Arecibo: Challenges, Lessons Learned

NSF Large Facility Workshop
San Juan, Puerto Rico
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Selecting sub-awardee team mates

The Arecibo Management Team

SRI International

UNIVERSIDAD
UMET
METROPOLITANA

USRA
Selecting sub-awardee team mates

The Arecibo Management Team
Primary Roles-Three Science Disciplines and EPO

- **SRI International, (SRI)**
  - PI Institution
  - Space and Atmospheric Science
- **Universities Space Research Associates, (USRA)**
  - Radio Astronomy
  - Planetary Science
- **Universidad Metropolitana, (UMET)**
  - Education and Public Outreach with emphasis on Puerto Rico
  - Facility O&M
The Arecibo Management Team

SRI International, PI Institution

Forty years of NSF space and upper atmospheric facility management
The Arecibo Management Team
Universities Space Research Associates

Astrophysics,
Radio astronomy,
Planetary science,
experience
The Arecibo Management Team

Universidad Metropolitana
Largest private university in Puerto Rico
Strong ties within Island education and political entities

Principal for AMT in founding the Council of Puerto Rican Chancellors and Stakeholders:

Ana G. Méndez University System
University of Puerto Rico, Río Piedras
University of Puerto Rico, Mayagüez
University of Puerto Rico, Humacao
University of Puerto Rico, Arecibo
University of Puerto Rico (UPR), Cayey
Inter American University, Bayamón
Inter American University, Metro
Polytechnic University
Universidad del Turabo

Universidad del Este
Universidad Sagrado Corazón
Caribbean University
PRIDCO
PRDOE
PR Department of Tourism
INTENOR
Angel Ramos Foundation
PR Senate
AMT Governance

The Executive Governing Committee—EGC

Membership consists of the managers of the Arecibo Director and the Deputy Directors

SRI, Dr. John Kelly (chair)
USRA, Dr. Nicholas White
UMET, Chancellor, Carlos Padin
Issues Related To Three Different Managing Institutions

• Need a **unified** team with AO as the common goal

• Need proper **distribution** of responsibilities
  − Possible overlap in accessing shared support resources

• Avoid **competition** for Projects, Resources, or Funding
Unify the Three Member Team

Potential obstacles:

- Differences in indirect cost structure
- Differences in accounting formats/practices
- Make AO the team goal not individual agendas
- Dealing with insufficient funding
Unify the Three Member Team

• Differences in nonprofit organizations and University structures
  • Policies
  • Processes
  • Culture
Unify the Three Member Team

- Unify salary and benefits as much as possible
  - AO staff employment is distributed among the three members
  - Staff morale strongly affected by knowledge of differences
  - AMT agreed to work on this problem and reduce the differences as much as company policies allow
Distribution of responsibilities

- Local management vs. home institution
  - Most decisions made on site
- Local procurement function
  - More timely
- Shared resources
  - Example-electronics department common to all
- Senior staff and reporting (mixed employers)
  - Staff from one team reporting to a supervisor from another team
- Corporate functions in Menlo Park
Management Issues Linked to NSF (AST) Budget Reductions

• **Staff retention**
  - Very difficult to recruit professional positions given the uncertainty of future funding from NSF (divestment?)

• **Operations vs maintenance**
  - Reduced funding could (should) require reduction in staff. A result of that consequence could (should) result in longer periods of maintenance down time at the expense of telescope user time.

• **Staff science activity level**
  - Another result of reduced funding could (should) reduce or even eliminate staff science activities

• **User support**
  - Scale down to reflect funding level decline
Augment Funding

• Seek funding outside of CSA
  - Science staff proposals
    - Limited success
  - NASA NEO Congressional mandate
    - Significant success
  - Enhance visitors center revenue
    - Seek Puerto Rican funding sources

• Three institutions involved in fund raising-difficult to do as unified team. Each team member has expertise and relationships with identified funding sources.
Ensuring Compliance

Primary compliance responsibility rests with SRI as PI institution

- SRI Corporate functions performed in Menlo Park for AO
  - Contracts, subcontracts
  - EHS
  - Property control
  - Legal

- The SRI “Project Management Support Office” provides for the Principal Investigator, management of Menlo Park Corporate Support Functions

- SRI performs audits of CSA activities including SRI’s, USRA’s and UMET’s
Have We Provided AO With An Effective Management Structure?

The viability and contributions of Arecibo Observatory over the next 5-10 years will provide that answer, but these results are very positive:

- User subscription - Gordon Telescope proposals and renewed community interest
- Safety record - Workman’s Compensation days
- Contingency response - earthquake
- Funding expansion
- Local stakeholder “buy-in”
Proposals to use the facility
Safety

Workman’s comp days reduced 3-fold in 3 years

Workers Compensation 2012

Workers Compensation 2014
Contingency response

In January, 2013, an earthquake caused significant damage to the Gordon Telescope suspension system. Damage from that mission-threatening event was repaired in 60 days, while continuing data taking throughout.
Local Stakeholder Engagement

Accomplishments:

- Interns in electronics, structural Engineering, mechanical engineering
  
  • IAU Aguadilla
  • National University
  • UPR Arecibo

- AO staff have identified 12 R&D projects suitable for University collaborations in an ongoing education and development program

- Formal agreement with DOT for road and signage improvements

- New power source for AO (PR Energy & Power Authority)
What Would We Do Differently Next Time?

- Keep major funding enhancements with the PI institution - make planetary radar an SRI responsibility
- Mandate identical benefits and pay scales
- (Re)consider forming a JV or LLC composed of management team
- Reduce operations to reflect reduction of funding (cannot give the NSF the same productivity and accept drastically reduced funding - efficiency takes us only so far)
- Negotiate CSA more wisely

However,

Through the process of establishing the Arecibo Management Team, confronting “three team” issues, resolving those issues, and eliminating mistrust between team mates, the AMT is demonstrating that this model can successfully manage a Large Facility.