cles per second due to the 10,000 pixels of the detector. The expected OdB-bandwidth of the system is approximately 30 Hz. This will allow a full correction for wavelengths greater 2.2 μm. At this wavelength the typical atmospheric correlation time is 35 ms.

The integration of the optomechanical system is planned for October and November. In December system tests with closed-loop operation will begin. First light is scheduled for March 1989 at OHP and at the 3.6-meter telescope later next year.

This development programme is carried out within the frame of the VLT project. It is intended to equip each individual VLT telescope with independent active and adaptive optical systems. The active optics will be used for the figure compensation of the telescope optics. The atmospheric compensation is foreseen in a separate adaptive optical system which will be installed in the Coudé beam. Active and adaptive optics will have separate wavefront sensors, due to the different isoplanatic angles and the different time constants for the corrections. At the moment, an adaptive system with 100 to 200 subapertures and 50 to 100 Hz operational frequency is the target for future investigations. By extrapolating currently available technology with piezoelectric material for the 100 to 200 actuators the diameter of this mirror will be approximately 300 mm. Future developments in mirror technology and special control electronics may lead to much more complex systems. It is envisaged to incorporate these developments after availability into the concept.

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Latest Studies Lead to Revised Design of the VLT Enclosure

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Like for many other systems of such an innovative project as the VLT, the design process of the enclosure is necessarily iterative. Those who have followed the evolution of the project from its beginning will remember the first concept which presented the arrangement of the four telescopes observing in the open air, behind a large wind shield and with mobile shelters for daytime and weather protection. Then inflatable domes were proposed: the resulting enclosure was certainly much lighter, more elegant and above all cheaper.

Now, in view of the latest studies and developments on both telescope and dome, we are coming to a further iteration (possibly not the last one) in the definition of the VLT enclosure. This is well illustrated by the latest model of the VLT, first shown at the Large Telescopes Conference of last March.

The new model shows one unit telescope of the VLT array, which is enclosed by a circular service platform supporting the inflatable dome. The telescope pillar is lower than in the previous designs, as measurements of atmospheric properties in the near ground layer at La Silla have shown that there is no advantage in having the opening of a telescope higher than 15 metres above the ground. While this conclusion may be revised for other sites, it has been included in the present baseline project. It is therefore now more convenient to base the gantry crane on tracks at ground level than to make a continuous

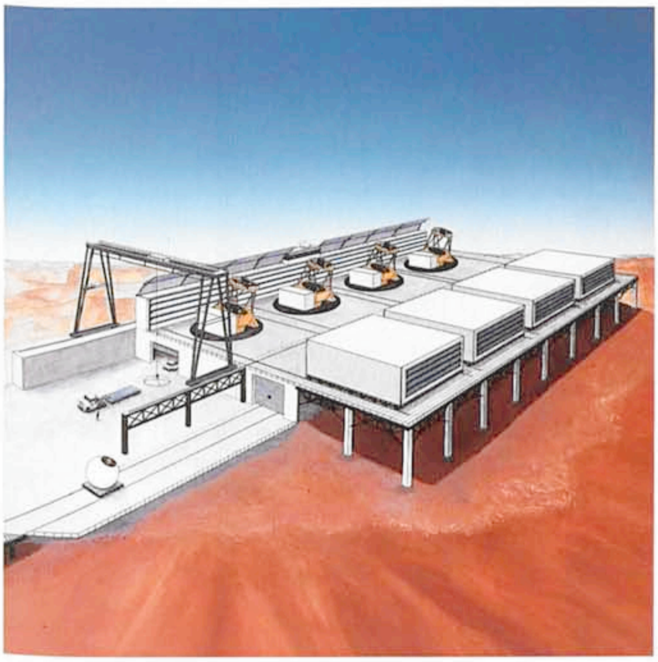

Figure 1: *The first VLT concept.*

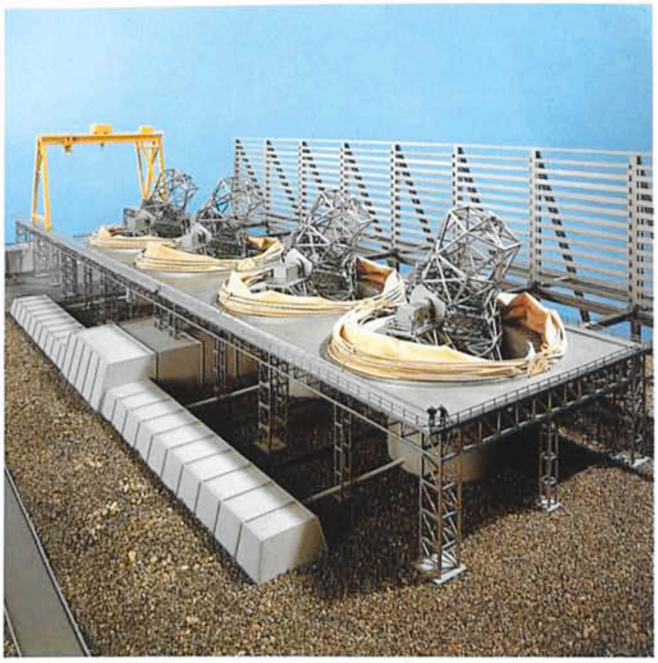

Figure 2: *Second iteration: inflatable domes, a lighter platform.*

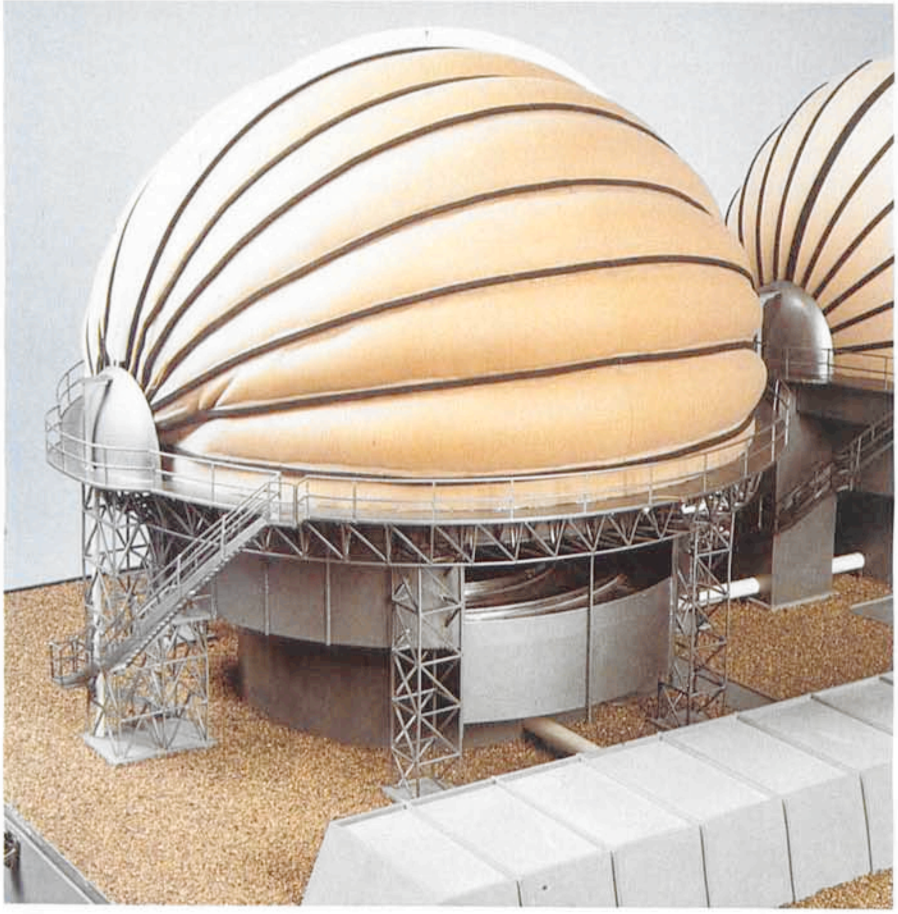

Figure 3: *The latest enclosure design for the VLT unit telescopes. The sliding door in the recess is used for natural ventilation. From another one at the opposite end it is possible to take the primary mirror out for aluminization.*

Figure 4: *The enclosure in open configuration.*

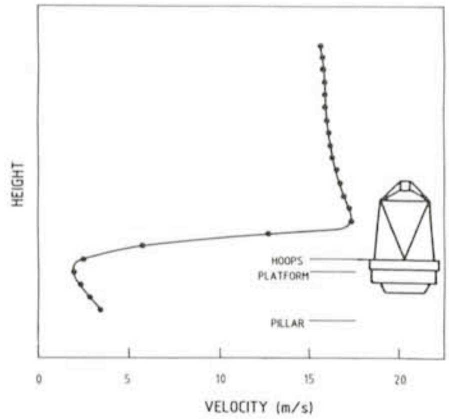

Figure 5: *Wind velocity profile along the azimuth axis measured during wind tunnel tests.*

platform for all four telescopes. A small crane will possibly also be included in each dome for minor handling operations.

The large wind screen present in the older versions has disappeared, as studies have shown that with the use of direct drives for the altitude motion and an active secondary mirror for correction of tracking errors it will be possible to achieve the specified tracking accuracy under wind buffeting.

Conversely, the lower part of the telescope is now imbedded in a recess made in the platform so that the primary mirror can be effectively protected from wind buffeting. Indeed the relative thinness of the primary mirror and the still preliminary status of the mirror support design led to assume conservatively that it will be necessary to shield the mirror from most of the wind loading. Several sliding doors in this recess will nevertheless allow complete ventilation of the enclosed volume when deemed convenient.

The dome in the model represents essentially a scaled-up version of the 15-metre prototype just erected at La Silla. The test and experimental phase which is beginning now will hopefully give many data for a refined design of the 30-metre domes for the VLT.

Inflatable VLT Dome Prototype Erected at La Silla

The 15-metre inflatable dome prototype has been erected at La Silla. First tests took place at the beginning of March and at the time these lines are written the dome is already sheltering a telescope, a new 40-cm seeing monitor which is being tested there previously to its installation at Cerro Vizcachas near La Silla.

The dome itself is not yet formally complete as the motorized system for lowering the auxiliary hoops and some minor items have still to be supplied by the contractor, but the planned test programme aiming at achieving the optimum design for the VLT has already started. The main functions of the dome (opening, closing, blowing) are success-