European Southern Observatory

Enabling Breakthrough Astronomy

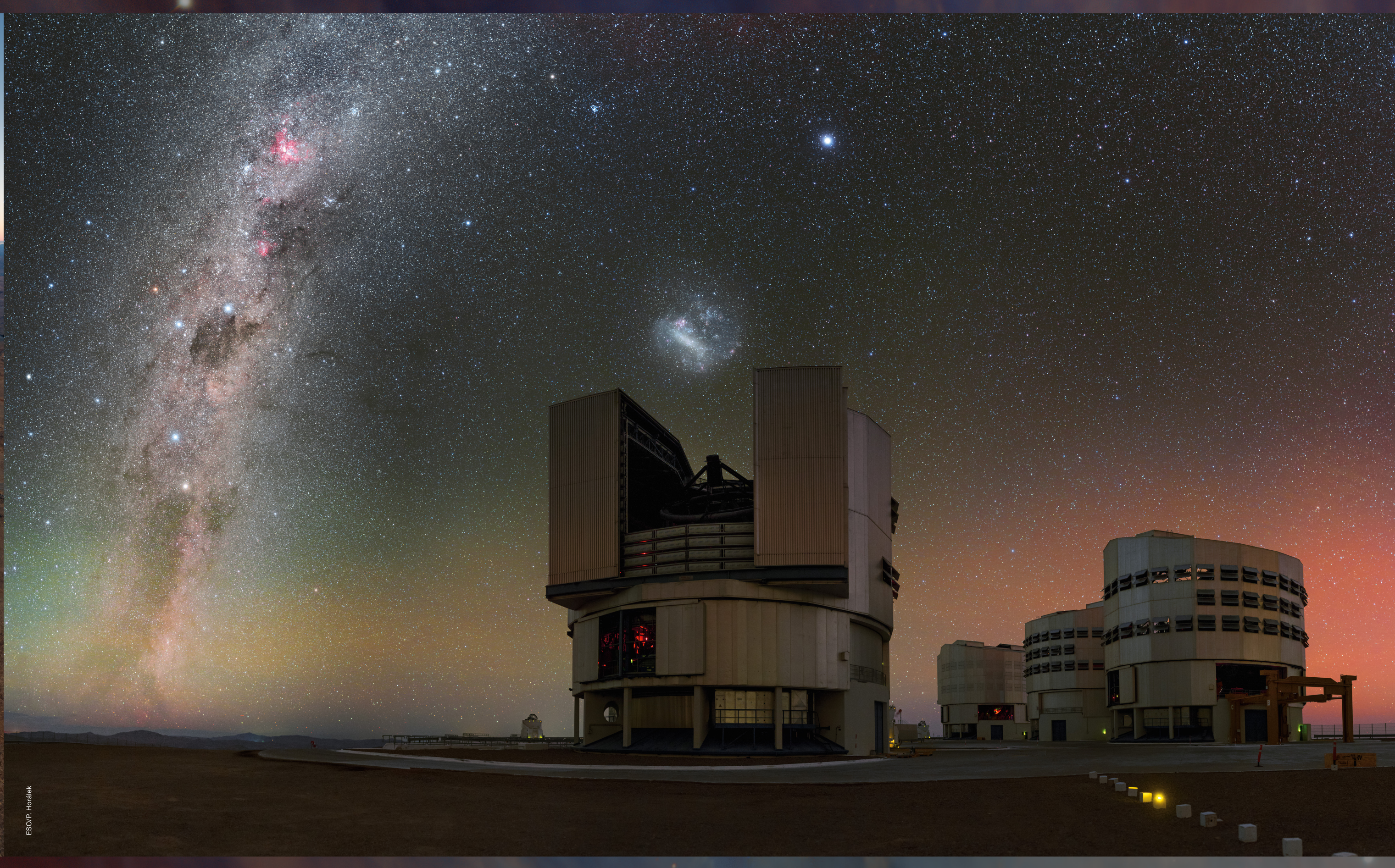
The European Southern Observatory (ESO) enables scientists worldwide to discover the secrets of the Universe for the benefit of all. We design, build and operate world-class observatories on the ground and foster international collaboration for astronomy. Astronomers worldwide use our telescopes to tackle exciting questions and spread the fascination of astronomy: How did the Universe come into existence? What are black holes? Are we alone in the Universe?

Established as an intergovernmental organisation in 1962, today ESO is supported by 16 Member States (Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom), along with the host and partner state of Chile and with Australia as a strategic partner. ESO brings together over 750 staff from more than 30 countries, and countless more collaborators worldwide, all driven by the passion to build the best telescopes, serve the astronomy community and benefit society. We are humbled by the privilege of serving more than 25 000 users from over 130 different countries with excellent infrastructure, services, technologies and data.

ESO's telescopes are located in the Chilean Atacama Desert, a marvellous place with unique conditions from which to observe the sky. ESO operates three observing sites in Chile: La Silla, Paranal and Chajnantor. In addition, we are building "the world's biggest eye on the sky" — ESO's Extremely Large Telescope, located on Cerro Armazones, which will be operated as part of Paranal Observatory.

R. Lucchesi/ESO

La Silla observatory was ESO's first observatory, inaugurated in 1969 and located on the outskirts of the Chilean Atacama Desert, 600 kilometres north of Santiago de Chile and at an altitude of 2400 metres. There we operate two of the most productive 4-metre-class telescopes in the world. The 3.58-metre New Technology Telescope (NTT) broke new ground in telescope engineering and design and was the first in the world to have a computer-controlled main mirror. This technology, known as active optics, was developed at ESO and is now applied to most of the world's large telescopes. The ESO 3.6-metre telescope is now home to the world's foremost extrasolar planet hunter in a ground-based observatory: the High Accuracy Radial velocity Planet Searcher (HARPS), a spectrograph with unrivalled precision.

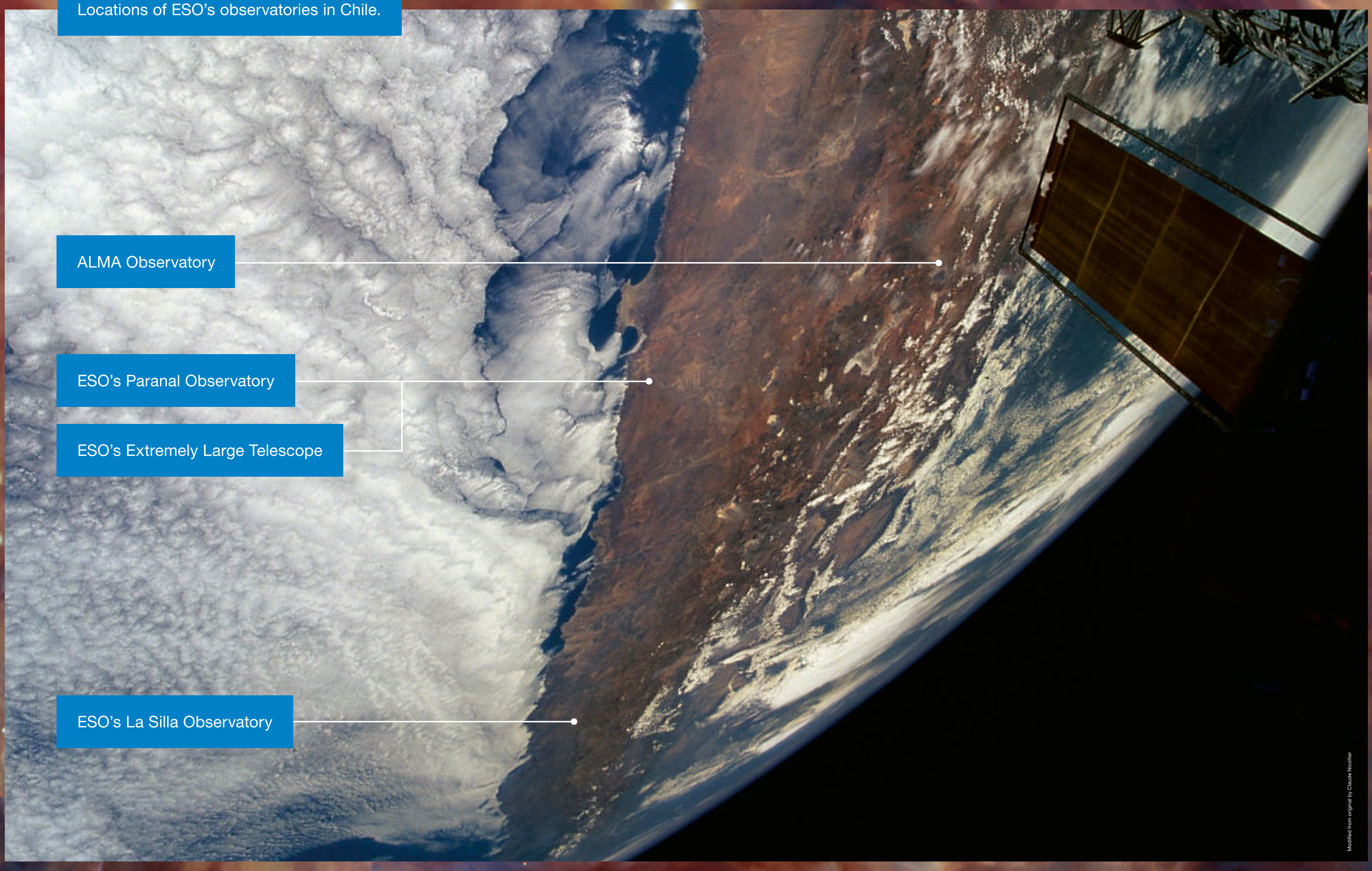


ESO/P. Horálek

At 2635 metres above sea level in Chile's Atacama Desert, ESO's Paranal Observatory is one of the very best astronomical observing sites in the world. It hosts several world-class telescopes, including the Very Large Telescope (VLT) — the flagship facility for European ground-based astronomy — and the Visible and Infrared Survey Telescope for Astronomy (VISTA), alongside several smaller and hosted telescopes. In the future, Paranal will also host and operate the south array of the Cherenkov Telescope Array (CTA), the world's largest and most sensitive gamma-ray observatory.

ESO's VLT is one of the world's most advanced optical telescopes, consisting of four Unit Telescopes with main mirrors 8.2 metres in diameter and four movable 1.8-metre-diameter Auxiliary Telescopes. With one such 8.2-metre telescope, images of celestial objects as faint as magnitude 30 can be obtained in a one-hour exposure. This corresponds to seeing objects that are four billion times fainter than what can be seen with the unaided eye.

Locations of ESO's observatories in Chile.


ALMA Observatory
ESO's Paranal Observatory
ESO's Extremely Large Telescope
ESO's La Silla Observatory

Modified from original by Claude Nicollier