Report to the Gemini Director on the 22\textsuperscript{nd} meeting of the Gemini Science Committee, held in Waikoloa, Hawaii, on 21-22 April 2005

GSC members in attendance were: Taft Armandroff (US), Malcolm Bremer (UK, by videocon), Luis Campusano (CH), Laird Close (US), Stéphanie Côté (CA), Warrick Couch (AU, Chair), Jim Dunlop (UK), Paul Francis (AU), Karl Glazebrook (US), Rachel Johnson (UK), Claudia Mendes de Oliveira (BR), Verne Smith (US), Nicole Vogt (US), Doug Welch (CA), Charles Woodward (US).

Gemini Observatory staff in attendance were: Matt Mountain (Director), Jean-Rene Roy (Associate Director, Gemini North), Phil Puxley (Associate Director, Gemini South), Doug Simons (Associate Director, Instrumentation), and Peter Gray (Head of Engineering), Joe Jensen (Instrument Program Scientist).

The following ‘observers’ were present for all but the executive sessions: Dennis Crabtree (CA) and Richard Wainscoat (UH). David Koo (Chair of the WFMOS-SWG) and Richard Myers (Chair of AO-SWG), also participated briefly in the meeting by videocon.

1. Aspen instrumentation program

This meeting was originally intended to be an “Aspen retreat” at which the GSC would devote most of its time to reviewing and discussing the outcomes of the feasibility and concept design studies for the WFMOS, GLAO, ExAO-C and HRNIRS Aspen instruments, and to make recommendations on the way forward through consideration of the various science/risk/schedule/cost trades. However, with the competitions for all the Aspen instruments still being open at the time of the meeting, and more than half of the GSC members being ‘conflicted’ through either personal or institutional involvement in the design/feasibility studies, this was not possible.

Resolution 22.1 The GSC expresses disappointment that the Aspen instrument ‘down-select’ milestone was not achieved prior to this meeting, and that this situation was not effectively communicated to the committee. While the GSC recognizes the complex and sensitive situation that exists in an ‘open’ procurement environment, it nonetheless feels it still has a critical role to play in vetting the key science themes, examining survey opportunities, working group structures, and addressing telescope deployment issues associated with the instrument complement selected out of the Aspen process.

The GSC has a strong desire to be consulted immediately after the Board reaches a decision on potential Aspen packages, in order to render advice, to ensure that the integrity of the Aspen process is maintained, and to impress upon the Observatory and the Gemini partnership that the momentum and scientific enthusiasm continues as the initial phase of Aspen activity closes out. This desire to contribute to the Aspen post-
selection dialogue is consistent with the stewardship principles articulated in Board resolutions 2004.B4 and 2003.B.16.3

2. Long-range instrument deployment and decommissioning plan

At its last meeting, the GSC proposed an instrument ‘roadmap’ for the period 2005-2007, outlining which instruments should remain available, which new instruments should be deployed, and which existing instruments should be decommissioned during this time. The intention here was to initiate discussion and to encourage much more effective forward planning in this area, based on a critical evaluation of current and new instrumentation.

In response to this, Doug Simons presented an alternative long-range instrument deployment and decommissioning plan to the OpsWG at its most recent meeting in February. While this plan embraced the GSC’s recommendation for a stable set of ‘core’ instruments, it differed in a number of other key respects:

- Both GMOS-N and GMOS-S were to be decommissioned come the end of 2007.
- GNIRS was to be moved to Gemini-North in 2007.
- TEXES was to be made available on Gemini-North beginning in 2006.
- It was projected forward in time well beyond 2007, into the Aspen instrument era (2008-2011).

The OpsWG felt strongly that the scientific opportunities, technical advantages, and community aspirations within this context, needed to be considered very carefully before such a long-range instrumentation plan was finalized. Hence it was agreed that OpsWG members would consult their national science advisory committees on the Simon’s plan, the input from which would help inform a fuller and more lengthy discussion of the plan by the GSC at this meeting.

The following resolutions emerged from the GSC’s discussion:

Resolution 22.2 The GSC urges that, in future, there be a better ‘roll out’ of such plans which involve major changes to telescope instrumentation (e.g. the decommissioning of the two GMOS instruments), with them being presented in the first instance to the GSC for discussion, rather than to the OpsWG. It is important that the GSC’s role in providing advice on matters of such significance to the Observatory and the Gemini community not be marginalized, and alarm over proposed changes is not raised unnecessarily within the community.

Resolution 22.3 The GSC recommends very strongly that the two GMOS instruments be retained on each of the telescopes until at least the end of 2008, and sees it as essential that the Observatory have continuous optical imaging/spectroscopic capability leading into the Aspen instrument commissioning era. In addition to the strong community
demand for the GMOS instruments, the exploitation of the ‘sweet-spot’ of red-sensitive optical MOS’s for the follow-up of near-infrared imaging surveys (e.g., UKIDDS, VISTA) and confirmation of very high redshift candidates is a very important science driver for the retention of the two GMOS instruments. Furthermore, their availability in queue observing mode (which is highly beneficial for SN and GRB follow-up) and their IFU capability, will give them a distinct competitive advantage over similar instrumentation on other 8-10m class telescopes for a considerable time to come.

**Resolution 22.4** The GSC endorses the following detailed features of the Simon’s plan:

- Moving GNIRS to Gemini-North in 2007 in order to have a better balance of instruments between the two telescopes.
- Decommissioning NICI and replacing it with ExAO-C, once the latter instrument is built.
- The decommissioning of NIRI’s spectroscopic modes, and exploring the possibility of decommissioning the spectroscopic modes of T-ReCS as well.
- The ‘non-core’ instruments (mounted on the swappable port) should be made available on the basis of demand. Instruments that do not meet the “16-night minimum” in two consecutive semesters may be decommissioned, with the proviso that this condition be widely and prominently advertised, starting at the 2006A Call for Proposals.
- In any other situation where a facility instrument is to be decommissioned (for example, through a decision made on the basis of this long-range instrument plan), a minimum notice of 3 years be given to the user community.

**Resolution 22.5** The GSC endorses the plan to have the mid-IR high resolution spectrograph, TEXES, available on Gemini-North starting in 2006, noting that it left this option as “Gemini’s choice” in the ‘roadmap’ it developed at its last meeting. The GSC understands that the availability of TEXES on Gemini-North is limited to every other year based on the current MOU, and that the Observatory is not obligated to provide telescope access after 2007. It also supports the suggestion that TEXES be run in a ‘mini-campaign’ mode in 2006.

**Resolution 22.6** The GSC strongly encourages the Observatory to closely examine the question of what impact the decommissioning of an instrument has on its resources, in terms of costs and manpower.

### 3. Campaign science with the Aspen instruments and NICI

Joe Jensen gave a comprehensive and thoughtful presentation on how the large ‘campaign science’ programs that are the main drivers for the new Aspen instruments (e.g. the “dark energy” program for WFMOS and the “planet search” programs for ExAO-C and HRNIRS) might be conducted on the Gemini telescopes. Included in this presentation was a proposed set of “Top Level Principles” that needed to be adopted for the successful implementation of this new mode of operation for the Observatory, as well as detailed proposals as to how team formation, time allocation, and data distribution
would be dealt with. It was also proposed that NICI act as a ‘path-finder’ in this context, with it being used to conduct a “planet-finding” campaign science program, thereby providing an important test of the principles involved and an opportunity to refine and improve the approach in time for the Aspen instruments.

**Resolution 22.7** The GSC endorses the Top Level Principles proposed, but is of the view they need to be modified/broadened to make the following points clear:

- There needs to be appropriate scientific oversight to establish milestones and performance metrics, and to ensure they are met so that scientific productivity is commensurate with the time allocated. It is recommended that the GSC review and monitor this process.
- Broad-based scientific participation across the Gemini partnership needs to be encouraged and facilitated.
- That the opportunities for ‘PI science’ must be maintained, and not be hindered in terms of target access.

**Resolution 22.8** The GSC supports the “alternative proposal” for the allocation of time to campaign science programs, in particular its key elements of taking the time “off the top” and having it allocated by a separate international “Campaign TAC”.

**Resolution 22.9** The GSC noted with interest the mechanism proposed for campaign team formation, and in particular the “open enrolment” process. While it wholly supports the formation of broad-based teams that include the necessary scientific interests and expertise, it is strongly of the view that it should be the prerogative of the project PI to select the most useful group of scientific investigators for the campaign team.

**Resolution 22.10** The GSC endorses the general principle of moving as quickly as possible to run a campaign science program, using NICI in its planet-finding mode for this purpose. It sees this as an essential ‘lessons-learned’ precursor to the Aspen campaign science programs. To this end, it recommends that a “planet-finding” working group be formed to define the parameters for this campaign, and to determine the performance criteria that NICI must meet in order for this program to be viable. It also feels that it would be prudent for the Observatory to issue an Announcement of Opportunity as soon as possible, soliciting Letters of Intent from interested investigators in order to gauge the likely level of participation and competition across the partnership.

**Resolution 22.11** The GSC foresees difficulties in funding partner-wide campaign science programs through the normal research grant mechanisms, to the extent that this could be a potential impediment to their success. It urges the Gemini Board to raise this with the partner funding agencies to see whether new modes could be developed to fund campaign science programs.

**4. Next meeting: date and venue**
The next meeting will be held in La Serena during the week of 10-14 October. The first day of the meeting will be held jointly with the AOC-G. Exact dates to be determined through consultation between the GSC and AOC-G Chairs.