

The recent Presidential decree from Chile for AUI and the agreement signed in late 2002 between ESO and the Government of the Republic of Chile recognize the interest that the ALMA Project has for Chile, as it will deepen and strengthen the co-operation in scientific and technological matters between the parties.

A joint ALMA Board has been established which oversees the realization of the ALMA project via the management structure. This Board met for the first time on February 24–25, 2003, at NSF in Washington and witnessed this historic event.

The Atacama Large Millimeter Array (ALMA) will be one of astronomy's most powerful telescopes – providing unprecedented imaging capabilities and sensitivity in the corresponding wavelength range, many orders of magnitude greater than anything of its kind today.

ALMA will be an array of 64 antennas that will work together as one telescope to study millimetre and sub-millimetre

wavelength radiation from space. This radiation crosses the critical boundary between infrared and microwave radiation and holds the key to understanding such processes as planet and star formation, the formation of early galaxies and galaxy clusters, and the formation of organic and other molecules in space.

“ALMA will be one of astronomy's premier tools for studying the universe”, says Nobel Laureate Riccardo Giacconi, President of AUI (and former ESO Director General (1993–1999)). “The entire astronomical community is anxious to have the unprecedented power and resolution that ALMA will provide.”

The President of the ESO Council, Professor Piet van der Kruit, agrees: “ALMA heralds a break-through in sub-millimetre and millimetre astronomy, allowing some of the most penetrating studies of the Universe ever made. It is safe to predict that there will be exciting scientific surprises when ALMA enters into operation.”

Timeline for ALMA

- June 1998: Phase 1 (Research and Development)
- June 1999: European/American Memorandum of Understanding
- February 2003: Signature of the bilateral Agreement
- 2004: Tests of the Prototype System
- 2007: Initial scientific operation of a partially completed array
- 2011: End of construction of the array

Further Reading About ALMA

More information on the ALMA project can be found in earlier issues of *The Messenger* (March 1996; March 1998; December 1998; June 1999; and March 2002), and on the following web-sites:

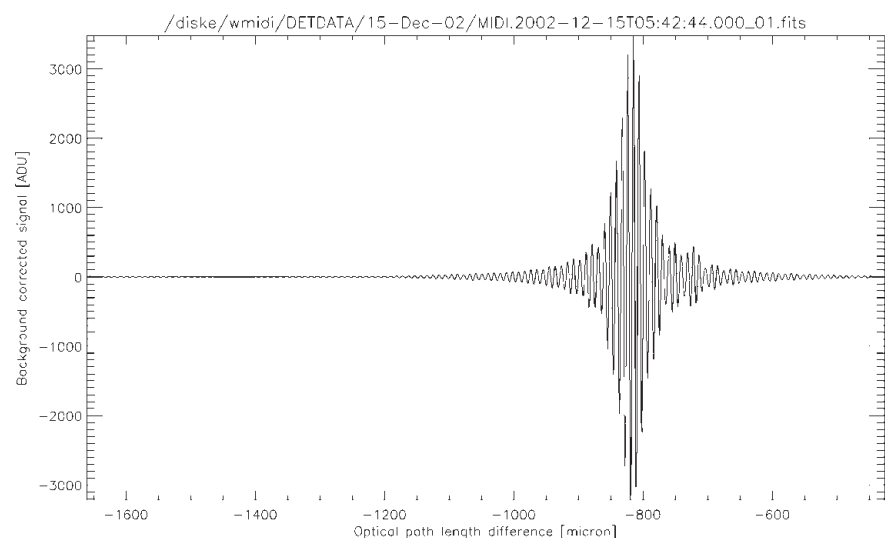
<http://www.eso.org/projects/alma/>
<http://www.alma.nrao.edu>

New Vistas Open with MIDI at the VLT Interferometer

“FIRST FRINGES” IN MID-INFRARED SPECTRAL REGION WITH TWO VLT TELESCOPES

Following several weeks of around-the-clock work, a team of astronomers and engineers from Germany, the Netherlands, France and ESO has successfully performed the first observations with the MID-Infrared interferometric instrument (MIDI), a new, extremely powerful instrument just installed in the underground laboratory of the VLT Interferometer (VLTI) at the Paranal Observatory (Chile).

In the early morning of December 15, 2002, two of the 8.2-m VLT unit telescopes (ANTU and MELIPAL) were pointed towards the southern star Epsilon Carinae and the two light beams were directed via the complex intervening optics system towards MIDI. After a few hours of tuning and optimization, strong and stable interferometric fringes were obtained, indicating that all VLTI components – from telescopes to the new instrument – were working together perfectly. Two more stars were observed before sunrise, further proving the stability of the entire system.



The upper image shows the “first fringes” of the star Epsilon Carinae, as obtained at VLTI with the new MIDI instrument at the mid-infrared wavelength of 8.7 μm .

The photograph at the bottom shows the group responsible for the MIDI installation and first tests, taken inside the VLT Control Building, right after the successful “First Fringes” in the early morning of December 15. From left to right: Front row (sitting/kneeling) Julio Navarrete, Lorena Faundez, Markus Schoeller, Andrea Richichi – Back row (standing) Francesco Paresce, Andres Pino, Nico Housen, Uwe Graser, Olivier Chesneau, Christoph Leinert, Andreas Glindemann, Walter Jaffe, Sebastien Morel, Richard Mathar, Pierre Kervella, Eric Bakker.

More details can be found in ESO press release PR 25/02 of 18 December 2002.

