

# Advancing GSMT SWG Recommendations: AURA's Proposal to the NSF

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# GSMT SWG Conclusions (June, 2003)

“In order to reap the enormous potential synergy between the James Webb Space Telescope (JWST) and a 20-m to 30-m telescope, it is essential to initiate major design and technology development efforts now to ensure that facility operations coincide with the early JWST era.”

“Federal investment now in a major technology development program targeted at key areas can advance multiple design programs, and will ensure a strong public voice at all stages in the development of next-generation telescopes.”

# AURA's Initial Response

- Partner with Caltech, UC and ACURA to carry out the design of a 30m telescope (TMT)
  - Complete Preliminary Design by Q4 2007
- Request NSF funds (\$35M ) for technology developments critical to TMT and essential to other ELTs
  - Site evaluation
  - Detectors
  - AO components
  - Instrument components (e.g. gratings)
  - High performance durable coatings
- Engage the community via participation in
  - Technology development program
  - Process to set the science requirements for TMT
- NSF investment results in community time on TMT

# AURA's New Approach

- Goal:
  - Advance the design of TMT and one or more other US ELTs programs so that performance, cost, schedule and risk of differing approaches can be assessed
- Provide \$17.5M for TMT partnership
  - NSF dollars leveraged 3:1 (assuming ACURA funded by CfI)
- Provide comparable funds for other ELT programs
  - Include funds for instrument concepts; technology
  - Program will be open to the entire US community

# Investment in TMT

- Responds directly to AASC recommendations
- The community will receive observing time in proportion to the public investment
- Technology developments will be transparent
  - Reported to other groups
  - Published openly
- NSF-supported technology developments will be competed openly so as to engage the broader community
- AURA will be represented at all levels in the project
  - The community will have a ‘seat at the table’ throughout the Design and Development Phase

# Investment in Other ELT Programs

- Support technology development and design efforts needed to advance one or more ELT concepts
- AURA will request letters of intent outlining a coherent plan for advancing an ELT concept
- Letters would need to outline
  - Current and future private/state matching funds
  - Total cost of the proposed Design and Development effort
  - Proposed mechanisms for making technology developments transparent
  - Proposed mechanisms for incorporating community input into decision making
  - Proposed mechanisms for engaging the broader community in technology developments

# Advantages of the New Approach

- Directly responsive to SWG recommendations
  - Fund technology investments to advance multiple ELTs
- AURA will ensure that NSF investments in TMT and other efforts are synergistic and complementary
- US community is engaged in ELT efforts and will receive time in proportion to federal investment in all ELTs
- Open dialog between projects benefits all and leaves open a ‘convergence path’
- Technology investment in ELT programs will result in significant gains for existing telescopes

# AURA MOU with ESO

- In fall, 2003 AURA signed a Memorandum of Understanding with ESO
  - Establishes multiple working groups
- AURA-NIO will work with ESO to align investments in:
  - Site evaluation
  - AO system and component developments
  - SiC evaluation
  - Detector development
- Investments are intended to accelerate design efforts in the US and in Europe
  - Explore multiple approaches to technically challenging problems
  - Develop multiple (competitive) vendors

# Potential for International Collaboration

- AURA's MOU with ESO opens the path to collaboration on a large, international ELT
- AURA welcomes collaboration with other international groups
  - Accelerate both US and international efforts by focussing funds on technically challenging systems and components
  - Builds relationships from which partnerships can develop naturally