



ANNOUNCEMENT OF OPPORTUNITY FOR OBSERVING TIME AT THE GRAN TELESCOPIO CANARIAS



SEMESTER 2015A: March 1st 2015 – August 31st, 2015

Submission deadline: **1 October 2014**

GRANTECAN opens a call for observing proposals for Semester 2015A on the 10.4-m Gran Telescopio Canarias (GTC) for the GTC user community. This semester runs from March 1st 2015 until August 31st 2015. GTC time is open for queue-scheduled observing as well as for classical visitor-mode observing.

All interested applicants must use the IAC's CAT on-line system for submitting their proposals. This can be found at <http://cat.iac.es/> where also instructions are provided. The deadline for submission is 1 October 2014 at 5pm local time in the Canary Islands. Proposals that are granted time by the respective time allocation committees will be asked to provide detailed observing information in the second phase of the submission process. For a more extensive description of how the observing process at GTC is organized please refer to <http://www.gtc.iac.es/observing/>.

We note that the Time Allocation Committees may decide to extend the duration of the observing window for certain programs over more than one semester.

1. Available observing time

During semester 2015A scientific operation of the telescope will occupy the majority of the available observing time, but still a significant fraction (some 20%) is expected to be required for ongoing telescope and instrument commissioning work that will preferentially be carried out during bright time. The remaining 80% will be dedicated to programs that are granted time under this call, as well as guaranteed time for instrument builders, time for ESO-GTC programs, and for the CCI International Time. (The target lists for ESO-GTC proposals may be found at <http://www.eso.org/sci/observing/teles-alloc/gtc.html>).

We note that the RA band from 10 to 14 hours is occupied by a few large, high-priority programs that have been granted time on the telescope. Hence the competition for time in these RA bands, in particular during dark/grey time and good seeing, will be fierce.

GTC will accept target-of-opportunity override proposals. GTC's procedure for triggering target-of-opportunity observations can be found at <http://www.gtc.iac.es/observing/too.php>.

2. Instrumentation

Details of the instruments can be found at <http://www.gtc.iac.es/instruments/>, including the observing programs for guaranteed time and their reserved targets.

OSIRIS:

The OSIRIS spectrograph and imager for the optical wavelength range will be available in the Nasmyth-B focal station. Observing modes that will be offered are:

- Broad-band imaging
- Long-slit spectroscopy
- Multi-object spectroscopy
- Tunable filter imaging using the “red” and “blue” tunable filters
- Frame transfer and fast photometry mode (only supported in visitor-observing mode)

For the MOS mode we highlight the following important constraint: MOS observations will only be carried out for proposals that are highly ranked by the TACs (i.e. in the top half for the Spanish CAT). The reason for this is to increase the possibilities to exploit the significant investment in designing and producing the multi-slit masks. Proposals requesting MOS mode that are not sufficiently highly ranked will hence be rejected. For further practical limitations we point the interested reader to <http://www.gtc.iac.es/instruments/osiris/osirisMOS.php>

We emphasize the availability of a large medium-band filter set, referred to as the SHARDS filters in reference to the project led by Dr. Pérez González who has offered these filters for general use. Further details, and how to apply for their use, may be found at http://www.gtc.iac.es/instruments/osiris/osiris.php#SHARDS_Filters

We remind potential applicants that the standard CCD readout speed is 200 kHz for all observing modes of OSIRIS.

CanariCam:

This instrument, located in the Nasmyth-A focus, allows imaging and spectroscopy in the mid-IR wavelength range. The observing modes offered cover imaging and low-resolution spectroscopy in the 10 and 20 micron bands, as well as imaging polarimetry and spectro-polarimetry at 10 microns (new for this semester).

It has been decided to employ a generic minimum precipitable water vapour limit (PWV) of 15 mm for any observation carried out in the 10 micron N-band. It has turned out that placing constraints on PWV strongly limits the possibility of executing the observation, while the effect of water vapor in the N-band is not very significant. Since Q-band observations are much more sensitive to precipitable water vapour content of the atmosphere, these observations must be defined in separate observing blocks, unless they do not impose a limit on the water vapour content.

Furthermore, we note that due to the current absence of correction for fast image motion, the image quality may not be the best achievable at all times. Therefore potential applicants should expect seeing-limited performance. See also Section 4 for further telescope information.

CIRCE:

CIRCE camera is a visitor instrument provided by the Universidad of Florida (UF) that will be located in one of the Folded-Cass focus at GTC. The observing modes it will offer include imaging in the near-IR (JHKs), as well as imaging polarimetry in the same bands. The instrument will be operated without acquisition and guiding unit (as the exposure times in the individual frames will be on the order of 1 sec), and it will be externally supported by the UF team with minimal participation of GRANTECAN staff.

By the time of this call of proposals CIRCE is being mounted at the telescope, and the tests needed for ensuring its functionality will be finished along 2014. For this reason, CIRCE is not offered at the time of this call but it's planned to prepare a 'special call for proposals' for it by the end of the year, for observing programs to be executed on S15A.

3. Reserved objects

The science teams of OSIRIS and CanariCam obtain guaranteed observing time. The objects and observing modes planned for their observations on GTC are reserved for the exclusive use by the instrument science teams. Target lists of reserved objects may be found on the instrument web pages at <http://www.gtc.iac.es/instruments/>, following the links for OSIRIS and CanariCam.

4. Telescope status

The GTC remains under development and various components and functions still need to be developed and improved. Of particular interest for potential applicants for observing time we mention:

- The facility for fast guiding, to correct for high-frequency image movements due to atmospheric turbulence and possible vibrations of the telescope, is not yet operational. However, it's expected to be fully functional before the end of 2014, so its use during S15A is possible, but not ensured. This particularly affects prospective CanariCam users.
- The main dome shutter is still limited in its operation, which implies that the telescope beam is vignettted for elevations in excess of 80 degrees, a value notably higher than the reached in previous semesters but that does not allow observing near the zenith yet.

5. Observing overheads

It is important to make realistic estimates of the observing overheads at the time of writing a proposal, as well as when completing the Phase-2 observing definition. As a guideline, for an OSIRIS observation in both imaging and spectroscopy mode a total overhead of 10 minutes per observing block should be accounted for, while for tunable filter imaging this total overhead increases to about 20 minutes, to account for the TF calibration process. In the case of CanariCam, in addition to the overheads for target acquisition and instrument and telescope setup, which are 10 minutes in the case of imaging and spectroscopy, there are also overheads associated to the chopping and nodding technique. Such overheads are obtained by multiplying by a factor of 3.1 or 3.7 the on-source time, in the case of imaging and spectroscopy, respectively. Note that these numbers serve as a guide only and may vary according to the detailed definition of the OB (for example, they don't include the time for acquisition and throughslit images, if required, as they depend on the exposure time needed).

In the case of the use of the OSIRIS tunable filter as well as CanariCam, for reasons of overall efficiency and since these calibrations are specific for each observing programme, we require that applicants define their night-time calibrations also as observing blocks. The time necessary for these calibrations will be charged to the observing program and should therefore be taken into account in the request for time.

See <http://www.gtc.iac.es/observing/> for further details.

6. Telescope Support Model

Observations can be either carried out in *queue-scheduled service mode* by trained observatory personnel, or the PIs may express their preference to execute the observations themselves on specific nights according to a set calendar (*classical visitor mode*). The PI must (i) clearly indicate her/his preference in the proposal form by selecting the appropriate option -“service” or “classical”- in the observing mode box of the proposal form, and (ii) in the case of classical observations define a valid backup program that can be carried out if the required observing conditions for the principal program are not met.

Visitor programs will only be admitted for those programs that fall in the top half of the TACs ranked list (first and second quartile). Less highly ranked programs will automatically be placed in the observing queue, with the exception of proposals requesting observing modes that are only admitted in visitor mode (e.g. programs using high-speed readout modes of OSIRIS).

In classical visitor mode the PI will normally be present at the telescope during the observations, although the interaction with the telescope system will mostly be carried out by trained observatory personnel. The data are immediately made available to the PI.

If you would prefer to carry out your observations in visitor mode but cannot be present on the night scheduled for your observations then the GRANTECAN astronomer can carry out the observations for you in service mode. Or alternatively, on the observing night remote contact through eyes dropping during the observations is also an option. In this way the PI can remotely assess the data quality and adjust the observing program without the need to be physically present in the control room.

To summarize, queue scheduling provides flexibility in optimizing the science return of the telescope depending on the atmospheric and technical circumstances each night. Priority is given to the scientifically most highly ranked proposal that is suitable for the observing conditions. In general, proposals with relaxed observing constraints will have a better chance of being completed successfully. In classically scheduled observations, on the other hand, dates of observation are fixed and the risk of poor weather conditions and technical failures rests with the PI, but it provides the advantage of the PI being able to adapt the observing plan in real time.

GRANTECAN will aim to follow the preference of the PI when drawing up the observing schedule, but no guarantee can be given that all preferences can and will be honored. In particular in case a proposal conflicts with high-priority ESO-GTC programs, or in case of a low ranking by the TAC, the proposal will most likely not be scheduled in classical visitor mode.

For all observations, after the one-year proprietary period the raw data is copied to the GTC Science Archive, hosted at the Center for Astrobiology in Madrid (<http://gtc.sdc.cab.inta-csic.es/gtc>). PIs are also encouraged to contact archive staff at CAB to submit their reduced data once they have been published.

For general queries, contact Antonio Cabrera Lavers: antonio.cabrera@gtc.iac.es