AURA'S ROLE IN MANAGING THE NATIONAL SOLAR OBSERVATORY

(based on AURA's strategic plan as adapted by AURA's Board of Directors in 2005)

MISSION AND ROLES

NSO's Mission: to exercise *"leadership in solar physics and related space, geophysical, and astrophysical science research and education by providing access to unique and complementary research facilities as well as innovative programs in research and education."*

CUSTOMER

As the National Observatory for Solar Astronomy, the NSO serves *"The science community and the public on behalf of the National Science Foundation as the primary funding agency, with contributions from NASA, DOD, and other US agencies."*

CONTEXT

Scientific community environment – The establishment of new foreign and domestic facilities dedicated to advancing our knowledge of the Sun is a positive development for the field of solar physics, space and geosciences and other closely related fields. The NSO encourages and supports these additions to the public and private capabilities in solar physics. The NSO further responds by adding complementary capabilities in solar astrophysics that are not within the plans or scope of other programs but are highly desired by the scientific community.

Strategic strengths of the current NSO – A key strength of the NSO is its scientific staff that engages in frontier research, actively and visibly participates in the community, develops advanced instrumentation, participates in educational outreach, and establishes new initiatives. Of equal importance is community confidence in the NSO as expressed in the Decadal Survey's endorsement of the NSO organization and its proposed initiatives. A further strength is that, as a federally funded research and educational institution, the NSO is able to provide leadership, continuity and stability for the conduct of long-term programs and projects that are a scientifically necessary component of solar and solar-terrestrial research. Finally, the interdisciplinary nature of, and multi-agency participation in, solar astrophysics enables the formation of productive partnerships with the NSO that result in a stronger and broader-based program.

The needs of stakeholders other than the primary customer – The NSO must be responsive to the solar/space weather community in addition to the solar/astronomy community. NSO receives funds from other agencies that include funding for co-located scientists. This synergism enables a broader range of science in the NSO than would otherwise be possible. The NSO must be sensitive to the requirements of its partners and ensure that their objectives are compatible with the NSO mission. The NSO must also be sensitive to the quality of the scientific environment of its staff that, in turn, contributes to the quality of its interactions with the community.

NSO has developed a strong and vital student program for undergraduate students and a limited number of graduate students. The student program enables participants to gain experience in

hands-on solar research. The NSO has recently added high school teachers to its educational program. It also conducts K-12 outreach programs as well as outreach to the general public.

ACTIONS AND TOP LEVEL GOALS

As top priorities, NSO will:

• Develop and operate the Advanced Technology Solar Telescope (ATST) as the premier ground-based facility for high-resolution studies of solar magnetism and dynamics in the solar atmosphere.

• Engage the national and international community in developing a three-station SOLIS network.

• Develop an NSO structure that effectively operates new capabilities, consolidates the scientific staff, and supports the research community.

• Use these new capablities to promote strong university/student basis for solar physics.

NSO will also:

• Take a leadership role in developing a community wide road map for ground-based solar facilities and work closely with NASA to link space-based and ground-based assets to maximize their synergy for advancing understanding of the Sun. Conduct a series of community workshops to discuss operation of current facilities and the development and operation of new facilities.

• Increase the diversity of the NSO by recruiting minority and female candidates for openings as they occur.

• Create positions for one or two theorists on the NSO staff.

• Through the development and operation of enhanced and new observing capabilities, provide the space weather community with the data needed to monitor, model, and understand solar activity and variability.

• Partner with NASA and universities in the development of a Virtual Solar Observatory (VSO) that provides community access to all aspects of solar data.

• Continue NSO scientific and instrumentation leadership by balancing staff responsibilities, increasing staff opportunities for research and postdoctoral support, developing strong university collaborations, and strengthening partnerships with other solar organizations. Develop and strengthen connections with the university community of researchers and educators in solar physics; assist them in strengthening their programs through participation in the NSO program of research, education, and the implementation of new scientific capabilities.

• Maintain and upgrade existing facilities as needed to ensure continued scientific productivity until future equivalent assets (i.e., ATST) are in place.

• Through discussions with the funding agencies, proposals for new opportunities, and shared efforts with other solar groups, increase the NSO budget to sustain and enhance its operations and programs supporting the solar and space science community.