



Association of Universities for Research in Astronomy

AURA Response to the Senior Review

November 6, 2006

Over the past year, AURA has participated in the NSF's Senior Review process by providing information on the operation of our Centers, long range plans we have developed with community input, and our vision for the future. The Report of the Senior Review affirms the importance of the role of public observatories and provides a strong rationale for their continued operation. The report makes sweeping recommendations concerning the restructuring of the O/IR landscape and the NSF/NASA focus of solar astronomy. These recommendations must be led by AURA observatories, in particular the National Optical Astronomy Observatory (NOAO) and the National Solar Observatory (NSO), respectively.

While acknowledging NOAO's initiative to advance the goals of the last decadal survey, the report calls on NOAO to lead in delivering community access to an optimized suite of high performance telescopes of all apertures from 1 to 8 meters. This access can be achieved through Gemini time allocation, management of the Telescope System Instrumentation Program, and the operation of the existing facilities at Kitt Peak and the Cerro Tololo Interamerican Observatory. This recommendation builds on NOAO's efforts over the past five years to establish an effective "system" of observing capabilities for the U.S. community.

The report also calls on the NSO to accelerate its planning for consolidation and transition to the era of the Advanced Technology Solar Telescope, which is recommended for a construction start in FY 2009. The ability of NSO to plan and implement these key elements of its long-range, strategic plan will depend on the approval and availability of fund for ATST construction, development of operational facilities for the ATST, and on funding to establish a consolidated NSO headquarters.

Although the Gemini Observatory has been in operation for less than five years, and hence was not a primary focus of the Senior Review, the report acknowledges the importance and magnitude of the investment that will need to be made for the "Aspen Instruments", the second generation of Gemini instrumentation which will support many of the scientific advances in imaging and spectroscopy desired by the US astronomical community.

To accomplish the recommended transitions, the Senior Review Committee suggested major budget reallocations. In view of the limited information available to the Review Committee, no clear or quantitative conclusions were made in the report. Instead, the report recommends a series of management reviews to help in understanding the budgets of the observatories. These reviews will provide a better estimate of the true amounts

needed to run the observatories in a manner consistent with the other recommendations in the report such as continued or increased support for small to intermediate-sized telescope, the possible need for more such telescopes, and major upgrades to existing instrumentation.

AURA supports the need for carefully conducted management reviews prior to any long-term decisions by the NSF. We will work with the NSF to ensure the effectiveness and accuracy of these reviews. With these estimates in hand, it will then be possible to develop more credible plans for any downsizing or budget reallocation.

The report contains valuable recommendations concerning the possible need for NOAO to develop new small and intermediate class observing facilities and instruments and to address any deferred maintenance on existing facilities. These initiatives are related to other investment areas such as major instrumentation, and the overall balance will need to be reassessed.

Concerning the major Decadal Survey initiatives such as the Giant Segmented Mirror Telescope (GSMT) and the Large Survey Telescope (LST), the report observes that the overall pace of the technology and federal investment will require a different strategy in effectively coordinating public and private funding and possible international collaboration.

LSST will be an unprecedented community data resource, targeted particularly at dark energy and the domain of time-varying astronomical sources. LSST has advanced to the point where a detailed proposal to NSF for a joint NSF/DOE construction project is in preparation. This is a result of a remarkable team effort, and AURA/NOAO is pleased to be playing one of the key roles in the telescope engineering and developing the facility site on Cerro Pachon.

A large aperture telescope with adaptive optics is the vision for the GSMT. The combination of resolution and collecting area could reach the first light sources in the Universe and probe planetary systems forming in our neighborhood. Two excellent projects are vying for public and private funds for GSMT, the Thirty Meter Telescope project (TMT) and the Giant Magellan Telescope (GMT). Three challenges are apparent:

- To identify robust funding of AURA's current GSMT Design and Development award at a level that will improve both projects' readiness for preliminary design review and a selection process at the earliest practicable date,
- To develop a national consensus to allow the project partners to raise private funds to advance each project to this critical point,
- To enable NOAO to represent the broader community's observing needs to both projects.

The scientific goals of GSMT and LSST remain compelling. Therefore, the overall pace and balance within the O/IR portfolio of investments will need to ensure that a robust community support can be maintained until the potential of these new facilities can be

realized. This is a major challenge for AURA and its observatories, but one that must be met.

The report of the Senior Review is advisory to the NSF. Ultimately, the needed actions will require further review by the NSF and further community involvement through town hall meetings and other means. Just as AURA committed itself to advancing the Decadal Survey initiatives, we will work with the NSF to examine the issues raised by the Senior Review, and help implement the necessary actions.

Additional responses and comments on the Senior Review and information on the operation of our observatories can be found on the websites for NOAO and NSO.