Gemini Observatory: Exploring The Universe From Both Hemispheres

Semester 2010A Call For Proposals

Gemini Observatory invites its community to propose scientific investigations for the 2010A semester, 1 February 2010 - 31 July 2010. The Call is open to all partners.

The submission deadline is WEDNESDAY SEPTEMBER 30 2009 for all partners. Applications should be submitted via your national Gemini proposal process. Submission times and other details vary by partner; please consult your National Gemini Office pages for more information. Joint proposals must adhere to the deadline (and other requirements) applicable to the partner country of the institution to which the Principal Investigator is affiliated.

The purpose of this page is to highlight the most relevant information for the 2010A call. Significant additional information is contained on supporting pages; users are encouraged to follow the links for more detailed information. If hardcopy is preferred, the primary pages are available as a single pdf document.

Highlights for 2010A

General
Relevant milestones for 2010A can be found in the 2010A schedule. The deadline for Phase I submission is **September 30 2009** (Poor weather and Director's Discretionary Time proposals are accepted at any time via the Phase I Tool), and for successful proposals the Phase II submission deadline is **January 15th 2010.** Both queue and classical Phase IIs must be submitted by this deadline.
Target accessibility limits will be imposed, so as not to bias the queue at the start or end of the semester. The target accessibility limits for 2010A are, for **Gemini North 4 < RA < 1 and -37 < dec < +79, and for Gemini South 5 < RA < 2 and -89 < dec < +28**. There are additional constraints if a program requires unrestricted access (e.g. MOS observations requiring pre-imaging, long observations or observations with strict constraints), and also for LGS, T-ReCS and Michelle programs.
A later call will be made for Science Verification (SV) proposals for Flamingos-2 at Gemini South. SV time for Flamingos-2 has been reserved in 2010A but this is contingent on the 2009B/2010A commissioning. The SV call for GNIRS at Gemini North is delayed to 2010B, with commissioning planned for 2010A. The GMOS-North detectors are scheduled to be replaced in late 2010A. All 2010A GMOS-N observations must be planned using the current detector specifications. Please check the updates on these activities given in the instrument web pages.
Six Subaru instruments are available to the Gemini community in 2010A, for a total of **5 to 10 classical nights** depending on demand, through the Gemini-Subaru Exchange program described below.
The Phase I Tool (PIT) is updated for 2010A; See the PIT page for downloads and important information.
Gemini North
It is expected that 80% of the semester will be available for science, or 145 nights including 1.5 nights for a delayed Compensatory Time program. These nights are distributed across the partnership. A list of instruments and capabilities is given below.
The Laser Guide System (LGS) is available with NIRI and NIFS. LGS observations must specify "Laser guide star" in the Adaptive Optics resources section in the PIT, and must request Cloud Cover = 50%

and Image Quality = 70%. Faint tip tilt stars will also require darker skies: 17.5 < R < 18 needs SB=80%, 18 < R < 18.5 needs SB=50%. Because of the limited availability and the need for good weather, only LGS programs ranked in bands 1 and 2 will be recommended by the ITAC. Up to 200 hours will be available in 2010A for LGS queue observations (LGS mode is expected to be available 7-14 nights per month).

Gemini South

It is expected that 80% of the semester will be available for science, or 145 nights including 18 nights for the NICI Campaign and 8 nights for Flamingos-2 Science Verification. These nights are distributed across the partnership. A list of instruments and capabilities is given below. Due to the need to balance the queue, and the traditionally high demand for GMOS-S dark time programs, **bright time programs on Gemini South are particularly encouraged.**

NICI, the AO-fed Near-Infrared Coronagraphic Imager, will be available to the community in 2010A in both queue and classical mode for both coronagraphic and non-coronagraphic imaging, excluding the L and M bands. See below for other restrictions. Community observations of the NICI Campaign targets with NICI are not permitted.

Exchange

Up to 5 bright/gray nights of classical time are available with the **HIRES** optical spectrograph on Keck. The requested nights must be within the following **windows with a minimum of 1 and a maximum of 2 nights in any one window: February 20 - March 6, March 21 - April 4 and June 19 - July 5.** Proposals should be submitted via the normal Gemini process. All proposers for Keck time must also complete the Keck cover page. Email this page to your NTAC chair. *[more information]*

5 to 10 classical nights are available on Subaru with **COMICS** (mid-infrared camera and spectrograph), **FOCAS** (optical faint object camera and spectrograph), **HDS** (optical high dispersion spectrograph), **IRCS** (infrared camera and spectrograph, with Natural Guide Star Adaptive Optics capability), **MOIRCS** (near-infrared imager and multi-object spectrograph) and **Suprime-Cam** (wide field optical imager). The Subaru nights will be distributed across bright, grey and dark periods with typically 2 or 3 nights in each of these moon phases, depending on the total number of nights allocated. **A minimum of 1 and a maximum of 4 nights can be requested in the following windows only:**
bright - May 23-June 3 or June 20-30,
grey - February 19 - 23,
dark - March 12-19 or April 10-16.
Due to the constraints of instrument scheduling on Subaru, requested dates may not be matched exactly. Proposals should be submitted via the normal Gemini process. *[more information]*

Additional Information

Details of the capabilities available at each Gemini telescope are given below. Please see the page of supporting information for additional general information.

Gemini North: Facilities

- All instruments are offered in queue and classical mode, except for Laser Guide Star AO which is queue mode only.
- Facility instruments:
  - GMOS North **- 0.36-1.10 micron imager and spectrograph:** imaging and long-slit, multi-object and integral field spectroscopy. 5σ one hour point source sensitivities are approximately R=26 for imaging and R=21-23 for spectroscopy.
  - NIRI **- 1-5 micron imager and low-resolution spectrograph:** imaging and spectroscopy fed with the direct or AO-corrected beam. 5σ one hour point source sensitivities are

approximately K=23 for imaging and K=18 for spectroscopy.

- NIFS **- 0.95-2.40 micron integral field unit spectrograph:** IFU spectroscopy fed with the direct or AO-corrected beam. 5σ one hour point source sensitivities are approximately K=18.7. NIFS will be available between March and June. Currently the on-instrument wavefront sensor is not fully functional which can lead to uncorrected flexure, compromising the coronographic mode in particular. We expect this to be fixed by 2010A but check the NIFS OIWFS page for updates.
- Altair **- facility AO system:** for use with NIRI (except M band imaging and L & M band spectroscopy) and NIFS.
  - Natural Guide Star AO: Traditional adaptive optics guiding on a nearby star.
  - See **Laser Guide Star AO** for important performance information and restrictions.
- Michelle **- 7-26 micron spectrograph and imager:** imaging and R=100-3000 and echelle spectroscopy; imaging polarimetry is also available. 5σ one hour point source sensitivities are approximately N=11 for imaging and N=6-9 for spectroscopy. Michelle will be available in February and July only and targets should be limited to 5 < RA hrs < 1.

- See the target accessibility page for important information regarding instrument availability and a plot of accessible RA and Declination. **For Semester 2010A targets must be limited to 4 < RA < 1, and -37 < dec < +79,** the LGS system has a stricter elevation constraint of >40 degrees.

Gemini South: Facilities

- All instruments are offered in queue and classical mode.
- Facility instruments:
  - GMOS South **- 0.36-1.10 micron imager and spectrograph**: imaging and long-slit, multi-object and integral field spectroscopy. 5σ one hour point source sensitivities are approximately R=26 for imaging and R=21-23 for spectroscopy. GMOS South has slightly better sensitivity in the UV and blue than GMOS North.
  - NICI **- 1-5 micron dual-channel coronagraphic imager:** In 2010A NICI is offered for community use for both coronagraphic and non-coronagraphic imaging, excluding the L and M bands. AO guiding on extended targets (up to 0.8") is available on a shared risk-basis. For coronagraphic imaging the occulted target should also be the AO guide target. The Campaign Targets are not available for community NICI observations. Constraints must be at least as good as Cloud Cover = 50% and Image Quality = 70%.
  - T-ReCS **- 8-26 micron imager and spectrograph:** imaging and moderate resolution (R=100 and R=1000) spectroscopy. 5σ one hour point source sensitivities are approximately N=11 for imaging and N=8 for spectroscopy. T-ReCS will only be available during the drier months of April to July, with instrument swaps during this period driven by demand. Targets should be limited to 8 < RA hrs < 2. .
- Visitor instruments:
  - Phoenix **- 1-5 micron high spectral resolution (R~50000 - 75000) spectrometer**. 5σ one hour point source sensitivities are approximately K=12.5. **Phoenix availability may be limited in the second half of the semester due to commissioning of MCAO/GSAOI.**
- See the target accessibility page for important information regarding instrument availability and a plot of accessible RA and Declination. **For Semester 2010A targets must be limited to 5 < RA < 2, and -89 < dec < +28.**

Questions and Answers

All questions concerning proposals, or any other subject, should be made using the Gemini HelpDesk. This web-based system will send the request to your National Gemini Office staff in the first instance who will then escalate it to Gemini staff if necessary.

Comments and suggestions on the format and content of this page and supporting pages are welcome, and should be sent to Sandy Leggett.

Semester 2010A Time Distribution

Gemini North: Time Availability and Distribution

A minimum of 80% of the time will be available for science use on Gemini North in 2010A. This amounts to 145 nights and includes 1.5 nights for a delayed Compensatory Time program. The remaining time will be used for observatory maintenance tasks, and the planned commissioning of GNIRS and the new CCDs for GMOS-N; any unused engineering time will be returned to science. Note that historically around 5% of each semester's science time is used to complete highly ranked programs from the previous two semesters to which the ITAC granted rollover status. The number of hours allocated to each partner in 2010A is given in the following table.

Partner	Estimated Hours Available
US	543
UK	312
Canada	169
Australia	55
Argentina	35
Brazil	25
Univ. of Hawaii (host)	176
Gemini Staff	117
Total	1432 (=143n)

Gemini South: Time Availability and Distribution

A minimum of 80% of the time will be available for science use on Gemini South in 2010A. This amounts to 145 nights, and includes 18 nights of NICI campaign science, and 8 nights for Flamingos-2 Science Verification (SV). The Flamingos-2 SV is contingent on the progress of the instrument commissioning. The remaining time will be used for observatory maintenance tasks, and Flamingos-2 and MCAO commissioning activities. Any unused engineering or SV time will be returned to science. Note that historically around 5% of each semester's science time is used to complete highly ranked programs from the previous two semesters to which the ITAC granted rollover status. The number of hours allocated to each partner in 2010A is given in the following table.

Partner	Estimated Hours Available
US	449
UK	265
Canada	140
Australia	43
Argentina	34

Brazil	24
Chile (host)	133
Gemini Staff	98
Total	1186 (=119n)

Time Adjustments

To maintain overall balance amongst the partnership, the values shown above for both Gemini North and South have been adjusted from the nominal partner shares as a result of actual time charged through 2009A. The time allocations shown here were recommended by the Operations Working Group in July 2009. The number of nights is approximated by int(hours/10).

2010A Instrument Availability and Target Accessibility

This page provides best estimates, at the time of the Call for Proposals, of instrument availability and target (RA, dec) restrictions for 2010A.

Instrument Changes

As there are more instruments than the number of available ports on each telescope, instrument swaps will be required. Therefore **not all instruments will be available for the entire semester**. When possible instrument swaps will be scheduled to minimize impact on the queue and instrument swaps will be driven by demand. Hence the final schedule will not be made until after the 2010A programs are known. **It may be the case that certain targets or entire programs will not be feasible once the final schedule is determined, at ITAC or thereafter. In 2010A Michelle, T-ReCS and possibly Phoenix will not be offered for the entire semester**, as described below in the Gemini North and South accessibility sections. If an instrument is requested for less than 6% of the Bands 1+2 time, the Observatory reserves the right to limit the RA range available to programs, or to not schedule the instrument. During classical runs, no instrument changes on the Instrument Support Structure are permitted.

Gemini North Instrument Availability and Target Accessibility

NIFS and Michelle share the up-looking port; NIFS will be available between March and June, and Michelle available in February and July only. Hence there are restrictions on the RAs available to Michelle, as given in the Table below. Observations requiring the Laser Guide Star (LGS) system are restricted by the limitation that the LGS must be used at or above 40 degrees elevation. How this translates into RA and dec restrictions is indicated in the Table below. **All instruments are restricted for sky visibility as described in the Table and Figure below.**

	Accessible	Restricted**	Inaccessible
Declination, non-LGS	-30d to +73d	-37d to -30d, +73d to +79d	< -37d and > +79d
Declination, LGS	-22d to +65d	-27d to -22d, +65d to +68d	< -27d and > +68d
Right Ascension, non-LGS	7h to 22h	4h to 7h, 22h to 1h	1h to 4h
Right Ascension, LGS	8h to 21h	5h to 8h, 21h to 0h	0h to 5h
Right Ascension, Michelle	7h to 14h, 16h to 22h	5h to 7h, 14h to 16h, 22h to 1h	1h to 5h

** GMOS MOS programs requiring pre-imaging should not have targets in this region. Programs with targets in this region should not require a large amount of time, or have strict timing or observing constraints.

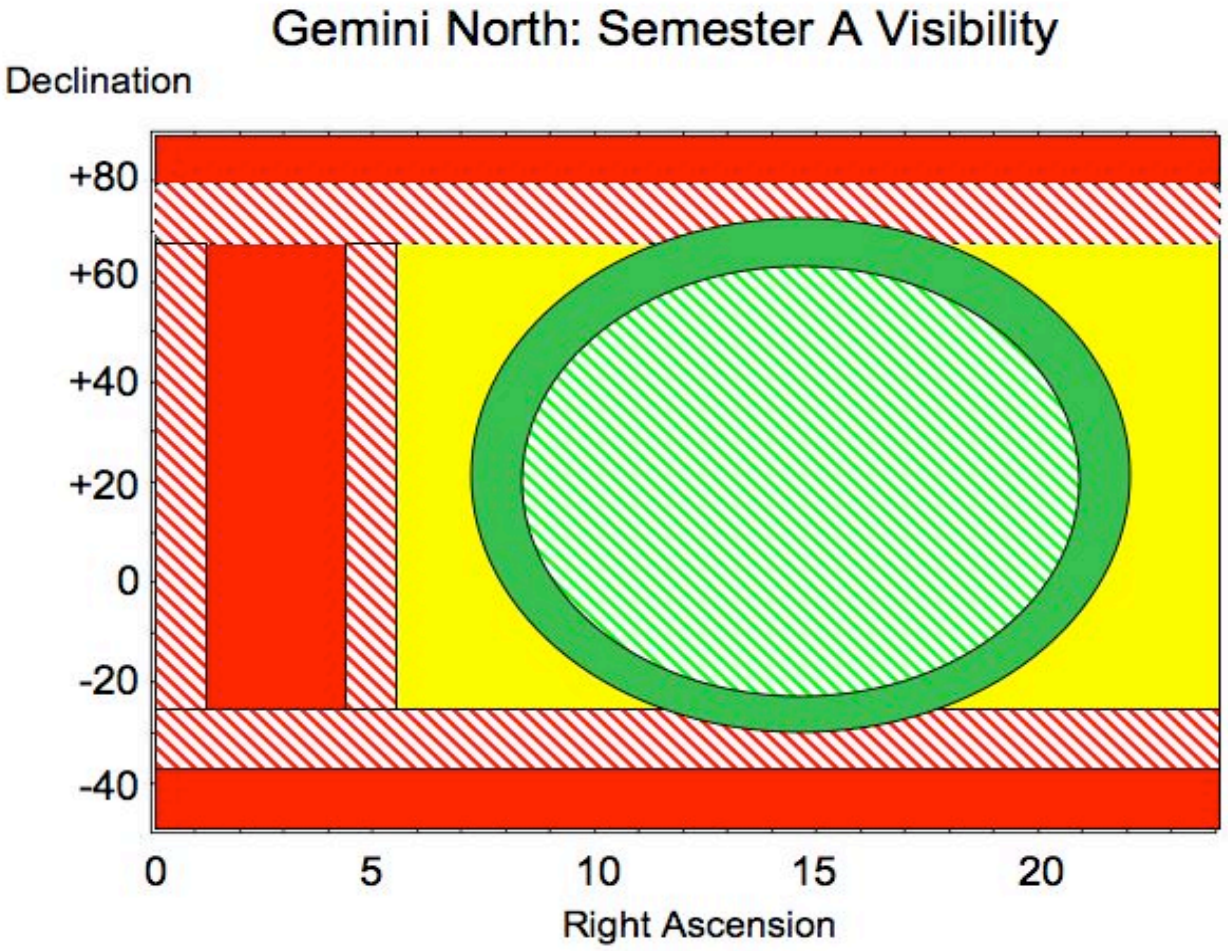

Figure 1: Schematic representation of target accessibility at Gemini North during semester 2010A. Green regions offer unrestricted access, red regions are inaccessible. Hatched areas indicate the more restricted LGS regions. The yellow region is possible, but restricted. Michelle has additional constraints. See text, and values in the Table above.

Gemini South Instrument Availability and Target Accessibility

T-ReCS and NICI share the up-looking port and T-ReCS will only be available during the drier months of April to July, with instrument swaps driven by demand. Hence there are restrictions on the RAs available to T-ReCS, as given in the Table below. Phoenix availability may be limited in the second half of the semester due to commissioning of MCAO/GSAOI. **All instruments are restricted for sky visibility as described in the Table and Figure below.**

	Accessible	Restricted**	Inaccessible
Declination	-87d to +22d	-89d to -87d, +22d to +28d	< -89d and > +28d
Right Ascension	7h to 23h	5h to 7h, 23h to 2h	2h to 5h
		8h to 9h	

T-ReCS, RA	9h to 23h	8h to 9h, 23h to 2h	2h to 8h

**GMOS MOS programs requiring pre-imaging should not have targets in this region. Programs with targets in this region should not require a large amount of time, or have strict timing or observing constraints.

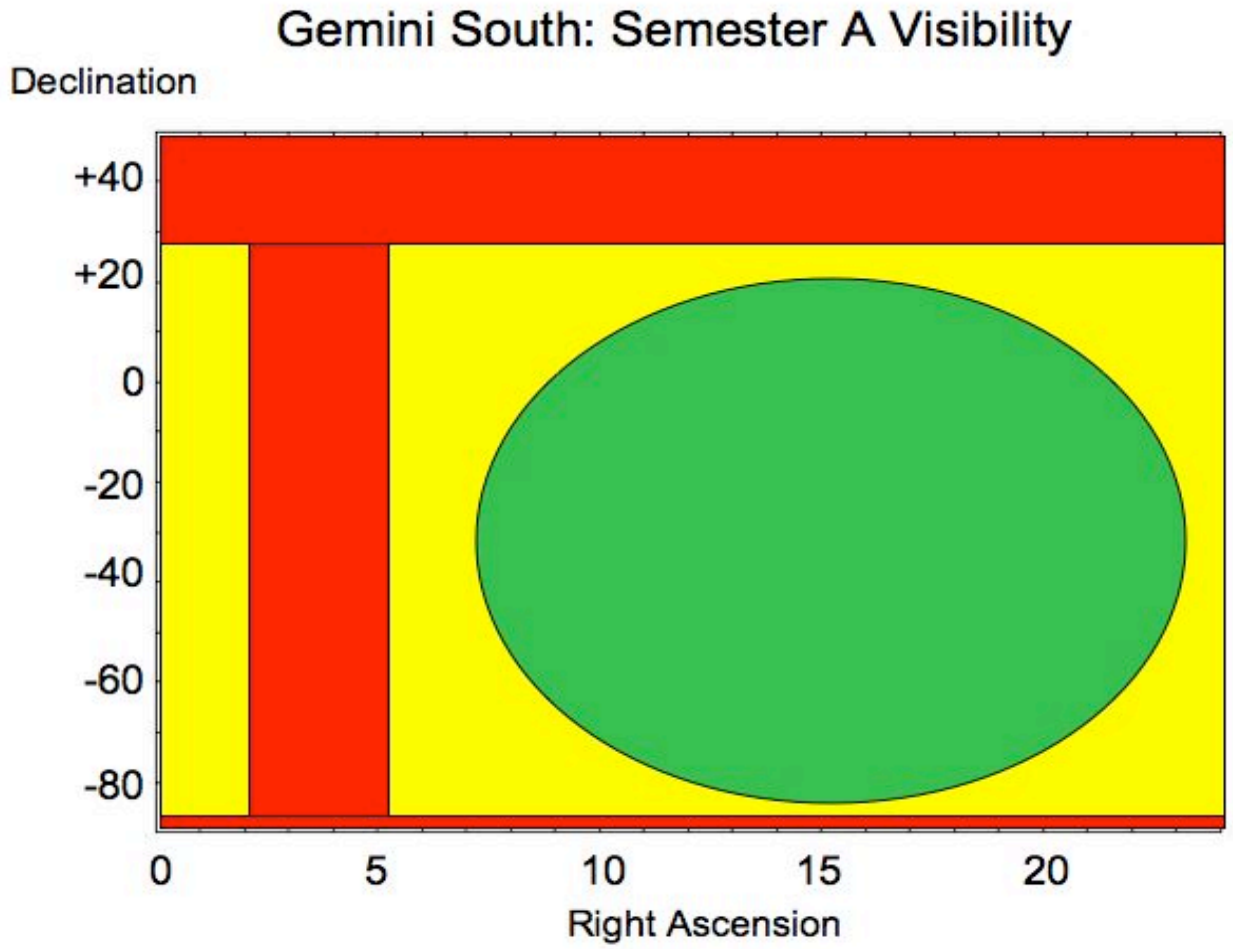

Figure 2: Schematic representation of target accessibility at Gemini South during semester 2010A. Green regions offer unrestricted access, red regions are inaccessible. The yellow region is possible, but restricted. T-ReCS has additional constraints. See text, and values in the Table above.

Semester 2010A Important Dates

Key dates and events in the proposal process are shown below. The Phase I and Phase II deadlines are highlighted.

Date	*Event*	*Comments*
30 September 2009	**Proposal deadline**	**Proposals received by National Gemini Offices (NGOs) - see partner pages**
Set by partner	NTAC meetings	Separate scientific and technical assessments by each Gemini partner ("National TACs")
On or before 10 November 2009	E-transmission	Electronic transmission of proposals to Gemini from NTACs
19-20 November 2009	ITAC	International Time Allocation Committee meets to resolve issues and recommend programs
7 December 2009	Final queue/schedule, and ITAC & Gemini feedback to NGOs	After approval by Gemini Director
14 December 2009	**10A schedule and Phase IIs available**	**2010A OT released, "skeletons" available**
15 January 2010	**Phase II deadline**	**PI deadline for submission of completed Phase II Programs to National Offices (earlier submission is encouraged)**
5 January 2010	Phase II reviews start	The expected response time is 7 days for checking by NGOs (from "For Review") and by Gemini CSs (from "For Activation")
01 February 2010	Start of semester 2010A	2010A programs may be observed earlier to fill queue nights

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Call for Proposals Supporting Information

This page contains information on the following topics relevant to applying for time on Gemini. The information is general in nature, for details specific to the upcoming semester, please see the current call for proposals.

Time Allocation Process

An overview of the proposal submission and time allocation process is given here. The assessment and ranking of proposals within each partner country will be via National Time Allocation Committees (NTACs) supported by the National Gemini Offices. Assembly of the final semester schedule and queue, definition of scientific ranking bands and resolution of conflicts and joint proposals between partners is done by the International Time Allocation Committee (ITAC).

Submissions to Use Multiple Telescopes

Each observing proposal may request resources from a single telescope only (Gemini North, Gemini South, Keck or Subaru). Proposals for multiple telescopes are no longer permitted, and the Phase I tool will not allow resources from multiple telescopes to be selected. Proposals may include the use of multiple instruments on the same telescope. If a program requires resources from multiple telescopes, separate proposals must be submitted for each telescope; in this case, each proposal should clearly reference the other(s). The proposals will be ranked and scheduled independently. Proposals that can be carried out with either GMOS (note that they have different capabilities) must nevertheless specify one of them; the NTACs or ITAC may make changes.

Queue Rollover

Programs assigned by the ITAC into Band 1 are eligible for rollover into the next semester, for no more than two consecutive semesters, in order to increase the likelihood of program completion. Rollover status will be assigned by the ITAC. Programs with rollover status will automatically be carried forward for up to 2 semesters until their time allocation is exhausted, i.e. PIs need not re-apply if the currently approved allocation is sufficient to reach the science goals of the program. Target of Opportunity programs are not given rollover status. National policies that affect eligibility are defined by the relevant NTAC.

Electronic Submission

All partners support electronic submission of proposals from within the Gemini Phase I Tool (PIT). In the US, submission of non-joint proposals using the NOAO web form continues to be supported. Versions of the PIT are created for each semester, including new features described in PIT Hot News.

Joint Proposals

If you submit the same proposal to several partner countries (a "joint proposal") you must do so using PIT. The PIT software, and backend servers installed at each National Office, allow automatic ("one-click") submission of the same proposal to multiple partners. Joint proposals must be submitted by the deadline applicable to the institution of the Principal Investigator (PI); if the PI is not based in a partner country, the deadline will be the same as the Gemini staff deadline. Likewise, joint proposals must adhere to the proposal guidelines (regarding format and page length for example) of the same partner (that of the PI).

Under-Utilized Instruments

Community demand is a critical factor in determining instrument availability. Each instrument introduces significant overhead to the Observatory, and access to instrument ports is at a premium. If an instrument is requested for less than 6% of the Bands 1+2 time, the Observatory reserves the right to limit the RA range available to programs, or to not schedule the instrument.

Rapid Response or Target of Opportunity programs

We continue to encourage Target of Opportunity (ToO) programs (formerly called "Quick Response"), intended to allow observation of targets that cannot be specified in advance but which have a well defined **external trigger** (e.g., Supernovae or Gamma Ray Bursts which will be identified throughout the observing semester by non-Gemini programs). "ToO" mode may be requested with any facility instrument. Proposals for ToO mode should be made via the normal proposal process and must select the type of trigger in the PIT and summarise the *trigger event* (e.g. identification of a target brighter than a pre-determined threshold) in the proposal abstract. *ToO covers trigger types from several months to minutes in response time.* Two types of ToO triggers are defined: "Rapid Response" and "Standard" which differ by response time. Rapid response programs must be allocated time in Band 1. ToO programs will not be given rollover status.

Gamma Ray Burst (GRB) programs: in previous semesters many separate proposals for Gamma Ray Burst follow-up studies were submitted to the NTACs and a subset were forwarded to ITAC. As in those semesters, the ITAC and Observatory will seek to combine or otherwise substitute such proposals, e.g. by forming partnerships or time-division strategies, so that only one proposal is active on each telescope at any time. Applicants for GRB studies are strongly encouraged to coordinate their proposals before submission. The Observatory and ITAC reserve the right to form umbrella programs based on the proposals forwarded by the NTACs.

GMOS Mask Definition

Mask making from non-GMOS images for GMOS multi-object spectroscopy (MOS) observations is available, but GMOS pre-imaging is recommended for MOS programs using slits narrower than 1.0" and for programs requiring very long observations of faint targets. If pre-imaging is required, then sufficient pre-imaging time should be included in the proposal. For classical programs, pre-imaging will be scheduled in the queue. Any unused pre-imaging time will be returned to the program.

Poor Weather Proposals

Often the queue contains insufficient proposals for the poorest conditions, despite the best efforts of the National TACs to pass on a balanced package of proposals to Gemini. To encourage submission of more proposals in this category, those with the observing condition constraints specified below will receive special consideration at the TACs. If the programs are ranked lower than band 3 they may be placed in a "Poor Weather Queue" (Band 4) and neither the PI nor partner country will be charged for any time used. Note however that poor weather programs are lower in priority than scientific ranking band 3. Poor weather programs may be submitted for any facility instrument but the observing constraints *must* match one of the following:

- Image Quality of "any" and Cloud Cover of 70%-ile or worse (non-photometric)
- Cloud Cover of 90%-ile (typically 2 magnitudes of cloud cover and unusable in the mid-IR) and any other combination of conditions

Water Vapour constraints for all poor weather proposals need to be set to "any". The Sky Background constraint can be specified and it is acceptable for these programs to request dark time.

Poor weather programs can now be submitted at any time in the semester. Use the Phase I tool to submit your proposal, selecting "Poor weather" from the drop down menu in the Submit tab. Such programs will be automatically placed in the Band 4 "Poor Weather Queue".

Exchange Time

Gemini Observatory encourages fruitful exchanges with other major observatories in order to expand the instrument capabilities available to the Gemini community. At present, the Observatory has two exchange programs in place. The first agreement is an exchange of classical nights for HIRES time on the Keck I telescope in exchange for classical nights with NIRI and Michelle on Gemini North or T-ReCS on Gemini South. See the Keck time application page for information on applying for the Gemini time through Keck. The second agreement is for classical nights on Subaru in exchange for classical nights with Gemini. The Subaru instruments available to the Gemini community in 2009B are Suprime-Cam and MOIRCS; in 2010A COMICS, HDS, FOCAS and IRCS will also be available. In exchange, the Subaru community has access to both GMOS instruments (North and South), NIRI, NIFS and T-ReCS, for 2009B; in 2010A Michelle and NICI are also available. See the Subaru call for proposals for more information on applying for Gemini time through Subaru. Joint proposals for Gemini time between the Japanese community and Gemini partners are permitted. The details of the amount of time currently available and other restrictions are provided in the current call for proposals.

Target Information

Time-specific (including periodic monitoring and follow-up) programs may be accepted on a best-efforts basis. Proposers should specify these time constraints in the PIT. Note that the instrument scheduling may impose additional restrictions on this class of programs.

All observations require the use of one wavefront sensor (WFS) star for fast guiding, primary mirror active optics control and/or as an adaptive optics wavefront reference source. The specific requirements for each instrument are given in the relevant science instrument web pages. As the technical feasibility of proposals relies in part on the availability of WFS stars, all proposals with well-defined targets must include suitable WFS stars. Proposals to observe non-sidereal objects should indicate the likely availability of WFS stars in the technical justification but are not required to supply specific stars. Target of Opportunity programs do not need to define WFS stars. Non-sidereal tracking is available for all instruments. Non-sidereal tracking with GMOS is fully supported with the peripheral wavefront sensors and partially supported with the OIWFS.

Duplicate Observations

Proposers should check their observations against the Gemini Science Archive to ensure that similar or identical observations have not already been executed. The Phase I Tool includes a function to facilitate this. Any duplicate or seemingly duplicate observations should be well-justified in the proposal. The NTACs will consider duplication of existing observations as part of the proposal evaluation. The ITAC evaluates and resolves any duplication of targets (or potential duplication in the case of ToO observations) between proposals from different partner countries.
