

HotJava browser, among others, offer new prospects and challenges for the communication of ideas. Various projects are quite advanced, which will allow image processing, symbolic mathematical manipulation, and other data treatments to be dealt with purely in the Web environment.

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The ESO STC in Times of Change

J. ANDERSEN, Chairman, ESO Scientific Technical Committee

The Role of the STC

The charge of the ESO Scientific Technical Committee (STC) is to advise the ESO Council on "... policy matters of long-range scientific and technical importance ...". It consists of 12-16 members appointed "... for their scientific and technical eminence, with at least one member from each Member State ..." (plus observers from Portugal and Chile, pending their full STC membership).

Four years ago, the writer found himself appointed to this august body. And three years ago, the then Director General asked if I would accept a nomination to chair the STC, the extra workload estimated to be about two days per year.

As 1995 draws to a close under a new Director General, a quick status shows that neither ESO, the STC, nor its chairman look much like we did then. One thing has remained constant, however: Chairmanship of the STC is limited to three years. As my term thus comes to an end, the Editor has asked me to summarise my impressions of life in the STC for the readers of *The Messenger*.

The STC's Modus Operandi

As I joined the STC, veteran members discreetly aired a certain frustration that meetings were somewhat formal affairs and the communication mostly one-way. Not known for letting tact get in the way of change – and with the active encouragement and support of the new ESO Management – I have tried to modify certain aspects of the STC's working modes and style.

First, new Terms of Reference have been approved by Council, which clarify the role of the STC as dealing with general policy matters, as a two-way information channel between ESO and its community, and also the relative roles of the STC and the Users Committee (UC). The STC can now have 12-16 members, so new ESO members or scientific fields can be quickly accommodated. And

terms are now for three years (renewable once) rather than the previous fixed five-year terms, also in the interest of flexibility.

The STC also equipped itself with a Vice Chairman, elected annually by the STC itself to replace the regular chairman as needed; Klaas de Boer, Bruno Marano, and Andre Blecha were elected in 1993-95.

At the meetings, the previous lengthy oral status reports by the ESO staff have been replaced by "fact sheets" sent out in advance (a "sheet" is a piece of paper with no more than two sides!), time at the meetings being devoted to two-way discussions. And each day starts and ends with a half-hour informal session (STC members only) where potential problems or misunderstandings can be identified and prevented, resolutions drafted and/or modified, etc.

It is not for the writer to judge whether efficiency has improved. But the consensus seems to be that the meetings have at least become rather more lively, culminating in the May 1995 meeting in the magnificent Council Room at Observatoire de Paris, with a subsequent visit to REOSC and a first live glimpse of the 8.2-m VLT primary mirrors.

Contact to other ESO Bodies

The STC's direct reference is to the Council, and the STC chairman is invited to attend its meetings. During my term, Council has expanded the scope of the debates at which the STC chairman is present to include matters of such direct scientific impact as, e.g., the future of ESO in Chile. I am glad to convey the STC's appreciation of this sign of Council's confidence in its main advisory committee.

In order to improve coordination with the UC and minimise the work of the ESO staff in preparing the meetings, the UC Chairman now has a standing invitation to attend the STC meetings. Similar mutual invitations between the STC and the Finance Committee were suggested

by certain humorous souls, but might be too much of a cultural shock for both sides... Still, I hope the STC has been able to provide useful technical advice on some of the major contract decisions in the VLT project (see, e.g., *The Messenger* 81, 3).

Finally, the STC has invited all the ESO committees and the astronomical members of Council for the discussion in November 1995 of the long-term plans for La Silla (see below). I hope very much that discussing such a long-term policy issue in this broad and representative forum will have been found useful.

Planning for the VLT

The first task for the new Director General in early 1993 was to re-establish a realistic schedule for the VLT project and re-structure ESO to carry out the project according to that plan. The magnitude of this task was well illustrated by the 1994 Audit Team: While the LEP project corresponded to three annual CERN budgets, the VLT is equivalent to five annual ESO budgets. As the corresponding refurbishment of the ESO structure proceeded, part of the task of continuing the long-term scientific planning fell, appropriately, to the STC.

The previous concept of having the four VLT telescopes in place almost simultaneously, complete with instruments, avoided the need to discuss priorities. With the new schedule, this was no longer possible. Hence, the STC appointed a Working Group on Scientific Priorities for the VLT Observatory, ably chaired by Dr. L. Vigroux, to reconsider the most urgent science to be done with the VLT.

One of their initiatives was the first of what is now a series of ESO Workshops, "Science with the VLT". Their report, issued on that background, was unanimously endorsed by the STC. The STC - indeed all of us - owe Dr. Vigroux and colleagues our cordial thanks for their efforts and dedication in placing the VLT planning on a firm scientific basis.

Planning for VLT Instrumentation

With a VLT construction period extending beyond the year 2000, it was clear that the instrumentation plans defined in 1988-89 needed review and updating. The Vigroux committee addressed also this question as a corollary of their high-level review. As a result, certain adjustments of the existing plans were made, and new instruments for an ambitious push at the frontiers of modern cosmology are now under active study by several groups.

As part of this move, the STC was gratified by ESO's decision to launch an aggressive programme in the field of optical detectors, with the prospect of ESO becoming a leader in the field within a short time.

Planning for La Silla (I)

Already in late 1992, it had become clear that the ESO staff was overwhelmed with the multitude of tasks at hand, and that a review of scientific priorities for La Silla operations was needed. A Working Group was appointed to this task and issued a set of recommendations that were later approved by the STC and Council (see *The Messenger* 74, 29) and are now being implemented.

These recommendations have been seen by some as discriminating blindly against small telescopes. This is a misunderstanding: Much valid science can be done with small telescopes, hopefully including some perpetrated by the present writer. But it does not necessarily follow that any instrument of any size and age must continue to run forever,

regardless of cost and – yes, sorry – quality of the science.

In actual fact, those instruments able to prove their worth are happily continuing operation, if perhaps under different boundary conditions, while others are making way for new, more exciting science (see, e.g., *The Messenger* 81, p. 10).

One, to me, unexpected result of this first planning exercise was the extent to which the actual cost of running La Silla was independent of the scientific facilities actually offered. This meant that efforts by management to contain costs were less dependent on the details of the scientific planning than on the organizational setup, a useful lesson for the following exercise.

Planning for La Silla (II)

While the first review of La Silla operations was mostly in the nature of urgent firefighting, thought also needs to be given to the long-term role of La Silla in the VLT era. The Working Group set up for this task, and the rationale for its work, have been described in these pages (*The Messenger* 78, 3, and 80, 4). At the time of writing, its recommendations are being finalised for joint review by the ESO committees as noted above.

One aspect of this planning for the future was to identify the needs for new powerful instruments for La Silla. E.g., an ambitious near-infrared imager and spectrometer (SOFI) to go on the NTT after the „Big Bang“ has already been approved. Another aspect, however, is to rank the facilities in order of importance for the future scientific productivi-

ty of ESO as a whole, given the financial constraints and the need to concentrate on keeping ESO's top-rank instruments competitive. Identifying the facilities that must survive will involve choices that will be felt as unpleasant by many.

Yet, at a time when the price of the VLT has gone up, however modestly compared to e.g. typical space projects, and the demands on those who fund us are multiplying, it will be deadly to our credibility if we cannot decide which of our wishes are more or less important. Decisions will be taken whether we like them or not; if we want to be able to guide them, there is homework to be done, also by the astronomers.

Epilogue

These three years on the STC, at the interface between colleagues keen to pursue front-line science and beleaguered administrators forced to keep costs under control, have been a fascinating and busy time.

Becoming a bit philosophical at the end is probably a sign of old age. But I have come to regard committee chairmen as disposable commodities, perhaps a bit similar to paper towels: One serves for a while, picks up some of the dirt, hopefully leaves a clean slate, is replaced by a fresh one, and life goes on.

In conclusion, I wish to offer my thanks to all colleagues on the staff, Council, and committees of ESO for their excellent cooperation under sometimes difficult conditions, and for bearing with my initial inexperience – and occasional impatience.

News and Views from the Users Committee

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The structure and function of the Users Committee (UC) have been defined as early as 1978 and are adequately described in a previous article about the UC by B. Marano (*The Messenger*, 55, March 1989). UC is composed of one representative per member country, to which have been added recently an observer from Australia (pending Australia's expected membership) and a Chilean observer who will become a full member as soon as the updated agreement between ESO and Chile has been ratified by both parties. UC is therefore a group of people with various scientific and cultural interests, and it is exciting to see that always more countries are keen to join ESO's venture.

The Terms of Reference of the UC state that its task is: "to advise the Director General (DG) on matters pertaining to the functioning of the La Silla observatory from the point of view of the Visiting Astronomers". The practical interpretation of this statement has, however, evolved significantly during my term as Chairman of the UC. This is due to the convergence of several facts: the emergence of the VLT which drives a redefinition of the role of La Silla; the multiplication of instruments and telescopes which has stretched the requirements on technical staff to their limits; the financial situation which translates into a decreased budget for La Silla; the energetic impetus of a new DG; and, last

but not least, the dedicated work of the UC members, backed up by their community. As a consequence, the single, annual UC meeting has now a heavy agenda, spreading over two days and dealing with matters ranging far beyond the simple "functioning" of the La Silla observatory. This also has consequences for the working procedure.

Working Method, and Program

The meeting is opened, naturally, by a presentation of ESO's global situation and perspectives by the DG. This report sets the tone of the meeting, and presents the boundaries which limit the possibilities to satisfy all the users' wis-

hes! For instance, a recent announcement that the La Silla budget had to be reduced by about 30% was of course not received with pleasure, and gave to the UC the opportunity to express its unanimous opinion that the La Silla observing facilities should be the last place to make cuts, at least until the VLT is fully operational. This, however, is not incompatible with optimising the observing schedules, avoiding too much instrument duplication and change-overs, keeping front-line instrumentation only and yet still achieving some savings.

These "higher-level" preoccupations explain why the UC cannot confine itself to the simple functioning of existing instruments ("care about the missing screws", as a previous DG had put it...). This everyday functioning remains however an important item on the agenda, but is treated differently. With one annual meeting, it does not make much sense to report about individual malfunctions which happened in some cases many months before. These problems should be solved rapidly on the mountain, if the observing report has been filled in adequately. Instead, while still checking that the problem has been solved, the UC members look to see if it has been repetitive, if it reveals an error in the procedure, or if more fundamental changes in the telescope or instrument are required. And, to avoid unnecessary repetition of the same problem by each national representative, such items are identified beforehand and presented globally. This preparation is done during an informal working evening, the day before the official UC meeting; this gathering of UC members has proven to be very useful and has now become traditional. On ESO's side, the presentations by the various heads of departments: La Silla TRS (Technical support) and ASD (Astronomy Department), Visiting Astronomers section, Data Management Division, Instrumentation Division, etc.. have been reduced. But the essence of the news has been condensed into so-called "fact-sheets" which prepare the meeting, as they are (and only if they are) generally distributed well ahead of the meeting. The discussion can then concentrate on those items which need clarification, which are new or need long-term action. This does not mean that smaller problems are supposed to solve themselves; the UC members always keep an eye open (and hopefully two!), but it is better that we spend our time proportionally to the importance of the item, isn't it?

For instance, one of the major questions discussed in several recent meetings is the quality of the detectors at La Silla. The question was twofold. On one hand, a non-linearity problem was discovered

in some CCD's, thanks to a thorough analysis by several groups of astronomers, particularly at the Observatoire de Liege. The problem, due to some type of controllers, has been solved by now and a partial account published (Schwarz and Abbott, *The Messenger*, 71, 1993). But we still need to know exactly which data, over which period of time, were concerned, as this obviously might affect the quality of some of the scientific results. There is always a danger (as happened in the past with the IDS) that, as time passes, one simply forgets to complete the analysis because, of course, future data will not be affected anymore. With the rapid development of data banks, however, a quality flag will be mandatory on all data! On the other hand, there was the growing concern that the detectors available at the observatory (especially for the CCD's) were not at the level (size, read-out noise, read-out speed, response in the blue, etc..) required and that this was a serious limitation for the competitiveness of the observatory. Such a problem is of course far reaching (much further than the modest UC..), could also affect the VLT, and required a long-term action. Thanks to a collective effort at ESO, and taking into account views from the UC, STC, and from a specially appointed external review panel, an energetic development program is now under way, under the responsibility of J. Beletic, which should bring ESO to the forefront in the near future.

Another subject of discussion was the restructuring in Chile, with the move to Santiago of part of the activities previously taking place in La Silla. The reasons for this move, approved by Council, had to do with the saturation of the housing facilities on the mountain, the development of the Paranal site and the difficulties of managing two sites from another place than Santiago, the need to develop better scientific links with the Chilean astronomical community, the quality of life of the ESO staff, etc.. The UC was concerned that this move could have negative consequences on the quality and quantity of the support to the Visiting Astronomers on the mountain (availability of the astronomers and engineers with the specialty corresponding to the instruments in use, computing power, size of the library, etc...). Assurances were given that no difference should be noticed by the Visiting Astronomers. At the moment, some reduction in off-line computing facilities is still noticeable on the mountain, but the move is recent and we are still in a transitory period which should come to an end soon.

Influence of the VLT on La Silla

These few examples show that the

shadow of the VLT is growing on La Silla and thus the UC cannot valuably discuss about telescopes and instruments in La Silla without taking into account the perspectives (and needs) opened by the VLT. An update on VLT and VLT instrumentation developments is therefore now regularly given to the UC. Similarly, the need to prepare for and discuss the new modes of operations, necessary to achieve an efficient use of the VLT, is felt more strongly every day. The operation's plan for the VLT is still in a draft form, but has already led to interesting (and lively!) discussions on the pro's and con's of service observing (like for Space Instrumentation) versus more traditional observing with the presence of the astronomer on the site. While the discussion is far from being closed, an interesting notion has already emerged: the distinction between guaranteed results (in service mode) and guaranteed time (in the classical mode, without compensation for weather losses or instrumentation failures). It is nevertheless clear that a transition period will be necessary, where the astronomers will have an important role of evaluation, until a VLT instrument is fully operational, and in principle ready for service mode. As these modes of operation are fundamentally new for most ground based astronomers, the question has been raised by the UC to test the VLT operation model before it is implemented on the VLT directly. Such a test will be possible on the NTT in the near future. As everybody knows, the NTT is presently in a large refurbishing period, (including a so-called "Big Bang" with interruption of observations) driven both by some remaining problems (repeatedly pointed out by the UC) and the need to have it really work as a test bench for the VLT, also from the point of view of the active optics. This implies replacing various pieces of electronic and computer hardware, as well as software, to have it fully compatible with VLT. When this is done, at the end of 1996, after the "Big Bang" (whose timescale will hopefully become shorter and shorter, as in reality?), several of the VLT operational aspects will be tested directly and will provide at the same time a very efficient way of operating the NTT itself.

Another aspect of the benefits of the VLT program for La Silla is shown by the question of IR spectroscopy. The UC has recently strongly emphasized that the development of IR astronomy over the world required a corresponding effort from ESO to remain competitive. While IR imaging facilities have grown to an acceptable level in recent times, IR spectroscopy still relies on IRSPEC: although a champion in some respects at its time, this instrument does not com-

pare favourably anymore with other systems equipped with more modern, larger arrays. The problem is further enhanced by the NTT upgrade, which would require, once completed, a corresponding upgrade on IRSPEC to remain compatible: such an effort is not judged worthwhile for such an old instrument. The pressure from the UC, relayed by the STC and by ESO staff, has led to the decision to copy the near IR spectro-imager (ISAAC) foreseen on UT1 of the VLT to provide a modern, forefront IR instrument, called SOFI, on the NTT. Favourable circumstances make it even possible to have SOFI ready before ISAAC, and with some additional possibilities! The only concern now is about the transition period, between the overhaul at the NTT, requiring a stop of observations (thus of IRSPEC) starting on July 1st, 1996, and the arrival of SOFI later in 1997: this period corresponds to the expected first results from the ISO satellite! ESO is presently looking into alternative ways to give its astronomers access to IR ground based spectroscopy during this exciting period.

The future of La Silla

With the VLT approaching, and the global financial constraints imposed by Council to ESO, the "streamlining" of La Silla has been a constant preoccupation over the last years. The recommendations were prepared by two successive Working Groups (both chaired by J. Andersen, from Copenhagen) both dealing with "Scientific Priorities for La Silla", for final approval by STC and Council. The UC was associated with this work, with one member in the first WG and two in the second one (three in the next one?), and the draft reports were extensively discussed during the UC meetings. Results from the first WG are now widely known (see J. Andersen, in *The Messenger*, 74, December 1993) and are implemented. The second WG, dealing more specifically with the role La Silla should have in the VLT era, is still working, but an interim report is already under discussion. The community is widely consulted, through an initial questionnaire (see *The Messenger*, 78, December 1994), and thanks to the work of the UC members which collect the feed-back to the interim report. Discussions are lively within the UC itself, as users would globally like to keep all the facilities, and, of course, add new ones (and obviously somebody has to apply the brakes!), but reasonable agreement emerges on the main characteristics an ideal observatory should have. An account on the final report will certainly appear in a forthcoming issue of *The Messenger*, but the main lines for La Silla are already emer-

ging: concentrate on the complementarity between the two sets of telescopes and on the modes the VLT cannot easily achieve (long-term monitoring, wide-field imaging or spectroscopy, etc...); reduce functional costs and working load by minimizing change-overs (including top-units changes); tend towards a specialisation of telescopes and reduce duplicate instruments; look for additional resources by the loan of some smaller telescopes to interested groups for long-term programmes; (do you remember the time (1968) when the ESO directorate announced: "observing periods granted may range from several weeks to several months...?"); but keep the global observing possibilities by retiring an instrument from La Silla only when and if a corresponding one is commissioned on the VLT; etc... The idea is now accepted that not everything can be done with the VLT and that a set of telescopes with various diameters and instruments is necessary to conduct coherent scientific programs. How many is another question... the times are here where some cuts will also be necessary! This is however an evolving situation, with the prospect that new countries joining ESO will bring new interests and allow new developments, so that this type of work and analysis will be a continuous process over the coming years.

The future role of the UC

It is therefore obvious from the above that La Silla cannot be discussed in isolation anymore. Although we, at the UC, do not always have the global view, particularly on the financial constraints pertaining to the mountain, our discussions are evolving within a framework which resembles more and more the one of the STC. This is not surprising, and happened naturally during the past years when the workload of the STC (and the main objectives of ESO) were more focused towards the VLT. The situation is also new with the existence of two sites instead of one as previously, and the need to think about a new structure for La Silla. There is however also a more fundamental difference between the UC and the STC: the former reports to the DG, while the latter reports to Council. Such a dichotomy is not usual in other major observatories. It further raises the question on how the opinions and wishes of the users are channeled to STC and Council, to help them make their decisions. Because UC members, as part of their duty, regularly consult the community of users, they are in an excellent position to relay their opinion. A step forward has been achieved by inviting the chairman of the UC to participate in STC meetings, where he can present the

views of the UC. The exchange of information is actually favoured by the excellent relations between the chairmen of both committees, but should be formalised for the future. Part of the exchange of information also has to take place at national level. I found extremely useful in the past years the organisation, during regular meetings of our national astronomical society, of an open session devoted to the questions relevant to ESO, where the users and the national representatives in the various ESO committees could give and gather the necessary information. It seems to me fundamental that in the present, difficult times, one finds the largest possible adhesion to the decisions which have to be made. For the very fundamental questions, like the future of La Silla, an elegant solution will be implemented for the first time at the end of this year: a joint meeting with all astronomers from ESO committees (Council, STC, OPC, UC) will discuss the report of the last WG. This replaces a Users' conference (which could be called by the UC, but was difficult to organise, especially at short notice), but provides nevertheless a large and representative sample of opinions. For less fundamental questions, one still has to rely on the work of UC members and the good will of the others. It is a long time since the first "meeting of users" could be called in the office of the Director General (A. Blaauw, ESO's early history, p.133)...

Only a few points could be addressed here, but many more are discussed during UC meetings!: for instance the seeing and pointing at the 3.60m, the status and performances of IR instrumentation at the 2.2m, the need for a direct, CCD camera at the 1.54 Danish, the importance of a new, bright-time instrument at the ESO 1.52m, the usefulness of small telescopes, etc... The minutes are correspondingly more voluminous. But also they are so because they should give a detailed account of what is being discussed. Because they are widely distributed, they form, with all the attached documents summarizing the activities of the various ESO divisions, a unique channel to circulate information between ESO and the astronomers. As such, they complement very well *The Messenger*. But the UC can only continue to play its role, maintain the link and help ESO to stay at the forefront of research if the community is providing the feedback, with constructive criticism and new ideas: in other words, if the users really care about what is happening in THEIR observatory.

The current composition of the UC is given in *The Messenger*, n.79, p.40, March 1995.