

US Gemini Science Advisory Committee Report

October 8-9, 2007, Tucson

Present:

Tim Beers (via video link; also a US GSC member)

Laird Close

Karl Gebhardt (chair)

Michael Liu

Verne Smith

Angela Speck

Nicole Vogt

GSC members present:

Nancy Levenson (via telecon)

Chris Packham

Henry Roe

Recommendations:

1) The head of the NGSC should present US Gemini SAC issues during the GSC meeting.

With the re-structuring of the GSC, there is no formal direct involvement of the National Offices in the GSC, yet issues that are important to the US user community need to be communicated to the GSC.

Response: The first meeting of the recently re-structured GSC was held on 18-19 October 2007 at the Gemini Southern Base Facility in La Serena. As Chair of the Gemini Operations Working Group, V. Smith attended, while the regular US representatives in attendance were T. Beers (via video), N. Levenson, C. Packham, and H. Roe. The US issues raised at this meeting of the NOAO SAC were communicated to the GSC; however, in the future it will be important for the SAC and US GSC members to communicate effectively before GSC meetings. The US GSC members should be invited to the SAC meetings as a matter of course in order to better coordinate joint SAC/GSC advocacy of issues important to the US user community.

2) The committee lauds the outreach efforts by the NGSC to engage the astronomy community on the Aspen instruments. We outline a few further suggestions below:

a) The committee recommends a telephone campaign to identify the main views that the community has about Gemini. This includes the science output, observing use, and Aspen instruments. There continue to be negative comments made towards Gemini and it is important to identify the reasons. The committee will discuss the best way to approach this and report at the next meeting.

[Response: The telephone campaign is being organized by the SAC Chair.](#)

b) The committee recommends continued development and encouragement of student visits and student programs designed to help in the observing strategy and data analysis. It is a very good development that the GSC is looking into ways to involve students and all researchers.

[Response: The NGSC Director is working with the NOAO Director to formulate a plan for sending graduate students doing thesis work involving the Gemini telescopes to visit the Gemini sites. This plan will involve students traveling to the summit to help observe, preferably their own programs if possible. Included in these visits, would be time to work at the Gemini base facilities to interact with Gemini astronomers as well as reduce or analyze Gemini data. Visits to Gemini South would also involve visiting and working with NOAO astronomers at NOAO-South.](#)

3) Make the Gemini-North ALTAIR+LGS system more scientifically competitive.

The current Gemini LGS system has technical limitations that significantly impact its competitiveness, especially the field of view for tip-tilt sensor. The committee would like to see a concrete plan to fix these, since even a modest investment may lead to much improved performance and a larger number of interested users (since larger tip-tilt FOV means many more possible targets). The committee notes that there only needs to be one direction (or PA) where one needs a large off-axis angle for a tip-tilt star.

This issue was identified as a high priority last year by the US SAC, but there has been little overt progress. The combination of an improved LGS system with Gemini's queue observing would be a unique and powerful capability.

As a point of reference, the Keck LGS system in the first calendar year of operation (with only a limited number of shared-risk science nights) produced 8 refereed papers, and in its ~2.5 years of operation has produced 30 papers. Gemini is now approaching the completion of its first year of availability, and there have been no papers yet.

Response: Improving the LGS field-of-view for tip-tilt was an issue raised at the GSC meeting and it is the second highest scientific priority item to deal with over this next year at Gemini-N. The only science item ahead of LGS improvements is to fix GNIRS and deploy it on Gemini-N.

4) Greatly increase the amount of ALTAIR+LGS performance data available to the community.

There is very limited information about the achieved on-sky performance of ALTAIR+LGS, e.g., FWHM and Strehl as a function of tip-tilt star brightness and wavelength. This impedes users from developing good proposals, both in terms of feasibility and likelihood of yielding published results. A very modest effort of measuring data in-hand and posting to the Web pages would be helpful.

Response: The Gemini Observatory is nearly finished with a major upgrade to their entire Web site, including additions to the LGS pages. NGO staff are currently providing input back to Gemini on their modified pages and these new and improved Web pages will be posted on the public site over the period of late-2007 into 2008 (all new pages will not be released at once).

5) NICI commissioning should receive increased support.

NICI has only had two commissioning runs since being delivered to Gemini-South 10 months ago, and a couple of planned runs have slipped or been cancelled, especially due to Gemini-South software delays. The committee encourages that NICI commissioning be given the highest priority. Much on-sky commissioning and characterization remains to be done.

The upcoming Chilean summer is a key opportunity to begin the NICI Planet-Finding Campaign, and it would be a notable lost opportunity if Gemini-South + NICI is not ready for science.

Response: This issue was raised by the US representatives at the GSC meeting and it is the number one science priority item for Gemini-S. With the cancellation of the third NICI commissioning run and its current date expected to be January 2008, the SAC strongly encourages that NICI commissioning move forward with all possible speed. It is very important that commissioning be successfully completed, with the start of the Science Campaign in 2008A.

6) There should be a detailed plan to get GNIRS back online on G-N.

The GNIRS accident is obviously a significant setback. The expected timeframe for recovery is advertised as 8-12 months. Evaluation of the state of the existing hardware is a prerequisite to production of a detailed recovery plan. Sufficient internal resources need to be devoted to complete this evaluation in a timely way. As information from the disassembly becomes available, a detailed budget and plan for the repairs, including the allocations of internal resources, needs to be produced. The community should be informed about the schedule for returning GNIRS to service.

Response: Returning GNIRS to service on Gemini-N was the highest ranked science priority set at the GSC meeting. NGSC plans to keep the US community informed of the GNIR'S recovery efforts through the *NOAO/NSO Newsletter*, the NGSC Web site, and at the winter and summer AAS meetings.

7) The committee recommends that Flamingos2 be given scientific priority over MCAO, in the event of a conflict in the commissioning schedules of these instruments. It is this committee's thought that Flamingos2 will still produce significant science without MCAO and will require less effort to commission than MCAO.

Response: This question was discussed at the GSC meeting and it was agreed that Flamingos2 should have priority over MCAO, if there is a conflict in the commissioning schedules.

8) The committee recommends Gemini Science Meetings once every two years.

The 2007 Gemini Science meeting was a success, based on the number of participants and the quality of results. Gemini is in a mature state, and therefore should continue to produce results such that a science meeting every two years would be worthwhile.

[Response: This recommendation was passed on to the Gemini Director for Science.](#)

9) The committee does not recommend at this time a unified TAC. However, additional thought should be given with the possibility of having NOAO run a unified TAC.

Since the partners have only recently had access to a truly mature pair of fully instrumented telescopes, it is advisable to continue with the individual TACs in order to easily maintain equity. A unified TAC should be considered in the future. NOAO should discuss what resources it would need to manage a unified TAC. Since the US is the largest partner and since NOAO has a long and successful history of running a large TAC, having NOAO oversee a unified TAC would provide an efficient solution.

[Response: This recommendation has been passed to the Gemini Director for Science.](#)

10) Gemini should provide a plan for including the red CCDs for GMOS.

The committee reinforces its strong, continuing interest in obtaining red CCDs for GMOS. This issue is still a priority, and we are hopeful that an appropriate source of devices can be secured on a reasonable timescale.

[Response: This issue was discussed at the GSC meeting and it is a high priority item that covers both telescopes. The GSC holds to a specification of 'competitive with FORS2'. A potential source of red-sensitive CCDs has been identified as LBNL and the GSC has requested more details from Gemini on pixel size, readout noise, and fringing.](#)

The NGSC Director will keep the SAC and US GSC members updated on any progress in the above recommendations. It is recommended that the status of the issues noted above be discussed at a SAC plus US GSC telecon to be held in March or April 2008.