

Congress of the United States
House of Representatives
Washington, DC 20515-5400

November 17, 2022

The Honorable Sethuraman Panchanathan
Director
U.S. National Science Foundation
2415 Eisenhower Avenue
Alexandria, VA 22314

Dear Director Panchanathan:

We write to respectfully request you update the parameters of the latest program solicitation for a cooperative agreement at the Arecibo Observatory (AO) to include management and operations of the scientific instruments currently at this site.

On October 13, 2022, the National Science Foundation (NSF) issued a solicitation for the Arecibo Center for STEM Education and Research, or ACSER. The cooperative agreement would consist of a 5-year term and an anticipated amount of \$5 million in funding without the inclusion of voluntary committed cost-sharing. The solicitation calls for proposals that would “transition the existing AO site to the new ACSER, shifting the disciplinary focus from primarily on the astronomical sciences to science, technology, engineering, and mathematics (STEM) education and research more broadly.”¹ The site resources included in the solicitation are: (1) the Ángel Ramos Foundation Science & Visitor Center, which includes the visitor center and gift shop, exhibition space, and auditorium; (2) the Learning Center, which is a separate building with classroom space; (3) office space; (4) laboratory space; (5) cafeteria; and (6) dormitories.

We encourage the investment of federal funds for STEM education and related assets across the country. However, we are concerned the current ACSER proposal language excludes operational support for critical instruments, like the 12-meter radio telescope and the LIDAR facility. While assets like the Visitor Center and the Learning Center are important, they do not support a scientific research mission. There is additional technology at the site that should not be discounted during the transition process from one awardee to another.

The AO has hosted programs for STEM education and research for decades. One of the fundamental necessities of the training and education programs offered at the AO is the ability to work alongside scientists who are on-site, get hands-on experience operating the instruments at

¹ Arecibo Center for STEM Education and Research (ACSER). Program solicitation. NSF 23-505.
<https://www.nsf.gov/pubs/2023/nsf23505/nsf23505.pdf>

the facility, and directly analyze new scientific data. Without active, multidisciplinary, world-class research present, there is no platform for truly robust STEM education at the AO.

Additionally, we note Congress provided emergency funding through the Bipartisan Budget Act of 2018 (Public Law 115-123) to address damages at the AO in the aftermath of Hurricane Maria, including for repairs to the 12-meter radio telescope and the LIDAR facility. This signaled congressional support to maintain scientific research and related instruments at NSF facilities affected by the 2017 natural disasters, like the AO.² As such, these instruments should be included in any forthcoming cooperative agreement and not just have them be accessible through separate, individual proposals. Doing the opposite will leave this important facility remarkably underutilized. STEM education and research would be negatively impacted as students, teachers, and scientists—especially those living on the Island—would be incentivized to seek other facilities that have the instruments and scientists they require to further their education, research, and professional development in STEM fields.

Aside from providing access to disaster recovery funds, Congress has showed support for the AO in separate legislation. Section 10365 of Public Law 117-167, commonly known as the CHIPS Act of 2022, recognizes the contributions made by the former 305-meter radio telescope at the AO after close to six decades in operations. Language in this section indicates that Congress “encourages the National Science Foundation, in consultation with other Federal agencies, to explore opportunities for strengthening and expanding the role of the Arecibo Observatory in Puerto Rico through education, outreach and diversity programs, and future research capabilities and technology at the site.”³ We do not believe the latest program solicitation for the AO is in alignment with this language since education and research cannot be fully supported without fostering active science. Furthermore, \$5 million, or roughly \$1 million per year, is extremely limited funding that would undoubtedly impact the quality of work at the AO moving forward.

Lastly, binding the facility to a new cooperative agreement based on the proposal language will likely prevent consideration for reconstruction of the 305-meter legacy radio telescope over the next 5 years. As noted in the CHIPS Act, this specific instrument was the world’s largest single-dish radio telescope until the Five-Hundred-Meter Aperture Spherical Radio Telescope (FAST) located in China began observing in 2016.⁴ This instrument supported planetary defense, national security and was at the core of U.S. leadership in research and development. We should not and cannot cede leadership in STEM, particularly radio astronomy, atmospheric and geospatial sciences, to China or any other foreign nation. Construction of a new radio telescope at the AO to replace the one lost in December 2020 could far surpass previous capabilities. Hence, the NSF should not discard this possibility leading to a new cooperative agreement for management and operations at the current AO.

² Title II. Bipartisan Budget Act. Public Law 115-123

³ Section 10365. Public Law 117-167. “Recognition of the Arecibo Observatory”.
<https://www.congress.gov/117/plaws/publ167/PLAW-117publ167.pdf>

⁴ Ibid.

We are concerned for the future of the AO and support the use of every single technology currently present, as well as potential new instruments. Unfortunately, we feel the current proposal solicitation (NSF 23-505) falls short in fully utilizing every asset at the AO. As such, we respectfully request a written response to the following questions:

- 1) Congress has repeatedly directed NSF to coordinate with relevant Federal Agencies when making decisions and determinations related to the future of the AO, which Federal Agencies did NSF coordinate with in developing this proposal? Did NSF specifically work with the U.S. Department of Defense and the National Aeronautics and Space Administration when developing this proposal? If so, how did NSF work with these two agencies in prioritizing national security needs with this current proposal and how will NSF work with these agencies in future determinations as to the best pathway forward for the AO from a national security perspective?
- 2) How do the educational aspects in this proposal differ from current educational programs held at the AO and how will this proposal increase participation and learning opportunities at the AO beyond what the current educational programs? How will this proposal help address educational and research and development gaps in the US as currently written?
- 3) As mentioned before, the AO has many current functioning technologies that would further any educational and research opportunities held at this facility. Given this current proposal does not mention these readily available technologies – how will NSF maintain and utilize these technologies outside of this current proposal?

We look forward to your detailed response to the above questions and respectfully request you update the current proposal solicitation (NSF 23-505) to include the full suite of instruments that are available and have been funded by federal appropriations. Many scientists who now work at the AO and other locations across the world were trained at this very facility. The site allows for meaningful and inspiring interactions with other scientists and students, as well as access to top tier assets like the legacy radio telescope and other technology. This shows the importance of having world-class instruments available and the positive effect this has on fostering STEM education and retention, as well as diversity in STEM fields.

We recognize the valuable role of the NSF with undertaking initiatives that will safeguard U.S. prominence in science and technology. Please consider this request in accordance with applicable laws, rules, and regulations, and we look forward to working alongside the NSF on this important matter.

Sincerely,



Jenniffer González-Colón
Member of Congress



Michael Waltz
Member of Congress



Rick Scott
U.S. Senator



Marco Rubio
U.S. Senator



Maria Elvira Salazar
Member of Congress



Darren Soto
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Steven Palazzo
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