La Silla 2010+

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From October 2009, the La Silla Observatory will begin a new phase in its history, following implementation of a new operations model. We describe here the upcoming changes, how the visiting astronomers will interact with the Observatory and how they will carry out their observations from October 2009 (ESO Period 84).

Motivation

ESO is fully committed to maximising the scientific return of its highly competitive facilities, and it has to make sure that its next generation telescopes and future projects will extend its European leadership in ground-based astronomy further. Therefore ESO resources have to be administered in a judicious way. Priorities have to be established, and the La Silla Observatory (LSO) has to cope with this reality. But at the same time, LSO facilities are still delivering excellent data (accounting for *ca*. 40% of publications based on all ESO instruments[1]). In this framework, in June 2007 a plan was endorsed by the ESO Council that envisages operating and maintaining the LSO site centred on its core activities and with reduced costs. The new scheme would first be fully operative after 2009, so it was called "LS2010+".

The new operations scheme allows La Silla to remain part of the La Silla Paranal Observatory, and therefore fully maintains the ability to support regular science projects, as well as national telescope projects — visitor instruments, tests of novel Instrumentation and scientific experiments — for the ESO community. The core activities are defined as supporting, at minimum, the 3.6-metre telescope with the High Accuracy Radial velocity Planet Searcher (HARPS), and the New Technology Telescope (NTT) with the ESO Faint Object Spectrograph and Camera 2 (EFOSC2) instrument at the Nasmyth B focal station and a free Nasmyth A focal station for visitor instruments.

Soon after the Council resolution a working group was formed, which defined the practical implementation of the plan, according to the general scheme of Site Operations. Responsibilities and task descriptions, together with the profiles for core staff positions, were defined in the different areas, as well as the activity frequencies and the support requirements.

New operations model

In the new model, the La Silla Site Operations Department within the La Silla Paranal Observatory division will be in charge of maintenance, science operations, engineering and logistics. In addition to the two telescopes owned by ESO, the 2.2-metre telescope will also be fully supported, thanks to a new four-year agreement between ESO and the German Max-Planck-Gesellschaft (MPG), in effect from April 2009. In preparation for the new operations model, the instrument suite offered has been simplified in particular to minimise the number of instrument changes. The complex EMMI instrument has been decommissioned after 18 years of operation at the NTT. Since April 2008 EFOSC2 has been offered at the Nasmyth B focus of the NTT, after its transfer from the 3.6-metre telescope. Presently the Nasmyth A focus feeds the cryogenic near-infrared instrument SOFI, which will be offered as an ESO facility instrument for as long as it can be maintained technically. Both focal stations of the NTT are also offered for visitor instruments. HARPS remains the only instrument at the 3.6-metre telescope. However, visitor instruments requiring a Cassegrain focus will be considered at the 3.6-metre telescope.

The new operations model implies that all observations are carried out in classical Visitor Mode. Already, as of Period 81, Service Mode observations have been discontinued at La Silla. At the same time a minimum run length of three nights is requested for La Silla proposals to reduce the turnover of visitors at the telescopes. Long and dedicated observing runs at La Silla are further encouraged through the possibility to apply for Large Programmes with a duration of up to four years.

What are the implications of the new model for the user community? Since HARPS and EFOSC2 are both instruments that are relatively simple to operate, they do not require the presence of dedicated scientific support staff on-site. Instead, the system engineers (SEs) and Telescope Instrument Operators (TIOs) will take an even more active role in the future to support visiting astronomers.

New procedures for visiting astronomers

In order to prepare LSO visiting astronomers for the new operational scheme, all useful information is being collected on our web server[2]. Besides the usual manuals and web pages, videos and screencasts are being prepared, as well as cookbooks that encapsulate the support astronomer's experience. Furthermore a contact scientist will be available for each programme, so visitors will be able to clarify any queries before arriving on the mountain, using the well-known e-mail entry point lasilla@eso.org. In the following paragraphs an outline of a typical observing run is given.

When the visitor arrives at LSO, (s)he will receive the usual welcome package, and (s)he will be met by the SE. Note that in the new compact configuration of the Observatory with the control room being located in the operations building (the former administration building) close to the hotel and the living quarters, visitors will no longer need a car to commute to the telescope or control room. Visits to the telescopes will be coordinated with the SE. The SE is the main interface between the Observatory and visiting astronomers, and (s)he will guide them through the next steps of the visit. For EFOSC2 observations, in particular, the instrument setup will be defined. An office in the operations building will be assigned, with the understanding that access to the control room outside observing time will be regulated, and must be agreed with the SE. Typically, this can happen the night before starting the observations, so as to understand better how the system works. Finally, day calibrations will be performed in the

Credit: Pablo Rodriguez Gil

Figure 1. A view of the La Silla Observatory before dawn, taken from the dome of the ESO 3.6-metre telescope.

morning, according to the calibration plan of each instrument. Calibration Observing Blocks (OBs) for the most common instrument modes will be available at the console; so visitors will have the opportunity to perform their own, additional, calibrations in the afternoon. On the first day, the OBs provided by the user will be transferred from the user account (or from the user's laptop) to the data handling computer, and will be imported into p2pp.

During observations, visitors will mainly interact with TIOs. To cope with this requirement, TIOs are going through substantial training in astronomical techniques and basic data reduction. The courses are given in the form of lectures by ESO fellows and staff astronomers. Moreover, the training includes most of the system components, such as the VLT software and templates, the data flow system including pipelines, optical and infrared detectors, optics, etc. In general, all groups at LSO will maintain a close relationship with their counterparts in Paranal, which will ensure the proper functioning and success of La Silla. This is particularly true for software and IT support, which are complex areas where TIOs might not always be able to intervene directly, but where remote support can be easily obtained from Paranal colleagues.

A critical area of the new model is to guarantee astronomical data quality control, which will be accomplished by both remote monitoring of the instrument parameters and by a few dedicated shifts of support astronomers during reserved technical and calibration nights. For this reason, standard ESO pipelines are being ported from Paranal instruments to their La Silla cousins, and by the start of P84 all LSO instruments will be supported. In this way TIOs and visitors will have an easy way to monitor the instrument health.

In terms of simplifying logistics, the common control room will be moved from the old location next to the NTT dome to the administration building in July 2009. It will occupy the space that once hosted the La Silla library. All personnel offices will be located in the same building, and visiting astronomers will also have offices available to them. In this way the interactions among the various groups on site, and with the visitors, will be optimised. The reduction in the number of staff also allows them to be lodged in those dormitories closest to the hotel, and visiting astronomers will mainly be accommodated in the hotel.

These changes will also benefit the environment, as the need for cars on-site, and for commuting, will be greatly reduced. Transport to and from LSO will be optimised by a shift schedule of Monday–Monday or Monday–Friday for support staff, and a Wednesday–Wednesday shift for TIOs. In this way visiting astronomers can to travel to the site on three days of the week, which is flexible enough to accommodate observing runs of various lengths, allowing for between one and three days run preparation on site. In general, long runs are appreciated for the LSO. Since 2007 the minimum observing duration for a visitor mode run at LSO has been three nights, and Large Programmes up to four years can be considered! The trips of visiting astronomers, from their home institution to LSO via the Santiago Guesthouse and back, will continue to be organised fully by ESO.

There is no doubt that this new operations model represents a major change for the community of observers that rely on LSO to carry out their science programmes. However we are convinced that this is the most sensible way to keep a valuable site operating efficiently and with a long-term perspective. The La Silla Observatory will offer a fully-fledged VLT environment and impeccably supported instruments where students and young astronomers will have the chance to be trained by their supervisors in a modern facility. In addition, all focal stations at the ESO operated telescopes are available for visitor instruments, thereby offering an arena for innovative experiments and ideas that might be difficult to implement and test otherwise. All the technical information that is needed to interface an instrument with the LSO telescopes is gathered in a single document[3].

We could not end this short description of LS2010+ without stressing that this big change at LSO is a work in progress — improvements and adjustments to the procedures to optimise the science return will rely on constructive feedback from visiting astronomers.

Links

[1] Instrument publication statistics: http://www.eso.org/sci/libraries/edocs/ESO/ESOstats.pdf
[2] La Silla Observatory web page: http://www.eso.org/sci/facilities/lasilla/sciops/
[3] Visitor instruments guide: http://www.eso.org/sci/facilities/lasilla/instruments/visitor/VisitorFocus.pdf