



NATIONAL SCIENCE FOUNDATION
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ARLINGTON, VIRGINIA 22230

NSF 17-014

Dear Colleague Letter: Support of the State-of-the-Art Ground-Based Instrumentation and Facilities in AGS

October 12, 2016

Dear Colleagues:

The Geospace Section of the Division for Atmospheric and Geospace Science at the National Science Foundation supports basic research in Earth's space and upper atmosphere environment, including the effects of solar activity. To this end, the Geospace Section encompasses research programs in the fields of aeronomy, magnetospheric physics, solar-terrestrial, and space weather as well as a Geospace Facilities program that funds a number of larger observatory facilities located both in the U.S. and internationally.

The provision of state-of-the-art ground-based instrumentation and facilities is a key component of NSF's Geospace science program. It is critical to the overarching goal of the program of enabling scientific discoveries of the physics, chemistry and dynamics of Earth's upper atmosphere, exosphere and the Sun. Current investments include support for a suite of advanced incoherent scatter radars, a global network of low-power HF radars, aurora and airglow imagers at many locations around the World, a number of lidar installations, and extended networks of GNSS receivers and magnetometers.

Activities in the program are continuously evaluated and modified based on peer-review and other community input such as the latest National Research Council's *Decadal Survey: Solar and Space Physics - A Science for a Technological Society, 2013*. Further guidance specific to NSF's Geospace science program was provided in a recent panel report: *Investments in the Critical Capabilities for Geospace Science, 2016-2025* (NSF, 2016), which currently is undergoing assessment by the National Research Council. Both of these documents highlight the importance of the ground-based observations provided by NSF's Geospace program, calling out specifically the value of the newest advanced incoherent scatter radar installations, the AMISR radars at Poker Flat (FPISR) and Resolute Bay (RISR), respectively. Thus, while the long-term funding and operation of specific current assets from the NSF program cannot be guaranteed over the next decade or longer, the need, in general, for ground-based measurements in support of geospace science is well recognized. Specifically, NSF's plans for the continued operations of the AMISR facilities are described in the recent Dear Colleague Letter ([NSF 16-127](#)) . *Re-competition of Operations and Management of the NSF-supported AMISR Facilities located at Poker Flat, AK and Resolute Bay, Canada* (NSF, 2016).

NSF and NASA have a long history of cooperation to jointly utilize, and significantly leverage, their investments in ground-based and space-based facilities for the advancement of solar and space physics. The value of continuing this fruitful partnership to fulfill the future needs of the science community as articulated in current planning documents is highly appreciated and will be pursued as opportunities and resources allow.

Sincerely,

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