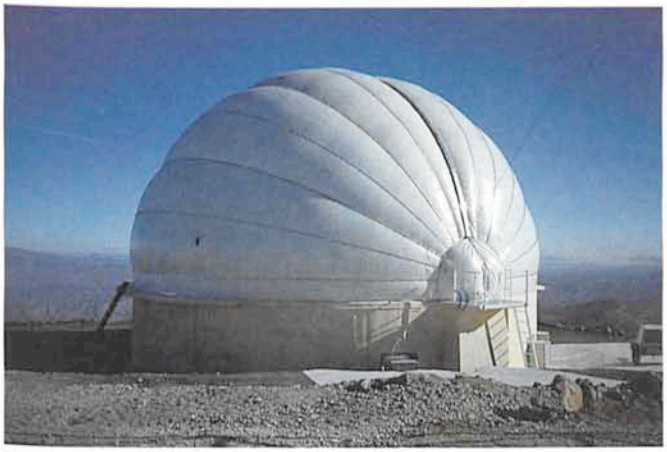

Figure 1: *The closed and inflated dome.*

Figure 2: *The open dome. The motor for lowering the auxiliary hoops has still to be installed.*

fully demonstrated so far, and now the work will concentrate on other aspects such as the thermal behaviour, safety devices, resistance to extreme conditions.

The safety and reliability aspects are particularly important. In this respect, the coming austral winter will represent a suitable test for the resistance to extreme environmental conditions. The dome was designed to withstand wind speeds of the order of 200 km/h, but with such a particular structure the calculations were inevitably approximate and, although large margins of safety were taken, it is always possible that an unthought-of problem appears. Furthermore, the actual effects and possible damages of a combination of extreme wind, ice and snow conditions can only be verified in reality. This also will be an objective of the present evaluation phase.

Another known major hazard to the dome may come from a prolonged electrical power cut-off as then the internal volume will be quickly depressurized, while the ribs will take 10–20 minutes to deflate, with serious loss in strength and stiffness. For the VLT, independent emergency power generators will be mandatory.

The experiments performed so far are already giving ideas for improvements and optimization in view of the VLT final design. Among the improvements already envisaged, we have the automation of the locking system which is now manual. More ambitious will be the replacement of the present closing/opening mechanisms constituted of winches, cables and auxiliary hoops with hydraulic actuators acting on the main hoops. This will allow the dome to serve also as a wind shield with variable height during observations. This is not possible now because of the auxiliary hoops.

L. ZAGO, ESO

Site Evaluation for the VLT: Seeing Monitor No. 2 Tested in Garching

M. SARAZIN, ESO

The ESO parking lot in Garching must be eliminated from the list of candidate sites for the VLT. During the night of April 19, the second seeing monitor (Fig. 1) underwent final full scale tests before being shipped to La Silla. It was an opportunity to verify that the seeing in Garching is not of the quality that the VLT deserves. During the few minutes we had before the instruments were covered with condensed water, an average seeing of 3 arcsec was measured. (Not all that bad for Europe, though!)

The seeing monitor No. 1 has now been sensing the atmosphere over Cerro Paranal, 2,700 m, for one year (*The Messenger* No. 49, September 1987, p. 37–39) and measurements will continue. In addition to seeing, many parameters are monitored simultaneously so as to acquire full understanding of the environment which a large telescope would meet if this site was chosen.

The summit of Vizcachas, 2,400 m, 5 km from La Silla, is now being prepared for seeing measurements. A road has been completed and a 5 m high tower is being built. The seeing monitor No. 2 will be installed there and will perform measurements in a way exactly identical to its Paranal counterpart. Detector and software are completely interchangeable, yet the telescope has been considerably improved in two ways.

The alt-alt mount has been modified for easier setup, it is now possible to start measurements less than one hour after arriving at a site, which is very convenient when several spots are to be probed or for temporary tests such as measurements inside the dome of a large telescope.

Secondly, autoguiding is now possible, using the same star as for seeing measurements. This, added to the computer control of the ICCD intensification level, provides the possibility to completely automatize seeing measurements in the near future.

For several future applications such as adaptive optics, dome and telescope thermal control, remote observing or flexible scheduling, modern large telescopes will need as much information as possible about their environment, and automatic seeing monitoring stations will soon be considered a vital necessity to boost the efficiency of the astronomical work.

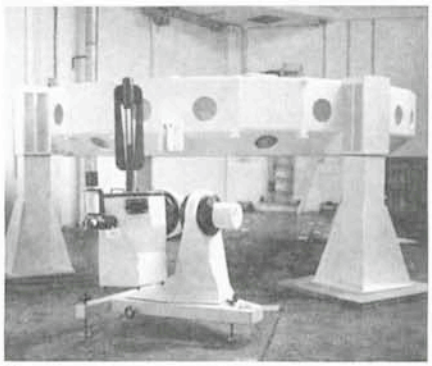

Figure 1: *A pilot fish for modern large telescopes: The Seeing monitor telescope close to the NTT primary mirror cell in the Assembly Hall at the ESO Headquarters in Garching.*