NSF/NASA Programs & NEOS

AAAC

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NSF/NASA - Virtual Astronomical Observatory

- Build on the successful NVO effort to create a real astronomical observatory
- NSF and the project have found a mutually acceptable solution to the problem of financial responsibility (not relevant for NASA support which is passed through their existing centers)
- Agreement language still being tweaked and finalized
- We apologize for the problems caused by this being such a long-drawn-out process

Senior Review Recommendation Pertaining to VLBA

- AST should limit funding for VLBA operations to half the current cost ($3M).
- NRAO should seek partners to share in operating costs for VLBA.
- If partners not found by 2011, consider closing VLBA.

- <u>Status of Activities</u>
  - NRAO is actively seeking partners to share in the operations costs of VLBA.
  - Discussions with NASA and USNO progressed through preliminary agreement on an MOU for a total of $3M per year.
  - Decision by NASA not to sign the MOU has stopped all progress toward successful completion.
  - If VLBA is to be closed by 2011, the process must be started very soon.

Ground-Based Detection of NEOs

Findings:

- PanSTARRS4, even if completed and used on an "optimistic" schedule, could not alone meet the 2020 deadline, or any date, for detecting 90 percent of all potentially hazardous NEOs larger than 140 m.
- LSST will be capable of detecting 90 percent of all potentially hazardous NEOs larger than 140 meters in about 17 years under normal (non-NEO optimized or dedicated) operations.
- Using a modified cadence optimized for NEO detection on a shared LSST, the required time to meet the above goal is 12 years.
- These optimizations result in similar performance gains as for an entirely dedicated LSST.

Additional Information:

- Nominal LSST astrophysics mission has a 10 year duration.
- Estimated build cost for LSST is $394M ($FY09).
- Estimated operations cost for full LSST operation, including data centers and data distribution is $36M/year ($FY09).
- NEO detection, alerts, and orbit characterization software may increase software cost.

NRC Report on Arecibo Observatory

- Finding: The Arecibo and Goldstone radar systems play a unique role in the characterization of NEOs, providing unmatched accuracy in orbit determination, and insight into size, shape, surface structure, and other properties for objects within their latitude coverage and detection range.

- Recommendation: Immediate action is required to ensure the continued operation of the Arecibo Observatory at a level sufficient to maintain and staff the radar facility. Additionally, NASA and NSF should support a vigorous program of radar observations of NEOs at Arecibo and NASA should support such a program at Goldstone for orbit determination and characterization of physical properties.

NAIC-Arecibo Observatory

- NSF is committed to provide support to maintain Arecibo Observatory as a unique resource for atmospheric and astronomical studies.
- As the program solicitation is undergoing completion, the recent NRC report, and any response from NASA, could certainly affect it.
- Under estimated NSF support, we anticipate that the observatory will be able to operate at a reduced funding level but may not be able to carry out all of its current activities.
- The management competition will evaluate each proposal on the merits of the proposed science program as enabled by Arecibo's unique research capabilities; operation of the planetary radar could be a part of the proposed scope of work, but will not be required by the solicitation.