

Amending the Performance Period of NSF/OPP Proposal #0944335

Since the authoring of our NSF/OPP proposal in June 2009, entitled “*High Elevation Antarctic Terahertz (HEAT) telescopes for Dome A and Ridge A*” (#0944335), new opportunities and changing international priorities have suggest an improved logistical course of action that focuses solely on the (undeveloped) Ridge A site. This emphasis: (1) increases the project’s scientific merits and impact, (2) would cement an exciting joint venture between the U.S. and Australia for site testing and science on the high Antarctic Plateau, (3) increases the visibility of the U.S. involvement in (terahertz) astronomy on the Plateau, and (4) minimizes the very significant risk of ITAR-related export infringements with our Chinese colleagues.

Here, at the request of our NSF program officer, we recommend that the title of the proposal be adjusted accordingly: “*High Elevation Antarctic Terahertz (HEAT) telescopes for Ridge A*”, and are requesting a no-cost extension to the science proposal’s performance period, and accompanying deployment plan, to 4 years.

While increased international logistical support will be sought, RPSC has already developed a logistics plan that includes the 2010-11 and 2011-12 deployment seasons. However, with the deployment to Ridge A notionally taking place in January 2012, the current period of performance would expire before significant scientific results from Ridge A would be obtained. The scientific aims presented in the proposal would not be achieved without a renewal proposal, which would be difficult to defend with a scant 4 months of summer data. In order to accomodate a schedule with a significant science return and to mitigate the impact of possible delays in deployment, we are requesting a no-cost extension in advance, to a 4 year performance period starting July 1, 2010. An amended budget justification follows. The deployment plan would be summarized as follows, with the first two points already included in the current RPSC logistics workup.

1. A deployment of the first HEAT telescope to South Pole Station will be made in January 2011, for a full year of testing, accessing station power and network resources from the Dark Sector.
2. During calendar year 2011, a second HEAT telescope (HEAT #2) will be built and integrated with Plateau Observatory (PLATO) components from the University of New South Wales, for which (Australian) funding has been successfully acquired. This standalone HEAT+PLATO unit would be deployed via Twin Otter aircraft from South Pole to Ridge A in January 2012. The original HEAT telescope (HEAT #1) at South Pole would be retrograded to the U.S. for refurbishment and repair.
3. In January 2013, a second Twin Otter deployment to Ridge A will resupply fuel and allow the HEAT telescope (and specific PLATO components) to be swapped on-site.
4. A third deployment to Ridge A in January 2014 will be scheduled to retrograde the HEAT/PLATO facility.

Focusing on a single, ideal site with two interchangeable, field-swappable telescopes and instruments minimizes field deployment efforts and time spent on-site. Furthermore, the instruments can be fully tested at South Pole Station before the remote field deployment to Ridge A.

A heightened focus on Ridge A will dramatically increase the astronomical impact of our proposed efforts within the proposed performance period, and has a cleaner deployment plan that remains clear of potentially devastating ITAR entanglements. With the development of new HEAT telescopes and PLATO site testing platforms for the high Antarctic plateau, astronomy in Antarctica is poised to take a tremendous leap forward, rivaling airborne and space platforms for answering a variety of fundamental and timely questions in astronomy. I and my team at the University of Arizona look forward to working with the NSF, USAP, our international colleagues, and to the opportunities and challenges that these pioneering efforts will undoubtedly provide.

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