



National Science Foundation
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NSF 14-037

Dear Colleague Letter
Recompetition of the Management of the IceCube Neutrino Observatory

February 19, 2014

Dear Colleagues:

Consistent with the National Science Board Resolution on Competition and Recompetition of NSF Awards ([NSB-08-12](#)), NSF will carry out a competition for the next cooperative agreement to manage and operate the IceCube Neutrino Observatory (ICNO; <http://icecube.wisc.edu/>) through an open, merit-based external peer-review process. The Division of Polar Programs (PLR) of the Directorate for Geosciences and the Division of Physics of the Directorate for Mathematical and Physical Sciences are currently preparing the program solicitation. This solicitation is expected to lead to the award of a five- to ten-year cooperative agreement for the management and operation of ICNO following the end of the current cooperative agreement on September 30, 2015.

This letter provides general information regarding the upcoming competition and invites potential proposing organizations to contact NSF representatives to identify information they believe is needed for proposal preparation.

ELIGIBILITY INFORMATION

The competition for the management and operation of the ICNO will be open to U.S. universities, colleges, and other non-profit, non-academic organizations operating as an autonomous organization or as an identifiable, separately operating unit of a parent organization. Consortia may include international partnerships, but NSF funds may be awarded only to U.S.-based organizations, and hence NSF expects the U.S. organization to be the lead organization.

The ICNO must be managed in the public interest with objectivity and independence, free from organizational conflicts of interest, and with full disclosure of its affairs to NSF. The NSF will have overall responsibility for the award oversight, including technical, programmatic, financial, and administrative performance. NSF anticipates that regular programmatic site-visit reviews would be conducted, as would periodic business systems reviews.

PROGRAM DESCRIPTION

The ICNO is a research project sponsored by NSF, which has a core mission to carry on observations and data collection from the state-of-the-art cubic-kilometer neutrino detector deployed in the Antarctic ice at the U.S. Amundsen-Scott South Pole Station. After initial filtering and processing at the South Pole Station, the collected data are transmitted via a satellite link from South Pole to the managing home institution, then further processed and analyzed there for follow-on scientific simulations and research. The ICNO data enable the U.S. research community and its foreign partners to tackle important modern astrophysical challenges.

The ICNO is operated by a managing organization under a cooperative agreement with NSF. The ICNO consists of a data acquisition system at the South Pole Station, which includes capabilities for initial data processing and data transmission, and a data processing and analysis center at the home institution. This institution also operates a system that replicates South Pole equipment at smaller scale for testing of software upgrades before deploying them in Antarctica, and for trouble-shooting the South Pole system.

The current managing institution is the Wisconsin IceCube Particle Astrophysics Center (WIPAC; <http://wipac.wisc.edu/>), which is a scientific center within the Graduate School of the University of Wisconsin-Madison with faculty based in the Departments of Physics and Astronomy. The South Pole IceCube facilities include office space in the Science Wing of the Elevated Station, while the computer servers (connected to the ICNO data acquisition system) are housed in the IceCube Laboratory (ICL) two-story building located in the Station's Dark Sector - an area ~1.2 kilometers from the Elevated Station where all astronomical observatories are located. The South Pole Station is managed by the NSF's prime support contractor for the U.S. Antarctic Program - currently Lockheed-Martin Antarctic Support Contract Company.

WIPAC runs the ICNO day-to-day operation with a number of other U.S. and foreign institutions. The design and development of this unique neutrino detector was made possible through contributions from many individuals and institutions. Collectively, those individuals and institutions are known as the IceCube Collaboration, which currently includes over 250 individuals from 41 institutions in 12 countries (<http://icecube.wisc.edu/people>). The ICNO logistics (day-to-day operation, weekly phone calls, hardware/software upgrades during austral summers at South Pole, semiannual science meetings) requires efficient communication within the Collaboration, utilizing input from a wide variety of people that fuels innovation and creativity.

The managing organization must coordinate support from several sources in carrying out the overall ICNO maintenance and operations activity. These sources include: (1) direct financial support from the cooperative agreement described here; (2) financial support contributed by foreign partners to a "common fund"; and (3) in-kind support provided by all research groups in the collaboration, typically labor for performing tasks such as detector calibration runs or data quality control tasks for the ICNO maintenance and operations activities. In addition to the cooperative agreement with NSF, the managing organization develops and implements appropriate memoranda of understanding with all partners in the collaboration to support the overall maintenance and operations activity. It is also expected that the managing organization will work closely with the IceCube Collaboration, jointly identifying and supporting the development of new scientific ideas through the in-kind participation of scientists and students in the ICNO maintenance and operation.

NSF supports a number of U.S. institutions (including WIPAC) that facilitate analyses of the ICNO data via separate submission of IceCube-related scientific proposals. The Collaboration as a whole continues to analyze data, discuss results, and plan future scientific work.

The public outreach effort of the ICNO is mostly centered in Wisconsin and South Pole, although all participating institutions worldwide have their own public outreach activities. There are several active educational and outreach efforts to secondary schools and to community and undergraduate colleges in Wisconsin, Maryland, Delaware, and California, as well as through science museums and science fairs. The ICNO also has active workforce and diversity working groups that meet regularly to advise and report on the observatory's efforts to increase participation from underrepresented groups and to ensure inclusion of a diverse range of institutions and geographic areas.

NSF'S CONCEPT OF ICNO OPERATIONS

As the selected managing organization, the awardee will work closely with NSF and the IceCube scientific research community to ensure that, within available resources, ICNO supports, sustains, and advances frontier science as enabled by the unique observational capabilities of ICNO and as promoted through a culture of excellence. The awardee will be accountable for fulfilling the ICNO mission through visionary strategies that capitalize on the Federal investment to serve the scientific community and to promote world-class research and education.

The awardee will be responsible for the overall management and performance of the ICNO, including the infrastructure, instrumentation, and staff, and for maximizing the benefits to the scientific research community through a strategically planned scope of activities. In discharging these responsibilities, the awardee will ensure that the ICNO maintains a multidisciplinary and multi-user approach to enable first-rate scientific research.

In cooperation with NSF and within available resources, the ICNO will plan and execute viable, coherent and inclusive programs of research and education, consistent with the objectives and priorities of the IceCube Collaboration.

NSF intends that the ICNO should serve as an exemplar of management excellence. The awardee will be expected to meet the highest standards for service and delivery to the scientific community and to demonstrate proactive and effective approaches to performance management. The awardee will ensure that the ICNO operates with integrity and transparency, maintaining quality and responsiveness in administration and management.

ANTICIPATED COMPETITION SCHEDULE

This notice does not constitute a solicitation; therefore, no award of any kind will result from this notice. Although the competition is still in the planning stage, NSF anticipates that a program solicitation will be issued in the second quarter of calendar year 2014. The solicitation will specify program guidelines and proposal requirements, including budgetary information, review criteria, exceptions to [NSF Grant Proposal Guide](#) proposal preparation instructions, and anticipated dates of meetings that may be offered to facilitate conveyance of information that may be useful to proposing organizations. Also provided as part of the solicitation will be descriptions of the scope of the program, the physical and intellectual property, the expected level of service and expertise, and the nature of international agreements, property arrangements and leases, labor agreements, etc. Much of this information will be included in a resource library to ensure equal access by all proposers.

NSF encourages potential applicants to contact the Program Officers listed below upon publication of this Dear Colleague Letter, expressing intent to submit a full proposal and informing about proposing organization(s), principal investigator(s), and leadership team. This information could be provided via email and, thus, should be limited in length; it will only be used for planning merit review activities, such as identifying potential conflicts-of-interest for consideration in the reviewer selection process. The anticipated due date for full proposals in response to the program solicitation is three months following the publication of the solicitation.

REQUESTS FOR INFORMATION

All inquiries regarding this Dear Colleague Letter and the competition for the management and operation of the ICNO should be directed to the Primary Contacts listed below.

NSF invites requests for individual meetings with NSF from eligible organizations interested in this competition. At the meetings, interested organizations may request clarification of general aspects of the

competition or identify to NSF any information needed for proposal preparation; however, the program solicitation and accompanying FAQs shall serve as the ultimate reference. Requests should be submitted via email to the Primary Contact.

Sources of additional information:

NSF/Division of Polar Programs (<http://www.nsf.gov/div/index.jsp?div=plr>)

NSF/Division of Physics (<http://www.nsf.gov/div/index.jsp?div=phy>)

U.S. Antarctic Program (<http://www.usap.gov/>)

IceCube Neutrino Observatory (<http://icecube.wisc.edu/people>)

Primary Contacts:

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Sincerely,

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