

A PROGRESS REPORT ON ALMA

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The last article about ALMA in the *Messenger* was by the Director General, in the June 2003 issue. In the present article we give an update of activities since that time. An important event was the Community Day meeting in Garching on 24 September, which is summarized on page 68 of this issue.

The actual construction of the ALMA facilities in Chile has now begun. To give an impression of what the ALMA sites currently look like, we present here some pictures taken by J. Eschwey, J. Mella and C. De Breuck (ESO). A first priority is the construction of the access road from the Chilean highway 23 to the Operations Support Facility (OSF). A sign introducing ALMA has been set up (see Fig. 1). Because of ongoing construction activity and medical risks of high altitude, all visits must have prior approval from the ALMA project office (Tel: +56-55-448-409/410/416).

At the future site of the OSF at an altitude of 2900m, there is now a camp for construction workers (Fig. 2). Some optical astronomers may recognize the containers, which are indeed the ones that previously were used at Paranal. Currently, approximately 50 people work at the OSF. In the future, the OSF will be the main site from where ALMA will be operated. Figure 3 shows a proposed design for the future OSF building, which will also house laboratories and a large assembly hall where antenna integration and major repairs can be done.

One of the major activities in 2004 has been the construction of a full width road (Fig. 4) connecting the OSF to the 5000m high Llano de Chajnantor, where the ALMA telescopes will be located. This road is 12 metres wide because it will be used for the transport of the antennas from the OSF to the ALMA site. The road passes through an area between 3500 and 3800m altitude, dominated by huge cacti (*Echinopsis Atacamensis*), which can reach heights of up to 9m (Fig. 5). To protect the local fauna and sites of archaeological importance, the blasting work for road construction is being coordinated with local authorities and consultants.

The actual site of the telescopes is called the Array Operations Site (AOS). Figure 6 shows a sketch of the planned building of which construction begins in 2005. Among other items, the AOS will house the ALMA correlator. The number of personnel at the

Figure 1: The sign introducing ALMA at the access road to the ALMA Operations Support Facility (OSF) and Array Operations Site (AOS).



Figure 2: A camp for construction workers at the OSF site at an altitude of 2900m.



Figure 3: Birds eye view over the proposed design for the future OSF building. The large telescope assembly hall can be seen in the back.



Figure 4: Construction of the 12-m wide road connecting the OSF to Llano de Chajnantor, the telescope site at 5000 m.

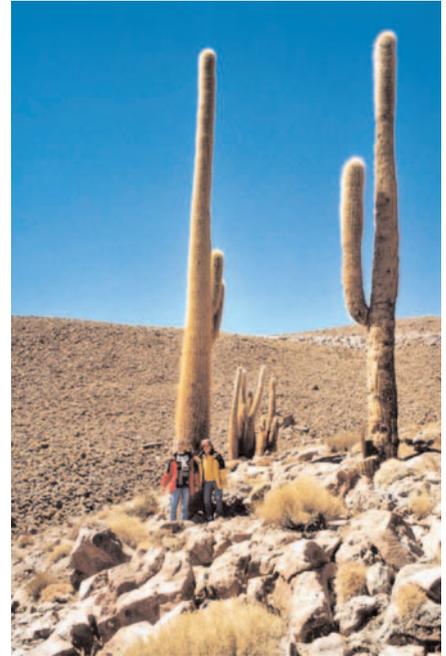
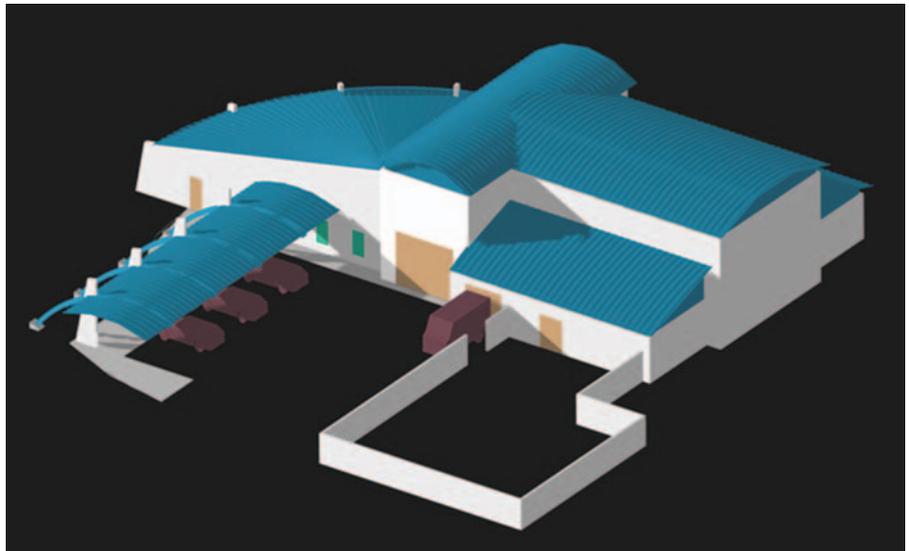


Figure 5: An *Echinopsis Atacamensis* can reach a height of 9 m.

Figure 6: Sketch of the planned building at the Array Operations Site.



AOS will be kept to a minimum to reduce the risks of working at high altitude.

The ALMA astronomers in Chile will be working in a turno system, much like the La Silla and Paranal observatories. While not at the OSF, they will be at the Santiago Central Office.

ALMA work is also progressing in Europe. At the Rutherford-Appleton Laboratory, UK, the first pre-production cryostat is now complete. It is shown in Fig. 7 where one can clearly distinguish the ten openings for the complete set of ALMA receiver bands. The four openings shown with black mounting rings will be used for the first receiver bands in the baseline plan. A description of two of these bands is given in the article by G. H. Tan and others on page 18 of this issue.

For further information we refer the reader to the newly set up quarterly European ALMA newsletter, which is available electronically from <http://www.eso.org/projects/alma/newsletter/>. Information on how to subscribe to email announcements of this newsletter is given on this web page.

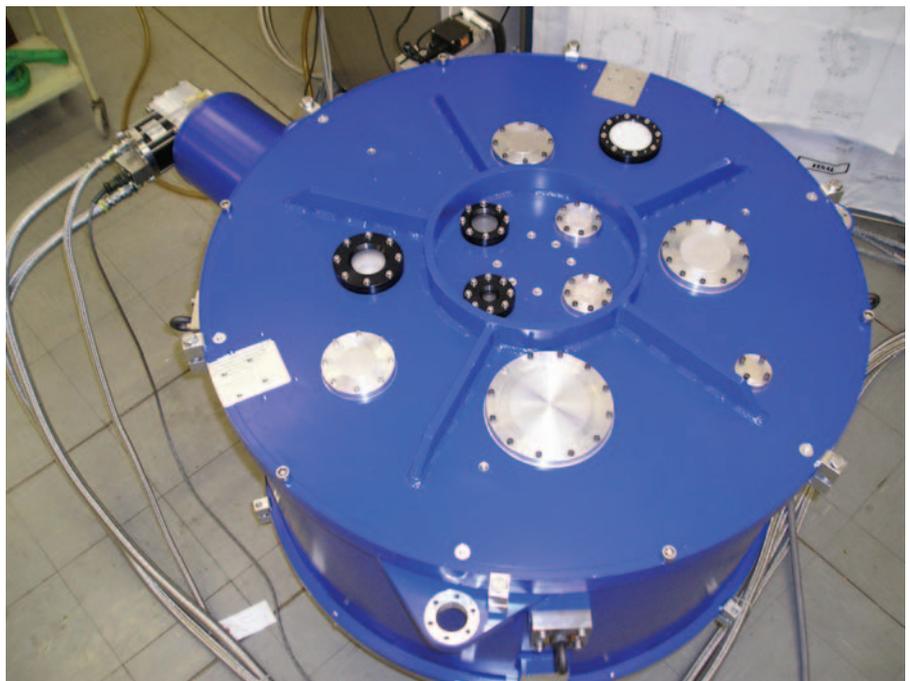


Figure 7: View from the top of the first pre-production cryostat at RAL, UK. It shows 10 openings for the complete set of ALMA receiver bands. The four openings shown with black mounting rings will be used for the first receiver bands in the baseline plan.