

08 November 2007

The Honorable Dana Rohrabacher
Committee on Science and Technology
U.S. House of Representatives
2300 Rayburn House Office Building
Washington, DC 20515

Dear Representative Rohrabacher:

The IEEE USA is opposed to the proposed funding reductions for the Arecibo radio and radar telescope, which may lead to its shutdown. In addition to the site's proven valuable radio astronomy mission, the facility provides a unique radar capability for high precision tracking and characterization of Near Earth Objects (NEOs).

The National Science Foundation (NSF) received a report from the Division of Astronomical Sciences Senior Review Committee of the Division of Astronomy in October 2006. This report recommended the shut down of the Arecibo radio observatory in Puerto Rico. However, the report largely ignored the radar observatory functionality of the Arecibo site.

The National Aeronautics and Space Administration (NASA) released a mandated Near Earth Object Survey and Deflection Analysis of Alternatives report to Congress in March of 2007. This report recommends backing off from the Near Earth Object (NEO) goals contained in the NASA Authorization Act of 2005 due to funding and asset limitations.

The remote sensing capabilities of radar technology provide advantages in a mix of NEO assets not available through passive observations alone. The NASA report states that radar is not used as an initial NEO detection device. However, radar does have the capability to quickly determine a NEO's position, direction, distance, velocity, and can help characterize its composition. The NASA report places a decadal time frame to arrive at these parameters optically for NEOs. The report also characterizes current ground based space radar capacity as oversubscribed. The radar functionality of Arecibo becomes critically important in the short warning scenario of a previously unknown potentially hazardous object, which may threaten the earth, and poses a high severity of consequences if an impact with the earth occurs. The Arecibo observatory provides a unique asset in the radar observation of NEOs which is not duplicated on earth or with space borne platforms. The role played by Arecibo in the resolution of the asteroid Apophis and establishing that it will not collide with earth in 2029 is an example of its usefulness.

With advances in radio frequency components, signal processing technology, and computational capabilities, the radio astronomy mission of Arecibo has been, and should continue to be enhanced over the years providing radio astronomers with an exploration tool for the cost of maintaining the site.

The IEEE USA recommends that Congress request the continued operation of the Arecibo facility by NSF and NASA, which includes the radio astronomy and the NEO radar mission, as well as providing the necessary funding of the Arecibo site to the Agencies.

IEEE-USA is an organizational unit of the IEEE. It was created in 1973 to advance the public good and promote the careers and public-policy interests of the more than 225,000 technology professionals who are U.S. members of the IEEE. The IEEE is the world's largest technical professional society. For more information, go to <http://www.ieeeusa.org> or contact Bill Williams at 202-530-8331.

Sincerely,

A handwritten signature in black ink that reads "John W. Meredith". The signature is written in a cursive style with a long horizontal line extending from the end of the name.

John W. Meredith, P.E.
President, IEEE-USA

JM/WW:mcs