RevMexAA (Serie de Conferencias), **29**, 24–26 (2007)

HOW TO OBSERVE WITH GTC

M. R. Villamariz[1]

RESUMEN

Presentamos aquí el proceso que cualquier observador potencial tendrá que seguir para poder observar con el Gran Telescopio Canarias (GTC). Dependiendo de cuál de los miembros de la comunidad de GTC se trate (España, México o la Universidad de Florida) los detalles del proceso son ligeramente distintos, pero en general será como sigue: primero la propuesta (de Fase I) tendrá que ser preparada y enviada al comité de asignación de tiempos correspondiente. Si la propuesta consigue tiempo entonces el observador tendrá que preparar y enviar a GTC el programa de observación (de Fase II), que será evaluado por nosotros e iterado con el observador si es necesario hasta que el programa esté listo para entrar un nuestro sistema. Si el tiempo concedido lo es para observaciones presenciales clásicas el observador tendrá que venir a GTC en las fechas que se le asignen para llevar a cabo sus observaciones junto con el Astrónomo de Soporte que le sea asignado. Y si las observaciones se conceden en tiempo de servicio GTC las programará y las llevará a cabo. El resultado del proceso serán tanto las imágenes sin tratar como las validadas, que proporcionaremos al observador y guardaremos en nuestro archivo donde el resto de la comunidad las podrá acceder una vez que el año de exclusividad para el observador haya terminado.

ABSTRACT

We present here the outline of the process that any potential GTC observer will need to follow in order to perform their observations. Depending on which of the members of the GTC community the observer belongs to, the details of the different steps and timeline of the process will differ slightly, but in general it will be as follows: first the (Phase I) observing proposal will have to be prepared and submitted to the corresponding Time Allocation Committee. If the proposal is awarded time, then the observer will have to prepare and submit the (Phase II) observing programme to GTC, that will asses it and iterate with the observer if necessary until the observing programme is ready to enter our system. If the observer got time in the classical visiting mode, he/she will have to come in the scheduled dates to perform the observations together with the assigned support astronomer, and if the observations were asked for in service mode, we will schedule and perform them. The result of the process will be both the raw and validated data that will be delivered to the observer and kept in our archive where the rest of the community will be able to access them once the year of exclusivity of the observer has expired.

Key Words: **TELESCOPES**

1. INTRODUCTION

Imagine you need GTC and its instruments to perform the observations that will allow you to address the particular astrophysical questions that are going around your mind at a certain time.

What do you need to do? How? When?

Well, in order to start you need to first identify yourself as a member of the following:

- Member of a group with Guaranteed Time (GT)
- Member of the GTC community: Spain, Mexico and the University of Florida (UFL)

The precise details of the process that you need to follow next will depend on your answer above, but we can draw a common baseline process for all the cases: first the (Phase I) observing proposal will have to be prepared and submitted to the corresponding Time Allocation Committee (TAC). If the proposal is awarded time, then the observer will have to prepare and submit the (Phase II) observing programme to GTC, that will asses it and iterate with the observer if necessary until the observing programme is ready to enter our system. If the observer got time in the classical visiting mode, he/she will have to come in the scheduled dates to perform the observations together with the assigned support astronomer, and if the observations were asked for in service mode, the GTC staff astronomers will schedule and perform them.

[1]GTC Project, Instituto de Astrofísica de Canarias, E-38200 La Laguna, Tenerife, Spain (ccid@iac.es).

The first step (Phase I) for GT observing programmes will be neccesary for their scheduling with the rest of succesful proposals, and to control the limit of 40% of the observing time that can be devoted for them every semester.

If you are a member of the GTC community, Spain, Mexico or UFL, you will have to refer to your corresponding TAC for the Phase I, and to us (GTC) for the Phase II. This also applyes to the GT group members.

There exists also the possibility of bringing your own instrument to GTC as a visiting instrument to perform your observations. In this case you will have to first contact the GTC director well in advance so that GTC can produce a report on the technical feasibility of the idea, that will be sent to the corresponding TAC for their consideration during the evaluation process.

Following in the text you will find more details on each of the steps of the process: the first step (or Phase I) of producing the observing proposal, the second (or Phase II) of producing the observing programme and the last one of scheduling and performing the observations.

2. (PHASE I) OBSERVING PROPOSALS

All of you are familiar with what an observing proposal is: it is a document where you explain the scientific case that motivates your application, where you specify the instrument+telescope configurations you need to use, when during the semester and for how long, and also and very importantly the weather and moon conditions your observations require. You also state here whether your observations would better be executed in service mode or in visiting mode.

In order to optimize the scientific outcome of GTC a considerable fraction of the GTC observing time will be executed in service mode in a queue system: each night we will decide which observations should better be attempted given the actual weather conditions. This is why at this stage you need to specify those you require for your observations.

You also need to decide now whether you want to observe in service or in visiting mode. When you come to observe in visiting mode, in the dates we will schedule for you, you will have no guarantee on the weather conditions, but there will be more flexibility to make decisions on the spot such as final exposure times, final list of objects to observe and so on. Therefore depending on your particular programme one mode will suit you better than the other.

Note also that you will be able to ask for more than one instrument per proposal, though the overheads will count against your observing time.

The specific format of the proposal and how and when the interaction of the observer and the TAC will be is a question of each TAC:

• Spanish TAC (the CAT): you have to be registered in their database in order to proceed (http://cat.iac.es). The CAT's proposals as they are now are .pdf files of a maximum of 4 pages that have to be uploaded into the webform that you also need to fill to complete the submission.
The deadlines for submission are 1st October for semester A (February-July) and 1st April for semester B (August-January).
Note that the CAT may ask GTC for a technical assesment of the proposals so we recomend to be as clear and well informed as possible when justifying the instrument+telescope configuration required.

• Mexico and the University of Florida: details are still to be defined.

3. (PHASE II) OBSERVING PROGRAMMES

Many of you will also be familiar with what an observing programme is: it is a document where you specify all the details about the telescope+instrument configurations and about your target objects that allows the telescope control system to perform the observations.

Those of you who have observed with ESO facilities (or with Gemini) will be familiar to the Phase II tools that are the software that helps you prepare your observing programmes.

In our case, at this stage of the process and for all our users we will invite you to download our latest version of the Phase II tool from our website http://gtc.iac.es. You will install it locally in your computer to complete your observing programme and submit it to GTC. After your first submission we will review your programme and iterate with you as many times as necessary until it is ready to enter our system.

For visiting mode programmes and due to their intrinsic flexibility we will only ask you to send us your programme some time, a few weeks, prior to the scheduled dates. For the service mode programmes, however, due to the intense work load they will require from GTC, especially at the beginning, we will stablish a deadline for the submission around two months before the starting of the semester (the Phase II deadline).

The final implementation of our Phase II tool (PII) is currently underway (actual version 0.8). It produces an XML file with the programme plus some others attached to it with the finder charts, the ephemeris for solar system objects (as taken from the Minor Planet Center at http://cfa-www.harvard.edu/iau/services/MPEC.html), and with the configurations of the masks when necessary (when doing multiobject spectroscopy).

Our PII will integrate the software to produce the mask configurations, like OSIRIS' Mask Designer, and also what we call the Graphical Target Editor (like ESO skycat tool) that will help you define your target objects and also to produce the finder charts in our preferred format. The exposure time calculators for the different instruments will be available at the instruments' web pages, external to the Phase II tool.

Here again the queue service system we will work with motivates the necessity to divide each observing programme in its independent blocks, that are usually called observing blocks, or observations in our GTC jargon. An observation is the minimum individual unit of the programme that can be scheduled independently. Dividing the programmes like this we will have more flexibility to schedule our service observations, to which we will better fit the changing weather conditions.

Therefore the structure of our observing programmes will be a header where all the general information is compiled (the programme's title, principal investigator, total time awarded, abstract, etc) followed by a number of independent observations, each of them containing all the necessary details about the target object and the telescope+instrument configurations that will allow the GTC control system to perform it. Note that an observation is not necessarily related to a single object or a single image but rather to a single independent observational unit. For example for long slit spectroscopy needing precise wavelength calibration, an observation will be the spectrum itself plus the corresponding calibration lamp; and for the imaging of an extended object with a mosaic, the observation will comprise all the individual frames of the mosaic.

4. SCHEDULING AND PERFORMING THE OBSERVATIONS

We will produce and publish a first version of our schedule for the semester once the TACs have decided which proposals are approved, a few weeks afterwards, so that visiting observers can plan their coming to GTC well in advance.

Therefore, for visiting observers all you need to do once your proposal has been accepted and scheduled is to send us your (Phase II) observing programme a few weeks before your scheduled dates and arrive at GTC preferably the day before the starting of the run.

If you obtained service time, the scheduling of your observations is dynamical (within the range of dates suitable for your objects) and after your proposal has been accepted you need to produce and submit your observing programme before the Phase II deadline, iterate it if necessary with us until we can accept it, and then relax and wait until we can perform your observations.

Once your service programme has been accepted and for observations not yet executed, you will be able to modify them to some extent (the precise policy for permitted modifications has to be defined) in agreement with your assigned support astronomer.

Once the semester has started the observers will be able to check the status of their observations and programmes, also through the Phase II tool.

Once service programmes are completed, i.e., all its observations satisfactorily executed, we will inform the observers and invite them to download their data from our archive; they will have exclusive access to them for the first year after they are made available.

We will provide observers, both visiting and service, with the raw and validated data as well as the intermediate stages in between.

Now your data are in your hands and the only extra thing we will need from you is to ackowledge GTC in your publications.

REFERENCES

García-Vargas, M. L., & Rodríguez-Espinosa, J. M. 1998, GEN/INST/0032-L, GTC's internal documentation
Hammersley, P. L., & Rodríguez-Espinosa, J. M. 2000a, RPT/CCIA/0128-L, GTC's internal documentation
———. 2000b, NTE/CCIA/0113-L, GTC's internal documentation
———. 2005a, GEN/DIRP/0083-L, GTC's internal documentation
———. 2005b, GEN/DIRP/0090-L, GTC's internal documentation
Macías, R. 2005, ESP/CTRL/0121-R, GTC's internal documentation