



**General Programmatic Terms and Conditions for the Advanced Modular Incoherent Scatter Radar (AMISR) Cooperative Agreements - Issued Pursuant to the NSF Grant Proposal Guide (GPG), (NSF 04-23), Effective September 1, 2004**

1. **Key Personnel:** Except for the Principal Investigator(s) (PIs) or Co-PIs identified in this award, requests to make any changes to personnel, organizations, and/or partnerships specifically named in the proposal, that have been approved as part of this award, shall be submitted in writing to the cognizant NSF Program Official for approval prior to any changes taking effect. Requests for prior approval of changes to the PI(s) must be submitted through FastLane for review by the cognizant NSF Program Official and approval by an NSF Grants Officer.
  
2. **Program/Project Description:** The Advanced Modular Incoherent Scatter Radar (AMISR) is a phased-array incoherent scatter radar that will be used to study the upper atmosphere and ionosphere. Incoherent scatter radars measure basic properties of the upper atmosphere and ionosphere, including plasma density, temperatures, and velocities. This observing technique has been a mainstay of upper atmospheric research for more than four decades. Although NSF currently supports the operation of four other incoherent scatter radars, AMISR will be the first one actually constructed by NSF and designed for scientific research. Two AMISR systems will be operated as part of this award, one at Poker Flat, Alaska, and the other at Resolute Bay, Nunavut, Canada. AMISR is a tremendous improvement over existing systems in that it is capable of nearly instantaneous beam-swinging, and can be operated remotely without the need for on-site support. In addition to contributing to scientific studies related to space weather and global change, AMISR will provide excellent opportunities for distance learning and training for the next generation of radar experts. This award is to support the operations and scientific leadership associated with the AMISR project, and will ensure that the radars and the data are effectively used by a broad segment of the national and international scientific community.
  
3. **Project Governance:** The Awardee will ensure that an efficient and effective project governing structure is in place throughout the award period to support all critical or significant project activities.

In particular, the awardee will ensure that an AMISR Project Office is established to provide effective internal oversight of AMISR-related activities. The AMISR Project Office will consist of:

- a) A science team composed of researchers funded under this agreement. The science team will advise the PI in planning and execution of AMISR experiments.
- b) An administrative office that will oversee subawardee performance and costs. This includes satisfactory compliance with international regulations applicable to the AMISR site at Resolute Bay.
- c) An internal management review board that will monitor overall project performance and compliance with programmatic terms and conditions.
- d) Facility management personnel responsible for maintenance of the radar systems and operations and management at each of the two AMISR sites.
- e) A user support team charged with helping users, development of software, distribution of data, and education and public outreach, and other such duties.

4. **Reporting Requirements:** The Awardee will provide ad hoc and regular reports as designated by the NSF cognizant Program Official with content, format, and submission time line established by the NSF cognizant Program Official. The Awardee will submit all required reports via FastLane using the appropriate reporting category; for any type of report not specifically mentioned in FastLane, the Awardee will use the “Interim Reporting” function to submit reports.

Additional reporting requirements:

- a) Within three months from the effective date of the award, the awardee will submit for NSF approval an Operations and Management Plan for the AMISR radars at Poker Flat and Resolute Bay for the duration of the award. The plan will detail the awardee’s approach to meeting the responsibilities listed under Project Governance above.
- b) GPRA Reports: Under the Government Performance and Results Act (GPRA), the NSF is required to report on the Federal Performance Goals for awards that qualify as facilities. At the present time, this award does not qualify as a facility for GPRA reporting requirements. However, future changes in the definition of a facility may require GPRA reporting for this award. If so, NSF will notify the awardee, and the awardee will be required to submit reports related to GPRA performance goals. This may include the collection and submission of specific data on estimated and actual usage of the facility. This reporting will be on an annual basis at times to be specified by NSF.

5. **Awardee Support of Ongoing Management and Oversight:** The Awardee will ensure full commitment and cooperation among the governing structure

components, and all project staff during all ongoing NSF project management and oversight activities. The Awardee will ensure availability of all key institutional partners during any desk or on-site review as well as timely access to all project documentation.

NSF will convene a panel to review the plan once it has been submitted. The panel will evaluate the effectiveness of the plan and make recommendations for improvements and modifications. NSF will review the recommendations and advise SRI on the appropriate modifications to the Operations and Management Plan.

NSF will reconvene panels to evaluate the effectiveness of AMISR operations and management at least two, and up to five, times during the five year award period. Site visits to either or both of the AMISR sites may be included in the panel's review process.

PI Responsibilities:

The PI is responsible for management and oversight of AMISR operations, and is the principal point of contact with the NSF Program Officer. The PI is responsible for the following:

- a) Operate AMISR at Poker Flat and Resolute Bay at full power for approximately 1000 hours per year each in the support of high-quality research programs. Full operation is expected to begin in 2007 for the Poker Flat radar and 2008 for the Resolute Bay radar.
- b) Carry out a broad-based research program in the atmospheric sciences including but not necessarily limited to those efforts described in proposal ATM-0608577.
- c) Schedule, coordinate and plan experiments which make use of the Poker Flat and Resolute Bay Radars. The awardee should implement a formal process for allocating time on the radars, including steps to announce availability of time to outside scientists, criteria for allocating time, procedures for review of requests, and methodologies for resolving disputes.
- d) Develop software for AMISR operating modes, data acquisition, and data analysis that will aid outside users in planning and conducting experiments, as well as in using the data for scientific research.
- e) Assist users in the acquisition and analysis of data obtained with the AMISR radars. Contribute reduced data acquired during the coordinated community experiments -- such as those pertaining to the "World Day" experiments or the CEDAR (Coupling, Energetics, and Dynamics of

Atmospheric Regions) initiative -- to the CEDAR Data Base established at the National Center for Atmospheric Research (NCAR), Boulder, Colorado. The data are to be reduced to physical parameters--electron density, electron and ion temperatures and line-of-sight velocities--and where appropriate to electric fields (or vector velocities or electrostatic potential). These data are normally to be sent to NCAR within four months of acquisition.

- f) Convene and organize workshops to facilitate AMISR science planning, demonstrate radar capabilities, and educate scientists and students on radar usage and data analysis and interpretation.
- g) Encourage other users of AMISR radars to include all appropriate scientific radar data collected at the radars into the CEDAR Data Base. This inclusion (in the form of reduced data), should normally be accomplished within 12 months from the time that the data are collected.
- h) Identify the needs of the scientific community for the AMISR radars and their data.
- i) Disseminate and publish in a timely manner scientific and technical information developed in the course of the project.
- j) Engage in educational programs as may be appropriate to assist AMISR users and to encourage additional future use of the Facility.
- k) Assistance visiting scientists in logistical arrangements, such as transportation, housing, and shipping.
- l) Work closely with NSF in a cooperative effort to inform the public about the Facility and its programs and accomplishments.
- m) Inform NSF of all non-NSF sponsored programs using the AMISR radars.