

## **Operations Working Group Tucson - Feb. 10, 2003**

Participants: Taft Armandroff, Warrick Couch, Dennis Crabtree, Max Faundez-Abans, Isobel Hook (via video), Sebastian Lopez, Magnus Patterson, Phil Puxley, Jean-Rene Roy, Doug Simons

The agenda was revised to accommodate Simons who is talking with the GNIRS people this afternoon.

Minutes and previous action items: A few minor corrections were made. Once these are made Crabtree will send a copy to Roy and the minutes will be posted on the Gemini web site. The Phase-II Software was not ready by the ITAC Meeting. The other action items were accomplished.

### **Action Items:**

**Action 1:** NGOs are to consult with their TACs about rolling over band 1 programs to start with 2003A proposals! For 2002B this would have meant carrying over 43 and 27 hours for GN and GS.

**Action 2:** NGOs to talk about rollover of Band-1 programs within our communities. Gemini will provide some statistics on the potential impact.

**Action 3:** Gemini will explore options to provide both a nightly and monthly summary of Gemini observatory and instrument specific information for the NGOs, separate from the public 'Hot News'.

**Action 4:** Crabtree commits to producing a revised draft of the Joint Implementation Plan along the lines suggested during the discussion for March 7.

**Action 5:** The NGO leaders are to lobby their Board representatives in order for the issue of Hilo accommodation for classical observers to be discussed at the next Board meeting.

### **Review of 2002B Operations**

Puxley updated the summary of 2002 B statistics and accomplishments presented in the written material (to Jan 17). At Gemini North, about 52 nights were chargeable to partner science. In total, 59 nights were used on Gemini North for science. We examined the completion statistics. More band 1 programs were completed/started than other bands as expected. It was discouraging that 54% of the Gemini North programs in Band-2 received no data. This was attributed to the NIRI failure and associated recovery. NIRI was run in a restricted mode after it was repaired initially to protect its availability for Altair commissioning. Also, at Gemini North, the completion statistics for Band-2 and Band-3 look identical, within the counting statistics. GMOS ran reliably, with very little time loss.

Puxley noted that data for some 2002B programs was being taken during early 2003A time. This will allow several 2002B NIRI proposals to be completed. Puxley pointed out that the completion status for each program is now shown on the Queue Summary web page. The time lost to weather on Mauna Kea during 2002B was less than the long-term average.

GMOS nod and shuffle commissioning went very well during 2002B. It was noted that the GMOS shutter is being used 100 times more than planned due to the nod and shuffle mode. OCS 1.0 was successfully commissioned during this semester as well. At the end of 2002B NIRI was performing well and being used with no restrictions.

At Gemini South, the weather was very poor in 2002B and science nights were added as a result. There were 364 hours of chargeable data and 104 hours of Demonstration Science, Director's Discretionary and Science Verification time during 2002B. Also, the T-ReCS Queue was cancelled due to lack of T-ReCS delivery. CIRPASS Demo Science was accomplished. The completion statistics do not include the cancelled T-ReCS programs. A large fraction of the Phoenix programs in Bands 1, 2 & 3 were completed; Phoenix was reliable. Acquisition Camera Quick Response programs that were not triggered dominate the 30% of the Band-1 programs at Gemini South that received no data. MOS Demo Science was completed for Flamingos, and extracted and sky-subtracted Flamingos MOS spectra exist (as shown by Puxley).

Crabtree asked about when the Observatory will attempt to switch instruments during Queue nights. Gemini is keen to do this, and they plan to attempt this in 2003A. Puxley noted that the VLT does relatively few switches in instrument during the night due to training/staffing issues. Naturally, the Queue efficiency strongly gains by the ability to switch between optical and infrared instruments as the moon rises or sets.

Couch asked about whether the overheads for acquisition and related tasks are costing in reality what is advertised. Puxley said that Gemini is reviewing overheads empirically in detail. Armandroff and Crabtree advocated that the charges be kept as close to reality as measured empirically, so that programs requiring numerous acquisitions do not bear an artificially high or low cost to the NTACs.

## ***Instrumentation Programs Status Report***

Simons noted that "no news is good news" and there is nothing to report on GMOS-N or NIRI as both are working very well.

The tragic Mt. Stromlo fire destroyed NIFS, as Simons saw during a recent visit. A few NIFS pieces that were not on Mt. Stromlo at the time survived, particularly the documentation set, electronic schematics, control software, both the science and OIWFS detectors, and some pieces of optics. NIFS, along with the rest of the Stromlo facility, was insured under a commercial insurance policy. The policy will cover the cost of replacing NIFS to its state when the fire struck, i.e. close to completion. There will be no cash to Gemini as the insurance will only pay ANU to build a replacement instrument, Simons is attempting to keep his options open on how to proceed with the insurance payout. One possibility is to re-build NIFS, and the other is to build another instrument at Stromlo with these insurance funds. Science and competitiveness

issues will be discussed with the Gemini Project Scientist Team. Simons expects to make a decision on whether to proceed with a NIFS clone in about 2 months.

Simons also explored how to keep GSAOI on track after the Stromlo disaster. The ANU optical design and CAD files have been restored on line. The GSAOI Team will be back working at Stromlo in about 1 week. Simons toured two machine shops in Canberra that may/will be used to build GSAOI, plus a temporary shop will be built on Stromlo over the next 6-12 months. Extensive clean-room facilities and electronics labs are also being made available. The challenge will be managing the modified project plan.

## **T-ReCS**

We then discussed T-ReCS. Approximately half of the T-ReCS Pre-Ship Acceptance Test Plan was executed in November 2002. T-ReCS passed the vast majority of the tests with only the throughput test failing. Since then, all the microswitch mounts were modified (and there have been no further mechanism failures), and extensive detector work was done. Gemini sent a Raytheon engineer to help with the detector issues. The quantum efficiency has been improved from about 25% to approximately 40%. The remaining T-ReCS detector issues (high flux excess noise and large gain dispersion, low level (0.3%) inter-channel crosstalk) are intrinsic to all Raytheon CRC-774 detectors and are being experienced by similar VLT and Subaru instruments. The T-ReCS acceptance test will occur February 17-25. Simons expects T-ReCS to arrive in Chile in late March with first light in May.

## **Michelle**

Michelle's first light was in January on MK approximately one week after GMOS-S first light in Chile. A new science grade detector was installed at UKIRT prior to delivery to Gemini.

Air accidentally leaked into the MICHELLE vacuum jacket during LN2 precool and ice formed inside the dewar. This was not detected until the first images recorded. A complete thermal cycle purged the contamination from the detector but it was left with a dead channel. This may, or may not, be curable later.

The main goal of the first run was to establish basic focus and throughput performance, Michelle was mounted on the Altair port to allow the mapping of the pupil alignment using the science fold. The imaging sensitivity is preliminarily within a factor of 2 (were worried about a factor of 10) of that expected. MICHELLE will focus in both modes on the side port (the science fold allows for more focus dynamic range), but this is not yet determined for the up-looking port. Tests showed that MICHELLE is not able to guide and chop simultaneously. This is being given very high engineering priority. Some MICHELLE detector issues need attention, including detector translation to avoid vignetting, and the dead detector channel. Also, the pupil alignment is poor, and the issue of focusing the instrument while on the up-looking port remains; these both need work. MICHELLE will return to JAC/UKIRT to have some of these problems addressed. Doug Simons is concerned that MICHELLE does not seem to have the support and staff and organization to behave like a facility instrument. A sense of ownership and responsibility for MICHELLE is needed.

We discussed the issue of MICHELLE use in 2003A. It is uncertain whether the 2003A approved MICHELLE imaging programs can be executed. In the spirit of communication, Armandroff strongly encouraged contacting the 2003A MICHELLE PIs once we know more.

## **bHROS**

The instrument is about 8 months behind schedule and is complete at the level of bench mounted components. The team is still waiting for completion of the fiber assembly and the dual slicer module (external vendor slips). The bHROS team has run a dry-run of about 80% of the acceptance tests. Acceptance testing will occur for bHROS on February 17-20, 2003. Gordon Walker has agreed to participate in tests in lieu of a Gemini instrument scientist. Simons anticipates the first opportunity to commission bHROS will be in 2004A. T-ReCS and GNIRS commissioning have priority over bHROS.

## **GMOS-S**

GMOS-South had a spectacular first light on January 18, 2003. The first image, without guiding or special focus adjustment, had FWHM of 0.9 arcsec. There has been good use of the experience from GMOS-North in making the commissioning efficient. The faulty detector is expected to be replaced during Q2 2003 and this will have no impact on releasing GMOS-S for community use in 2003B. The IFU is on track for Q3 delivery from Durham and new gratings are expected soon from the ATC. The high-level software is being used for GMOS commissioning. The imaging and long-slit commissioning is basically done. A head start for 2003B GMOS pre-imaging may be possible in 2003A. The PSF has peculiar low level asymmetric fanned out structure. This is due to the telescope, not GMOS, as the same problem is seen in the Acquisition Camera and the structure rotates with the Cass rotator. There is 4% of flux in the extended wings so this is an issue for photometry.

## **GNIRS**

GNIRS completed intensive cold testing at NOAO over the holidays including all optics, mechanisms, and engineering detector. Simons reported that the mechanisms are operational and that GNIRS reaches its operating temperature. Overall results are encouraging with several problems noted but nothing atypical. The GNIRS Team has addressed many modest items on their "punch list". The four cameras are not parfocal and will be adjusted before the next cold test. There is astigmatism in the polarimetry mode due to stress induced in the mount of an optic. The OIWFS is not in correct focus. The flexure in the low resolution camera is OK but well out of spec on the high resolution camera on 1 axis. This is still an area of concern as no obvious source of the problem is identified

The next cold test will occur in a few weeks at which time a revised delivery estimate will be made depending upon the results.

## **Hokupa'a 85**

Simons reported that most of the mechanical components are in Hilo where integration is taking place. The deformable mirror, wavefront sensor, APD rack, electronics and software are also substantially complete. The membrane mirror is inherited from Hukupaa-36, and the control system is inherited from the IRTF AO system. Optics are critical path. Simons expects completion in mid-2003. The payback time diminishes for late delivery and the payback for an

August 1 delivery is 10 nights. Gemini has the option to close-out all obligations in the MOU if the instrument is not accepted by 31 August 2003.

## **Altair**

ALTAIR arrived in mid-October 2002, was set up quickly and has had two commissioning runs. The first image has a Strehl of ~25% at H! ALTAIR is the most complex instrument yet delivered to Gemini. The ALTAIR throughput is very good (89%). The system has problems maintaining lock for (visible) seeing poorer than 0.6 arcsec. Elongated images have been observed, ultimately traced to imperfect control of the science fold. There is some concern about a surprisingly small isoplanatic patch seen thus far (but need more data). If this proves true, a potential workaround is to reverse two elements to lower the altitude of conjugation. ALTAIR is currently in the lab for rework, primarily to change the plate scale of the wavefront sensor to improve stability. The science path alignment will be adjusted to reduce non-common path aberrations. There will also be work on the NIRI OIWS to speed up readout and align the field stop. Otherwise this can only be used for slow flexure adjustment. The next commissioning runs are in April and May. There are no plans for community access to ALTAIR in 2003, though SV is planned. Simons felt that the plate-scale change is really needed before ALTAIR can be successfully commissioned.

## **2003B**

Simons showed updated plots of science and commissioning time as a function of semester. 2003B in the North looks weak in science time. In the South, there are a number of semesters that are predicted to be problematic for achieving 70% science. Puxley suggested Phase-II deadlines for P.I.s of 15 July and 15 August. The Queues would be public on 19 June, with the skeletons mailed on that same date.

Classical observing with a 3-night minimum will be featured in the 2003B 'Call for Proposals' for GMOS-North imaging and spectroscopy, and NIRI imaging and spectroscopy.

## **Gemini North**

The current plan has 50% science time for 2003B which is below the minimum 55% mandated by the Board. The reduction in the North is due to the MICHELLE and ALTAIR challenges. There is a need to recover about 9 nights to bring it up to 55%. Armandroff noted that the US community would prefer to see the 55% number met.

The Operations Working Group recommends that Hokupa's 85 commissioning occur after November 30 to allow these 14 nights to be used as contingency for unexpected Altair or Michelle issues.

The silver mirror coating program received a setback in that the samples coated thus far have not aged well. Therefore, an additional magnetron is needed, and the revised coating process needs to be developed. Thus, neither Gemini North nor South will be silver coated in 2003. The 55% science is achieved by coating M1 with aluminum rather than silver (21 nights required reduces to 10 nights).

## **Gemini South**

The proposed 2003B Gemini South plan gives 60% science time, meeting the top-end of the Board goal. Armandroff noted the U.S. community's strong interest in T-ReCS spectroscopy commissioning so that it will be available for SIRTf follow-up.

## **GNIRS Tour**

After lunch the Operations Working Group received a tour of GNIRS and the NOAO Flexure Test Facility from Jay Elias & Neil Gaughan.

## **Semester 2003A – Phase II**

The partner perspectives had been circulated earlier so the discussion focused on issues and ways to improve the process. Roy summarized the proposal process as seen from Gemini.

## **Partner Perspectives**

A few common themes emerged from the discussion of Phase-II proposals:

- The NGOs would like to receive the Phase-II skeletons when they are sent to the P.I.
- In general, all communications between Gemini and the P.I. during the duration of Phase-II needs to be copied to the national contact scientist. It is particularly important for the NGO/national contact to be informed when Gemini accepts a Phase-II proposal.
- Strongly desire earlier release of current-semester Observing Tool.
- The initial communication to the P.I. on observing time needs to include and emphasize the deadlines. There seems to be some confusion in the communities about what the deadlines really mean.

Phil Puxley commented on some of the Phase-II issues raised by the NGOs:

- Having P.I.s submit Phase-II files by the deadline has always been a problem. The VLT finds that 80% of PIs need some help with Phase II. They found that each program requires about 4 hours of interaction (2 years ago).
- Regarding the OT remote database, the database has been written and tested. Gemini is working on a document on how to update the status of the database and what actions to take under certain conditions. It will be sent to the NGOs for comment. This is a high priority for the next public OT release.
- Proper inclusion of overheads is the other high priority for the next public OT release.
- Better internal checking (check button) is on the work list for the OT. Checking of GMOS gratings and such would be part of this.
- Gemini is in the process of updating the HelpDesk software (Remedy & ARWeb) and will be complete in May. This will allow the current version of Netscape to be used with the HelpDesk.
- The shortage of completed Phase-II forms at the beginning of the semester causes some low-band proposals to be executed.

Hook asked when the OT would be released for 2003B. Puxley replied that the goal is to release the OT in late May or early June before the ITAC meeting.

Puxley noted that Gemini does a six-month review of helpdesk requests. This input will be used to improve Phase II documentation.

There is a problem getting sufficient programs in at the beginning of semester. The VLT rolls over band 1 proposals until they are finished. In this semester Gemini has been doing band 4 programs because they don't have band 1 Phase IIs. There are band 1 programs that could have used these observing conditions! Effectively there are no science bands for the first month.

There was a suggestion that starting in 2003B programs that don't have Phase II in by the second (final) deadline will be demoted one science band with band 4 programs being dropped.

## **Gemini – NGO Communication**

There was extensive discussion of Gemini – NGO communication initiated by a document prepared by Hook. NGOs are the primary contact with community and we should know the status of Gemini, the instruments, etc. Hook, Armandroff, Couch and Crabtree all expressed the view that communications between Gemini and the NGOs needs to improve.

There was a long discussion of the pros and cons of various approaches to distributing information. Roy is hesitant to release the night logs (although they are distributed to instrument teams) because of potential inaccuracies. There is also a strong desire to minimize extra work for Gemini staff. Possibilities include a monthly report to the NGOs at a high level, a monthly 1-hour telecon, or an e-mail exploder(s) for each instrument that goes to the Gemini and NGO scientists supporting that instrument. Finally, access to the internal Gemini Web pages for the NGOs was discussed.

## **Gemini – NGO MOU**

The MOU was discussed and it was agreed that the document should be less formal and not be called an MOU. The new title will be “Joint Implementation Plan for User Support under the Gemini Agreement”.

## **Phase I**

There is no commitment from Gemini for supporting Phase I (PIT) under OSX. However, Kim Gillies is undertaking this on his own time and a version may or may not be available for 2003B. This version will not be supported by Gemini.

Gemini will review the instrument overheads before the 2003B Call for Proposals to see if some of them can be reduced.

Gemini will add to the PIT worklist the designation of an international P.I. If this does not get implemented in PIT, Gemini will accept a new field in the submitted input from NOAO (if NOAO is able to implement this field in the NOAO Proposal Form).

## **Classical Observing and Accomodation**

PIs will need to request target changes for classical programs in the same manner as for queue programs. PIs will be told that if they change to unauthorized targets their data will become public immediately. We discussed the issue of accommodation for classical observers. The Hilo Hawaiian is too disruptive. The NGO leaders are to lobby their Board representatives in order for this to be discussed at the next Board meeting. The NGO representatives will raise this with their Board members and will try and get it on the May Board agenda.

## **OCS**

Gemini will be running with OCS 1.1 at the end of the month. This version will be fully integrated into the observation process. This will not include the OLDP.

OLDP has a rudimentary hook into the DHS and will not have the final display tool. Gemini still needs to purchase the operational hardware. OT will have more capabilities for queue management, calculation of overheads and access to a central observation database.

## **GMOS Mask Design from non-GMOS Images**

New mask software, which supports N&S, has been released!

## **Next Meeting**

The next Operations Working Group meeting will occur in La Serena on August 11 & 12. There will be a visit to Cerro Pachon on the afternoon of the 12<sup>th</sup>, and possibly training sessions on August 13.