

IceCube Project Monthly Report February 2004

Accomplishments

- Completed a comprehensive NSF review on February 10-12, 2004.
- Started detailed planning for Project Year 03 (April 1, 2004 – March 31, 2005).
- Ordered 400 Photo-Multiplier Tubes and Glass Spheres.

NSF Panel Report

Selected excerpts from the Panel report:

“The Panel recommends that the National Science Foundation go forward with the project.”

“The project should go forward, with the coming drilling season providing a validation of the plans, equipment, and estimates. Successfully completing the installation of up to four strings during the coming season is critical to the success of the project.”

“The transition from construction to operation of the partially completed detector is receiving attention and the proposed plan seems sensible.”

Issues

NSF Review Panel Report – The project prepared a detailed response to the NSF panel report. The report and IceCube response are available at:

<http://docushare.icecube.wisc.edu/docushare/dsweb/View/Collection-933>

IceCube Project Baseline – The project prepared a comprehensive construction baseline that served as the basis for the NSF review in February. Following the review the project submitted a revision to the baseline that addressed comments and recommendations from the review panel and guidance on the NSF funding constraints. The revised baseline plan provides a minimum of 70 strings and a path toward increasing the number of strings to the goal of 80 strings, possibly more if everything works optimally. Additional strings and tanks can be obtained through favorable cost performance or if additional foreign contributions are secured. The plan places clear incentives on all parties to meet schedules, reduce costs, and to seek additional international financial support.

The final year for the deployment of strings and tanks is 2010. The final year will include strings and tanks that were delayed and the additional strings and tanks noted above. The revised plan can accommodate the implications of different string deployment scenarios and will produce a world-class discovery instrument. It is not necessary to re-optimize the design of IceCube and a detailed study of the scientific impacts over a range of possible string deployment scenarios (60 – 90) will be completed in a few months.

The following table provides a comparison of the proposed plan with the one presented at the NSF review.

IceCube Project Baseline Comparison

	Hartill III	Response
Initial In-Ice Strings & IceTop Tanks Installed	January 2005	January 2005
Project Completion & Closeout	September 2011	September 2010
Total Project Cost	\$296.9M	\$271.7M
Value of Foreign Contributions	\$30.2M	\$29.8M
NSF Funding	\$266.7M	\$241.9M
Contingency as % of Remaining Costs	18%	23%
# Strings/Tanks	80/160	≥70/140

The cost and schedule baseline presented at the review was the result of a thorough, detailed study of cost and schedule estimates in all areas of the project. These estimates serve as the basis for ongoing efforts to reduce base costs and to improve the contingency budget. The goal is to establish and maintain a contingency budget that is at least 25% of the remaining cost.

Contributions by Non-U.S. Collaborators - The estimated value of Non-U.S. (mainly European) contributions is \$29.8M. More than one third is cash or capital equipment. The remaining contribution is in Full Time Equivalent labor and is valued using UW labor rates. The project and the collaboration are taking steps to define the non-U.S. contributions as deliverables in preparation for an IceCube International Oversight Group meeting planned for this May.

Initial Operational and Data Analysis Capability – The plan calls for initial operations and data analysis beginning in March 2007, immediately after the third season of string and tank installation. The concept of early operations reviewed favorably as noted above and we are now working to more clearly **define (not defining)** tasks.

Near Term Plans – The focus is shifting back toward meeting schedules, in particular the critical path activities for this year, which includes the supply of parts for the production of Digital Optical Modules at the UW Physical Sciences Laboratory, DESY, and Sweden. Lawrence Berkeley National Laboratory is producing the most critical component, the DOM main circuit boards, and recent testing of the third revision of these boards was encouraging. While the schedule remains aggressive, there is reasonable confidence that the schedule will be met. Completion of the EHWD testing and training at PSL is no longer on the critical path.

Future Events

- IceCube/AMANDA Collaboration Meeting at U. of Delaware March 21-27, 2004