Division of Astronomical Sciences Response
to the Report of the 2008 Committee of Visitors

March 2008

The Division of Astronomical Sciences (AST) thanks the FY 2008 Committee of Visitors for their thoughtful and thorough report and is grateful for its endorsement of the Division's activities. The Division welcomed the opportunity to discuss its programs, processes, and plans for the future with the Committee, and values the suggestions for improvement they provided. AST greatly appreciates the willingness of the members to serve and their openness in discussing AST's concerns, plans, and challenges ahead.

The report produced a number of valuable findings and recommendations, which we have reproduced verbatim here, with our initial responses:

AST Division Management

- ***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.***

- ***Double AST's travel budget to ensure adequate support for the Division's global oversight and management responsibilities.***

The Division appreciates and agrees with the COV's observation that the AST "program officers are overworked and that additional staff is required." In spite of the increase in FTE's the Division received since the last COV, the workload has steadily increased due to sharp increases in the number of proposals and the increased complexity of oversight of new mid-scale and large projects. The Division has carried out staffing analyses that lead to the conclusion that we require two to three more FTE's or IPA's to meet the increased workload and continue to be responsible and responsive to the community.

The Division also agrees that the lack of time and resources to carry out appropriate oversight of facilities and large projects poses serious risks to these projects. Just as critical, however, is the need for program officers to monitor projects of smaller scope and grantee activities, to carry out community outreach, and to maintain their currency with the science that we support, and for all staff to undertake training and professional development. Funds for staff travel and professional development are a critical need. In addition, the practice of distributing travel and administrative funds in small increments through the year rather than in one or two large allocations, with no indication of what the total budget will be, frustrates attempts to plan for and budget staff travel needs through the year. The Division continues to make known its needs for funds, to aid the Office of the Assistant Director in arguments to procure more funding.

Strategic Planning and Implementation

- ***NSF (and the astronomy community) should treat the Senior Review report as a baseline which, when combined with the next NRC Decadal Survey, constitutes a***

disciplined and thoughtful path for the future of AST activities. When appropriate, NSF should use the Senior Review recommendations as a community-derived tool to resist non-competitive earmarking of the federal budget.

- ***AST should consider conducting subsequent Senior Reviews on a pro-active, regular basis rather than simply as a response to moments of crisis.***

- ***As plans are being developed for the upcoming NRC Decadal Survey, AST should encourage the Survey committee to reexamine the priority of previously recommended projects that have undergone substantial cost growth.***

The Division appreciates the support the COV showed for the Senior Review activity and outcome, and intends to continue to use the report's recommendations to guide our future planning and prioritization. The Division also expects that similar 'senior review' prioritizations across AST programs and facilities will be a regular event in the future. We consider that phasing with the NRC decadal survey may be the most effective approach, perhaps holding the AST senior review mid-way through a decade. AST, along with NASA and DOE are in active discussion with the NRC in preparing for the upcoming decadal survey, and all parties agree that the Survey must reexamine the priority of previously recommended projects, not only those that have undergone cost growth, but all those that have not yet begun construction, and weigh them against potential new projects as well as among existing projects under development.

- ***NSF should build sufficient flexibility into MREFC processes and practices to optimize the Foundation's ability to partner with private or public entities in the funding of the design, construction, operation and/or maintenance of large facilities.***

The Division will work actively with other parts of the Foundation in exploring the benefit of modifications to the current MREFC processes and practices to accommodate partnerships between NSF and private entities as well as other federal agencies or international organizations or institutions.

Individual Investigator Programs

- ***AST should continue its efforts to ensure that the composition of review panels is as diverse as possible, including members with high levels of research activity.***

- ***To further improve the efficiency and effectiveness of grant proposal processing, AST Program Officers should consider (a) including comments extracted from generally insightful PO summary analyses in the written responses sent to PIs; (b) providing information to PIs regarding the general ranking (e.g., quartile ranking) of their proposal; and (c) becoming less tolerant of non-compliant proposals.***

- ***AST should work in concert with its community of researchers to assess how best to take advantage of the NSF's new, substantial Cyber-Infrastructure investments.***

AST program officers make every effort to create panel membership that reflect the diversity of our scientific and educational community, and appreciate the COV's recognition of this. Finding a perfect distribution of panelist expertise while ensuring broad representation and respecting strict NSF rules of conflict of interest is, however, a challenge, particularly in the relatively small

astronomical community. We welcome the COV's suggestion that we initiate the process of identifying reviewers in advance of the proposal deadline, and will make an effort to do so.

The Division thanks the COV for the constructive comments made regarding the quality of the program officers' review analyses, and the value in sharing this material with the PI. Several years ago, the Division began using the context statement in FastLane as a way of providing more general information about the review and has continued the policy of attempting to reach all PI's with a personal message informing them of the outcome of the review. Those conversations allow the PO's to provide the PI's with as much information as possible, including much of the reasoning that appears in the review analyses. Most PO's, in fact, tell the PI the rough ranking of the proposal in the panel in these conversations. We are concerned that the effort of providing this written material in letters, screened to remove any confidential information, to every one of the 800 PI's who submit proposals each year represents an unmanageable burden to program officers who are already extremely overworked. However, we will continue to encourage PI's to contact program officers for more information about the review, and urge PO's to discuss as much about the reasoning for the decision and the rough context of the proposal ranking as is feasible.

The Division also values the COV's perspective on managing the workload of proposal processing by enforcing compliance on submission more strictly, and will consider this in our plans for both communicating our intention to change long-standing practices with the community and increasing the enforcement of submission guidelines. As part of our continued dialog with the community, we will also work with the community to make best use of Foundation-wide cyberinfrastructure-related programs and investments.

Instrumentation and Mid-Scale Infrastructure programs

- ***AST should explore ways to optimize its approach to supporting astronomical instrumentation development, perhaps by restructuring its current set of instrumentation related programs.***

As discussed with the COV, AST has begun to think about how best to consider the restructuring of instrumentation efforts of the Division. We are convinced that this must take into account the instrumentation efforts at our national facilities as well as the various AST and NSF-wide programs such as MRI. We take note of the COV endorsement of such an examination and will naturally involve the community appropriately in the deliberation.

- ***AST should inform the astronomy community of NSF's general goals and expectations for mid-size projects and should notify the community that unsolicited proposals for mid-size projects may be submitted. However, the COV does not recommend that a formal "mid-size projects" program with pre-allocated funds be initiated at this time.***

Our discussion with the COV about mid-scale instrumentation and projects was very useful, and we will follow the advice on the question we posed as to whether or not to establish a formal program with pre-allocated funds. We will consider the best way to inform the community, doubtless through a combination of an information piece in the AAS Newsletter and regular discussion at our AAS Town Meetings.

- ***Utilizing funds from an enhanced travel budget, AST should strengthen its oversight support of University Radio Observatories (URO) projects and their associated***

instrumentation development programs. As many new UROs are being planned, the COV recommends that NSF strive to maintain the proper balance of radio observatories —the radio system— while keeping in mind the need to develop new techniques and to train the next generation of radio instrumentalists.

We will make every effort to renew site visits involving outside experts to the University Radio Observatories and to the larger instrument development and technology development programs that we support as resources permit. As the URO portfolio evolves, we will also consider carefully the entire system of radio facilities we support, including national, university, and private observatories, to ensure appropriate balance of activities of different scope, being mindful of the need to provide development and training opportunities. We welcome the COV's suggestion that any future review of these facilities include a broad range of expertise and community representation.

National Observatories and Large Facilities

- ***The COV strongly cautions NSF against instituting a routine, five-year re-competition of the management of large AST facilities as this would create an overwhelming burden of work for the Foundation and the astronomy community, and would likely result in a net decline in the scientific output of these facilities.***

The NSF stance on re-competition is the subject of very active discussion within the agency. AST understands the possible impact of re-competition on arbitrary timescales and has communicated its concerns within the discussion. We do regard re-competition as a management tool and point out that we have held such competitions for the management of both NAIC and NOAO when our advisory bodies and our own evaluation deemed it in the best interest of the Division and NSF to do so.

- ***AST should complete the full course of action proposed by the Senior Review for the NOAO program.***

We appreciate the COV support for the Senior Review process and the recommendations for NOAO. We have been working closely with NOAO as they implement the recommendations and will continue to do so.

- ***AST should make every effort to bring the ATST project into its construction phase as soon as possible.***

AST is making every effort to advance ATST to the point where it can be put forward for a construction start. As reviewed with the committee, work to finalize the EIS and the Section 106 consultation continues, as well as consultation with the FAA and other bodies, with the hope that the next formal steps in procuring access to the site can proceed and allow a not-to-exceed cost to be developed. Unfortunately the timing on most of this is not under our control.

- ***NSF should consider moving responsibility for Electromagnetic Spectrum Management (ESM) to the MPS Directorate office, if not to the NSF Director's office, to increase the visibility of ESM within the Foundation and also to stress the Foundation's commitment to spectrum management to the global community.***

The importance of the electromagnetic spectrum management effort to all of science, not just astronomy, was recognized in the 2005 COV report. AST was able to increase the effort applied to this area, as noted in our response to that report. However, the 2008 COV is correct in noting that the intense, international nature of this activity is simply outstripping the resources that we can apply to it, given the total demand on the Division's AOAM budget. We also agree that increasing the visibility of the effort within NSF and to the scientific community is necessary. We will explore the elevation of the effort with the management of NSF above the Division level.