



The Atacama Large Millimeter/submillimeter Array — In Search of our Cosmic Origins

Located at an altitude of 5000 metres above sea level, on the Chajnantor Plateau in the Chilean Andes, ESO, together with its international partners, is operating the most complex ground-based astronomical project in existence. ALMA is composed of 66 high-precision antennas, operating at wavelengths from 0.32 to 3.6 millimetres. The antennas can be arranged in different configurations, where the maximum distance between antennas can vary from 150 metres to 16 kilometres.

ALMA is the most powerful telescope for observing the cool Universe — molecular gas and dust as well as the relic radiation of the Big Bang. ALMA studies the building blocks of stars, planetary systems, galaxies and life itself.

ALMA is a partnership of ESO (representing its Member States), NSF (USA) and NINS (Japan), along with NRC (Canada), NSC and ASIAA (Taiwan), and KASI (South Korea), in cooperation with the Republic of Chile. The Joint ALMA Observatory is operated by ESO, AUI/NRAO and NAOJ.

Astronomers also do millimetre- and submillimetre-wavelength astronomy at Chajnantor using the Atacama Pathfinder Experiment (APEX) telescope, a collaboration between the Max-Planck-Institut für Radioastronomie, Onsala Space Observatory and ESO. The two telescopes are complementary: for example, APEX can find many targets across wide areas of sky, which ALMA will be able to study in great detail.



Aerial view of the ALMA array.
Credit: Clem & Adri Bacri-Normier (wingsforscience.com)/ESO



ALMA antennas at night on Chajnantor.
Credit: ESO/B. Tafreshi (twanight.org)

