



In this diagram, both seeing (horizontal axis) and telescope image quality (vertical axis) are measured as the full-width-at-half-maximum (FWHM) of the light-intensity profile of a point-like source. The uncertainty of the measurements is indicated by the cross in the lower right corner.

Superb image quality is the prime requirement for the VLT. The VLT should take full advantage of the exceptionally good "seeing" conditions of the Paranal site, i.e. periods of time when there is a particularly stable atmosphere above the site, with a minimum of air turbulence. In this diagram, the measured image quality of the VLT UT1 astronomical images is plotted versus the "seeing", as measured by the Seeing Monitor, a small specially equipped telescope also located on top of the Paranal Mountain.

The dashed line shows the image quality requirement, as specified for the VLT at First Light. The dotted line shows the specification for the image quality, three years after First Light, when the VLT will be fully optimised. The fully drawn line represents the physical limit, when no further image distortion is added by the telescope to that introduced by the atmosphere.

The diagram demonstrates that First Light specifications have been fully achieved and, impressively, that the actual VLT UT1 performance is sometimes already within the more stringent specifications expected to be fulfilled only three years from now.

Various effects contribute to degrade the image quality of a telescope as compared to the local seeing, and must be kept to a minimum in order to achieve the best scientific results. These include imperfections in the telescope optical mirrors and in the telescope motion to compensate for Earth rotation during an exposure, as well as air turbulence generated by the telescope itself. The tight specifications shown in this figure translate into very stringent requirements concerning the quality of all optical surfaces, the active control of the 8.2-m mirror, the accuracy of the telescope motions, and, in the near future, the fast "tip-tilt" compensations provided by the secondary mirror, and finally the thermal control of the telescope and the entire enclosure.

The only way to achieve an image quality that is "better than that of the atmosphere" is by the use of Adaptive Optics devices that compensate for the atmospheric distortions. One such device will be operative on the VLT by the year 2000, then allowing astronomers to obtain images as sharp as about 0.1 arcsec.

VLT First Light and the Public

R.M. WEST, ESO

On the unique occasion of the "First Light" of VLT Unit Telescope 1 (UT1), ESO went to great lengths to satisfy the desire by the media and the public to learn more about Europe's new giant telescope. Already three months earlier, preparations were made to have related photos, texts and videos available before the event and to involve the astronomical communities in the member countries in the presentation of the First Light results.

Two slide sets were published on the Web and as photographic reproductions that illustrate VLT Milestones and the Paranal Observatory as it looks now. A comprehensive series of 41 viewgraphs about the VLT, its technology and scientific potential was published in April. They are useful for talks about the VLT and related subjects. All of this material is available on the Web at URL:

<http://www.eso.org/outreach/info-events/ut1f/>

A 200-page VLT White Book was compiled and published on the Web and in printed form just before the First Light event. It gives an overview of this complex project and its many subsystems.

In order to receive and process the first images from VLT UT1 in the short time available, a small group of ESO astro-

nomers got together at the ESO Headquarters to form the "First Light Image Processing Team". As soon as the images arrived from Paranal, they were flatfielded and cosmetically cleaned by the members of this group. In the late afternoon of May 26, it was decided which of these images should be included in the series of First Light photos that was released the following day. There were nine in all, including some that demonstrated the excellent optical and mechanical performance of the VLT UT1, others which were more "glossy", for instance a colour picture with fine details in a beautiful southern planetary nebula.

Through the good offices of ESO Council members, VLT First Light press conferences were organised in the eight ESO member countries on May 27 and also in Portugal and Chile on the same day. In the early morning of May 27, the members of the Image Processing Team travelled with the still hot press material from Garching to these meetings. Most of the meetings were opened by ministers or high-ranking officials from the Ministries of Education or Science. Introductory talks followed by the astronomer members of the ESO Council and other specialists knowledgeable of the VLT project. At the end, the "messengers"

from ESO presented the new images and gave a personal account of the hectic, but exciting work that had taken place during the previous days.

There is little doubt that these press conferences were highly successful in conveying information about the VLT and its potential for astronomical research in a very positive way. In any case, literally hundreds of newspaper articles, TV reports, etc. appeared in the following days in all of these countries and elsewhere.

The introduction of the VLT to the European public and, not least, the future users of this wonderful new facility, has had a good start.



In the VLT control room at the moment of "First Light".