

The Atacama Large Millimeter Array (ALMA)

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The Atacama Large Millimeter Array, or ALMA, is an international telescope project which will be built over the coming decade in Northern Chile. With over 7000 m² of collecting area comprised of 64 12m antennas arrayed over baselines up to 14 km in extent, ALMA will provide images of unprecedented clarity and detail. One revolutionary feature of ALMA will be its ability to combine interferometric and single telescope data, providing complete flux recovery. ALMA will cover a spectral wavelength range from 7mm to 0.3 mm or shorter wavelengths, providing astronomy with its first detailed look at the structures which emit millimeter and submillimeter photons, the most abundant photons in the Universe.

Construction funding was approved by the major partners during 2002. Approved by both the U. S. National Science Board and by the European Southern Observatory Council, the project entered full construction. The first of two prototype antennas was constructed at the ALMA Test Facility in New Mexico, near the NRAO Very Large Array. This antenna, built by VertexRSI, achieved first light on 2003 January 14. A second antenna, built by a consortium led by Alcatel, is being assembled at the same site. Meanwhile, development of the site at Llano Chajnantor near San Pedro de Atacama, Chile, is expected to begin before the end of 2003.

Construction will continue with the first production antennas due by the end of 2005. Early Science is expected to commence by the end of 2007. Observers will interact with the instrument through Regional Support Centers (RSCs). One of several RSCs will be located at NRAO, with others located as the ALMA partners deem appropriate. Through these RSCs, new equipment will be developed for deployment on ALMA as the construction phase gives way to an operations phase as this decade ends.