

Report to the Gemini Director on Gemini Science Committee's “Aspen” videocon, held 1 June 2005.

At the Board's request, the GSC met via videocon on 1 June 2005 to consider the Aspen instrumentation packages that had been presented to the Board, and to provide recommendations concerning how well the various packages achieve the high priority Aspen science goals, as well as the associated phasing and implementation issues. Those members who participated were: John Bally (US), Tim Bedding (AU), Guillermo Bosch (AR), Malcolm Bremer (UK), John Carr (US), Laird Close (US), Stéphanie Côté (CA), Warrick Couch (AU, Chair), Jim Dunlop (UK), Karl Glazebrook (US), Rachel Johnson (UK), Claudia Mendez de Oliveira (BR), Nicole Vogt (US), Doug Welch (CA), and Charles Woodward (US), while Richard Wainscoat (UH) participated as an 'observer'. Doug Simons, Jean-Rene Roy, Phil Puxley, and Joe Jensen from the Gemini Observatory also participated. Matt Mountain joined the videocon at its commencement in order to brief the GSC. The following Aspen instrument team members joined the videocon for brief periods to provide expert advice and answer questions: Bruce MacIntosh & James Graham (ExAOC), Ken Hinkle & Steve Eikenberry (HRNIRS), Dan Eisenstein & Rosie Wyse (WF MOS), David Crampton & Kei Szeto (GLAO). Chris Tinney (Chair of HRNIRS-SWG) also participated in the videocon during the HRNIRS discussions.

The GSC considered the four options proposed by Doug Simons for 'down-selecting' from the ExAOC, WF MOS, HRNIRS and GLAO Aspen instrument set, in order to fit within the US\$75M funding envelope available for the 2006-2010 period: (1)ExAOC, HRNIRS, GLAO; (2)ExAOC, HRNIRS(MCAO-MOS), PRVS, GLAO; (3)ExAOC, PRVS, WF MOS, GLAO; (4)HRNIRS (MCAO-MOS), PRVS, WF MOS, GLAO. During the videocon, a fifth option was considered, which involved proceeding with the full HRNIRS instrument as originally proposed (but delaying its start by one year), along with WF MOS and GLAO. All five options were discussed extensively.

Resolution V0605.1: The majority view of the GSC was that the Observatory should proceed with Option 3, this being seen to maximize the returns to the Gemini community in terms of realizing the scientific visions identified at Aspen, particularly the 'transformational' areas concerning dark energy, the formation and evolution of galaxies, and the existence of other solar systems like our own. The specific details of Option 3, with the GSC's explicit recommendations and comments are as follows:

Instrument	GSC recommendation	GSC comments
ExAOC	Proceed straightaway to build phase.	Addresses the key "Universe of Life" question as to how common is our solar system? Along with PRVS, ensures continuity of Gemini's integrated planet program.
PRVS	Proceed immediately with a concept design study, to be completed by October 2006.	Strong endorsement of splitting off this 'terrestrial planet-finding' capability from HRNIRS and building as a bench spectrograph, for reasons of risk mitigation, flexibility, and starting the planet-finding survey 2-3 years earlier than if it was part of HRNIRS. Requisite complementary tool (to ExAOC) for Gemini to lead at this scientific horizon.

WF MOS	<ul style="list-style-type: none"> • Proceed immediately with a pair of competitive concept design studies, to be completed by October 2006. • Engage in negotiations with our potential Japanese colleagues to reach, with speed, a firm commitment on both sides, and to enter into arrangements that promote a successful scientific, technical, operational, and cultural collaboration. 	Unanimous support for this facility and the Subaru option, on the basis of its outstanding ‘physics of the universe’ science and ensuring breadth in Aspen capabilities.
GLAO	Proceed with initial site-test phase at MK, leading to a concept design study starting in mid-2006.	Supported on the basis that it will provide performance and efficiency gains (and hence increase the scientific output of the telescopes); it still remains at slightly lower scientific priority to the above 3 instruments (as per GSC’s recommendations from its October 2003 meeting).

In making the above recommendation, the GSC was fully cognizant of the fact that the other capabilities offered by HRNIRS – the MCAO-fed R=30K MOS and single-slit R=70K 2-5 μ m modes – were not being supported. In particular, it was acknowledged that this would have a significant negative impact on Gemini’s ability to address the key Aspen science question of how do stars and planetary systems form.

Resolution V0605.2: The GSC sees the WF MOS Concept Design Review as a critical point within the Aspen decision tree. If continuing with WF MOS into the build phase is deemed to be unfeasible at the time of this review, then the GSC strongly recommends that the Observatory proceed immediately with the procurement of HRNIRS. However, it would be prudent for the GSC to rapidly reassess at this point the various HRNIRS options (full-HRNIRS, HRNIRS[R=70K], HRNIRS[MCAO-MOS]), to determine whether they will still be timely and/or competitive by the end of the build phase (~2013).