

the zenith are used, three objects are necessary to cover a full night. Results up to now confirm that, as at La Silla, the seeing may vary much during the night and from one night to the other. A typical example is presented in Figure 4 where the data have been averaged with

a 5-mn moving window. Due to probable seasonal effects, a full year will be necessary to present a preliminary assessment of the quality of Paranal. At the end of July, thanks to the efforts of the Paranal team and to the technical support of La Silla, more than 70 % of

the photometric nights had been monitored. The unique data base thus created will also permit a better parametric analysis and thus a first step towards the ultimate goal for flexible scheduling: the prediction of observing conditions...

MIDAS Memo

ESO Image Processing Group

1. Application Developments

An optimized digital filter to remove cosmic ray events from single CCD exposures is being developed in collaboration with M. Deleuil. The filter locates possible cosmic ray events and compares them with the point spread function to determine the probability of it being a cosmic ray. At a given probability level, pixels effected by such events can then be replaced either by a NULL or on interpolated value.

The FITS input/output commands can now also work directly on disk files. This makes it possible to transfer data files in FITS format over a Local Area Network to workstations which do not have their own tape unit.

The table file editor, one of the favourite commands, has been extended; now it is possible to create and delete columns during the editing session and to search for an entry in a given column. A new command allows the interpolation of data using splines; this command, working both on images and/or tables, complements the capabilities already provided by the rebin operator.

The plotting facilities have been further upgraded with some new features and commands. The ASSIGN/PLOT command has been redefined to make it more consistent with the other ASSIGN commands in the system; the old functionality of this command has been taken over by a new SEND/PLOT command. Also, some new OVERPLOT commands have been added. Among the new features the most important ones are: the possibility to specify scales, the support to different line types, and the separate manual specification of the x- and y axis.

2. Communication

The number of computers connected to the ESO Local Area Network is steadily increasing. In order to provide a homogeneous interface to external institutes a dedicated communication processor (Bull SPS 7/300) has been purchased. This processor is connected to the ESO network and will act both as a gateway to external electronic networks and provide general services to the ESO

community such as bulletin boards. The special computer for communication makes internal changes to the ESO computer systems transparent to external users and should therefore utilize an easier communication between ESO and the user community. The implementation of this system has already been started and is expected to be terminated in the spring of 1988.

3. MIDAS Hot-Line Service

The following MIDAS Support services can be used in case of problems to obtain fast help:

- EARN: MIDAS @ DGAESO51
- SPAN: ESOMC1::MIDAS
- Tlx.: 52828222 eso d, attn.: MIDAS HOT-LINE
- Tel.: +49-89-32006-456

Also, users are invited to send us any suggestions or comments. Although a telephone service is provided, we prefer that requests are submitted in written form through either electronic networks or telex. This makes it easier for us to process the requests properly.

Five Nights on a Bare Mountain – an Outsider's Look at La Silla

G. SCHILLING, Utrecht, the Netherlands

The person in front of me is nearly unrecognizable. In the first place, it is very dark around us. Secondly, he is completely wrapped up in a fur jacket, with a cap around his head. The air temperature is just below zero, but that isn't the worst. It's the icy northern wind that blows literally through everything, and that's chilling you to the bone. The person's hands are uncovered, because he has to write, push buttons, turn dials, etc. His fingers must be frozen to death. He has already been working for about

six hours, and after a short break for a sandwich and a cup of coffee, he has another six hours to go. This goes on for several nights, all of them cold and windy. No labour union would tolerate such severe working conditions. Nevertheless, this person doesn't complain. He loves his work. He is an astronomer. We are not at the South Pole, but at La Silla, the site of the European Southern Observatory.

Since I am a science journalist rather than a professional astronomer, I have

little experience with the way of life at a big observatory. In my home country, the Netherlands, only some small historical observatories exist (apart from the Westerbork Radio Synthesis Telescope of course), and Dutch astronomers are used to do their observational work abroad. For instance at the European Southern Observatory in Chile. The Netherlands has been a member country of ESO since the establishment of the organization in 1962, and always played an important role, not only scien-



Figure 1: A familiar view for visitors of La Silla: seen from the small airstrip in the neighbourhood, the white domes of the telescopes form a tight cluster on the saddle-shaped peak.

tifically, but also organizationally: three of the four directors general of ESO (including Prof. Harry van der Laan, who will succeed Prof. Lodewijk Woltjer) came from Holland.

Dutch astronomers are well aware of the importance of ESO for Dutch astronomy, but the general public is very *unaware* of it. So I decided to write a number of articles on ESO in newspapers and magazines on the occasion of the 25th anniversary, which will be celebrated in October 1987. Because ESO's Public Information Office does a very good job in providing journalists with all kinds of information and pictures, I probably could have written these articles behind my word-processor, never leaving my writing desk in Utrecht. Nevertheless, I felt it was important to get a personal impression of life and work at the observatory, in order to make my articles appealing to a general public. ESO was so kind as to offer me free board and lodging during my stay in Chile, as well as transport me from Santiago to La Silla and back again. So at the end of April, 1987, I said goodbye to my wife and children, and took the cheapest plane to Santiago, at the other side of the planet.

Some of the readers of *The Messenger* (theoretical astronomers for instance) may never have been at La Silla. Perhaps my short impression will give them some idea of the conducts of their observational colleagues. Others, who have been there more or less often, probably have become used to the way things are at La Silla. For them, my 'outsider's look' may be of interest.

Everything at La Silla is just the other way around compared to the situation in Europe. First, the seasons are reversed.

It takes some time before you get accustomed to the idea that winter is drawing near in May. Secondly, light and dark are reversed. Not only do people sleep during the daytime and work at night, which is to be expected, but also the influence of clouds is different. In most parts of Europe, it is dark on a clear night, while a cloudy night is much brighter, because of reflection of city-lights. ESO staff astronomer Michael Rosa, whom I met at ESO's guesthouse in Santiago, prepared me for a situation in which you can easily find your way at clear nights, helped by the light of the stars and the Milky Way, while clouds block this single available light source, making the night pitch-black. He was right; it was a strange experience. I even

experienced an overcast sky (no stars visible), with thin clouds being illuminated from the backside by the light of the Milky Way!

In the third place, the stars themselves are of course 'reversed' – upside down. This can be very bewildering for someone who is familiar with the constellations (it took me quite some time to recognize Leo and Bootes for example), but for most astronomers it's no problem, since they are usually not so familiar with the sky. 'I wouldn't recognize the Southern Cross,' one astronomer said to me (I won't mention his name!), and he didn't seem to be an exception. Of course, most professional astronomers do not *have* to know the constellations. Just type the coordinates of your object on your computer terminal, and the telescope will take care of the searching and the tracking. Still, to me it was a strange idea that astronomers were observing certain objects from a telescope's control room, while they even hadn't the slightest idea in which direction their telescope was pointing at that time! For instance, S. Ortolani from the Asiago Astrophysical Observatory in Italy was looking for white dwarfs in the globular cluster Omega Centauri with the 3.6-m telescope. A marvellous sight: the television-monitor was completely filled with stars, most of which were dimmer than 20th magnitude. Wouldn't it be great to step outside after you've finished observing, to be able to find ω Cen high above your head with the naked eye, and to realize that all those thousands of stars belong to that tiny, hazy blob of light?

By the way, to *me* it was also an overwhelming experience to step *inside*, onto the observing floor of the 3.6-m, to



Figure 2: The building of the 3.6-m telescope, with the adjacent CAT tower, is reflecting sunlight. Seen from a distance, the building looks smaller than it is because of the unusual clearness of the sky. But viewed from nearby, it doesn't fail to impress anyone.

see this huge instrument towering high above my head, and to realize that all those thousands of kilogrammes of steel are necessary only to hold a few grammes of aluminium in the right place, as staff astronomer Hugo Schwartz put it. This telescope is really *big*! People walk around in the Cassegrain cage, and I lost my way in the immense building.

For me, looking at the southern sky with the naked eye (or with my 15 × 80 binoculars) was just as rewarding as looking at the faint stars in ω Cen 'through' the 3.6-m telescope. The Eta Carinae nebula, the clusters and nebulae in Scorpius and Sagittarius, the Magellanic Clouds, the ruddy supernova 1987A and the faint patch of light of Comet Wilson could hold my attention for hours. The serenity and the vastness of the universe, completely indifferent to our activities, put me at rest and made me feel small. Standing there, right at the middle of the world's largest observatory, I could easily imagine that I was the only one present. Sometimes, there was not a single sound to hear, apart from the occasional squeaking of a rotating dome. This, and the soft, red light that shone from some of the slits, reminded me of human presence in all those domes. Isn't it a lonely business, being an observational astronomer?

During a number of nights, I was not a visiting astronomer, but I was visiting astronomers, walking from one telescope building to the next. I came to the conclusion that being lonely is not the biggest problem. It's the *cold*, especially in the smaller domes, where the astronomer is working at the observing floor. ESO's André Muller provided me with an observing jacket, but even then, the wind was so penetrating that working for twelve hours under these severe circumstances looked like madness. At the bigger telescopes, the separate control rooms give some relief, but still, you keep your jacket on, because it's *cold*. In addition, depending on your observing programme, there's the problem of how to spend your time. Giuseppe Galletta of Padua University, who was taking spectra of faint S0-galaxies with the 2.2-m telescope, explained to me that even the sensitive spectrograph needed ninety minutes of photon-collecting in order to produce a decent spectrum. Since the telescope is equipped with an autoguider, there is not much to do in the meantime: Galletta had plenty of time to explain his observing programme to me, while his night assistant was reading a book! And staff astronomer Bo Reipurth, who was using the Danish 1.54-m telescope for a search of pre-main sequence binaries in star-forming regions, seemed to enjoy



Figure 3: In the first week of May, 1987, La Silla was experiencing an unexpected snowstorm. Though unwelcome for astronomers, the snow made for some impressive sights.

my visit as an opportunity to talk about lots of things, from astronomy education to politics.

I really enjoyed my stay at La Silla. First of all, ESO's staff people take very good care of their visitors, and the food (including scores of cakes!) was delicious. But my visit also gave me a new look at observational astronomy. Until now, when I gave a popular lecture for a general audience about astronomy, I used to tell them that nowadays astronomy has lost some of its romance from the past; that computers, remote control, autoguiding and fast electronic detectors were making astronomical observing more or less luxurious, compared to the 'old' situation in which an astronomer's eye-brow could freeze to the telescope during a six hour exposure. But now I came to realize that things are not so easy. Of course, astronomy has changed a lot in the past few decades, but observing the universe is still a challenge. It can make you suffer, but it is rewarding. In this sense, astronomy is still romantic.

However, I can foresee a time in which the romance of observational astronomy really vanishes. When ESO's Very Large Telescope will be erected in the late nineties, perhaps at Paranal, nearly all observing programmes will be carried out by remote control from ESO's headquarters in Germany. This not only means that observers won't see the telescope they are using and that they are partly working during daytime, but they even will not have the possibility to look up and wonder at the beauty of the universe. Contact with the stars will be lost forever.

Like anybody who loves astronomy, I

look forward to the construction and the completion of the VLT. But I hope to stand at the base of this monster instrument one night, watching the huge telescopes swing in unison to a position in which they are pointing at a black and empty part of the celestial void, and imagining how the gigantic mirrors are catching a handful of photons from an unknown galaxy at the edge of space and time.

I'm quite sure that I will revisit ESO one day, because in a sense a visit to ESO is a visit to the cosmos.

I would like to express my sincere thanks to Richard West, who arranged my visit to La Silla; to Hans-Emil Schuster for his hospitality; to Hugo Schwartz for showing me around, and to all staff and visiting astronomers for their patience in talking to me and answering my questions.

STAFF MOVEMENTS

Arrivals

Europe:

BRUNETTO, Enzo (I), Designer-Draughtsman
PLÖTZ, Franz (D), Electro-Mechanical Engineer

Departures

Chile:

BOOTH, Roy (GB), Associate
CRISTIANI, Stefano (I), Astronomer

Europe:

RODRIGUEZ ESPINOSA, José (E), Fellow
DEFERT, Philippe (B), Fellow