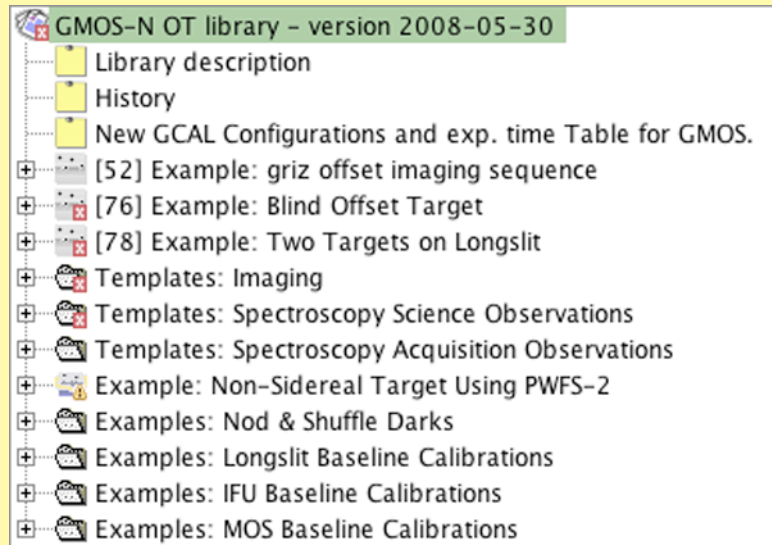
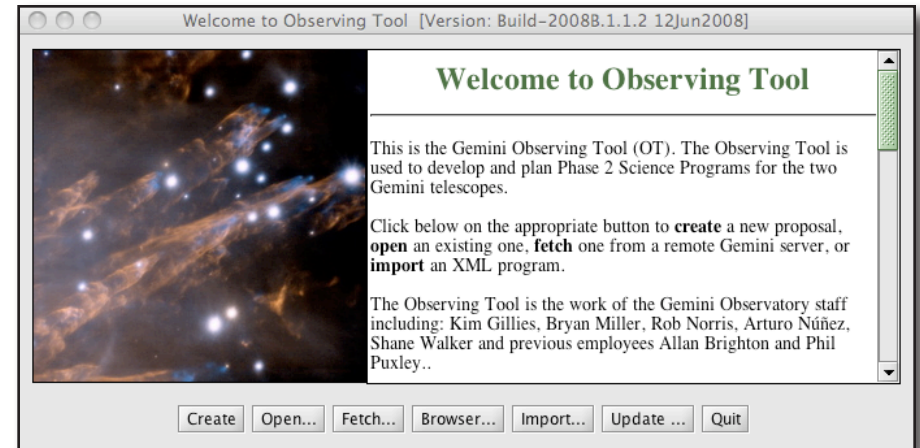


# TIPS for the GEMINI PHASE II PROCESS



The templates in the GMOS-N library



Please get in touch with the NOAO staff contact (listed on the front page of your downloaded Phase II) for your program for help in developing your Phase II

Queries for Gemini-specific issues should be directed to the Gemini HelpDesk at:  
<http://www.gemini.edu/sciops/helpdesk/>



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## Phase II Process

The Phase II process allows users of the Gemini telescopes to translate observing plans into specific instructions that will enable the necessary observations. These sets of instructions are necessary for both queue programs and classical observing runs. The Observing Tool (OT) is the mechanism used to create the Phase II instructions, set up as observation sequences. Once a program has been approved by the TAC, the PI will be able to use the OT for that semester to develop the Phase II.

### Getting the OT

The first step for the PI is to download the current OT. The OT is under constant revision to improve functionality and add capability, so it is important to have the current version. There are instructions on the Gemini Web pages ([www.gemini.edu/sciops/OThelp/otIndex.html](http://www.gemini.edu/sciops/OThelp/otIndex.html)). You can then use the OT to ‘fetch’ the basic program that is automatically produced based on the proposal. You will need the program key that was included in the e-mail notification. Note that this basic program is not sufficient to produce an observation, so do not just resubmit this initial version. The basic program will have coordinates of your objects (from the Phase I submission—check to make sure they are accurate), but little else of the observation is defined.

### Filling out the OT

The next step is to fetch the library of programs appropriate for the instrument you intend to use. Instructions for retrieving this set of templates can be found on the Gemini Web page ([www.gemini.edu/sciops/OThelp/library/otLibrary.html](http://www.gemini.edu/sciops/OThelp/library/otLibrary.html)). OT also has a button for direct retrieval of the libraries. There are libraries for each of the Gemini instruments. Within these libraries are examples of common observing and calibration modes. You can then build upon these examples to create observations that will match the science goals of your proposal. The simplest way to begin is to cut and paste the templates you need into your own Phase II. The libraries have been thoroughly vetted by the instrument scientists at Gemini, so you can see how a fully functional Phase II should appear. Note that not all possible observations will be defined in the libraries, but they are the best place to learn how to design your own. Calibrations for the observations should also be defined. Examples of these are included in the instrument libraries.

Another important detail for each observation is the observing class to which it is assigned. These include science, acquisition, and various types of calibration. These classes determine whether the time is charged to your program or not, so you should make sure that each observation has the proper class ([www.gemini.edu/sciops/OThelp/otSciProgToolbar.html](http://www.gemini.edu/sciops/OThelp/otSciProgToolbar.html)).

Each instrument also has a Web page at the Gemini Web site with details about the specifics needed for its use with the OT. These pages include an ‘OT details’ page that shows a lot of the basics needed for each instrument. There is also an ‘OT Tips and Tricks’ page that will help with other details for the design of the Phase II.

## Guide Stars

One area that often requires special attention is guide stars. Both in the proposal (Phase I) and Phase II processes, guide stars can be found automatically. The algorithm used does not always find the best star for each observation, so every guide star should be checked to ensure that it is not an image defect, galaxy, or close binary. The first step is to make sure that you are using the correct guide probe for the instrument in use. For example, GMOS observations should use the On-Instrument Wave Front Sensor (OIWFS), while NIRI should use the Peripheral Wave Front Sensor 2 (PWFS2). In addition, the guide star must be within the patrol field of the appropriate guide probe. Within the OT, the ‘Image’ button allows you to see the field with sky images downloaded through the OT. You can use the selection buttons in the Image window to display the patrol field for a given guide probe. The guide star selected must be within this patrol field to be usable. Occasionally, this requires changing the position angle of the observation. In addition, you can see if the guide probe is occulting the science field. The guide star should also stay within the patrol field during any dither patterns executed as part of the observation sequence or offsets for blind acquisitions. Special attention should be paid to guide stars used for adaptive optics observations. In addition, there are magnitude limits (bright and faint) for each guide probe.

### Checking the Basic Observations

If your program will involve many separate observations, it is often a good idea to create a single example and have that checked by your NGSC contact. Once this observation is cleared for use, it can be replicated for all of the other observations in the program. This way, any changes only have to be made once, rather than to all of the individual observations in a program.

### Submitting the Phase II

Once the observations are set to ‘For Review’ status and stored into the Gemini database, they are then sent to a National Gemini Office contact. For U.S. programs, the contact scientist is a member of the NOAO Gemini Science Center (NGSC) who will then check the program to make sure it is functional and efficient. There is often iteration between the PI and the contact to make all the adjustments necessary to produce a workable Phase II that will take the observations that the PI wants. Finally, the NGSC contact will send the Phase II on to the Gemini Observatory for a final check. There may be further iteration.

### More Help

The Gemini Web site has many pages with advice for completing a functional Phase II. For further advice, please feel free to contact your NGSC contact scientist or Gemini contact scientist. You can also use the Gemini HelpDesk (be sure to include the identification number of your program so that the question can be routed to the proper person).