



Gemini Observatory Comments on STAC April 2013 Report July 5, 2013

Gemini Observatory thanks the STAC for their report. We provide some comments here and updated information, including outcomes following the May 2013 Gemini Board meeting. Board resolutions are available at the Gemini [website](#).

Large & Long-term Programs (LLPs)

We continue to work with Board Working Group to resolve some outstanding questions, with an intention to issue a call for Large and Long-term Programs in early 2014, to begin execution in the 2014B semester.

FLAMINGOS-2

Imaging and longslit modes are now being commissioned in time to execute 2013B programs. In agreement with the STAC recommendation, multi-object spectroscopy commissioning will be done in 2014A.

GMOS-CCD Upgrades

The severe issue detected mid-May with controller communication was solved after five weeks of work involving support from ARC and our community (ANU, HIA). The communication failure was between the PCI bus and the ARC-65 communications board. October installation at Gemini South was cancelled because contingency to deal with resource availability through the northern summer is gone. In order to re-align the project with the resource plan throughout early 2014 (with various staff constraints such as the southern summer in January-February) and have a high-confidence plan that includes sufficient testing, we are recommending to ship in December and start the shutdown in March 2014 with release back to observations by end of April. We will move forward with purchasing the second batch of CCDs in July.

NIRI

We acknowledge the STAC recommendation to restore NIRI to its original working state without adding any performance enhancements. Given the current load in our portfolio, we will review this option in May 2014 and assign priority amidst other instrument work. At that time we will have a clearer view of the whole suite of instruments currently in preparation: FLAMINGOS-2, GMOS-CCDs, GRACES, GPI, GHOS, and Gen4#3.

Transition Plan Changes with High User Impact

The observatory reported plans for next steps to the Board in May 2013. Specifically, the next steps for the three initiatives, which we will undertake, are as follows.

Science Archive - to scope the work required to build more archive systems and a user interface on top of the infrastructure, and cost both cloud-sourced and in-house options. This will result in an estimated cost for the work and determine the skill set required. In parallel, we will consult other possible hosts for the science archive elsewhere within the partnership to get estimates of the range of financial options. Note that the current Gemini Science Archive contract is being renewed to the end of the International Agreement, so no new arrangement will go into place before 2016.

Increasing Classical and Queue Visitor observing - to model the various options which have emerged in discussion with the community representatives and figure out how they can be implemented in reality.

Reduction of the DPD group - to implement the Data Reduction (DR) Forum and assess its potential impact in part-mitigation of a future in which the DPD group is greatly reduced.

Detector Controller Upgrades

We are currently working on a schedule and resource plan for this project. We are currently resource limited and will look to outsource a significant portion of the work. We expected to purchase a controller from ARC by the end of 2013.

Acquisition and Guiding (A&G) Units

The upgrades to the A&G units have been rescoped significantly and consist of two sequential phases. These will be implemented between now and 2015 with a mix of internal and external (vendor) work as resources are available when the current main instrumentation projects move into science operations. First, we will deal with reliability issues identified in our Failure Mode and Effects Analysis (FMEA), in particular related to motor control, some mechanical issues and obsolescence in electronics. Second, we will look at upgrading performance of the Peripheral WaveFront Sensor (PWFS) #1 to make it a dual sensor able to tune the primary mirror (M1) shape through active optics and do fast tip-tilt-focus guiding on fainter stars.

Altair

We are currently reviewing specifications for the L/M dichroic beamsplitter and are close to the point where we can start the vendor bidding process. We have taken on-sky tests that suggest that the GMOS/Altair mode may be beneficial and are moving forward with the GMOS dichroic procurement (which will be combined with the L/M dichroic). Separately, we have initiated a plan outlining the software work that should be done to get the GMOS/Altair mode to work. The long-term plan to upgrade Altair, initially focusing on the real time computer upgrade, is being devised.

GeMS/Canopus and GSAOI

We will offer GSAOI with no explicit cap in the call for proposals in 2014A, limiting observations only based on feasibility following partner submissions. The tip-tilt guide star wavefront sensor upgrade effort is currently critically dependent on the results of the latest round of Australian funding proposals, which we should receive feedback from in 2013Q4. The Gemini Board has endorsed the concept of exchanging observing time for instrumentation contributions (resolution 2013.A.7), and this process may be used to facilitate completion of the Canopus wavefront sensor upgrade.

Small Project Development Fund

The Gemini Board has approved the planned funding of small development projects (resolution 2013.A.12), and we recognize the community interest in this program. We will start this effort after a new project manager is hired. At this time we will also involve our internal science staff and STAC in discussions on known projects Gemini should consider pursuing. The expected start for this effort is late 2013 or early 2014.

Use of Observing Time to Leverage Development Funds

The Gemini Board has agreed that classical observing time may be offered for in-kind contributions to instrumentation (resolution 2013.A.7).

Fourth Generation Instrument #3

Following Gemini Board resolution 2013.A.15, we will explore and address concerns raised about the instrument procurement process. We will report back to the Gemini Board while making progress toward releasing the Request for Proposals, aiming to minimize any impact on the release date. Gemini continues to work towards the goal of releasing the Announcement of Opportunity in October 2013. We will release interim information about this project to the community in July 2013.

GPI

The GPI project was rebaselined on April 30, 2013. The project remains on track to host the pre-delivery acceptance review in July with transportation to Chile set for August. First light is still expected in 2013Q4 with commissioning to commence by the end of the year. Given this schedule, we can best provide early opportunities for community use of GPI two ways. First, during the later stages of commissioning (likely 2013Q4), we will observe some public targets and release the non-proprietary data immediately. Second, we will offer expanded opportunities for early science during the 2014A semester. We will use this early science process and a special call for proposals because insufficient information about GPI performance on sky will be available for potential users at the time of the regular 2014A call.

GPI will remain a high priority project and Gemini will ensure sufficient science and engineering staff are available and assigned to assist with post-delivery testing and commissioning.

GRACES

We have seen significant progress in the fiber procurement effort with the outside vendor and have received commitments from CFHT and HIA to continue the work into commissioning as needed without increasing the Gemini project cost threshold. We plan to test the science fiber and determine if the GRACES concept is feasible in a sub-system acceptance testing phase at HIA around September 2013.

GHOS

The Gemini Board has set June 30, 2013, as a deadline for having the proposed vendor sign the contract (resolution 2013.A.8). We are working closely with the team to help ensure this deadline is met. As of June 30, the vendor and its main-subcontractor had finished the contract discussion and initiated the process of getting approval by the subcontractor's Board. The new optimistic timeline is to obtain all approvals and have the kick-off meeting for the Preliminary Design phase by end of 2013Q3.

Vision and Long-Range Planning

The Observatory looks forward to working with the STAC to develop a long-term vision for the next decade and beyond. The principles of the vision should guide concrete actions, which will enable the realization of a scientifically productive observatory in the future. Gemini strongly endorses the key strengths the STAC has identified, including

flexibility and innovation, which should be further developed to provide continuing scientific capability to the international user community.

Priorities

We set high-level priorities, and then the corresponding work plan is developed through our resource allocation process. The plans for the second half of 2013 are as follows. The effort focuses on GeMS through June to finish 2013A science observations, and on FLAMINGOS-2 through July to finish commissioning imaging and longslit modes. GPI takes priority from arrival at Gemini South until it is commissioned and available for community use. Having stabilized operations of FLAMINGOS-2 and GeMS also allows us to put resources to bring the Hamamatsu CCDs in GMOS-S. Off-telescope performance and reliability work is planned for GeMS in July-August, and telescope shutdowns will occur at Gemini South (August, A&G) and Gemini North (September, M1 coating). Some other lower priority activities are taking place in the semester; a few of them require careful coordination of resources and others are relatively independent. Those activities are:

- develop the RfP process for the next instrument Gen4#3
- kick off the GHOS project with the vendor
- organize the formal hand-over review of GeMS to Operations (September)
- kick off the Altair upgrades project, as this is key to keep AO competitive for the next 5 years
- complete the acceptance testing of GRACES hardware at HIA and decide if performance enables the installation phase between the two telescopes (Gemini and CFHT)
- as a best effort, launch the small science and technology project development fund

The 2014 main priorities (outside of the above list) are:

- deploy new CCDs in GMOS-N
- commission F2 MOS mode
- continue GeMS natural guide star wavefront sensor upgrade to increase guide star sensitivity

A&G upgrades and detector controllers have lower priority and will be done through vendors as much as possible. The NIRI restoration project is not planned yet, and new work must be weighed against other instrument upgrades once we know the status of the various new instruments being commissioned.

Science Time 2014A

The Gemini Board has approved the recommended science time for 2014A (resolution 2013.A.9).

Future STAC Meetings

We look forward to hosting the STAC at Gemini South in October 2013.