

The ESO Observing Programmes Committee – an Evolving Process

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The Universe and its contents are evolving, but our tools to study the heavens at ESO are evolving at a much more rapid pace. The task of the Observing Programmes Committee (OPC) is each semester to recommend to the Director General among the typically 700 proposals introduced by the community those which are thought to lead to the best science with the available instrumentation. It is a challenging task, but also a gratifying one, since it continually confronts one with the rich scientific imagination of the ESO community. This community also frequently expresses its curiosity about the OPC procedures and criteria to rank the observing proposals. The information which is currently posted on the ESO web site might not be detailed enough on the procedures, which in fact recently underwent some changes which needed discussion within the committee before being implemented. The purpose of this contribution is then to explain to the community in some detail how the OPC currently operates.

Cosmologists need the cosmological principle to make sense of the evolving Universe. A credible assessment of observing proposals also needs isotropy and homogeneity: it is essential that every proposal gets a fair chance, and also that adequate ways are found to gauge proposals which cover a wide range of science domains. Aiming at a fair distribution of observing time has of course always been the main goal of the OPC, but putting this into practice within an environment characterised by changing possibilities and constraints, has induced rethinking of the process at about every OPC meeting. Nevertheless, the change has been a continuous one, which builds on the experience of several generations of OPC members.

Composition of the OPC

The OPC consists of national delegates and members at large, who normally serve for three years. Each ESO member state designates one national delegate. In order to ensure that the expertise of these delegates is well spread over the different scientific sub-disciplines, Council has agreed in its June 1999 meeting that member states present a short list of candidates, and that the final designation is co-ordinated with ESO. The OPC chair is chosen among these national delegates. Members at large are chosen by ESO, after

consultation of the OPC chair, in order to complete the coverage of the different fields within OPC. Panels are organised according to scientific sub-disciplines, and contain – besides OPC members – experts, the number of which is determined by the typical workload of the panel. Panel experts are nominated for two years, and thus serve during four semesters. The length of their mandate is felt as a good compromise between the need for continuity in the process and a healthy rotation inside the ESO community.

The composition of the OPC is published every year in ESO's Annual Report and can be consulted on the ESO web site. The more rapidly changing composition of the panels is not made public, in order to maximally ensure the independence of the panel members and to avoid them being exposed to external pressure. In fact, in the renewed system (see below) it cannot be known beforehand to which sub-panel a particular proposal will be assigned, hence it is of little practical value to know the sub-panel composition. In the HST system, the composition of the panels is published after the time allocation for each cycle has been decided, but such a system is not practical to implement within the ESO system, where panel members serve for four periods.

The New Panel System

The creation of OPC panels according to scientific domains was elaborated when the present Director General was OPC chair and was intended to relieve the workload on the OPC, which faced a steady increase of the number of proposals, and to actively involve a large number of experts from the community. There has been a continuous need to redefine the attribution of sub-categories to the different panels, essentially because of the evolution of the proposals when new instrumentation became available. For example, the availability of larger telescopes triggered the creation of a new extragalactic panel in 1997. It also significantly increased the potential for 'stellar work' in external galaxies, and thus had consequences for the overlap of sub-categories between 'stellar' and 'extragalactic' panels..

During the OPC meeting of December 1999 it was agreed that a major redefinition was in order. The evolution of the proposals was such that the work-

load had become quite unevenly distributed over the panels. On the other hand, it was felt that a further increase of the number of independent panels would too much narrow the scope of the panels and thus conflict with the healthy intertwinement of scientific questions which is at the heart of astronomy. The Sun is born in the Interstellar Medium panel, spends most of its life in the Cool Star panel, but ends as a white dwarf in the Hot Star panel, after a brief return in the Interstellar Medium panel during the planetary nebula stage! With this example in mind, it is not hard to imagine that with too narrow a panel definition, many proposals present severe overlap between aspects which formally belong to different panels.

The compromise which was agreed upon, is a new structure with four panels: A: *Cosmology*, B: *Galaxies and Galactic Nuclei*, C: *ISM, Star Formation and Planetary Systems*, and D: *Stellar Evolution*; thus the panels are not too specialised, a fact that applicants should take into account when writing their proposals. In order to achieve a reasonable workload, each panel is subdivided into two sub-panels, both covering the same scientific categories, which are listed in more detail on the web. There is thus not any more an independent *Solar System* panel; in fact, recent breakthroughs, e.g. on the study of cosmic dust, circumstellar disks and exoplanets, are truly interdisciplinary, and strengthen the general interest for solar-system research (now part of panel C). Also, the distinction between stellar projects on the basis of the evolutionary stage of the object removes much of the vexing overlap which often occurred in the old system, as well between star formation and stellar structure as between hot and cool versus massive and low-mass stars.

The assignment of a proposal to one of the two relevant sub-panels is done more or less at random, 'more or less' meaning that advantage is taken from the system to avoid conflict-of-interest issues, by systematically attributing a programme in which a sub-panel member is involved to the other sub-panel. A potential problem which immediately arises, is whether the procedure is optimal to judge similar projects which occur in different sub-panels. Therefore, after the panel meetings, unnecessary overlap of subjects and objects is identified, and the results of the deliberations are compared. Experience shows that the

issue is more academic than real. Moreover, it is a fact of life that individual biases affect any kind of evaluation if one wants this evaluation to be done by experts. The only solution is to average out these biases by rotating panel members regularly, and a dual panel system also effectively contributes to this.

Activities Before the OPC Meeting

Despite the facts that applicants tend to wait until the very last minutes before the deadline expires and that some 700 proposals typically have to be treated, the Visiting Astronomers Office continues to manage to ship the proposals to the OPC and panel members within two weeks after the deadline. To each proposal three referees are assigned, from which the primary referee is expected to summarise the proposal at the meeting; all proposals in a sub-panel are expected to be read by every member, however. Two weeks are then given to the referees to identify unnoticed conflicts of interest and proposals that have been submitted to the wrong panel. When the replies have been received, corrections are made, and report cards are mailed to the referees on which these should write their grades and comments.

Before the meeting, documents are produced which summarise the evaluations by the referees. It should be stressed that these documents are of a preliminary nature: they essentially serve to prepare the panel meetings, during which all panel members are expected to intervene on every proposal. In order to minimise the bias introduced by a specific referee, it is recommended to the panel chairs not to discuss the proposals in the order of the average preliminary grades. Technical assessment about proposals is provided by ESO staff upon request by suspicious referees.

Working Procedure for Large Programmes and Target of Opportunity Programmes

The VLT Science Policy document recommends that up to 30% of the telescope time should be attributed to large programmes, and this policy has since been extended to the La Silla telescopes. The idea behind is that experience with HST has shown that real breakthroughs often result from programmes, such as the Hubble Deep Field and the Hubble constant projects, to which large amounts of time have been devoted. Large programmes are also felt as a way to foster collaborations within the ESO community: not only many data but also much expertise helps to make progress! For the 2.2-m telescope, which is particularly demanded for surveys and other programmes which are preparatory for VLT science, more than 30% of the time may be awarded to large programmes.

Table 1. Time schedule for the OPC operations.

Date	Event
April 1, October 1 April 15, October 15 May 1, November 1 May 23, November 23 June 1, December 1 June 20, December 20	Deadline for submission of proposals Proposals arrive at the referees Proposal cards are issued to the referees Deadline for evaluations to be sent to ESO Start of OPC meeting Finalisation of comments on proposals

Before an OPC meeting, 30% of the time available on each telescope is set aside as a pool for large programmes, so as to make sure that the awarding of a large programme has no adverse effect on the fraction of time reserved for the regular programmes of a panel. The selection of large programmes is then the responsibility of the full OPC. On the other hand, a selection of such programmes by the OPC without the advice of the panels where the experts in the field reside, is clearly not wanted. Therefore, the first day of the OPC meeting is devoted to a discussion within OPC of the large-programme proposals, which results in a pre-selection which is then presented to the panels during days 2 and 3 of the meeting. During the last two days of the OPC week, the reports by the panels are discussed, and the OPC proceeds to the final selection of large programmes.

A similar procedure is followed for the selection of Target of Opportunity (ToO) proposals. Such programmes by definition get override status and thus need to be of high scientific priority in order to be recommended for scheduling. Moreover, by nature they most often concern the 'Stellar Evolution' panel, and if considered as regular programmes would bias too much the time allocation for this panel. During the first day of the OPC meeting, the ToO proposals are pre-discussed within OPC, and their final allocation is decided upon after they have been reviewed in the relevant panels.

Working Procedure for Regular Programmes

The main task of the sub-panels is to provide grades and a ranking per telescope for the applications they received. During the two-day panel meetings, each proposal is summarised by the primary referee and then discussed by the whole panel. After the discussion of each proposal, a grade is given by every panel member, and the amount of time to be recommended is settled. Only when all proposals for a particular telescope are discussed, average grades are computed, and a listing of the proposals ordered according to their average grade is produced. On the basis of this listing, the panel is then free to discuss the achieved ranking and to change it.

Especially the unsuccessful applicants are eager to know what the ra-

tionale behind the recommendations was. An issue with which OPC has struggled for a long time, and which the Users Committee has often put on its agenda, is the redaction of exhaustive comments for every proposal. It may be useful information for brain researchers to know that it is not easy for the mind of a panelist to formulate a detailed comment immediately after the discussion of a proposal: analytical and synthetic thinking appears to reside in widely separate places in the brain! The redaction of comments slows the panel discussions, which already occur under some time pressure, considerably. But, clearly the request by the community of detailed explanations is sound. The solution which is now adopted, is to charge the primary referees with noting the remarks by the individual referees and to summarise them by writing comments after the meeting, in time for ESO to include them in the email messages to the applicants who did not get time.

While in principle panel members have an idea about the total observing time they can dispose on, the essential result of their deliberation is the ranking of the proposals. During the final selection of the proposals during days 4 and 5, the OPC respects the ranking of the proposals made by the panels. The main task of the OPC is then to determine the cut-off line which delimits recommended from not recommended proposals. The word 'recommended' deserves to be repeated, since the final attribution of time is the full responsibility of the Director General, who has to take into account scheduling constraints and other technical issues, application of the Agreement with Chile, etc. On the VLT, about half of the proposals require the service observing mode. The final execution of these proposals depends on the conditions on Paranal. The highest rated proposals are safe, but proposals lower in the list often can be executed only partially. Conversely, it is useful to know that service proposals not recommended in the first place, but which are not demanding on seeing constraints, have a fair chance to be partially successful after all.

The amount of time which is available for regular proposals in the different sub-panels, is initially set as proportional to the total time requested for the proposals in these sub-panels. Clearly, merely attributing telescope time to panels proportional to the total time requested, can appear to be an abdica-

tion with respect to discussing the real science issues in the OPC. Moreover, institutionalising such a procedure might contain an incentive to introduce fake proposals; experience shows, however, that our community is most reasonable in this respect, and that people understand that such an attitude would rapidly become self-destructive. Ideally, then, in order to recommend the highest-quality science, an OPC discussion should be held on the relative merits of the proposals in the sub-panels, and the cut-off lines should be modified accordingly. This final adjustment of the cut-off lines is not an easy issue, however. OPC members, who lively remember the thorough discussions they had in their panel, tend to refrain from reshaping the picture from much shorter discussions with less involvement from the experts in the field. Moreover, with eight sub-panels, any formal voting procedure which is systematically applied for each telescope, tends to be cumbersome, and for this very reason often hardly influences the result.

But it remains true that OPC members should strive, to the extent possible, towards gauging the quality of the science in their (sub-)panel to that in the others. If this did not happen, the system might degenerate into four or even eight independent OPCs, a situation which should definitely be avoided! It should be pointed out, however, that thorough multidisciplinary scientific discussions occur within the OPC for the large and ToO proposals, which concern all OPC members. Also, at the OPC meeting that follows the panel meeting, each panel presents its highlights to the whole OPC. In general, the very fact of living a full week together entails many opportunities for cross-fertilising. When more nights become available for regular programmes, because of the non-selection of large programmes, discussion naturally arises within OPC on which panel presents the best case for this additional time. Finally, if a panel definitely feels it

needs more time than the preliminary amount, it is able to fight for it and thus to trigger an agreement on some redistribution of time, involving a discussion within the OPC on the scientific quality of the cut-off proposals. The latter has often occurred, but was not felt as a stringent necessity during the last OPC meeting, which may reflect that the broad scope of the new panels also has a beneficial redistributing effect on quality. To conclude, my grateful experience is that the OPC consists of scientists who are open to abandon any corporative attitude with respect to the other panels, but that they are not reluctant to require specific discussions and formal voting in order to recommend the best science.

Concluding Remarks

After the last OPC meeting, several panel and OPC members expressed their positive opinion about the procedure, and no dissenting voice was heard. The dual panel system, which was adopted with some hesitation, passed its first test very well. It would be naive, however, to anticipate that no new evolution of the procedures should occur in the future. Quite soon two more VLT units with new instrumentation will become available, probably again leading to an increase of the number and a widening of the scope of the proposals.

In order to cope with the steady increase of projects and particularly of data, not only the OPC but also the community should respond positively to the challenge of accepting to evolve. The large programme concept was designed to increase the efficiency with which the VLT could achieve the fundamental science issues for which it was built. Its success will also rely, however, on the capacity of the fairly dispersed ESO community to co-ordinate the expertise which exists in the member states. Some efforts are clearly needed to foster collaborations between institutes in the different countries, and the commu-

nity is large enough to achieve this while maintaining a healthy competition. It would be an expression of the strength of astronomy in Europe if the question would become actual to increase the fraction of time to be devoted to large programmes to more than 30%.

A major way to involve the ESO community in the rich potential of the telescope park in Chile, is the OPC itself. Several experts, asked to join a panel, decline the offer because they fear the high workload. They are right that the workload is high, but by declining they miss an opportunity to be part of a most inspiring process. There is no reserved time for OPC or panel members, but participating in the discussions is a unique way of enlarging one's scientific culture and is very helpful to learn how best use is made of the ESO instruments. This way, the panel members can exert a positive feedback on the dynamism of research in their home institutes and contribute to inspire their colleagues in their home country. Since the panel system, involving much more than before the community in the evaluation process, was installed, the average quality of the proposals has been increasing significantly indeed.

This is my last *Messenger* report as chairman of the OPC. I take advantage of this opportunity to express my gratitude to the many colleagues with whom it was so stimulating to work: to both ESO directors general Riccardo Giacconi and Catherine Cesarsky, to the Section Visiting Astronomers and other ESO staff involved, and of course to my colleagues in the OPC and the panels. In particular, we owe much to Jacques Breysacher, who is the living memory of the OPC and the practical mind which guarantees that the job can be done within one week, to Christa Euler, who for three decades now continues to produce logistic miracles before, during, and after the OPC meetings, to the ever efficient Elizabeth Hoppe, and to my predecessor Joachim Krautter, who made the new OPC system work.

ANNOUNCEMENTS

Scientific Preprints

(July – September 2000)

- 1381. S.A. Ehgamberdiev et al.: The Astroclimate of Maidanak Observatory in Uzbekistan. *A&A*.
- 1382. J. Breysacher and P. François: High-Resolution Spectroscopy of the SMC Eclipsing Binary HD 5989: the Hell 4686 Emission Line. *A&A*.
- 1383. I.M. van Bemmelen, P.D. Barthel and T. de Graauw: ISOPHOT Observations of 3CR Quasars and Radio Galaxies. *A&A*.
- 1384. A. Pasquali, M.S. Brigas and G. De Marchi: The Mass Function of NGC 288. *A&A*.
- 1385. T.H. Puzia, M. Kissler-Patig, J.P. Brodie and L.L. Schroeder: Globular Clusters in the dE,N Galaxy NGC 3115 DW1: New Insights from Spectroscopy and HST Photometry. *AJ*.
- 1386. R. Siebenmorgen, T. Prusti, A. Natta and T.G. Müller: Mid Infrared Emission of Nearby Herbig Ae/Be Stars. *A&A*.
- 1387. M. Chadid, D. Gillet and A.B. Fokin: Van Hoof Effect Between Metallic Lines in RR Lyrae. II. Comparison with Purely Radiative Models. *A&A*.
- 1388. F. Comerón, R. Neuhäuser and A.A. Kaas: Probing the Brown Dwarf Population of the Chamaeleon I Star Forming Region. *A&A*.
- 1389. S. Cristiani and V. D'Odorico: High-Resolution Spectroscopy from 3050 to 10000 Å of the HDF-S QSO J2233-606 with UVES at the ESO VLT. *AJ*.
- 1390. F.R. Ferraro, B. Paltrinieri, F. Paresce and G. De Marchi: Very Large Telescope Observations of the Peculiar Globular Cluster NGC 6712. Discovery of a UV, H Excess Star in the Core. *ApJ Letters*.
- 1391. G.A. Wade et al.: An Analysis of the Ap Binary HD 81009. *A&A*.
- 1392. F. Primas, P. Molaro, P. Bonifacio and V. Hill: First UVES Observations of Beryllium in Very Metal-Poor Stars. *A&A*.