

Status of MPS/AST Response to 2011 COV Report June 17, 2014

Introduction

The MPS/AST Committee of Visitors met in March 2011, and made nine itemized recommendations to the Division. This document constitutes a summary of the status of the MPS/AST responses to the recommendations.

Recommendations and Responses

Recommendation-1: NSF should thoroughly review the staffing requirements of AST to determine the level required for AST to adequately support its base program while playing a leadership role in the complex, international development of the next generation of world-class observatories.

AST continues to agree with this recommendation. In order to make adequate transitions to the future observatories, AST has traded a rotator position for a permanent federal position, and used the new position to hire a program officer to train with a soon-to-rotate program officer in the oversight of one of our major facilities and a related construction project. The unfortunate outcome of such a trade is that it makes AST short-handed in the management of its grants program. However, given the public profile of the large observatories and construction projects, and the large NSF investment, this is a trade that was well worth making. In addition, AST is planning a staff retreat for fall 2014 where the focus will be identifying the near term (1-2 years) and longer term (3 – 5+ years) staffing needs as the division and its role are evolving. This will facilitate strategic planning.

Recommendation-2: AST should conduct a thorough review of present and planned programs and activities across the division (a *portfolio review*) in order to establish a realistic fiscal baseline to accompany the community's scientific aspirations as enumerated in the Astro2010 decadal survey. MPS/AST management should seek community consultation prior to defining the makeup and charge of its portfolio review team.

The AST Portfolio Review was conducted from September 2011 through August 2012. As noted in the original COV response, AST held numerous discussions with the community regarding the need for the portfolio review, but did not ask them specifically to provide input on the charge. AST did ask the community to recommend possible committee members; those recommendations were mixed in with the internally generated lists of possible members, assessed for diversity along a variety of axes, and then used to construct the committee. One issue unfortunately remains misunderstood by some of the community, namely that because direct financial advice was being supplied to the agencies, employees of the various AST-funded facilities and their managing organizations were excluded by conflict-of-interest rules.

Recommendation-3: As it prepares for a portfolio review, AST should consider establishing a set of metrics to measure success – that is, to measure the relative return on investment – of various segments of its portfolio, such as the individual investigator program and major facilities.

For future application of funding, the primary metric developed by AST and applied by the portfolio review committee was to assess how well various research capabilities could respond to the key science questions of the most recent decadal surveys. This metric was kept in mind in the consideration of grant programs, but cannot be applied to an ensemble of individual grants as readily as it can be applied to an individual telescope with a specific instrument suite. Metrics on past performance that are variously used within the AST community include items such as (1) oversubscription rate for proposals; (2) publication- or citation-counting (possibly normalized by hours or units of aperture or dollars of grant funding; and (3) highly cited papers. The capabilities that AST supports are so varied, ranging from \$100K grants to \$30-40 million national observatories, that no single metric or small set of metrics enables cross-comparison among all these different activities.

Recommendation-4: The Foundation should aggressively explore the innovative use of new technologies to facilitate effective and timely communication with the research community.

This appears to be a recommendation to all NSF and not just to AST. The Foundation has evolved more creative means of communicating scientific results via twitter feeds, Science360, and so on. AST generally has relied on the AAS to distribute information via its twitter and Facebook posts, as well as relying on the overall NSF activities mentioned above.

Recommendation-5: AST should consider options to significantly expand the pool of potential panelists, such as: (a) establishing the expectation that past recipients of grants *should* participate in the review process; (b) communicating the benefits of participation to new investigators or those who have been previously unsuccessful; (c) gathering data on the pool of potential panelists earlier than the present practice; and (d) assembling review panels earlier and, perhaps, using a staggered distribution approach.

AST has engaged in (a) and (b) with some success, though staff members were already using current awardees as a first set of reviewers to invite. In fact, the key success has been in significantly reducing the time spent on checking for compliance, which enables us to begin forming panels earlier in the cycle; longer lead time gives more people the opportunity to say “yes.” Getting out early invitations is limited by the number of program officers actually available to do panels, which includes the tradeoff against facility oversight (see response to Recommendation 1). The biggest innovations have been to give invited panelists a choice of several dates when possible (similar to the “staggered distribution”), and also provide the option for either in-person or remote participation. The remote or “virtual” access provides the opportunity for participation without having to travel, but it does reduce the networking benefits of participation for relatively junior members of the field. Giving the panelists the choice does enable them to choose the benefits that are most important to them.

With respect to the un-numbered reiteration of a 2008 COV recommendation that proposers be told what quartile their proposals fall in, the general practice in AST now is to inform the proposers of whether they were in the lower half, the second quartile, or the top one-third (roughly). In some panels, more than 50% of the proposals are classified as “Not Competitive for Funding” in the current environment, and not ranked, so the “lower half” is a somewhat loosely defined category.

Recommendation-6: ATST’s ultimate “programmatic home” within NSF should be decided before AST conducts its portfolio review because the portfolio review team will need to know whether or not ATST’s operations cost will be borne by the AST division.

ATST, now known as DKIST (Daniel K. Inouye Solar Telescope) remains within MPS/AST, and is expected to stay there. The wealth of AST experience in overseeing telescope construction projects and transitioning them to operations makes AST the right place for DKIST.

Recommendation-7: A decision regarding whether or not to invest in D&D costs for GSMT should await the results of the portfolio review.

The portfolio review recommended that GSMT construction contributions be sought only in budget scenarios that are above the trend currently being followed by AST. Pursuant to Congressional direction, AST conducted a competition for a GSMT planning award, which was made to the Thirty Meter Telescope. This partnership planning includes no investment in Design and Development and no current commitment to construction contributions.

Recommendation-8: AST and, more broadly, MPS must develop a realistic plan for decommissioning instruments and phasing out the M&O costs of its current and planned facilities. In particular, AST/MPS should establish and implement finite lifetimes for major research facilities built with NSF funds.

As stated in the original response to the COV report, the problems with decommissioning and phasing out facilities are dominated by observatories that were built many years ago and will be very costly to decommission. NSF and AST are about to begin environmental review of several telescopes that were recommended for divestment by the portfolio review. Inevitably, the specific costs of decommissioning will be significant and not easy to accommodate in an individual division budget. MPS has included in its FY 2014 budget and its FY 2015 request some additional funding for implementation of portfolio balancing; the amounts available are likely to be only enough for down payments on decommissioning costs for several of the more costly telescopes.

Recommendation-9: Given the importance of ESM to the NSF and the growing external pressures that are being placed by international commerce on ESM, a decision needs to be made regarding the proper home for the ESM program. The home for ESM must be chosen to ensure that ESM retains a sufficiently high profile to protect scientifically significant parts of the electromagnetic spectrum for research purposes.

The home of ESM (Electromagnetic Spectrum Management) remains within AST, but the ESM group maintains close contact with the growing remote sensing and nanosatellite communities in GEO. Because of a retirement and a transfer to the private sector, the ESM group is understaffed at present. AST has had good success in attracting a diverse pool of qualified applicants at earlier-than-expected career stages, and expects to have quite a robust ESM group in a year or two.

- Jim Ulvestad (DD), Patricia Knezek (DDD)