

## Steps Towards a National GSMT Program

A key result of the Senior Review is the observation that coordinating the design and technology development for major projects like the GSMT, expediting passage through the various phases of the NSF MFREC process and ultimately preparing for the operations and science phases requires leadership and planning at a level unprecedented in NSF. In view of this, in October 2006 NSF's Division of Astronomical Sciences (AST) approached AURA/NOAO, the Thirty Meter Telescope (TMT), and Giant Magellan Telescope (GMT) to begin discussing the most productive approach to developing a GSMT program in a manner that best serves U.S. astronomy, capitalizes on the basic purpose of the national observatory, preserves the strength of the non-federal investment in the development of the next generation of optical/infrared telescopes in the U.S, and assures a fair and balanced approach to both projects

As a result of those discussions, and with the full agreement of all of the parties, NSF has asked that AURA/NOAO act as NSF's "Program Manager" for the GSMT Technology development effort at a national level in a manner similar to the role played by NASA's major Centers for the development and operations of various space missions. In this role NSF expects that AURA/NOAO will, *inter alia*:

- As recommended by the Senior Review, promote the development of both TMT and GMT at a pace that recognizes the timescales of the MREFC and federal budget processes
- Understand and champion the national needs for a GSMT in any public/private partnership. This implies:
  - Establishing and running a national community Science Working Group
  - Establishing and maintaining the national Design Reference Mission (DRM) to set scientific performance expectations for candidate designs
  - Providing an independent evaluation of the community operational needs, costs, and scientific sociology of a GSMT – then leading the community in understanding the implications of these for both a GSMT and the necessary underlying instrumental and human resource capability.
- Advise NSF about engineering design performance necessary to respond to the DRM and the technical progress of both projects; this should not be interpreted as AURA/NOAO holding independent reviews of either project.
- Assure a healthy scientific enterprise in the GSMT era. In this regard, AURA/NOAO should lead in defining "the system", being certain that it addresses an appropriate range of apertures, suite of instrumentation, and utilization of existing non-federal facilities where available. AURA/NOAO must assure that this system is robust against the delays and uncertainty in the path to an eventual GSMT.

In the longer term:

- Identify areas of commonality or overlap in technology with a view towards optimizing federal and private budgetary commitments
- Carry out any appropriate independent technology efforts of importance to both programs.
- Assist NSF in defining and realizing possible alternatives to a competitive down-select,
- AURA/NOAO will advise NSF on options for international collaboration at a governmental level
- NOAO will be the NSF/national presence in any eventual partnership that operates the GSMT.

In order to respond to the new role as defined by NSF, AURA/NOAO is restructuring its existing relationships with both projects, withdrawing from any direct partnership participation, and establishing symmetric interfaces with both projects. AURA, NSF, TMT, and GMT are in active discussion about the necessary means and timescales to address any previous imbalances in support for the two projects.