

NASEM Arecibo Telescope Study: 2017 Management/Operations Solicitation and Transition

Ralph Gaume, MPS/OAD
Michael Wiltberger, NCAR/HAO

January 25, 2022



Outline

- Introductions
- Community input on Arecibo Obs.
- NSF decision on the way forward for Arecibo Obs.
- Management and operations solicitation guidance & execution
- Awardee selection process
- New awardee transition process
- Questions



Introductions

- R. Gaume:
 - NSF/AST Arecibo Program Officer (10/14 – 11/16)
 - NSF/AST Deputy Division Director (11/16 – 09/19)
 - NSF/AST *Acting* Division Director (01/17 – 09/17)
 - NSF/AST Division Director (09/19 – 05/21)
 - NSF/MPS/OAD (part-time) appointment (8/21 – present)
- M. Wiltberger:
 - NSF/AGS Geospace Section Head (10/17 – 3/21)
 - NCAR/HAO Deputy Director (11/21 – present)
- With input from several former & current Arecibo Program Officers:
J. Pesce, C. Black, A. VanderLey, A. Peck, R. Makarevich



Community input on Arecibo Obs.

- NSF/AST/AGS received significant community advice regarding Arecibo science impact/optimal utilization of taxpayer dollars:
 - AST Senior Review, 2006
 - Astro2010
 - AST Portfolio Review 2012
 - Solar and Space Physics Decadal Survey (2013)
 - NASEM Astronomy mid-decadal, 2016
 - AGS portfolio review, 2016



Community input on Arecibo Obs.

- NSF/AST/AGS received significant community advice regarding Arecibo science impact/optimal utilization of taxpayer dollars:
 - AST Senior Review, 2006 (regarding Arecibo):
 - *However, the committee was not persuaded of the primacy of the science program beyond the end of the decade and found the case for long term support at the present level was not as strong as that for other facilities.*
 - *(NAIC) ...should seek partners who will contribute personnel or financial support to the operation of Arecibo... by 2011 or else these facilities should be closed.*
 - Astro2010:
 - *NSF-Astronomy should complete its next senior review before the mid-decade independent review... so as to determine which, if any, facilities NSF-AST should cease to support in order to release funds for... (list of various priorities)*



Community input on Arecibo Obs.

- NSF/AST/AGS received significant community advice regarding Arecibo science impact/optimal utilization of taxpayer dollars:
 - AST Portfolio Review 2012
 - *AST should reevaluate its participation in Arecibo... later in the decade in light of the science opportunities and budget forecasts at that time.*
 - NASEM Astronomy mid-decadal, 2016
 - *Finding 3-12: Even following the divestment recommended by the Portfolio Review, the operations costs of... (list of new facilities) ...will compromise the ability of the U.S. community to reap the scientific return from its premier ground-based facilities.*
 - *Recommendation 3-1: The National Science Foundation (NSF) should proceed with divestment from ground-based facilities which have a lower scientific impact, implementing the recommendations of the NSF Portfolio Review...*



Community input on Arecibo Obs.

- NSF/AST/AGS received significant community advice regarding Arecibo science impact/optimal utilization of taxpayer dollars:
 - AGS portfolio review (Investments in Critical Capabilities for Geospace Science 2016 to 2025), 2016
 - *The GS should reduce its M&O support for the Arecibo ISR to \$1.1M/year; i.e., to a proportional pro rata level approximately commensurate with the fractional NSF GS proposal pressure and usage for frontier research.*
 - The AGS portfolio report was independently reviewed by a NASEM committee, see: Assessment of the National Science Foundation's 2015 Geospace Portfolio Review



NSF decision on the way forward

- NSF issued a Dear Colleague Letter (DCL)
 - Oct. 26, 2015 (NSF 16-06): *...request viable concepts for the future of the Arecibo Observatory, specifically including strategies and goals for continued operations that involve a substantially reduced funding commitment from NSF.*
- NSF/OGC/MPS/AST/AGS conducted rigorous reviews regarding the path forward for Arecibo (and other facilities)
 - Divestment Options Study, 2016
 - Full Environmental Impact Study (EIS), May 2016 – Nov. 2017
 - Scientific community and general public fully engaged throughout the process with oral and written input
 - Arecibo Observatory EIS examined five alternatives:
 - 1) Collaboration with Interested Parties for Continued Science-focused Operations
 - 2) Collaboration with Interested Parties for Transition to Education-focused Operation
 - 3) Mothballing of Facilities
 - 4) Partial Demolition and Site Restoration
 - 5) Complete Demolition and Site Restoration
 - No Action



NSF decision on the way forward

- NSF/OGC/MPS/AST/AGS conducted rigorous reviews regarding the path forward for Arecibo
 - EIS examined five alternatives:
 - 1) Collaboration with Interested Parties for Continued Science-focused Operations
 - 2) Collaboration with Interested Parties for Transition to Education-focused Operation
 - 3) Mothballing of Facilities
 - 4) Partial Demolition and Site Restoration
 - 5) Complete Demolition and Site Restoration
 - No Action
 - Alternative 1 was the Agency Preferred Alternative (identified in draft EIS, Oct 2016)
 - *Alternative 1 would involve collaborations with new stakeholder(s) who would use and maintain Arecibo Observatory for continued science-focused operations. NSF would reduce its funding of the Observatory and the new stakeholder(s) would be responsible for future upgrades. Under this Alternative, NSF could transfer or retain the property.*
 - EIS process executed in parallel with new M&O Solicitation: were there new awardees that could execute Alternative 1?
 - After the EIS was completed (July 2017), a formal Record of Decision was issued
 - NSB reviewed and authorized NSF signing the Arecibo Record of Decision (Nov. 15, 2017)



NSF Management and operations solicitation guidance

- National Science Board Policy on recompetition (See

NSF Major Facility Guide, Dec. 2020, § 1.4.5):

- *Competitions would be launched when NSF, in consultation with the NSB, judges that it is necessary to ensure the optimum scientific impact and the most effective use of taxpayer dollars.* (NSB statement 2015-45)
- *... National Science Foundation should perform a rigorous review prior to the expiration of an award for the operation of a major facility to determine whether it is in the best interest of U.S. science and engineering to recompete that award.* (NSB statement 2015-46)



Management and operations solicitation execution

- SRI held an award to manage and operate Arecibo Obs.
Oct. 1, 2011 – Sept 30, 2016
 - Collaborators: USRA, UMET
- While decisions on the future of Arecibo were pending (e.g. EIS), SRI award was extended through March 31, 2018
- NSF issued Dear Colleague Letter
 - Sept. 30, 2016 (NSF 16-144) *...alert the community of the release of the Solicitation during the first quarter of Fiscal Year 2017.*
- Arecibo M&O Program Solicitation posted Jan. 25, 2017 (NSF 17-538)
 - Executed in parallel with on-going EIS
 - Draft EIS, with agency preferred alternative, publicly issued Oct 2016



Management and operations solicitation execution

- Arecibo M&O solicitation
 - A NSF solicitation typically outlines items/issues that a successful proposer would address
 - Proposal deadline: May 04, 2017
 - Key Terms/Points:
 - *The current solicitation supports this Preferred Alternative (of the DEIS)*
 - *NSF anticipates greatly reduced and decreased funding over the life of this effort... A viable proposal must demonstrate a feasible and reasonable approach to managing and operating AO, and, if applicable, to obtaining and sustaining a significant share of the AO's operational costs... Proposers must describe how they will establish appropriate partnerships with... and obtain additional funds (beyond those provided by NSF) to support their proposed activities).*
 - *For increased flexibility in providing funding and activity alternatives, NSF may consider requests made by proposing entities for transfer of the AO tVoluntary committed cost sharing may be included.*
 - *Anticipated award budget*

Project Year	FY	NSF		
		MPS/AST	GEO/AGS	TOTAL
1	18/19	\$3,600,000	\$3,550,000	\$7,150,000
2	19/20	\$2,500,000	\$2,500,000	\$5,000,000
3	20/21	\$1,750,000	\$1,750,000	\$3,500,000
4	21/22	\$1,250,000	\$1,250,000	\$2,500,000
5	22/23	\$1,000,000	\$1,000,000	\$2,000,000 ²



Management and operations solicitation execution

- However, the solicitation budget taper did not occur:
 - Congressional appropriation report language required NSF (and NASA) to fund the Arecibo Observatory budget at no less than the 2018 level

- *Anticipated award budget*

Project Year	FY	NSF		
		MPS/AST	GEO/AGS	TOTAL
1	18/19	\$3,000,000	\$2,550,000	\$7,150,000
2	19/20	\$2,500,000	\$2,500,000	\$5,000,000
3	20/21	\$1,750,000	\$1,750,000	\$3,500,000
4	21/22	\$1,250,000	\$1,250,000	\$2,500,000
5	22/23	\$1,000,000	\$1,000,000	\$2,000,000



Awardee selection process

- Reviews went through the NSF Merit Review process
 - Proposal Merit Reviews
 - A large facility-experienced Panel Review (formal meeting 3 days in June 2017) with input from numerous ad-hoc reviewers, including Federal partners
 - Proposers had two opportunities to respond to questions from the Panel, one prior to the Panel meeting and one during the panel meeting.
 - Proposers also had a 30m video-con to provide input and answer additional questions (panel members remained anonymous)
- In addition, an internal NSF expert advisory group was formed to provide internal expertise, meeting with the proposers in four-hour blocks
- Proposals were also reviewed internally by the NSF Cost Analysis and Pre-award (CAP) Branch of NSF/DIAS. This review was designed to determine any issues with accounting systems, rates, sub awards, etc., but did not advise on business model viability



Awardee selection process

- At the conclusion of the rigorous selection process the AST and AGS program officers authored a lengthy review analysis (Dec. 2017)
 - Recommendation: make an award to UCF
- This memo received concurrence of both AST and AGS senior management
- The award was approved by NSF/DACS Division Director
 - The amount of the award did not necessitate higher-level NSF approval, but AST and AGS kept higher-levels of informed



New awardee transition process

- UCF Press Release Feb. 2018
 - *We didn't make a bid for this project lightly... We performed several analyses and reached out to partners to ensure we came up with a plan that is economically prudent and that ensures Arecibo will be in operation for years to come. UCF VPR*
 - *There are several strategies the team will use to help pay for operations. They include, but are not limited to:*
 - *offering short-term operational partnerships for telescope time to the scientific community and private and public agencies;*
 - *seeking donations;*
 - *seeking additional partners; and*
 - *setting up tourism programs around the facility that will generate revenue and help the local Puerto Rican economy.*



New awardee transition process

- NSF provided significant transition and close-out funding to the outgoing awardee (SRI):
 - Including transition of workflow instructions, documentation, & records
- NSF provided \$913,935 (award 1823134) to incoming awardee over and above M&O award:
 - UCF Transition award plan was panel/ad hoc reviewed as a component of the M&O proposal
 - A key organization and key personnel transitioned from SRI to UCF
 - UMET/UAGM
 - Arecibo site Director, hired by SRI June 2016
 - Project Outcome: (Award PI, Ramon Lugo)
 - The AO M&O transition ...*was successfully completed in the second quarter of FY 2018*
 - Activity included ...*transferring staff, government property and historical documentation, among other items to the new management team...*
 - *The main activities completed were... transfer of ongoing research and maintenance tasks.*
 - *Similarly, engineering, maintenance and IT tasks were aligned to Yang Enterprises...*
 - *Throughout the transition research observations and facility maintenance activities were maintained as previously scheduled...*
 - https://www.nsf.gov/awardsearch/showAward?AWD_ID=1823134&HistoricalAwards=false (public document)



Questions?

