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15 August 2008

Dear Martin

**Australian Antarctic Astronomy Advisory Committee (AAAAC)
Comment on PILOT Submission to the ANSOC Review**

AAAAC broadly represents the Australian astronomy community and Antarctic stakeholders and provides advice on Antarctic astronomy matters to AAL. We have reviewed the submission provided to the ANSOC review in support of the PILOT telescope project in Antarctica and recommend that the following funds be allocated from the NCRIS strategic reserve to further develop PILOT:

- \$2.5M for the detailed design phase of PILOT, and
- an additional \$0.45M for each of two instrument studies to be conducted by RSSA and/or AAO.

We strongly support the PILOT submission as an important component of Australian astronomy capability both for the immediate future and looking forward twenty years. The AAAAC envisages a pathway that involves investment in PILOT as a science facility covering a unique discovery space, and as a pathfinder component of Australian investment in optical/infra-red astronomy capability meeting national needs and contributing to future international astronomical endeavours.

We note that the case developed for PILOT is visionary and addresses a broad range of astrophysics relevant to the Australian and international astronomy communities. With availability to Australian astronomers of up to 100% share, and the option of international partnerships, PILOT represents a key component of Australia's future optical astronomy capability.

PILOT also represents a pathfinder to larger telescopes in Antarctica, including concepts such as the 8-metre LAPCAT that may build on GMT technology.

Australian investment in PILOT may be expected to strengthen Australia's broader national interests in Antarctica and to contribute to the development of innovative technologies of benefit to Australian industry nationally and globally.

We draw AAL's attention to four points:

1. The approach to cost and risk in the PILOT submission is conservative. We emphasise the value of the whole-of-life costing approach taken by the PILOT project team.
2. PILOT will be the first optical/IR telescope to take full advantage of the superb conditions in Antarctica.
 - Recent DIMM measurements at Dome C confirm the excellent seeing conditions above the ground layer (pre-publication data provided in confidence to the ANSOC Committee by French colleagues; see Environmental Conditions document, p39).
 - The isoplanatic angle is large, allowing excellent imaging over a wide field of view. Combined with the image quality this provides great gains in survey speed.
 - The infrared background is low.
 - The photometric precision is high (low scintillation, and with objects remaining at relatively constant airmass);PILOT is competitive with much larger telescopes in angular resolution and survey speed, as outlined in the Science Case document pp20 – 21 and Table 2.1.
3. AAAAC advises that the investment proposed in PILOT will achieve the following:
 - it maintains momentum in the PILOT design process and will ensure the design team remains intact;
 - it may assist AAO and RSSA to maintain the vibrancy of their instrument teams in the lead up to GMT;
 - it may be expected to reduce all remaining technical risks to manageable levels;
 - it will produce a concept of operations for PILOT; and
 - it will take PILOT to the point where major contracts, such as for the telescope, can be let.
4. We advise AAL that, in parallel with the design phase, two risks must be retired in time for the letting of major contracts. These are assured site access at Dome C and additional detailed environmental characterisation. AAL guidance is sought regarding the processes to follow to resolve both issues.

We look forward to meeting the ANSOC Review Team on 2 September 2008 to provide additional information and to answer questions they may have.

Yours sincerely,



Brett Biddington
Chair, AAAAC