

Working Group for Scientific Priorities for La Silla Operations

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Preparation of the Report

At its first full meeting in May, the WG emphasized the importance of receiving feedback and advice from the community. Since then, a total of three draft reports have been widely circulated, the last two through the members of the STC and Users Committee. The WG also met with the UC, on September 16. The resulting numerous comments have all been considered in the preparation of the final Report, dated October 23, which was submitted to the STC at its 34th meeting, November 4–5, 1993.

The STC supported the basic proposals of the Report and encouraged the Director General to implement them "in good spirit". With this recommendation, the WG has forwarded its report to the Director General and Council for further action.

The Report of the WG is freely available from ESO (Section Visiting Astronomers), and readers interested in the details are encouraged to consult it. The following is just a brief summary of the rationale for its recommendations, and of some lessons learned.

Background

The La Silla Observatory will, for at least another decade, remain the bread and butter of ground-based European observational astronomy in the southern hemisphere. Currently, La Silla is probably unsurpassed for the range and flexibility of its facilities. Basically, Visiting Astronomers (VAs) can expect to use front-line instrumentation covering the range from the atmospheric cutoff to millimetre wavelengths, with few other restrictions than the competition for observing time. In addition, La Silla hosts a number of more specialized experiments not directly related to the research conducted by ESO staff astronomers or VAs.

However, in recent years, new telescopes and instruments have appeared on La Silla at an accelerating rate, with no corresponding increase in the staff. Particularly after the advent of the NTT, it is proving impossible to adequately support all the facilities currently offered to visiting astronomers. Several changes and upgrades at the larger telescopes remain to be fully tested and implemented.

An overload of conflicting demands and a lack of clear priorities have prevented the staff from addressing

these problems in a systematic way. As a result, the scientific productivity of La Silla's telescopes – even some of the newest and most powerful – is being compromised. Clearly, this state of affairs cannot be allowed to continue.

Yet, with the VLT project on its hands, it is difficult for ESO to boost La Silla by new recruitment or by drawing on Garching staff. Bringing the top-priority facilities up to standards worthy of a world-class observatory must happen within an essentially constant staff and budget envelope.

It follows that increased effort in some areas will draw resources from others: Quality must be enhanced at the expense of quantity. In order to thus qualitatively enhance the scientific productivity of La Silla within the existing means, a set of scientific priorities for the operation of the observatory are needed.

In order for ESO to steer through this process in a responsible and transparent manner, the Director General appointed in early 1993 a Working Group on Scientific Priorities for La Silla Operations. Its members are: J. Krautter (OPC), J. Lub (UC), M. Mayor (ex-STC), and J. Breysacher, D. Hofstadt, J. Melnick, and J. Wampler (all ESO staff), with the writer as Chairman. The proposals of the WG were to be submitted to the DG with the comments of the STC.

Defining Scientific Priorities

While never trivial, it is relatively easy to agree on priorities for exciting new opportunities. It is far more difficult to choose which facilities and freedoms may have to disappear in order for La Silla as a whole to perform optimally. Scientific priorities have not previously been formulated in a way suitable for that purpose. This is clearly reflected in the comments received from users: about 99 per cent emphasize the unique value of a particular piece of equipment as seen in isolation, but without regard for the entire picture.

As guidelines for its own discussion of priorities for instruments, services, and scheduling techniques, the WG used the following criteria. The list below is indicative, but neither complete nor in strict order of importance:

- Uniqueness, on an international scale, of the scientific opportunities offered: La Silla belongs at the frontiers of astronomical research.
- Direct relevance for the VLT project.

ESO's resources, and the credibility of the ESO community, are largely tied to the timely and successful completion of the VLT. Early experience on how to control, equip, staff, and operate the VLT is crucial.

- Long-term importance for a broad segment of the user community. ESO was created to serve the scientific interests of the community and should provide optimum conditions for its top-priority research projects.
- Importance for specific interests of user communities in the member states, at a support level consistent with the importance of the research and the size of the community.

When considering a specific facility, the WG consulted the statistical information available from the OPC on the number, rating, and approval rate of the proposals received. Individual proposal ratings are, of course, confidential, but average grades and general trends were available.

Proposed Improvements

The clear top priority for increased support is the NTT: This telescope must now be brought to technical and operational standards at which its great scientific potential can be realized. Moreover, valuable experience can be gained for the VLT project by upgrading and operating the NTT according to VLT standards. ESO is already planning how to achieve these goals by concerted action from La Silla and Garching. The WG strongly welcomes this initiative.

Second priority is to bring the other major telescopes to consistently high performance, especially as regards image quality. Items include fast and reliable top-end exchanges and mirror realignment (3.6-m and 2.2-m); improved dome seeing; and a new control system at the 2.2-m for optimum IR performance. A full complement of modern CCD detectors and on-line data reduction facilities are urgently needed at all telescopes.

First among third-priority items is a permanent CAT-CES optical fibre link: The CAT M3 drive is becoming increasingly unreliable. Improved measurements of seeing and other meteorological data are also high on this list. Finally, numerous improvements of individual telescopes and instruments are proposed throughout the report.

Proposed Economy Measures

A recommendation for increased priority also implies an identification of other areas where a corresponding reduction of effort can be made. Minor, cosmetic measures will not lead to significant overall relief, nor can a single radical measure do so at a scientifically acceptable cost. Hence, the recommendations of the WG have considered a broad range of actions.

Much of the workload on the staff is due to frequent instrument changes. Hence, the WG proposes a system of block scheduling on all telescopes on which the instrument configuration cannot be frozen entirely. Service observing would be introduced as a serious option. Test and setup time can be minimized as part of the benefits.

In parallel, a balanced plan is proposed (summarized in Chapter 6 of the Report) to redistribute the instrumentation among the telescopes so that maximum specialization is achieved at each telescope while limiting the total choice as little as possible. Rare exceptions would still be allowed.

Finally, the WG recommends that a few facilities be decommissioned as no longer competitive on the basis of quality of the data, quality and quantity of recent proposals, and operational and maintenance effort. In addition to a few instruments, this category includes the Schmidt telescope (as a general user instrument), the GPO, and ESO use of the Danish 50-cm telescope.

Lessons Learned

Most reactions to these proposals have shown real understanding of the factual situation: Despite very difficult financial conditions in most of the member states, ESO is nevertheless allowed to proceed with the construction of our most coveted tool: The full-scale VLT – the world's largest telescope. Looking at the fate of some other large research projects in the world, it is not unreasonable that we contribute by trimming some of our lower-priority activities.

Other comments have taken the form of unconditional demands for continued support for this or that favourite facility, regardless of the impact on the rest of ESO. Few of us are in a position to make such demands in our home countries, and even powerful rhetoric cannot by itself make staff and money appear.

The central message of the report is that ESO is now finding itself in the real world of limited resources, and we have to respond rationally to this discovery. This includes the ability to assign priority to certain overall scientific goals in a long-term strategy, and to programme resources so as to actually achieve them. Demands for wholesale perfection beyond ESO's means are basically pointless and lead instead to general dissatisfaction.

Longer-Term Prospects

Human beings are imperfect, and conditions change. The WG therefore

strongly emphasizes that the task is not finished with the present report: Reviews of operating modes and adjustment of the facilities offered must become a permanent (e.g. annual) feature of ESO's forward planning.

The compromises reached can never satisfy everybody. The inevitable dissatisfaction of some is best turned into proposals for future improvements. Its least constructive expression would be to criticize those on La Silla who are charged with the execution of these necessary policies.

A final important lesson from this work is how little even relatively major restructuring of the observing facilities on La Silla and the way they are scheduled results in measurable effects on the total workload of the T.R.S. Department, let alone on the budget of ESO/Chile as such. For the longer term, this exposes again painfully clearly how small a fraction of the total effort and budget of ESO has direct impact on the scientific productivity of the La Silla Observatory.

It follows that when further efficiency measures become necessary in 1996, mere reduction of scientific opportunities along the course explored here, leaving the organization itself untouched, is not the appropriate starting point for a rational solution.

Profound reorganization of the entire ESO infrastructure in Chile will be needed in order for La Silla and Paranal together to serve the ESO community in a scientifically competitive and cost-effective way in the VLT era.

Proposal Statistics

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In the following figures, the number of observing proposals received (dotted lines) and accepted by the OPC (full lines) is plotted for each telescope/instrument combination as a function of the ESO period number. The data cover Periods 41 through 52 (1988–1993).

These statistics were prepared for the Working Group on Scientific Priorities for the La Silla Operations.

