

REPORT OF THE 6th GTC USERS COMMITTEE MEETING
HELD AT ORM
LA PALMA, 27-28 JUNE 2012

1. Recent progress related to past reports

The GUC was informed of the developments carried out to the telescope and their associated instrumentation. The GUC is very well satisfied on the positive general advancement in several of the basic issues identified in previous reports.

A full report on this actions has been produced by GRANTECAN and it is attached to the GUC report.

2. Feedback from the user communities

The GUC has received feedback from users in Spain, Florida and Mexico that can be summarize as follows:

OSIRIS

- Users are very happy with the efficiency and performance of the long slit mode of OSIRIS. GRANTECAN has been congratulated for this high success.
- Users urge to prioritize the MOS observations. GRANTECAN is given to MOS lower priority than the blue TF due to ESO/GTC compromise. It is expected to be offered by 2013B. MOS Commissioning has already been started at GTC and the first results will be known soon. If everything works as expected, the MOS mode can be offered in semester 2013B.
- Pipelines for reduction of OSIRIS data are again requested by the Community. This is particularly important for the TF reduction. The OSIRIS team has proposed to the GUC to deliver a preliminary version. GUC and GRANTECAN compromised to test this version and give their feedback to the OSIRIS team in order to have a final pipeline to be offered to the OSIRIS Community in the near future. Moreover, GRANTECAN and the OSIRIS team have accepted the convenience to organize a workshop on this matter to share expertise with the users and eventually help them. GUC encourages the OSIRIS Community to participate in this event.

CANARICAM

- CANARICAM Science team has sent a letter to GRANTECAN asking for a flexible scheduling of the instrument. This is needed to increase the chances of getting the right weather conditions to be able the observations of CANARICAM program. In the same vein, the CANARICAM User Community express their worries to the GUC about the delay in getting these observations. GRANTECAN gave a full detail on the semester and they have already performed ALL the observations demanding relaxed Power Water Vapour conditions. The main problem with these observations is that the primary mirror needs to be phased before the observations. GRANTECAN is doing its best to train the staff to do this in order to have CANARICAM ready most of the time. They expect to do so in not more than 6 month time. Meanwhile it is recommended to the users to accommodate their PWV requirements to the most frequent conditions for the Observatory. Full information can be obtained in the IAC WEB pages <http://www.iac.es/proyecto/site-testing/>. In addition to this, the record for the past semesters will be updated in the GTC WEB pages.
- Users complain about the Exposure Time Calculator, because they are using the ETC based on TReCs and PWV statistics for Cerro Pachón. GRANTECAN remind GUC that CANARICAM team does not have the obligation to provide this tool but they will contact the team in Florida to implement this tool for GTC. However, according to Commissioning and Observers experience, the estimations made by users with this tool are not far from the reality.
- Users wonders about when Polarimetry will be available. GRANTECAN is progressing with the CanariCam commissioning and this observing mode is estimated to be ready for semester 2013A.

Phase 2

- Users wonder whether it will be possible to re-use the OB from previous semesters. GRANTECAN take notice of this request but announces that it is not possible yet.

GTC Operation:

- Rapid response with ToO. On a best effort basis GRANTECAN always try to deliver raw data in nearly real time to the PI. They remind users that the policy to perform a ToO. ToO programs needs to be better ranked than the program currently executed.

- Remote Observing. GRANTECAN inform that this mode is working with the same restrictions that apply to visitor observing. This mode is particularly useful for the Florida and Mexican users and it is implemented as remote visitor. It means that in the proposal the visitor mode should be requested. Users are encouraged to ask for visitor mode since it appears that given the large overheads used the program runs more efficient on this mode.
- ESO/GTC reserved targets. GRANTECAN remind that this question needs to be asked to ESO since it is ESO's responsibility. The reserved targets for each program can be found in the ESO pages.

Spanish and Mexican users are worried about the level of completion of their programs and the percentage of GTC time devoted to open time programs due to other GTC compromises. In particular, during the semesters 2010B-2011A+B the time devoted to Mexican proposals represented only 2.7% instead of the 3.75% which corresponds to the Mexican time. GRANTECAN informs us that the programs with weather relaxed conditions are mostly performed, even the filling programs. Programs which require excellent conditions are difficult to be completed.

GTC New Instrumentation:

- Users urge about the need of near Infrared instrumentation at GTC. A delay is being reported by GRANTECAN on the CIRCE instrument due to limited human resources on the CIRCE team. EMIR is in a good shape with expected operation at the telescope in 2014.
- The second generation instrument MEGARA has passed the PDR last March and MIRADAS will have the PDR this Autumn.
- Visitors Instruments are welcomed by GRANTECAN within the restriction imposed by the lack of human resources. They will be studied in a case by case basis.

3. Summary of the GUC recommendations

1. Ready the remaining OSIRIS modes, in particular the MOS mode should be given a high priority due to its high demand from the community.
2. Making available possible data reduction pipelines. This is especially relevant for OSIRIS TF and MOS modes.
3. Getting new CanariCam modes, polarimetry and fast guiding, ready with an updated information about the latest commissioning results.
4. A flexible scheduling for getting CanariCam ready as much as possible to allow observations of the high demanding, in terms of weather conditions, CanariCam programs.
5. Ready the dome to be able observations at all sky positions. This will be specially relevant for extrasolar planets research.
6. Updating regularly the web pages (with news on instrument commissioning and selection, for example). Some mechanism should be put in place to allow doing this easily and enabling administrative personnel to do it.
7. Better defined tools to make the user easily to follow up the status of a granted observational program.
8. To keep informed the Community on the progress of Guaranteed Time and ESO/GTC programs through a yearly report of the PIs of these programs
9. GUC will distribute a questionnaire to the GTC community, linked to GUC's blog, with the spirit to produce a proper evaluation of the level of satisfaction of users with the observation delivered by GTC.
10. Providing information on the schedules and expected performances of the remaining, first, second and third-generation instruments. In particular, the current baseline schedules for the reception and commissioning of the rest of the first and second-generation instruments for GTC should be made public to the community. Particularly serious is the situation of **EMIR**, for which current plans envisage first light not earlier than late 2013. Moreover GUC urge GRANTECAN to contact CIRCE team in order to have a realistic deadline for this instrument to be in operation at the telescope.

11. The overall **scientific efficiency** is not optimal, despite recent improvements. The GUC endorses the continuous drive by GRANTECAN to improve this.
12. Making public rules in case of conflict of targets between the ESO-GTC programmes and those approved by the various TACs. GUC will contact ESO User Committee to define strict rules on this respect.
13. To modify tools in order to facilitate the use of the OB from previous semesters.
14. To implement the DDT program for the coming semesters.
15. To have a realistic prospective on the GTCAO Project for GTC.

GUC Members

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Almudena Alonso	Instituto de Física de Cantabria
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Ignacio Negueruela	Universidad de Alicante (last meeting)
Enric Pallé	Instituto de Astrofísica de Canarias
Miriam Peña	Instituto de Astronomía, UNAM, México
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GTC STATUS REPORT
to the
6th GTC USERS COMMITTEE MEETING

ORM, GARAFÍA, 27-28 JUNE 2012

1. Introduction

This is a summary report to keep the GTC Users Committee (GUC) informed on the GRANTECAN activities around the GTC. These activities are organised and presented here with the priority order at GRANTECAN: 1) science operations are the top ranked activity to maximise the science data production and quality; 2) technical operations to increase the robustness of the facility, to increase the capabilities of the current set of instruments and to develop tools to facilitate the telescope operation and data management; and 3) the development of telescope upgrades and new science instruments.

2. Science operations

Along the past year, from March 2011 to February 2012 (semesters 2011A and 2011B), a total of 237 nights (65.0% of the full year) were devoted to science programs (ESO/GTC science time included). A total of 14 nights (3.8%) were devoted to the ESO/GTC technical time program. And the remaining 114 nights (31,2%) were used for technical activities, including commissioning of some OSIRIS observing modes and CanariCam.

The science time was used by observing programmes in queue-scheduled observing mode (90.3%) and in visiting-scheduled observing mode (9.7% of the total science time).

Over the whole year there have been 214 nights (1,926 hours) used for scientific observations in queue-scheduled observing mode. On average, an 8.7% of time was lost due to technical faults and a 29.5% of time due to poor weather. A total of 813.9 hours of telescope time were delivered to the PIs in the form of 675 observing blocks. The overheads of this queue-scheduled observing mode (common calibrations, discarded observations, empty queues, human factors, manual procedures, etc.) consumed 375.4 hours (31.6% of real time available once corrected for weather and technical losses).

The science time was consumed by CAT programs (63.5% of the total science time), ESO/GTC science programs (28.2%), CCI International Time Programs (5.4%) and OSIRIS Guaranteed Time (2.8%).

Along that year, 80 CAT observing proposals were attended and got GTC data. Up to 45 (56%) of them were completed.

Observing programmes are ordered in the queues and executed following the priorities fixed by the TACs. The Spanish TAC now publishes program ranking in

terms of quartile blocks to facilitate a better understanding of the relative priority of each observing program.

Some 30 publication in refereed journals have been published since the beginning of GTC operations in March 2009. This number shows a low rate of published papers taking into account that the number of completed observing programmes exceeds 100 now.

For the coming semester, 2013A, it is expected to devote 80% of the time to science programmes and to offer the broad-band imaging, including the SHARD filters, RTF and long-slit spectroscopy modes of OSIRIS, and low resolution spectroscopy, imaging (not at the diffraction limited resolution) and very likely polarimetry with CANARICAM.

3. Technical operations

Technical work is focused with maximum priority to the following items: a) to improve the robustness of the system with the aim to reduce the average fault rate; b) to increase the utilities and tools available for night operations and quality control to reduce the observing overheads and increasing the volume and quality of delivered data; and c) to complete the remaining observing modes of OSIRIS and CanariCam.

The secondary mirror (M2) chopping functionality has been fixed correcting the problems identified during the commissioning of CanariCam. The M2 system shows improved robustness and the chop trails have been reduced.

The dome vignetting issue (the unvignetted telescope elevation limit is 72 degrees) will remain for some years as its solution will require important resources and time. Current estimation shows that it will be fixed by 2015.

Work on improving the optical quality of the telescope has continued. The rate of changing segments will be increased once other technical activities with higher priority (for instance preparing the telescope for commissioning of CanariCam) have relaxed pressure on telescope time and human resources. Recoating of the tertiary mirror is scheduled for the end of June. A long-term programme is running to understand the changes of the optics quality of the telescope with the environment and to propose changes and improvements.

Other programs are running and improvements are expected shortly: the non-siderial tracking capability, the fast-guiding functionality, some modifications to the Monitor Manager that is currently the major source of troubles during observing time, fixing problems with the FITS headers, etc.

3.1 OSIRIS

The blue TF mode of OSIRIS is currently under commissioning and has the highest priority for GRANTECAN as some ESO/GTC programmes require its use.

The fast-photometry mode is being tested at the telescope and the MOS mode is

very advanced and is currently undergoing technical verification tests on the telescope. The first attempts are promising. The delivery of the mask cutting machine is largely delayed due to some additional works that is being performed by the provider to completely fulfil specifications. The current schedule estimates that these new modes could be available for semester 2013B.

The set of SHARD filters are available to the general use. We thank Dr. Pablo Pérez from UCM for this kind offer.

Some observing overheads have been reduced due to improvements in the routines available. The new values are available at the Phase-2.

The OSIRIS pipeline is currently being tested by the OSIRIS extended team. GRANTECAN has requested the GUC to participate in this pipeline evaluation and to assess its readiness to be accepted and distributed to the users. It is expected to have a usable version not later than the end of this year.

3.2 CANARICAM

CanariCam is under regular operation since March (semester 2012A). Imaging in the N and Q bands, and low-resolution spectroscopy in the N band was offered. From next September (semester 2012B) also low-resolution spectroscopy in the Q band will be available. Its availability for observing is currently limited by the availability of well-trained personnel on the use of CanariCam and in the procedures for M1 phasing. Due to this limitation, observations with CanariCam are scheduled only in the bright time periods along this semester (2012A). The training activities are progressing in parallel with the regular observations with the objective of having CanariCam available any night in the next semester.

The remaining modes (polarimetry, high-resolution spectroscopy and coronagraphy) are still under commissioning. The polarimetry mode is quite well advanced and expected to be offered for semester 2013A.

The major difficulty along this semester using CanariCam is the high values of PWV during the summer months. Some measurements are being done to provide the users information on the performance of CanariCam at different values of the PWV content.

The performance of CanariCam is also somewhat hampered because the fast-guiding functionality of the telescope is not yet ready. Its development has progressed as planned and it is currently under test at the telescope. We expect it could be ready by the end of the year.

4. New instruments

4.1 EMIR

EMIR is currently undergoing integration at the IAC labs. The major elements have been fabricated and have been delivered to the IAC. The last big piece delivered was the vacuum chamber. A critical element that is now being integrated at the factory is the Configurable Slit Unit or CSU. Its acceptance test and delivery are scheduled before the end of 2012.

According to the current schedule, EMIR will be commissioned at the GTC during the second half of 2014. It is expected to be offered to general use no earlier than semester 2015B.

EMIR will be installed at the Nasmyth A focal station, were CanariCam is currently located. At that time CanariCam will be moved to a Folded-Cass focal station (currently under development) and re-commissioned there.

4.2 CIRCE

CIRCE is a visitor instrument from the University of Florida (UdF). It is currently under integration and test at the UdF labs. The UdF plans to complete it by the first months of the next year. CIRCE could be installed at a Folded-Cass focal station and commissioned along the next year 2013.

4.2 FRIDA and Adaptive Optics

FRIDA held its Critical Design Review (CDR) past September 2011. Some open issues remain from that CDR that are pending to be closed along this year.

The FRIDA schedule shows that it will be completed for lab acceptance along 2015. Later it will be received at the Observatory, mounted and commissioned, something that, due to the complexity of this instrument and the AO system that feeds it, will extend well into 2016.

The AO System, under development by GRANTECAN, is preparing an operational system in the lab by the year 2014. It has to be installed and tested at the GTC Nasmyth B focal station prior to the installation of FRIDA.

At that time, OSIRIS that is currently operating at the Nasmyth B Focal station will be moved to the Main Cassegrain Focal station for continuing its operation.

4.3 MEGARA and MIRADAS

Both represent the new generation of GTC instruments. Both are in a Preliminary Design phase. MEGARA celebrated its PDR in March and the possibility of a complementary revision, or Delta-PDR, is under discussions to address some points raised at the PDR time. MIRADAS will celebrate its PDR before the end of the year, probably around October or November. Those instruments initially estimate to be completed between the years 2016 (MEGARA) and 2018 (MIRADAS).

Once completed each PDR a decision has to be taken on the continued development of both instruments based on the final estimated performances, timescales and cost.

4.4 Telescope upgrades

The main telescope upgrades ahead are the preparation of the new focal stations required for the new set of instruments: The two Folded-Cass and the Main-Cass focal stations. The first one is currently under development but the second one is waiting for resources.