

Agreement Between the Government of the Republic of Chile and ESO for Establishing a New Centre for Observation in Chile – ALMA

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On October 21, 2002, the Minister of Foreign Affairs of the Republic of Chile, Mrs. María Soledad Alvear, and the ESO Director General, Dr. Catherine Cesarsky, signed an Agreement that authorizes ESO to establish a new centre for astronomical observation in Chile.

This new centre for astronomical observation will be for the Atacama Large Millimeter Array (ALMA), the largest ground-based astronomical project for the next decades.

On this occasion, Minister Alvear stated that "we want to have ALMA working as soon as possible, which will constitute a pride not only to Chilean scientists but for the whole country and in particular, for the community of the Antofagasta Region".

ESO Director General Cesarsky said that "signing this agreement between the Government of Chile and ESO is a historical step in the astronomical



Signing of the new Agreement that authorizes ESO to establish a new centre for astronomical observation in Chile. General view.

collaboration between Chile and ESO and it will allow Chile to host, once again, a project of worldwide interest and impact".

ALMA is a joint project on equal basis between ESO and AUI (Associated Universities, Inc.). These organizations represent the scientific interests of Europe on one side and the United States with Canada on the other side. Chilean astronomers are closely involved with the

project, and 10 % of the observing time will be reserved for Chilean science.

ALMA will be built in the Andes, on the Plateau of Chajnantor, 5000 metres above sea level and 60 km east of the town of San Pedro de Atacama. The array will be comprised of 64 antennas with unprecedented sensitivity and angular resolution that will allow studying the origin of galaxies, stars and planets, opening new horizons for astronomy, and being able to observe galaxies across the universe where stars are being formed.

The agreement now signed between ESO and the Government of the Republic of Chile recognizes the interest that the ALMA Project has for Chile, as it will deepen and strengthen cooperation in scientific and technological matters between the parties.



Chilean Minister of Foreign Affairs of the Republic of Chile, Mrs. María Soledad Alvear (seated, right) and the ESO Director General, Dr. Catherine Cesarsky (seated, left).

Eighty Nights Up a Mountain

By SARA ELLISON



For the last two years, I have worked as a fellow at the Santiago offices of the European Southern Observatory (ESO) with support responsibilities at the Very Large Telescope (VLT) on Cerro Paranal in the north of Chile. This is es-

A version of this article first appeared in August 2002 in the online publication Next Wave (www.nextwave.org), published by Science Magazine on the occasion of the UK joining ESO.

As Sara Ellison describes, she has been a Paranal Fellow for the past two years and is currently in her third year at the Pontificia Universidad Católica de Chile in Santiago.

sentially a postdoctoral position; I started here directly after I completed my

PhD at the University of Cambridge in the summer of 2000.

There are many possibilities open to a completing graduate student and it can be quite daunting filtering through the various options, academic and otherwise. For me, the decision was based on a few fundamental academic and personal priorities. I wanted a destination that was going to provide an interesting and fulfilling lifestyle, preferably with the chance to learn a new language. I was also looking for a working environment that would offer diverse opportunities for professional development. Working in an observatory was therefore very appealing, and at that time (as is still the case a few years later) there were plenty of positions as observatories expanded their horizons to the new generation of large telescopes. In addition, as an undergraduate, I had spent five consecutive summer vacations working at various observatories in locations including Australia, Hawaii, and the Canary Islands, and undertaking support work and dabbling in instrumentation seemed a good complement to my scientific research.

Therefore, many of my postdoc applications were aimed at observatories, and I was particularly excited by the possibility of moving to Chile. The fellowship application consists of a straightforward form (no long research proposal like most places!) followed by an interview at the ESO headquarters near Munich in Germany with a video link to Chile. Applicants are selected on the combined criteria of a strong scientific record and suitability for support work (particularly important for Chile-bound fellows). Priority for posts goes to nationals of ESO member countries, and at that time the UK was not a member (it joined this July). However, because Chilean fellows have to fulfill very specialist duties at the telescopes, there are fewer suitable applicants (and usually fewer people who want to move to Chile) and this criterion is therefore relaxed. Because the ESO fellowship was my first choice amongst the various positions I applied for, it was an easy decision when, just before the start of the Christmas holidays, I was offered a position to start the following autumn.

Many people expect that moving to Chile may involve a large culture shock. Although it is certainly not the same as Europe, the facilities and infrastructure in Santiago are very well developed and settling in was not a problem at all. ESO has been dealing with Europeans moving to Chile for many years and has a well-oiled system that handles everything from moving your household and getting your local ID and visa processed to helping you find somewhere to live and opening a bank account. Chile fellows are allocated duty stations at either Paranal (like me) or La Silla, ESO's

first Chilean telescope site. Contractually, we spend 80 nights a year (usually in bite-size shifts of 1 week) on the mountain doing support work, plus up to a month doing duty-related work in Santiago. The rest of the time is your own to pursue whatever scientific research takes your fancy. The advantage in this set-up is that your duty responsibilities can be quite easily compartmentalized: When you're on the mountain you do support and when you're in Santiago you do science.

For every week you spend on the mountain, you officially get the following week off as 'compensation time'. However, most people tend to only take a few days off in order to maximize the time they can spend on their science, as research output is always an important factor in securing the next job. For Chile fellows, the contracts are nominally four years (a recent – and welcome – change from the old style 3-year contracts); the first three years are spent divided between research and support whilst there are various options available for the final year. You might continue working at ESO Chile, but with only 40 nights of support work, or you might go back to the headquarters in Germany and do a similar duty load in one of the divisions there. Alternatively, you can elect to go to one of the Chilean universities where you will do 100% research and have the benefits of applying for telescope time as a Chilean. Due to the relatively small number of Chilean astronomers compared to the large number of telescope hours they are entitled to, this offers a great opportunity to collect lots of data. A final option that has just been approved is that fellows may return to a university department that is willing to 'adopt' them in any ESO member country with their salary still paid by ESO. This is a particularly attractive option for many as it gives fellows who have been away from their home countries for three years the opportunity to advertise themselves to universities that they see as potential employers when their fellowship ends. This latter option also offers the potential to gain some teaching or supervisory experience, opportunities that are limited at ESO itself.

The flexibility, diversity, and four guaranteed years are just a few of the advantages of the ESO fellowship scheme. Other professional pluses include the opportunity to meet the large number of European astronomers that pass through to conduct their observations, providing ample possibilities for forming new collaborations and making yourself known within the community. In addition, it is generally attractive for future employers to see that you have had experience with

instrumentation and observatory work, which is a good complement to independent research. ESO fellowships are also very well regarded and prestigious, so it is certainly a good position to have held.

On the practical side, ESO fellows are well paid, with allowances for being overseas and having to spend time on the mountain, and the salary is essentially tax-free. There are also salary benefits if you are married and have children (who additionally receive an education allowance). Taking into account the lower cost of living in Chile, you can certainly live very well on the salary you take home, and there are lots of opportunities to live well in Chile! The lifestyle here is definitely an attraction – Santiago has the beach, mountains, and vineyards on its doorstep and all of the trappings of a big city such as cinemas, restaurants, and theatres.

Of course, every job has its associated drawbacks, and fellowships are no exception. The support work is very demanding, requires a lot of commitment, and involves a lot of travelling (it's 6 hours door-to-door to Paranal) and night work. You also have to spend a significant fraction of your time away from your family, and spouses do not have work status. Also, the support work obviously means you can spend less time on science, although this is something you have presumably accepted if you are considering an observatory job. For me, I have actually found that my productivity has not seriously suffered and that time away at the telescope is a refreshing change from the office. The key to success is definitely effective short-term time management; it is important to be able to plan your work on time scales of a few weeks between each telescope shift. This means breaking down large tasks into smaller jobs and setting goals and deadlines on a weekly basis. Focusing in this way has allowed me to be much more efficient with my time when I'm not on the mountain, a technique that will be useful even when I'm no longer working at ESO.

My contract with ESO will come to an end in September 2003. However, I already have a tenure-track job lined up at the University of Victoria in Canada, allowing me to satisfy my 'wanderlust' still further and get to know another new country. Apart from my research profile, the experience and skills I have developed at ESO are definitely part of what secured this position, as Canada increases its access to large telescopes and its involvement in future projects such as NGST and ALMA. I'll certainly be sad to leave Chile though, although I'm sure it will only be *hasta luego* and not *adios*.