VLT Operations – a First Discussion

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The VLT will be a unique observatory. With its four 8-metre independent elements and 17 foci it will offer unprecedented flexibility, in addition to its huge light collecting power. It will be equipped with technologies which are only now being realized, including adaptive optics and the potential for interferometric imaging. In view of these unique features, as well as the large capital expenditure involved, it is desirable that innovative ideas on possible modes of operation be explored, ideas which may resemble those of space observatories both in style and scale. It is also desirable that such a study be made in the early phases of design and construction of the VLT, so that the perceived requirements can be incorporated into the design of the VLT itself and its instrumentation.

To this end, an in-house VLT Operations Working Group was established two years ago, and its recommendations have now been published as a discussion paper. The recommendations are not meant to be definitive – the mix of operating modes will undoubtedly evolve with time and experience. Nevertheless they will provide some guidance through the design and construction of the telescope and instruments.

The Working Group was comprised of staff from all divisions of ESO: the Projects and Technology Divisions, the Science Division, the ST-ECF, and of course La Silla. With such a wide spectrum of participants, virtually all points of view were represented, from the extreme pragmatic to the extreme utopian. There was fortunately some convergence over time, and the report both reflects this wide divergence of views and presents the confluence of recommendations.

In order to preserve the flexibility inherent in the VLT concept, it was considered imperative that no operational mode be "designed out", and in particular that all the major observational modes – *classical* (astronomer at telescope), *remote* (astronomer in Europe) and *service* (by ESO staff in Chile or Europe) – be fully accommodated in the design of telescope and infrastructure.

Flexible scheduling, however, was seen as a major objective from the outset. Flexible scheduling implies service observing, hence an Operations Group. This Operations Group could be located in Chile or Europe; the latter would then imply remote observing. The potential advantages of flexible scheduling/service observing are many: adaptability to changing meteorological conditions (e.g. periods of exceptional seeing), optimal use of dark time, efficient packing and scheduling of observations by a group intimately familiar with the instruments, accommodation of special observations (short observations, monitoring observations, simultaneous observations with other observatories), regular monitoring and long-term calibration of instruments, suitability for archiving (homogeneous data base), increased accessibility (e.g. to non-optical astronomers and theoreticians).

There are also disadvantages – lack of spontaneity in the observations, less direct experience for the astronomer, and especially far greater complexity – and for experimental observations involving user-supplied instrumentation it is obviously completely inappropriate. The flexible scheduling/service observing mode can therefore only be offered as one possible option, perhaps limited to straightforward, well-defined types of observations.

It is desirable, both for flexible scheduling and more conventional observing modes, that the VLT and its instrumentation be capable of switching rapidly from one mode to another. It is therefore recommended that a stable suite of multimode instruments be provided which cover the major observational possibilities and are mounted on the telescope for long periods of time to facilitate rapid changeovers between observing modes and long-term calibration. The reliability of these instruments should be enhanced by standardization and modularity of components.

Another major recommendation which follows from the above is that an Operations Group be formally established as soon as possible to fully test a vertically-integrated (from proposal to archive) service/remote observing operation using the NTT in a few well-defined modes, in order to determine how practical and comprehensive such an operation can be.

It also follows that the communications link between Garching and Chile should be further enhanced, both to support this expanded remote observing capability and to increase the integration of the organization through greater daytime communications.

These are just the summary recommendations. The full report is available on request from the secretary of the Science Division at ESO Garching, and written comments from members of the community are most welcome.

ESO at World Tech Vienna

The Institute of Astronomy of the Vienna University and ESO presented themselves in a joint stand at the "World Tech Vienna" Science and Technology Fair which took place at the Austria Centre in the "UN City" from June 18 to 22, 1989. At this time, science ministers and other high-ranking officials met here for the 7th Eureka Minister Conference. These events drew at lot of attention from the public and the media.

The ESO stand was well received by the visitors, and the VLT was shown no less than four times on Austrian TV during that week. On the photo, one of their teams record the closing of a VLT dome. *C. Madsen (ESO)*