Gemini Observatory: Exploring The Universe From Both Hemispheres

Semester 2009B Call For Proposals (Unpublished)

Gemini Observatory invites its community to propose scientific investigations for the 2009B semester, 1 August 2009 - 31 January 2010. The Call is open to all partners.

The submission deadline is TUESDAY MARCH 31ST 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 2009B 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 2009B

General
Relevant milestones for 2009B can be found in the 2009B schedule. The deadline for Phase I submission is **March 31st 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 **July 13th 2009.**
Starting in 2009B, the Phase II submission deadline for classical programs will be the same as for queue programs. That is, successful **classical programs must submit their Phase II by July 13th 2009**.
Target accessibility limits will be imposed, so as not to bias the queue at the start or end of the semester. For unrestricted access, targets for Gemini North which do not use the Laser Guide Star system should be limited to **19 < RA < 11, and -30 < dec < +73,** and for Gemini South targets should be limited to **19 < RA < 9, and -87 < dec < +22.** Other regions are available, but only for short observations, or those with very relaxed observing constraints. The Laser Guide System has more restricted constraints. T-ReCS and NICI have further restrictions on availablity and Right Ascension in 2009B.
New narrow-band imaging filters are available for GMOS: O III and S II for GMOS-N and He II for both GMOS-N and GMOS-S. NICI at Gemini South is available in 2009B. It is expected that a later call will be made for Science Verification proposals for GNIRS at Gemini North and Flamingos-2 at Gemini South.
The instrument web pages have been revised with updated acquisition times in the Overheads sections.
The Phase I Tool (PIT) is updated for 2009B; See the PIT page for downloads and important information.
Gemini North

It is expected that 85% of the semester will be available for science, or 156 nights. This includes 15 nights that will be used for GNIRS Science Verification and possibly other Observatory strategic programs. These nights are distributed across the partnership according to partner shares and adjustments for partner imbalances. 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 2009B 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 147 nights including 18 nights for the NICI Campaign and 6 nights for Flamingos-2 Science Verification. These nights are distributed across the partnership according to partner shares and adjustments for partner imbalances. 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 2009B for on-axis coronagraphic imaging excluding the L and M bands; additional modes are available on a shared-risk basis. NICI observations must request Cloud Cover = 50% and Image Quality = 70%, to achieve a stable AOWFS signal. 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 maximum of 2 nights in any one window: 28 August -11 September, 26 October - 8 November, 24 December - 6 January. Requests must be full nights with a minimum of 1 night.** Proposals should be submitted via the normal process. All proposers for Keck time must also complete the Keck cover page. Email this page to your NTAC chair. *[more information]*

4 to 6 classical nights are available on Subaru with **Suprime-Cam** (wide field optical imager) and **MOIRCS** (near-infrared imager and multi-object spectrograph). The requested nights must be within the following **windows with a maximum of 2 nights in any one window: September 14 - 21 (dark); November 6 - 12 or 22 - 29 (grey); and November 30 - December 5 or December 23 - January 4 (bright). Requests must be full nights with a minimum of 1 night.** Proposals should be submitted via the normal process. *[more information]*

Additional Information

Details of the capabilities available at each 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. NIRI may be unavailable in August and November.
  - 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.
  - 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.

• See the target accessibility page for important information regarding instrument availability and a plot of accessible RA and Declination. **For Semester 2009B targets must be limited to 17 < RA < 13:30, 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 2009B NICI is offered for community use for on-axis coronagraphic imaging excluding the L and M bands; other modes (non-coronagraphic and off-axis AO guiding) are available on a shared risk basis. The Campaign Targets are not available for community NICI observations. NICI targets should be limited to 22:00 < RA hrs < 12:00. as it will only be available between October/November and January, and the 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 targets should be limited to 16:00 < RA hrs < 6:00. as it will only be available between August and October.
- 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 other instruments.
- See the target accessibility page for important information regarding instrument availability and a

plot of accessible RA and Declination. **For Semester 2009B targets must be limited to 16 < RA < 12, 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.

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Semester 2009B Time Distribution (Unpublished)

Gemini North: Time Availability and Distribution

A minimum of 85% of the time will be available for science use on Gemini North in 2009B. This amounts to 156 nights, and includes a Gemini staff allocation and 15 nights for GNIRS Science Verification (SV) and possibly other Observatory strategic programs. A separate Call will be issued for GNIRS SV time. The remaining time will be used for various observatory maintenance tasks, GNIRS commissioning and commissioning of 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 2009B is given in the following table.

Partner	Estimated Hours Available
US	614
UK	282
Canada	156
Australia	43
Argentina	21
Brazil	22
Univ. of Hawaii (host)	159
Gemini Staff	118
Total	1415 (=141n)

Gemini South: Time Availability and Distribution

A minimum of 80% of the time will be available for science use on Gemini South in 2009B. This amounts to 147 nights, and includes a Gemini staff allocation, 18 nights of NICI campaign science, and 6 nights for Flamingos-2 Science Verification (SV). A separate Call will be issued for Flamingos-2 SV time. The remaining time will be used for various observatory maintenance tasks, and Flamingos-2 and MCAO commissioning activities. 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 2009B is given in the following table.

Partner	Estimated Hours Available
US	551
UK	251

Canada	136
Australia	35
Argentina	17
Brazil	19
Chile (host)	119
Gemini Staff	104
Total	1232 (=123n)

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 2008B. Time trades between partners are also included. The time allocations shown here were recommended by the Operations Working Group in January 2009. The number of nights is approximated by int(hours/10).

Last update 19 February, 2009; Sandy Leggett

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2009B Instrument Availability and Target Accessibility (Unpublished)

This page provides best estimates, at the time of the Call for Proposals, of instrument availability and target (RA, dec) restrictions for 2009B.

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**. However, whenever possible instrument swaps will be scheduled to minimize impact on the queue. In other words, instrument swaps will be driven by demand as much as possible and so the final schedule will not be made until after the 2009B 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.** 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

	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	19h to 11h	17h to 19h, 11h to 13:30h	13:30h to 17h
Right Ascension, LGS	20h to 10h	18h to 20h, 10h to 12:30h	12:30h to 18h

** 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.

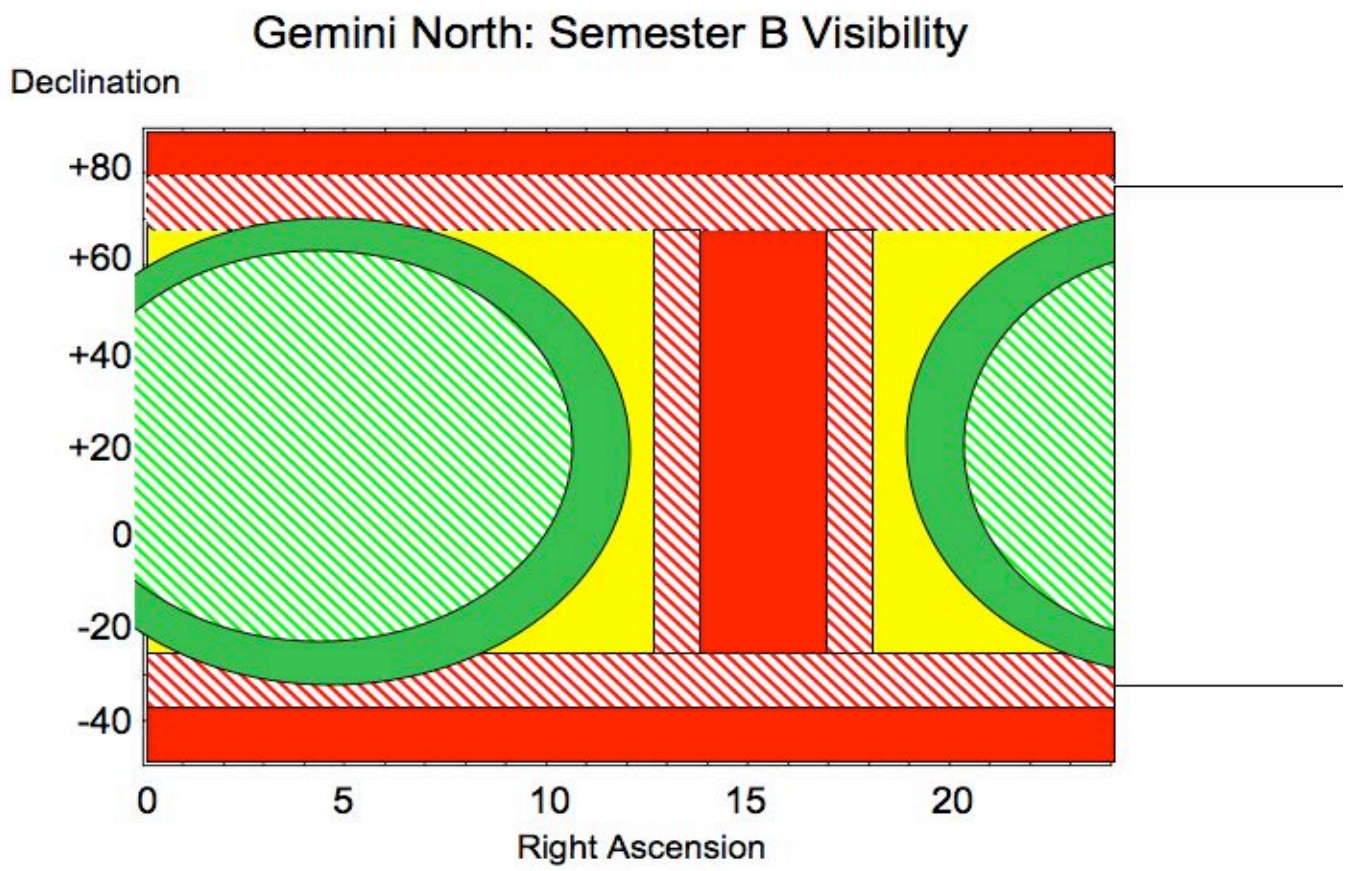

Figure 1: Schematic representation of target accessibility at Gemini North during semester 2009B. Green regions offer unrestricted access, red regions are inaccessible. Hatched areas indicate the more restricted LGS regions. The yellow region is possible, but restricted. See comments and values in the Table above.

At Gemini North, GMOS-N will remain on its side-looking port and be available throughout the semester. NIRI will share its side-looking port with GNIRS; currently it is expected that GNIRS will be commissioned in August 2009 and used for Science Verification in November 2009, and so NIRI may not be available in August and November. NIFS and Michelle share the up-looking port and their schedule will be driven by demand. **All instruments are restricted for sky visibility as described in the Table and Figure above.**

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 above. Standard ToO LGS observations are allowed; however target lists are generated for approval by Space Command approximately a week before each LGS run, using only "ready" observations. Therefore, while observations must be defined by the usual phase II deadline, any additions or alterations must be in place by the LGS target preparation dates. We do offer limited LGS observations of Band 1 and 2 ToOs that are triggered less than a week before, or during, an LGS run. The observations must be made during a planned LGS run at the telescope. Also, only two such targets (for all programs) can be observed during any typically week-long LGS run, and only one such target (for all programs) can be observed on any given night. All effort will be made to approve and observe a target within 24 hours, however this cannot be guaranteed, and the observation may occur two or three nights after the trigger is made.

Gemini South Instrument Availability and Target Accessibility

	Accessible	Restricted**	Inaccessible
Declination	-87d to +22d	-89d to -87d, +22d to +28d	< -89d and > +28d
Right Ascension	19h to 9h	16h to 19h, 9h to 12h	12h to 16h
T-ReCS, RA	16h to 6h		6h to 16h
NICI, RA	22h to 12h		12h to 22h

**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.

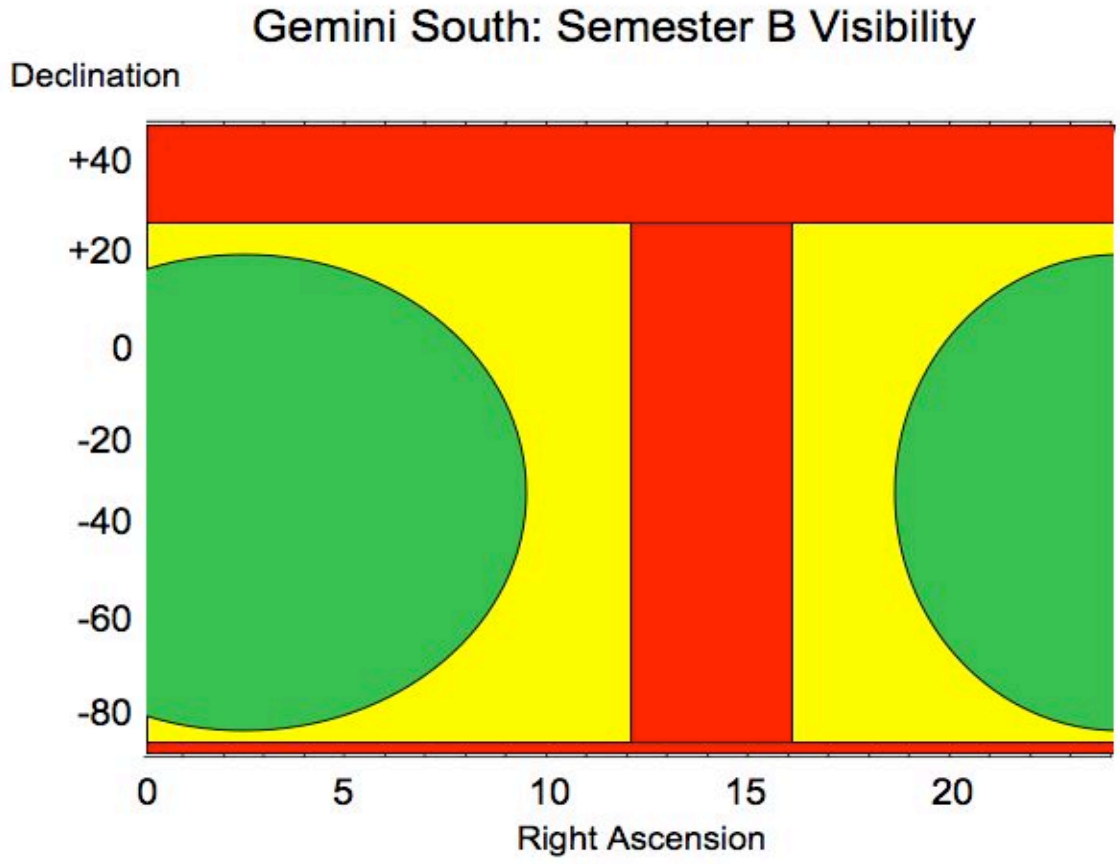

Figure 2: Schematic representation of target accessibility at Gemini South during semester 2009B. Green regions offer unrestricted access, red regions are inaccessible. The yellow region is possible, but restricted. See comments and values in the Table above.

The Gemini South instrument port situation is very complex in 2009B, with two instruments expected to be commissioned, Flamingos-2 and MCAO/GSAOI. GMOS-S availability will be maximised, especially for dark time. Phoenix will be kept available to make use of poorer conditions as far as possible, but commissioning in the second half of the semester may limit its availability at that time. T-ReCS and NICI share the uplooking port and T-ReCS will be available in the first half of the semester only (August - October), NICI in the second half only (October/November - January). **T-ReCS targets should be restricted to 16:00 < RA hrs < 06:00 and NICI targets should be restricted to 22:00 < RA hrs < 12:00. All instruments are restricted for sky visibility as described above.**

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Semester 2009B Important Dates (Unpublished)

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

Date	*Event*	*Comments*
31 March 2009	**Proposal deadline**	**Proposals received by National Gemini Offices (NGOs) - see partner-specific pages**
Set by partner	NTAC meetings	Separate scientific and technical assessments by each Gemini partner ("National TACs")
On or before 12 May 2009	E-transmission	Electronic transmission of proposals to Gemini from NTACs
19-20 May 2009	ITAC	International Time Allocation Committee meets to resolve issues and recommend programs
5 June 2009	Final queue/schedule, and ITAC & Gemini feedback to NGOs	After approval by Gemini Director
10 June 2009	**Queue and classical schedule on web**	**Phase II programs ("skeletons") available in Observing Database; 2009B OT released**
13 July 2009	**Phase II deadline**	**Final PI deadline for submission of completed Phase II Science Programs to National Offices (earlier submission is encouraged)**
27 July 2009	Phase II review complete	Goal for electronic transfer of checked Phase II programs from National Offices to Gemini
01 August 2009	Start of semester 2009B	2009B programs may be observed earlier to fill queue nights
17 August 2009	Queue fully loaded	Goal for activation of all Phase II programs

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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

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), following the procedures described in the Phase I overview.

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 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 currently available to the Gemini community are Suprime-Cam and MOIRCS (imaging and multi-object spectroscopy). In exchange, the Subaru community has access to both GMOS instruments (North and South), NIRI, NIFS and T-ReCS. 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.