

NOAOGEMINISCIENCECENTER

TUCSON, ARIZONA • LASERENA, CHILE

Gemini Observing Opportunities for Semester 2007A

Verne V. Smith

The NOAO Gemini Science Center (NGSC) encourages the US community to take advantage of Gemini observing opportunities for semester 2007A (1 February 2007–31 July 2007). US Gemini observing proposals are submitted to and evaluated by the NOAO Time Allocation Committee (TAC). The formal Gemini “Call for Proposals” for 2007A will be released on or about 1 September 2006, with a US proposal deadline of 2 October 2006. As this article was prepared well before the release of the Call for Proposals, the following list of instruments and capabilities represents only our expectations of what will be offered in semester 2007A. Watch the NGSC Web page (www.noao.edu/usgp) for the Gemini Call for Proposals, which will list in clear detail the instruments and capabilities that will be offered.

NGSC anticipates the following instruments and modes on Gemini telescopes in 2007A:

Gemini North:

- Near-infrared Integral Field Spectrometer (NIFS).
- The Near Infra-Red Imager/spectrograph (NIRI) will be offered with both imaging and grism spectroscopy modes.
- Altair adaptive optics (AO) system in Natural Guide Star (NGS) mode, as well as in Laser Guide Star (LGS) mode. LGS commissioning and system verification (SV) runs are taking place in 2006A/B. LGS full science mode will be offered in 2007A, contingent on the success of these runs. Altair is available with NIRI imaging and spectroscopy, with NIFS IFU imaging and spectroscopy, and with NIFS IFU spectral coronagraphy.
- Michelle, mid-infrared (7–26 micron) imager and spectrometer including an imaging polarimetry mode.
- Gemini Multi-Object Spectrograph (GMOS-North) and imager. Science Modes are multi-object spectroscopy (MOS), long-slit spectroscopy, integral-field unit (IFU) spectroscopy, and imaging. Nod-and-shuffle mode is also available.
- All instruments and modes are offered for both queue and classical observing. Classical runs are offered only to programs with a length of three nights or longer.
- Time trades will allow community access to the Keck Telescope high-resolution optical spectrograph, HIRES, and to the Subaru Telescope Suprime-Cam wide-field imager and the infrared imager and spectrograph (MOIRCS).

Gemini South:

- Gemini Near Infra-Red Spectrograph (GNIRS).
- Thermal-Region Camera Spectrograph (T-ReCS) mid-infrared (2–26 micron) imager and spectrograph.
- Gemini Multi-Object Spectrograph (GMOS-South) and imager. Science modes are multi-object spectroscopy (MOS), long-slit spectroscopy, integral-field unit (IFU) spectroscopy, and imaging. Nod-and-shuffle mode is also available.

- Bench-mounted High-Resolution Optical Spectrograph (bHROS).
- Acquisition Camera for time-series photometry.
- Phoenix high-resolution infrared spectrograph, for a limited time during the first part of 2007A (see following article). Phoenix is available only in classical mode (in whole nights with no three-night minimum). NGSC Staff will provide training and start-up assistance to Phoenix classical observers.
- All modes for GMOS-South, bHROS, GNIRS, and T-ReCS are offered for both queue and classical observing. Classical runs are offered only to programs with a length of three nights or longer (except in the case of Phoenix).

Detailed information on all of the above instruments and their respective capabilities is available at www.gemini.edu/sciops/instruments/instrumentIndex.html.

The percentage of telescope time devoted to science program observations in 2007A is planned to be greater than 85 percent at Gemini North and greater than 70 percent at Gemini South.

We remind the US community that Gemini proposals can be submitted jointly with collaborators from other Gemini partners. An observing team requests time from each relevant partner. Multi-partner proposals are encouraged because they access a large fraction of the available Gemini time, thus enabling larger programs that are likely to have substantial scientific impact. Please note that all multi-partner proposals must be submitted using the Gemini Phase I Tool (PIT).

Efficient operation of the Gemini queue requires that it be populated with programs that can effectively use the full range of observing conditions. Gemini proposers and users have become increasingly experienced at specifying the conditions required to carry out their observations using the on-line Gemini Integration Time Calculators (ITCs) for each instrument. NGSC reminds you that a program has a higher probability of being awarded time and being executed if ideal observing conditions are not requested. The two conditions that are in greatest demand are excellent image quality and no cloud cover. We understand the natural high demand for these excellent conditions, but wish to remind proposers that programs that make use of less-than-ideal conditions are also needed for the queue.

NOAO accepts Gemini proposals via the standard NOAO Web proposal form and the Gemini PIT software. We remind proposers that they can save their proposals as a PDF file to view the version that will be used by the NOAO TAC (please see www.noao.edu/noaoprop/help/pit.html).

Feel free to contact me at NGSC (vsmith@noao.edu) if you have any questions about proposing for US Gemini observing time.



Limited Phoenix Availability for 2007A

Ken Hinkle & Verne V. Smith

The NOAO high-resolution infrared spectrograph, Phoenix, has been offered on Gemini South since semester 2002A. The NOAO/Gemini agreement for shared use of Phoenix expired this year. Gemini operations strive to minimize instrument changes, with typically a single instrument assigned to each instrument port. On its arrival at Pachón, the Multi-Conjugate Adaptive Optics (MCAO) system will displace Phoenix from the telescope. MCAO is expected at Pachón in 2007A, so Phoenix's time as a dedicated Gemini South instrument is limited. The current Gemini timeline shows possible Phoenix availability for a part of semester 2007A (February-mid-March).

Proposers planning to request Phoenix in 2007A should keep this limited availability in mind. If Phoenix is offered, the final range of available dates will be announced in the

2007A Call for Proposals to be posted about 1 September 2006. The NGSC Web page (www.noao.edu/usgp/) or the Gemini Web site (www.gemini.edu) will keep you current on Phoenix availability dates.

Phoenix has had substantial use on Gemini South with at least 16 nights scheduled each semester for the last 10 semesters. Phoenix is the only high-resolution infrared spectrograph available to the US and Gemini community in the southern hemisphere. NOAO would like to see Phoenix offered again at some future date. Future use of Phoenix may involve the SOAR telescope.

To aid in this effort, we strongly encourage previous users of Phoenix to send us copies of refereed Phoenix publications as they become available. NGSC and NOAO will keep the US community informed of Phoenix's future.

An Update on bHROS for 2007A

Katia Cunha & Verne V. Smith

The bench-mounted High Resolution Optical Spectrograph (bHROS) at Gemini South was first offered as a facility instrument in semester 2006A. During its first two semesters of availability, the US community submitted seven proposals for 2006A and six proposals for 2006B: two were awarded time for 2006A and two for 2006B. Requests from other Gemini partners were also minimal.

As a result of the small number of submitted proposals, bHROS did not meet the 16-night minimum criterion to be used on the telescope over the two semesters it has been offered, although the 16-night rule was waived for these two semesters. As noted in the Gemini Semester Overview and Call for Proposals (www.gemini.edu/sciops/ObsProcess/ObsProcIndex.html), it is possible that bHROS will not go on the telescope in 2007A if there is not an increase in demand such that it meets the 16-night rule.

With its very high spectral resolution ($R=150,000$), bHROS presents a powerful and nearly unique capability for an 8-meter class telescope. If you have observing programs that could benefit from the superior spectral resolution and relatively high throughput of bHROS, semester 2007A is the time to consider them.

The December 2005 *NOAO/NSO Newsletter* contains an article summarizing the capabilities of bHROS (page 19). Detailed information on bHROS can be found on the Gemini Web page (www.gemini.edu/sciops/instruments/hros) or by contacting Katia Cunha (kcunha@noao.edu).



NGSC Staff Arrivals and Relocations

Verne V. Smith

We are pleased to announce the following two additions to the scientific staff of the NOAO Gemini Science Center (NGSC). Please join us in welcoming them.

Susan Ridgway joined the NGSC Staff in La Serena, Chile, on 1 July 2006, arriving from her previous position at The Johns Hopkins University in Baltimore, MD. She is expert on Active Galactic Nuclei, radio galaxies, and quasars. Susan will support US users of Gemini's increasingly powerful adaptive optics (AO) capabilities, such as the Laser Guide Star system on Gemini North with NIFS and NIRI, and AO on Gemini South with the arrival of MCAO. She will also help support the heavily used Gemini Multi-Object Spectrographs (GMOS).

Jayadev Rajagopal arrived as an NGSC Staff member in La Serena on the same date. Previously a Michaelson Fellow at NASA's Goddard Space Flight Center in Greenbelt, MD, Jayadev brings research expertise in interferometry, and he will split his observatory support duties between NGSC and the New Initiatives Office.

In mid-June 2006, Bob Blum relocated from NOAO South in La Serena to NOAO North in Tucson. Bob continues his work with NGSC in support of AO programs, as well as Phoenix; he is also working on the Thirty Meter Telescope project.

Plans for Gemini Science 2007 in Iguazú Falls, Brazil

Verne V. Smith & Sally Adams

Building upon the first Gemini Science meeting in May 2004, the next meeting in the series will be held in the second half of May 2007 at Iguazú Falls (Foz do Iguazú), Brazil. Hosted by the Brazilian National Gemini Office, the three-day meeting will highlight and discuss science results from the Gemini South and North telescopes. The meeting will consist of oral and poster presentations, as well as a users' session including talks about future Gemini instruments and software development, with plenty of time for discussion and feedback.

Foz do Iguazú is located in southeastern Brazil near its borders with Paraguay and Argentina. The spectacular Iguazú Falls are wider than Victoria Falls and higher than Niagara Falls, and surrounded by the virgin jungle of Iguazú National Park, home to an estimated 2,000 species of flora and 400 species of birds.

The main points of entry for travel to Brazil are Sao Paulo (airport code GRU) and Rio de Janeiro (airport code GIG). Domestic airline service from these airports to Foz do Iguazú is readily available.



Iguazú Falls, Brazil

Keep an eye on the NGSC (www.noao.edu/usgp) and Gemini Observatory (www.gemini.edu) Web pages for information on Gemini Science 2007.



NGSC Instrumentation Program Update

Verne V. Smith & Mark Trueblood

The NGSC Instrumentation Program continues its mission to provide innovative and capable instrumentation for the Gemini telescopes in support of frontline science programs. This article gives a status update on Gemini instrumentation being developed in the US, with progress since the June 2006 *NOAO/NSO Newsletter*.

NICI

The Near Infrared Coronagraphic Imager (NICI) will provide a 1- to 5-micron dual-beam coronagraphic imaging capability on the Gemini South telescope. Mauna Kea Infrared (MKIR) in Hilo is building NICI, under the leadership of Doug Toomey.

NICI is in the final assembly and testing phase of the project, with pre-ship acceptance testing expected to begin by the end of summer. The NICI adaptive optics (AO) system has been tested. As of July, the static AO performance has been characterized and the dynamic performance tested but not yet fully characterized, with initial results encouraging.

Progress was made in reducing the elevated background signal on the NICI arrays. Furthermore, the electronic noise in the array/controller combination has been reduced from previous levels. Final software fixes are being made in preparation for acceptance testing.

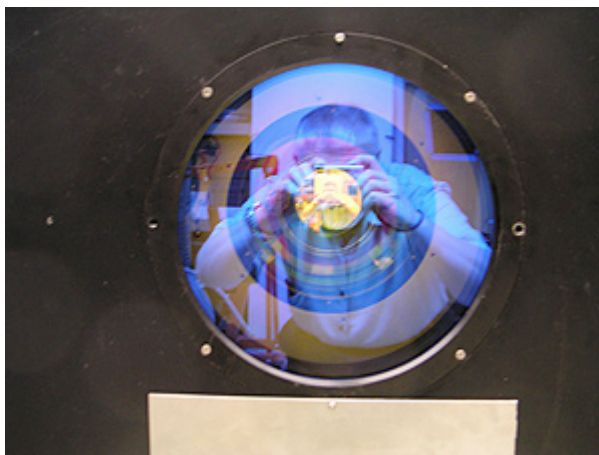
As of the end of June, MKIR reported that 99 percent of the work to NICI final acceptance by Gemini is complete.

FLAMINGOS-2

FLAMINGOS-2 is a near-infrared multi-object spectrograph and imager for the Gemini South telescope. FLAMINGOS-2 will cover a 6.1-arcmin-diameter field at the standard Gemini $f/16$ focus in imaging mode, and will provide multi-object spectroscopy over a 6.1×2 -arcmin field. It will also provide a multi-object spectroscopic capability for Gemini South's multi-conjugate adaptive optics system. The University of Florida is building FLAMINGOS-2, under the leadership of Principal Investigator Steve Eikenberry.

The FLAMINGOS-2 Team is continuing with the integration and testing phase of the project. Previous issues in obtaining the $R \sim 3000$ grism have been resolved. The science-grade detector was installed following a sudden catastrophic delamination of the engineering-grade detector. A software/hardware incompatibility in the programmable logic array devices used in the detector array controller that was severely restricting the range of integration times was corrected. Instrument and detector control software is complete and is in use to control the hardware. Integration with the Gemini software was begun by Gemini software engineer Roberto Rojas during a June visit to Gainesville. As of July, there are no major technical issues preventing the team from completing the integration work and proceeding to pre-ship acceptance testing.

As of June, the University of Florida team reports that 93 percent of work to FLAMINGOS-2 final acceptance by Gemini is complete.



FLAMINGOS-2 from the entrance window of the MOS Dewar with the imaging port in place on the slit wheel.