

REPORT OF GEMINI'S SCIENCE & TECHNOLOGY ADVISORY COMMITTEE (STAC)
OCTOBER 2013

The STAC held its fifth meeting on 29-30 October 2013 at Gemini South Base Facility.

STAC Membership

Lydia Cidale (in person)	Paul Martini (in person)
Tim Davidge (in person)	Thomas Matheson (by polycom)
Debra Fischer (by polycom)	Henry Roe - Chair (in person)
Don Gavel (by polycom)	Nathan Smith (in person)
Karl Glazebrook - Deputy Chair (by polycom)	Alan Stockton (in person)
Paulina Lira (in person)	Thaisa Storchi-Bergmann (in person)
Kevin Luhman (in person)	Kim Venn (by polycom)

A large fraction of the STAC's discussion focused on its Long Range Vision (LRV) for Gemini Observatory. This resulted in a draft document that will be discussed with the Gemini Board at its 2013B meeting. Over the next few months the STAC will continue to refine this LRV in consultation with the Board and Observatory. The intention is that at the 2014A STAC meeting the STAC will conclude the drafting process and forward an endorsed version to the Board for adoption. By adopting a consensus LRV the Board will set the framework for the Observatory to develop a Long Range Plan (LRP) for implementation. By necessity the LRV will be a living document that should be revisited and revised regularly.

GHOS

5.1 The STAC reiterates its statement to the Board of 2013-August-30 that “*The science case for GHOS remains strong and the throughput requirements should make it highly competitive with similar instruments. For GHOS to be considered a success, it must achieve its proposed performance goals. The desire on the part of the community to have this capability remains urgent. An additional benefit of GHOS at either Gemini site is the creation of an observing capability that can be scientifically productive in poor seeing and weather, a niche that is not currently well-filled by the existing instrument suite at either site. While it is unfortunate that the delivery of GHOS has slipped...GHOS remains the STAC’s highest priority for Gemini’s next instrument...The STAC makes its above recommendation to proceed with GHOS in the context of reiterating its recommendation that Gemini move forward as quickly as possible with the G43 Request for Proposals.*”

Large & Long Programs (LLP)

5.2 The STAC strongly endorses moving forward with the Large & Long Programs (LLP) project as presented in the report of 10-October-2013. The STAC continues to see LLPs as an important component to its long-range vision for the observatory.

5.3 The STAC strongly endorses using LLPs as a way of phasing in and experimenting with the new “priority observing” mode of operations. The STAC strongly encourages LLP teams to visit Gemini sites and use this mode as appropriate.

5.4 The STAC agrees that “value added” is an important evaluation criteria for Large & Long Programs, i.e. that a desirable, though not required, condition to highly ranking a LLP proposal is that it promises to deliver a data reduction pipeline, develop some new mode of observing, or provide some capability that enables additional science. The goal being to expand the capabilities the observatory offers to its users.

5.5 The STAC emphasizes the importance of annual progress reports from LLP teams. The STAC recommends that the LPTAC discuss the annual reporting mechanisms and consider asking for LLP teams to give project updates via videocon presentation at future meetings.

GPI Campaign Target Duplication Policies

5.6 The STAC endorses the draft policies for GPI target duplication as presented in the report of 10-October-2013. The ultimate goal is to enable as much science as possible with GPI and have the process be as open possible. The STAC encourages the organizers and chairs of the national TAC processes to forward any questions regarding potentially duplicative targets to the Deputy Director for review ahead of national TAC meetings so that TACs can focus on science and avoid ambiguity about whether proposed targets fall under the duplication policy.

5.7 The STAC applauds the plans to offer early science access to GPI and release the data to the community as soon as possible. The STAC is further encouraged that GPI will be available on-sky for a significant amount of time each semester beyond the GPI campaign time and thus many excellent projects should be able to be accomplished with GPI through the standard TAC process.

Fast Turnaround Program

5.8 The STAC discussed the Fast Turnaround Programs proposal as detailed in the report of 28-October-2013. The STAC endorses moving forward with the program as presented and looks forward to reviewing the detailed proposal as it is developed.

5.9 The STAC endorses experimenting with distributed peer review and expects to help continue to refine the concept as the implementation details are fleshed out and as the first experiments with it are conducted.

5.10 The STAC identified several potential concerns with the program, many of which the report already identified. One potential additional concern is that some PIs in particularly competitive fields may ask to mask coordinates of high priority targets from reviewers. While the STAC anticipates that this feature may be desirable in the future, implementation of it should not hold up the effort to develop the Fast Turnaround Program

Altair upgrade plans

5.11 Reiterating 4.17-4.20, the STAC views the renewal of ALTAIR as important to the scientific productivity of Gemini North and endorses the proposed upgrade path in the document of 15-October-2013.

5.12 The STAC encourages the commissioning of an ALTAIR-GMOS mode as soon as possible following the GMOS-N Hamamatsu upgrades, but not delaying ALTAIR-GMOS to wait for the ALTAIR upgrades.

Fourth Generation Instrument #3 (4gen3; next instrument after GHOS)

5.13 The STAC understands the resource issues that have led to the delay in implementing the instrument selection process for 4gen3. In the STAC's discussions 4gen3 is viewed as needing to be a workhorse instrument, as well as being a significant LSST followup instrument. This sets a deadline for 4gen3 to be commissioned and operating in regular use on the telescope well ahead of when LSST commences early operations. The STAC is keen to see the Request for Proposals move forward as quickly as possible. The STAC intends to discuss the RfP drafting process with the project manager and hopes that a draft RfP can be ready for Board approval by its May 2014 meeting.

Instrument Procurement

5.14 Designing and building a modern instrument for a large telescope is a complicated process that takes several years, with no responsible shortcuts to be found for many of the design and build phases. From the STAC's point of view, the time from an instrument's conception to first-light should ideally be limited by funding and the complexity inherent in designing and building instrumentation. It is the opinion of the STAC that too often in the Gemini instrument procurement process there are significant delays due to bottlenecks created by personnel shortages. In particular there are examples of significant delays due to the overcommitment of a single person or a limited few people involved with procurement or project management. This appears to be adding a significant delay to new instrumentation, particularly in the earlier phases of future instruments. The STAC encourages the AOC-G and Board to consider ways to alleviate these bottlenecks. Tradeoffs of 1-2 additional FTE in particular key years in return for a new highly desired capability arriving up to several years sooner may prove worthwhile. It is the opinion of many STAC members that improved and rejuvenated instrumentation at Gemini would have a transformative impact on scientific productivity and user demand. The STAC is concerned that the likely schedule for the 4gen3 instrument places first-light only modestly before LSST commences operations. If the schedule for 4gen3 were to slip by several more years there is a risk that Gemini would not be in as strong and desirable a position as possible to capitalize on LSST follow-up in the critical early survey years.

F2

5.15 The STAC reaffirmed the strong scientific interest in commissioning MOS mode on F2, even with the degraded image quality at the field edges. The STAC recognizes that given the thermal cycling time F2 will be limited to 9 new masks per month once MOS mode is commissioned. The STAC recommends that commissioning of MOS mode on F2 proceed only once the GMOS-S Hamamatsu upgrade is completed and GMOS-S is back into regular operation. This is to ensure that F2 is available in long-slit and imaging modes during the GMOS-S downtime.

It is understood that MOS commissioning could proceed as early as 2014B, but is more likely in 2015.

GMOS Hamamatsu upgrades

5.16 The STAC applauds the progress on the Hamamatsu upgrades and is highly encouraged that the GMOS-S upgrades will be completed in early 2014 with the GMOS-N upgrades as soon as possible thereafter. This has been a high scientific priority for the STAC and the user communities for many year. The STAC is pleased to see it nearly completed.

GRACES

5.17 The STAC reiterates 4.39-4.40 to proceed with testing, but places a low priority for investing additional Gemini resources relative to other projects.

T-ReCS decommissioning

5.18 The STAC was asked to consider the final disposition of T-ReCS. Given the level of Gemini resources that would be required and higher scientific priority of other projects (see 2.9 for the STAC's original recommendation on retiring T-ReCS), the STAC does not consider converting T-ReCS to a visitor instrument status to be viable. The STAC encourages Gemini to work with any other observatory that might be interested in hosting T-ReCS, particularly if it results in time trades, but recommends this not be a high priority relative to other projects. If a new home for T-ReCS is not found, the STAC recommends the observatory decide which of the various disposal options requires the fewest resources and is most valuable.

Conflicts of Interest

5.19 The STAC notes the new Conflict of Interest policy adopted by the Board for the STAC, in particular its emphasis on disclosure and high tolerance for indirect conflicts. The full policy is available at: http://gemini.edu/science/public/STAC/STAC_COI_201309.pdf

Scientific Priorities

5.20 The STAC makes its priority recommendations based on its judgement of important to scientific productivity and impact. The observatory takes the STAC's recommendations and considers resource conflicts such as personnel to generate its implementation priority list. Based on the scientific priorities of the STAC and in consultation with the observatory on likely resource conflicts, the STAC makes the following comments on the observatory's project prioritization:

- GPI remains the top development priority
- The STAC places a high priority on GHOS moving forward expeditiously.
- The STAC places a high priority on 4gen3 moving forward expeditiously, although understands the delay in waiting for the release of the GPI project manager to the project, currently expected in Spring 2014. The STAC requests the observatory keep it closely informed on GPI stability and progress, in part so that contingency planning can begin as soon as needed so as not to delay 4gen3 yet further.

- Commissioning of F2 MOS-mode should proceed only after the GMOS-S Hamamatsu upgrade is successful and working on sky
- It is understood that commissioning of F2 MOS-mode has only a low risk of conflicting with the GMOS-N Hamamatsu upgrade. However, if such a resource conflict occurs, the STAC recommends GMOS-N not be delayed and will revisit the issue again as needed.
- The ALTAIR upgrades are needed and important to the next decade, however if resource conflicts occur, the priority of this project is less than that of GHOS and 4gen3 at this critical point in those new instruments. Similarly, upgrades to Canopus that lead to greater sky coverage are an immediate priority and should take precedence over the upgrades to ALTAIR's real-time computer and tip/tilt field extension project.

Science time 2014B

5.21 The STAC endorses the observatory proposed science time goals and minimums for 2014B, although awaits the outcome of the review of the GeMS deformable mirror upgrade before commenting on the two scenarios.

Points-of-Contact

GHOS - Nathan Smith

GRACES - Nathan Smith

GMOS - Tom Matheson

F2 - Karl Glazebrook

GeMS - Tim Davidge

GPI - Henry Roe

ALTAIR & Gemini North AO - Henry Roe

NIRI - Henry Roe

Fast Turn-Around - Thaisa Storchi-Bergmann

Default for other issues arising: Chair

Future STAC Meetings

The 2014A meeting of the STAC will be in Tucson, AZ at NOAO on 8-9 May 2014. The 2014B meeting of the STAC will be in Hilo, HI at the Gemini base facility on 29-30 October 2014.