

Relations with Chile and other States

Another important decision by the ESO Council was essential to assure the operation of the VLT on Paranal in Chile.

As part of the settlement of the claims by the La Torre family against the Government of Chile regarding the ownership of Paranal at the time of the donation, the Chilean Government will disburse approximately 10 MDM to the claimant.

While willing to make this effort in reaching this agreement, the Government of Chile required from the ESO Council some assurance that, after the settlement, ESO would not seek further damages to repay for the losses suffered.

The direct losses to ESO linked to scientific contractors had been reduced to a sum of about 8 MDM.

The Council resolved to forego these claims, with appropriate assurance to be given to the Government of Chile, at the time of exchange of the instruments of ratification of the new "Accuerdo".

As mentioned above, the Council also decided that no increase in the run out

costs of VLT to compensate for the losses should be granted to the Executive, resulting therefore in additional savings required in the VLT programme.

As a result of this action, the legal proceedings regarding Paranal could be concluded on January 12, 1996 and the "Accuerdo" has been submitted for its ratification in Parliament by Chile on January 16, 1996.

It is important to point out that even without the ratification of "Accuerdo" the legal basis of ESO ownership of Paranal is now settled. Our relations with the Chilean Government are excellent, with strong assurances at the highest level of the Government of the desire of Chile to have ESO develop VLT on Paranal.

Significant steps were also taken by the Council with regard to the discussions related to new memberships. A general resolution about new members was accompanied by the appointment of an ESO Negotiating Team to initiate discussions with Australia and Spain.

Since then the Government of Australia has also formally named a negotiating team and preliminary discussions have started (February 5, 1996). The Government of Spain has expressed interest in starting the process (January 19, 1996).

Concluding Remarks

Many other significant issues were discussed and acted upon during this Council Meeting.

I would like to recall the discussion of the "Chile Operating Plan in the VLT era", the endorsement of the Chile reorganisation plan effective since December 1, 1995, the appointment of Daniel Hofstadt, Jorge Melnick and Massimo Tarenghi to head respectively the Santiago, the La Silla and the Paranal operations.

Also, I would like to mention the important report by the STC on "La Silla 2000" and the discussions regarding the forthcoming visit of the ESO Visiting Committee.

These matters have been and will be taken up in greater detail during the course of the year in future issues of *The Messenger*.

Finally, I should note actions of Council in the re-appointment of Dr. Peter Creola as President of Council, Dr. Jean-Pierre Swings as Vice President of Council, Dr. J. Gustavsson as Chairman of the Finance Committee, Dr. Steve Beckwith as Chairman of the STC, Professor Krautter as Chair of the OPC and Dr. Lequeux as Vice Chairman of the OPC.

TELESCOPES AND INSTRUMENTATION

VLT News

M. TARENGHI, ESO

During the past 3 months a great deal of work has been carried out on the Chilean site where the VLT is being assembled. Skanska-Belfi, the Swedish-Chilean consortium in charge of the construction of the foundations for all the buildings on the Paranal peak are in the process of terminating their activities and the Italian consortium SEBIS has completed the erection of the steel frame of the first enclosure unit. Figure 1 depicts in an impressive way the transition of the typical work associated with civil engineering activities to the work related to mechanical erection. Enclosure no. 1 in the middle of the picture is going through the last moments of the erection of the roof and a number of workers are operating in the proximity of the upper part of the structure.

The remaining pieces of the enclosure structure of no. 1 (the shutter of the enclosure) are lined up ready in pre-assembled form on the summit of Cerro Paranal on the left side of Figure no. 1. During the last week of February 1996

the external panels of enclosure no. 1 were installed and in the course of April 1996 the structure will be closed. The fixed part of enclosure no. 2 is being erected and is already visible in Figure 1.

The foundations of the third telescope have been completed and are ready for the integration of the enclosure. In telescope no. 4 (Figure no. 1) one can see the scaffolding around the foundations which was used to align the interface boxes of the enclosure structure. These units proved to be very effective with their special anti-seismic device during the course of the strong earthquake that occurred in July 1995. The steel structures for enclosures 3 and 4 left Italy by sea transport at the beginning of March. In the background of Figure 1 the steel frame structure of the control building is visible. This will be used in the lower floor for integration, laboratory and technical areas, and the upper floor will be used for the control rooms from which astronomers and technical people will perform their observations.

All the underground tunnels allowing access to the different telescopes as

well as the interferometric tunnel and the interferometric laboratories, are embedded in the ground and are already being utilised for access to the lower part of the foundations.

The impressive delay line tunnel is a remarkable feature in the centre of the figure, also the two bridges crossing the tunnel that allow the mobile 1.8-m telescopes to go from the northern to the southern side are clearly visible.

In the interior part of the foundations of telescopes 3 and 4 one can see two rings covered by blue plastic sheets protecting the two embedded beams on which the azimuth tracks of the unit telescopes will be assembled.

In March the company SPIE Bagnolles will intervene on the summit of the mountain to complete all the electrical and mechanical installations in the telescope buildings, control building and interferometric complex, and in the summer the company AES will start assembly of the first telescope structure.

Figure 2 gives more detail of the delicate phase of the lifting of the roof. The human presence inside the enclosure gives an idea of the global dimensions



Figure 1.



of the construction. The structure has a low-weight construction, specially designed to protect the telescopes from the strong desert wind.

Seen from the Technical and Hotel Areas, see Figure 3, the summit of Paranal is starting to take its final shape. Extensive work has been done in the course of the last months to prepare the road connecting the Hotel Area with the summit in order to be able to have a safe transport of large and delicate pieces like the 8.2-metre primary mirror. The same activity of widening the road up to 12 km and minimising the slope was performed on the 25 km separating the old Panamericana from the Hotel Area.

In the foreground of the picture one can see the present accommodation complex that is sufficient to accommodate about 300 people. On the extreme left is the old ESO camp. In the middle there is the Skanska-Belfi camp that now has been taken over by ESO and will be used in the course of the next year as a temporary hotel until the final accommodation complex has been built. On the right side of the picture above the other camps is the SEBIS camp utilised for the Italian team in charge of the erec-

Figure 2.



Figure 3.

tion of the assembly of the enclosures as well as of the telescopes. Near the soccer field in the foreground of the picture we will soon start the construction of the building that will be used for the

aluminisation of the primary mirror and for the construction of the other technical complexes necessary to operate the new ESO Observatory. One of these technical buildings will accommodate

the power generators that will produce the necessary electrical power. A contract with the company CEGELEC is about to be signed for this important and vital unit.

The Plan for Optical Detectors at ESO

J. BELETIC, ESO-Garching

1. Introduction

In January 1995, ESO gave increased emphasis to optical detectors by establishing the optical detector group within the Instrumentation Division. This restructuring was intended to provide the resources necessary to significantly improve ESO's technology in optical detectors. In addition to this group in Garching, there are several other persons, including a group of engineers at La Silla, that work on optical detectors. In order to co-ordinate our efforts, we have organised into the Optical

Detector Team (ODT) and we have defined a strategy for our work. These plans have been reported to the Scientific Technical Committee (STC) and the User Committee (UC) and we have received their support. The intent of this article is to present our plans to the whole of the ESO community.

2. Our Vision

Our plans are guided by the following technological developments:

CCD devices are becoming nearly perfect detectors of optical radiation;

high quantum efficiency devices can be made for wavelengths from the atmospheric cut-off at 300 nm to ~1000 nm.

Readout amplifiers for CCD devices have improved so that it is now possible to attain less than 2 electrons noise at "slow" readout rates (100 kpixel/sec/port) and 4–6 electrons noise at 1 Mpixel/sec/port.

It is possible to build electronics today that can run any CCD detector or mosaic of detectors that we can envision for the next 10 years.

Our vision is for ESO to have detector systems of high quantum efficiency, low