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Key Programmes on La Silla: a Preliminary Enquiry

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Allocating Telescope Time

ESO's *raison d'être* is the provision of telescope time, a shorthand expression for a comprehensive package of services of which hundreds of European astronomers avail themselves every year. The core of that package is the number of nights during which the visiting astronomer has control of one of La Silla's dozen optical telescopes. We all know the procedure for obtaining those nights, the composition and submission of the proposal, the evaluation and grading by the OPC, the allocation by the DG. ESO has, in its eight member states, nearly two thousand potential users whose access to La Silla facilities depends on the (relative) scientific merit and the technical feasibility of their observing proposals. Obviously the very large ratio between number of competing observers and number of telescopes means that telescope time is a very scarce commodity. If many of the interesting proposals are granted time, then a likely result is the fragmentation of telescope time to such an extent that most proposers receive some time most of the time.

In an accompanying note, Jacques Breysacher, head of ESO's Visiting Astronomers Section, illustrates this fragmentation. He also provides information which shows that a large fraction of those requests for telescope time that are successful, are nevertheless curtailed. The time asked for per proposal is of course based on perceived needs as well as on experience: if you request fifteen nights on the 3.6-m telescope you get nothing and lose credibility in the bargain. For many users the present practice works well, their workstyle and programme scope are adapted to these facts of life, there is no reason to change a good thing.

On the other hand, the following scenario is also a painful reality for many an ESO user. You request five nights in a judiciously balanced trade-off between minimal astronomical needs and your estimate of the OPC's range. Then you get three nights, of which one is partly cloudy; your astrophysical goal shifts another year and the substance of your Ph.D. student's thesis erodes precariously. The focus of your own scientific attention is blurred, you have to work in several areas at once and a rival/friend on another continent takes a decisive lead.

The NTT, an Opportunity in More Ways Than One

Readers of the *Messenger* are well familiar with ESO's New Technology Telescope, now nearing completion. Late this year the NTT will be commissioned on La Silla; in Period 43, starting in April 1989, it will be available for visiting astronomers. With the NTT, ESO's effective "four-metre class time" more than doubles: both the 3.6-m and the NTT will be operationally more stable and efficient than the 3.6-m is now, given the inevitable, large number of instrument changes and their associated overhead at present.

It is clear that the established manner of distributing ESO telescope time adequately serves a good fraction of current research needs. It seems equally evident that the fragmentation of the time on intermediate-size and large telescopes precludes ESO users from initiating certain classes of programmes such as are, for example, successfully pursued on Mount Palomar's Hale telescope and some other American universities' and Foundations' telescopes on good sites. Our current procedures for allocating telescope time discourage the start of efforts of the required magnitude. The goal for an innovation in these procedures is to remove this handicap for astronomy in ESO member states. The NTT must signal a growth in quality as well as quantity.

It is my intention to use the addition of the NTT to our telescope park for an experiment in the allocation of telescope time. This experiment will affect all our major telescopes (and our shares in the MPG's 2.2-m and the Danish 1.5-m). Let me first sketch the factual essence of this intention, then provide a brief motivation and also request a structured response from you, our readers/users.

Regard the net amount of new telescope time gained as a result of having the commissioned NTT on La Silla, distributed among the following six tele-

Management Changes on La Silla

For the information of visiting astronomers I announce some changes in the La Silla management. Effective March 1, 1988, the management responsibilities at La Silla are shared by five department heads/group leaders. These are:

H.E. Schuster, VLT Site Services and Schmidt Telescope
Torben Höög, Maintenance and Construction
Daniel Hofstadt, Technical Research Support
Jorge Melnick, Astronomy Department
Bernard Duguet, Administration

Together they form the Management Team/La Silla. Daniel Hofstadt is the chairman of the MT/LaS and he reports to me on behalf of the Observatory's Management Team.

H. VAN DER LAAN, Director General

scopes: NTT, 3.6-m, CAT, ESO 1.5-m and ESO shares of MPG's 2.2-m and the Danish 1.5-m. Some or all of this new capacity will be allocated in a revised manner, such that a number of programmes can receive very substantial portions of telescope time, to be made available over a one to four year period. The net new time available in four years, applying weighting factors for the intermediate-size telescopes *vis-à-vis* the NTT, amounts to about 2,000 nights, half of which on the 3.6-m and the NTT. Some or all of these are to be allocated to, say, between one and two dozen *key programmes;* allocations to vary from minimally twelve to maximally fifty nights per year per programme.

Evidently, the introduction of such a scheme would be difficult to nearly impossible under circumstances of constant total telescope time. It is the major positive increment afforded by the completion of the NTT which provides this new opportunity for European astronomy without negative effects for ongoing activities. Whether some or, ultimately, all of the new capacity is allocated in the new manner must clearly depend on the proposal pressure. The histograms for the 3.6-m and 2.2-m allocations, shown in Dr. Breysacher's article, can in future also be broadened by the use of some of the additional time.

The Growth of ESO Astronomy

In the previous issue of the *Messenger* Professor Woltjer gave an overview of developments within ESO during the past dozen years. From a position of relative instrumental backwardness, European astronomical facilities have achieved world-class status. With the decision to proceed with the construction of the VLT, we must now also pay close attention to the further enhancement of the quality of our community's programmes and the development of long-term European goals in astronomy. In the next decade it is essential to prepare the next generation for an all out exploitation of the VLT's unique potential.

Schedules and Procedures

If we are to make a good start with the key programmes in period 43 (April through September 1989), then the schedule is as follows:

- Initial response to this preliminary enquiry: before 30 April 1988.
- Discussion of principles and procedures and of response to preliminary enquiry in ESO's STC and OPC: May 1988.
- Information and call for proposals in the *Messenger,* No. 52, June 1988.
- Proposal deadline for programmes starting in period 43, 15 October 1988.
- Outside refereeing in November 1988; time allocation upon recommendation by the OPC in December 1988.

Given the large investments in telescope time foreseen, the proposals require deep and careful argumentation. They must have much added value compared to normal proposals, opening research domains not hitherto accessible with ESO facilities. Normally the proposers who constitute the observing team will represent several institutes; hopefully the teams will usually be multinational. Since economic scheduling will require a good fraction of the observing to be done in "service mode", it is highly desirable to involve ESO astronomers employed on La Silla in the observing teams. (This has the additional advantage of involving these young astronomers in community programmes, which will make working on La Silla even more interesting, and will ease their way back into community employment.) Alternatively, observers must be prepared to spend substantial periods on La Silla.

One can foresee thematic proposals which set out a programme of work covering up to four or five years. The initial proposal is to contain the scientific justification as well as the observing and the interpretive strategies. It is to include an overview of the observing nights required as a function of time in the total programme period as well as specify the telescope(s) and instrument(s) to be used. The instruments may be existing ESO common user instruments, instruments to be provided by the observing team or instruments proposed to be constructed in collaboration for the purpose. (In the latter circumstances the planning must take place on a case by case basis.) In addition, an overview of the team members, their respective specializations and relevant experience, and the resources available for data reduction and analysis. Time allocation will be for the whole programme in principle, with an initial annual instalment; subsequent instalments dependent upon the contents of progress reports.

Readers/users are herewith invited to submit, before 30 April 1988, a statement of their intention to make use of this new part of ESO's programme. Forms, specifying the format of your response along the lines of the two preceding paragraphs, are available upon request from the Visiting Astronomers Section at the ESO Headquarters.

Final Remarks

Key programmes are not meant to simply be long-term acquisitions of large databases, which are thought to be good for several purposes, some of which are initially specified and others which have not yet been thought of. Such programmes are of course going on, perfectly justifiably, on the Schmidt and on several of the smaller telescopes. A successful key programme proposal will address a major astronomical theme, provide (a) very specific goal(s) and outline a structured research strategy.

Key programmes can involve postgraduate students from start to finish of their Ph.D. thesis programme, providing them with a coherent research context and using their full time efforts as well as all of their youthful enthusiasm. Analogous reasoning makes the participation of postdoctoral fellows very attractive.

Key programmes, as the term suggests, must open new research domains. They will require careful peer review and will be subject to public scrutiny by the ESO user community.

Successful applicants are likely to be required to make their results, calibrated and documented, available for general use after a prescribed period.

In a shifting pattern of one to four year key programmes it will be prudent to start with relatively few of the four year variety, in order to commit the time available gradually, to the most ambitious programmes of the best prepared teams. In addition to your formal response through the Visiting Astronomers Section, general comments concerning this intention, addressed to me, are welcome.

Some Statistics about Observing Time Distribution on ESO Telescopes

J. BREYSACHER, ESO

The aim of this note, which is to be regarded as an appendix to the article written by Professor van der Laan, is to give some statistical information about the observing time scheduled at ESO over the past four years. Only the five largest telescopes installed at La Silla will be considered here, namely the 3.6-m, 2.2-m, 1.5-m, 1.5-m Danish and 1.4-m CAT.

Needless to say, at ESO as in any other major ground-based observatory, given the heavy oversubscription of telescope time, the selection of the observing proposals is rather strict. Figure 1, which is taken from the 1987 ESO Annual Report, allows a comparison between the total numbers of applications received and finally accepted each year, for almost a decade.

Let us now turn to the successful proposals. The histograms presented in Figure 2 indicate how the 1,350 programmes accepted during the past four years for the use of the five telescopes mentioned above, were distributed with regard to the number of nights allocated to them.

If one considers only the 705 programmes scheduled at the 3.6-m and 2.2-m telescopes, there were 243 (34 %) observing runs of two nights and 269 (38 %) runs of three nights. The percentage of programmes which were allotted four nights was exactly the same on these two telescopes: 14 %. It must be noted that amongst the remaining programmes, most of those getting five or more nights were not sensitive to moonlight and consequently could be scheduled during bright time.

On the two 1.5-m telescopes, 42 % of the programmes were allotted four or five nights. At the 1.4-m CAT, a similar percentage (40 %) is obtained for the observing runs lasting six to seven nights. On these three telescopes the very short runs almost always correspond to programmes for which observations on two or more telescopes were combined.

With regard to the amount of programmes which, after the evaluation by the ESO Observing Programmes Committee and/or during the final scheduling phase, had to suffer from a reduction of the number of requested nights, the mean percentages obtained for the past four years are as follows. At the 3.6-m,

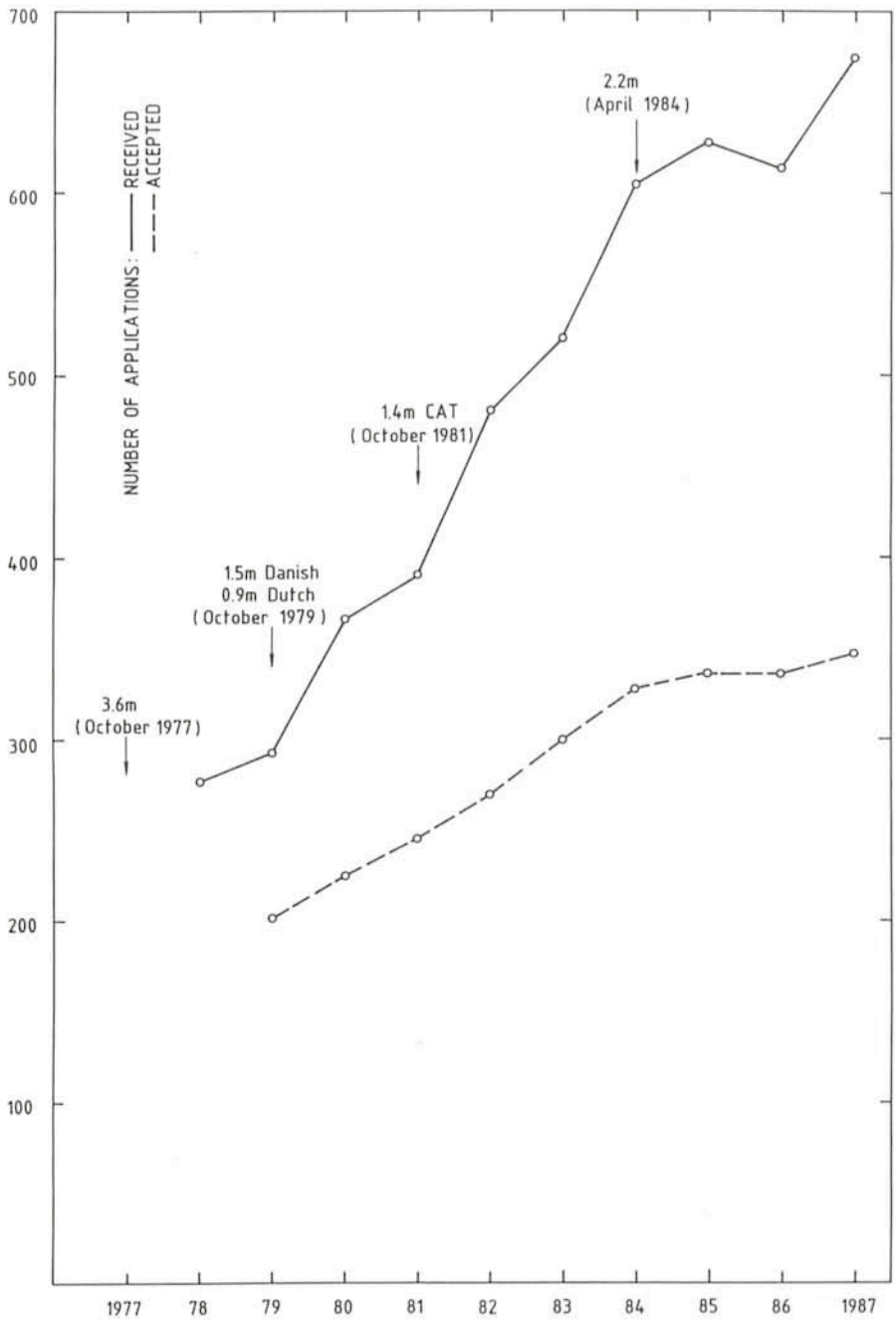

Figure 1: *The numbers of observing proposals respectively received and accepted by ESO during the past nine years. Arrows indicate when new telescopes became available.*