

UCG 2014 Report

Preface

The Users' Committee for Gemini (UCG) met in La Serena, Chile on August 18 and 19, 2014. Some members of the UCG had the opportunity to visit Cerro Pachon on 17 August to view the telescope in the midst of its scheduled shutdown. The UCG thanks Mike Gladders for his 3 years of service as inaugural chair of the committee, and welcomes Craig Heinke as the new chair. In the month prior to the meeting, all committee members solicited feedback from users in their national communities via email. The total number of user responses was modest -- on the order of 20 emails over the entire Gemini community -- and the majority of these were primarily positive. Where appropriate, the UCG will respond to comments on an individual basis; selected issues are also addressed in the following report.

Response to previous report

The UCG is pleased that most of the issues raised in our previous report have been addressed by the Observatory; we recognize that budgetary realities limit the feasibility of implementing new initiatives. We will continue in our efforts to identify ways in which the UCG can work with the NGOs. Although the 2012 user survey is now somewhat out-of-date, we will collate its results soon.

Communication:

The Observatory has done a good job of maintaining a visible presence at all national meetings of Gemini partners and at technical conferences (e.g. SPIE), and *the UCG encourages a continuation of this into the future*. These remain powerful forums for disseminating and receiving information from the various user communities.

Following last year's UCG recommendation, AusGO has made content from its 2014 Observational Techniques workshop available in several formats (Powerpoint/PDF slides, iPython notebooks) at <http://www.aao.gov.au/science/conferences/OTW2014/program> and also captured the presentations in video format. They will work with the Gemini Observatory to make that video content available by the end of this year.

One area that was still perceived as problematic was how and when Gemini provided information about major problems with instruments. *The UCG recommends that this be done as soon as feasible, on a timescale appropriate to the situation*. As a positive example, the UCG points to the communications that the Observatory provided surrounding the Gemini North shutter failures: rapid information about the failure, updates noting the extent of the difficulties, and an expected timeline for its solution and when Gemini North was able to get back on sky. On the other hand, *the UCG recommends that Gemini be more proactive in discussing the recent GeMS problems with active PIs and update the GeMS "Status and Availability" webpage*

more frequently. The goal is to ensure that the user community knows what the problems are and can thus modify their observing expectations accordingly, and at the least, understand how to approach GeMS data taken since commissioning.

P. Michaud and N. Levenson posed a number of questions to the UCG about how the Observatory communicates with science users. UCG members felt that the range of methods that Gemini already uses (e-mail, website, eNewscasts, GeminiFocus, social media, RSS) continues to be appropriate. New users can be overwhelmed by the amount of information available on the Gemini website; *collating some of the key links and Frequently Asked Questions into a “New to Gemini?” webpage could be helpful.* Creating separate social media streams for users and the public, or having Gemini staff do institutional tours, was not felt to be the best use of resources. *However, additional channels for real-time communication (voice or online chat) should be explored where appropriate.* Encouraging members of the Gemini community to share their expertise with each other, for example during “Phase II sprints,” is worth consideration.

Direct user communication with the Observatory is also important. The UCG will work with NGOs to encourage users to submit feedback forms.

Operations:

The UCG appreciates the difficulties of staff reduction that the Gemini Observatory has been facing and commends Gemini for managing these reductions without major disruption in observations, maintenance, or in the morale of the staff.

The UCG notes the successful installation of the Hamamatsu red-sensitive CCDs, with minimal problems and downtime. Some users have reported a relative lack of knowledge by Phase II support personnel from some NGO support staff on the characteristics of the new GMOS CCDs, which we assume is a temporary condition due to the newness of these CCDs.

The UCG commends the Observatory and the GPI commissioning team for the remarkably smooth GPI commissioning and early science program.

Scientific output from recent GeMS/GSAOI runs has been disappointing given the excellent commissioning performance. The technical issues involved are significant and the UCG recognizes that this is driven to a great extent by staffing challenges and the loss of senior personnel. The AO capabilities of Gemini South, in particular, are unique and a great potential strength of the Observatory, and *continued focus on this is strongly encouraged.* In the meantime, users and AO operators may need to be more flexible with the image quality requirements when conditions and instrument performance are unstable. Users pointed out that astrometry with GeMS has the potential to be ground-breaking, but is currently underperforming, and they suggested that a long-term plan be made to improve performance. Several users have requested that a static distortion-correction script be made available for testing as early as

possible. The GeMS+GMOS commissioning experiments with Multi-Conjugate Adaptive Optics correction in *i*- and *z*-bands have been notable and unique, and *the UCG recommends that the Observatory encourage further development of this mode.*

Users found the ToO mode easy to use and commended Gemini's good response time and ease of communication. *This is a major scientific strength of Gemini that the UCG encourages the Observatory to maintain and further develop.* With the advent of next generation surveys (e.g., ZTF in 2017 and LSST in 2022), community demand for the ToO mode is expected to ramp up. *Additionally, we encourage Gemini to continue exploring the possibility of enabling laser guide star AO Rapid ToO observations.*

Gemini is pushing forward with the Fast Turnaround pilot program, which will be offered for the first time in 2015A on Gemini North. Gemini's Fast Turnaround design document detailed the implementation of the fast turnaround, and addressed many of the UCG's prior concerns about its implementation, in particular the peer review of the proposals. The new model for peer review treads into new territory and may provide a paradigm shift that extends beyond the Gemini Observatory. The UCG looks forward to this new opportunity for users, and *recommends that the Observatory publicize its assessment of the program, including such metrics as oversubscription rates.* Considering the range of proposal methods now available --- which the UCG considers to be a strength of Gemini --- proposers may be helped by a description of the various "tiers" of time allocation (DDT, Fast Turnaround, regular semesters, and Large & Long Programs) and their intended purposes.

The general goal of more visiting astronomers to the telescope sites is laudable, for a number of reasons; the UCG hopes that new initiatives, such as Priority Visitor mode, will encourage an increase in visits to the telescopes. The new "Bring One, Get One" program also seems like an excellent initiative, and *the UCG encourages the Observatory to continue supporting and advertising this extensively.* The UCG believes that observers could also make more use of eavesdropping mode and will work to publicize its availability.

The UCG reviewed the presented overhead breakdown document for each instrument, and commends this continuing effort to maximize the efficiency of Gemini. *The UCG recommends some additional follow-up:* investigate why overhead in certain steps is so large (e.g. GMOS imaging acquisition requires 3 min after 11 min overhead for telescope); update the webpage with new and improved overhead numbers for consistency; distinguish bright star and faint target acquisition (e.g. GMOS longslit); compute the overall efficiency for each instrument as open-shutter time divided by total on-sky time to identify contributions of additional sources of overhead.

One user requested access to a 0.25" slit for GMOS-N, as permitted by the OT and listed on the GMOS web page, but the slit is only mounted on GMOS-S. *The UCG recommends that such a slit be mounted also on GMOS-N and, in the interim, that the GMOS-N web page and the OT be updated.* Another user, studying a comet, was forced to enter numerous avoidance

windows for bright stars manually. *The UCG suggests that the OT software be modified to accept a file listing avoidance windows in such situations.*

Proposing and the OT:

The first round of Large and Long Programs (LPs) were selected from a highly oversubscribed Call for Proposals. The committee, and the users we have heard from, are very happy with the introduction of LPs. *The UCG encourages the Observatory to make public the membership and the selection process of the LPTAC, and to provide information about which quartile proposers' scores represent (similar to what HST provides), and to provide somewhat more feedback. We recommend that the LP Call for Proposals clearly specify that proposal science justifications should be intelligible for a broad audience, and that each NTAC should clarify its policy on how it treats the relation between normal proposals and LPs.*

Users generally found Phase II interaction with NGOs to be satisfactory. The recent redistribution of responsibilities was a major change and it seems to have been relatively smooth from the user perspective. At the same time, the UCG notes that the OT remains a complicated tool for many users, and that *continuing effort to smooth the Phase II process is important*, especially to attract new users. One possible new facet that could be added to the OT is a template and/or added capabilities to generate finding charts from within the OT itself. This would provide the Observatory with a uniform set of finding charts, which presumably would streamline efficiency, and would provide a means through which observers could easily generate compliant finding charts.

The UCG is very happy that, by permitting users to begin entering their Phase II information as soon as ITAC releases results, the Observatory is now able to effectively provide another week for users to complete Phase II. The committee also applauds the Observatory's adjustments to the Phase II process, permitting a later deadline for programs with targets later in the semester. The UCG understands that these adjustments have so far been communicated only through direct emails to particular investigators. *The UCG recommends that this process be formalized.*

Furthering the Observatory's interest in maximizing the publication of Gemini data, *the UCG felt that it might be appropriate to request information from proposers, in the Phase I Tool, on their Gemini programs which have obtained data in the last 5 years, rather than the last 2 years as is the current practice.* The rationale was that NTACs cannot reasonably infer the PI's record of publishing data from information about programs only in the last 2 years.

A question that the UCG discussed extensively is the distribution of responsibility for the selection of guide stars. Currently, PIs select guide stars; NGO contact scientists review those guide stars; and then the telescope operator uses those guide stars during the observation, unless they find the selected guide stars to be infeasible. We discussed the possibility of enabling telescope operators to select the best guide stars during the telescope slewing, which could be more efficient than the efforts of relatively inexperienced PIs, and remove the necessity

for NGO contact scientists to spend time reviewing guide star selection. Some PIs will have strong scientific rationales (e.g., parallactic, or a specific position angle; necessity for a particular location on the detector) for a particular choice of guide stars, but many may prefer to select a default option of permitting the best guide star to be selected by the telescope operator. *The UCG raises this topic for consideration by relevant interested parties, starting with the Operations Working Group.*

Users continue to note that gmmgs - the mask design software for GMOS - still lags behind similar software at other observatories. The added functionality from the latest gmmgs upgrade has been noted and appreciated. In a climate of severely constrained programming resources, further immediate upgrades are likely not a high priority for the observatory; gmmgs at least works, but it is neither quick to use, nor graceful. *The UCG suggests engaging a small cadre of gmmgs 'power users' to work to recommend specific changes and enhancements to the software, such that a next effort at gmmgs enhancements is properly targeted.*

Data Reduction & Archiving:

The Ureka software package continues to be a bright point of success. It has been very easy to install and seems to have universal approval.

There remain some difficulties with the existing Gemini Science Archive, particularly with respect to linking calibrations to science targets. Efforts have been made to improve this for future observations, but it is still far from perfect. Gemini is exploring the possibility of saving costs in the running of the science archive, with changes expected from 2016. Whether the savings come from continuation of the current external provider or an in-house solution, examination of the archive provides an opportunity to improve the linking of calibrations to science targets. An internally-designed interface is now being prototyped and reviewed. *The UCG believes that user input on the choice of new archive system would be valuable; UCG member P. Barmby will serve on the review panel.*

The Data Reduction Forum has been launched and contains a number of good scripts, however activity has slowed. Some areas (for example AO data reduction) are not yet well-represented. *The UCG encourages the Observatory and NGOs to continue to support and promote the forum with contributions from their own staff and with "nudges" to users --- especially PIs and Co-Is of Large and Long Programs --- who could contribute.* Winners in the DR Forum challenge have been selected, and *the Observatory is encouraged to publicly promote these results as soon as possible.*

The creation of the Science User Support Department within Gemini promises to centralize post-observation support for users. The UCG is happy that Gemini is not planning to further reduce funding for Data Processing software, and hopes that this reorganization will enable Gemini to more efficiently serve its users with the most up-to-date software tools.

2015 Meeting

The UCG discussed ideas for the “Future and Science of Gemini” meeting that will be held in Toronto in June 2015. The committee feels that attempts to make the meeting as interactive as possible, rather than having a few people talk while many listen, are important to make the best use of the combined brainpower, and to further build community among users from the Gemini partners. Some examples of ideas for interactivity include breakout session for discussions on Gemini future directions and instruments, and ‘unconference’ sessions in which users of particular instruments share expertise and ideas. The UCG will provide input for a pre-meeting survey of the Gemini user community.

The Users’ Committee for Gemini:

Present:

Craig Heinke (CA, Chair) - *University of Alberta*
Vicky Alonso (AR) - *Observatorio Astronómico de Córdoba*
S. Mark Ammons (US) - *Lawrence Livermore National Laboratory*
Pauline Barmby (CA) - *University of Western Ontario*
Franz Bauer (CL) - *Pontificia Universidad Católica de Chile*
Mike Gladders (US) - *University of Chicago*
Mansi Kasliwal (US) - *Carnegie Observatories (attending remotely)*
Bo Reipurth (UH) - *University of Hawaii*
Armin Rest (US) - *Space Telescope Science Institute*
Stuart Ryder (ex officio) - *Gemini Operations Working Group Chair*

Unable to Attend:

Sarah Brough (AU) - *Australian Astronomical Observatory*
Eduardo Cypriano (BR) - *Universidade de Sao Paulo*