

Progress with the Atacama Large Millimeter Array (ALMA)

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The ALMA project has made remarkable progress over the last several months, as important agreements have been signed, the project structure finalized and prototype antennas moved from construction to testing.

The most important milestone, of course, was the signing in February of the Bilateral Agreement between ESO and the U.S. National Science Foundation for the construction and operation of ALMA, as reported in the last issue of *The Messenger*. Following the signature of the agreement with Spain for ALMA participation in January, this gave the final green light for the ALMA project. At the same time the ALMA Board was formally established, to oversee the realization of the project via the management structure; P. van der Kruit, President of ESO Council, is also the first ALMA Board Chairman. The Board has since approved the Project Plan that had been under development through the Phase 1 period, and has established the Joint ALMA Office with overall management responsibility under the Board. Massimo Tarenghi, who played such an important role in the

construction of the VLT, was named Director of the ALMA Project in April.

The European ALMA Board (EAB) was also established by ESO Council, to oversee the European side of the project, and the European Scientific Advisory Committee (ESAC) was expanded. Both have representation from all ESO member states and Spain. An ALMA Division within ESO was formally established at the beginning of the year, and key personnel continue to be hired.

Negotiations with the Chilean government have been proceeding rapidly and successfully. In October 2002, an agreement between Chile and ESO was signed authorizing ESO to establish a new centre for astronomical observation in Chile – the ALMA Observatory on the Plateau of Chajnantor, near San Pedro de Atacama. This agreement has been ratified by the Chilean parliament.

An important aspect in the development of ALMA is the manufacture and testing of two prototype antennas. The first prototype, produced by VertexRSI, is under test at the ALMA Test Facility in New Mexico, and the second prototype, produced by Alcatel/EIE, is being as-

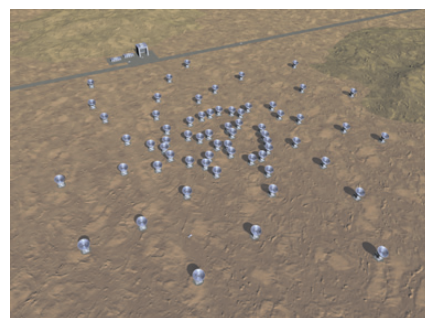
sembled at the site. These tests will be critical in deciding on the 64 production antennas.

Work on the many other aspects of the project continues at an accelerating pace, with several contracts being awarded or in preparation. The work covers all aspects of the project, including system engineering, the layout and development of the site infrastructure, the antenna transporters, the receivers and associated hardware and electronics, the backend subsystems, software development, calibration, and many others.

In parallel with all this activity, discussions with Japan continue concerning the possibility of its becoming a major partner, with the enhancements that this would bring to the project. A decision by the Japanese government may be made this year, for possible entry into the project early next year.



On 16 May 2003, at the airport of Milano Malpensa, the receiver cabin and reflector backup structure (BUS) of the Alcatel/EIE Antenna prototype were loaded on the special Airbus A 300 transporter ("Beluga") for shipment to Albuquerque airport (NM, USA) en route to their final destination, the VLA site in Socorro. Both cabin and BUS were manufactured in Italy and are made of carbon fibre reinforced plastic (CFRP) based on a design by the European Industrial Engineering (I) under the supervision of Alcatel Space Industries (F).



Computer simulation illustrating the "zoom array" of ALMA.