technology Telescope (NTT) broke new ground for telescope engineering and design and was the first in the world to have a computer-controlled main mirror (active optics).

R. Wesson/ESO

APEX

New Heights in Submillimetre Astronomy

The Atacama Pathfinder Experiment, APEX, is a 12-metre-diameter radio telescope, operated by ESO at a site 5100 metres above sea level on the Chajnantor Plateau in Chile. APEX, which was a pathfinder for ALMA, is a collaboration between the Max Planck Institute for Radio Astronomy, the Onsala Space Observatory and ESO.

C. Durán/ESO

The Survey Telescopes

Mapping the Sky in the Finest Detail

The Visible and Infrared Survey Telescope for Astronomy (VISTA) and the VLT Survey Telescope (VST) are among the most powerful imaging survey telescopes in the world. They produce far more data every night than all the instruments on the VLT put together and hugely increase the scientific discovery potential of the Paranal Observatory. VISTA is the largest survey telescope in the world. It observes at near-infrared wavelengths and has a main mirror 4.1 metres across. The VST is a state-of-the-art 2.6-metre telescope that surveys the sky in visible light.

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Visit us at ESO's Headquarters, La Silla and Paranal.
Read more on: www.eso.org



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