

NOAO – TUCSON DIVISION

SCIENCE OPERATIONS – OBSERVING SYSTEM

Milestones FY 2003

- Hold two Telescope Allocation Committee (TAC) meetings, one Users' Committee meeting, and one Surveys meeting
- Negotiate contracts that will enable appropriate oversight and reporting of the selected Telescope System Instrumentation Program (TSIP) project(s), and carry out those activities following the May 2002 panel review of the first-year proposals
- Convene a second meeting of the Scottsdale "System Committee" to address strategic planning issues of the "Integrated O/IR Observing System" concept advocated by the decadal survey, especially in light of the NSF's recent implementation of the TSIP program
- Modify the TSIP solicitation as appropriate for the second year of the program and issue a call for second-year proposals

Telescope System Instrumentation Program (TSIP)

The Telescope System Instrumentation Program (TSIP), with its first call for proposals in FY 2002, is a fundamental piece of the framework for the ground-based optical/infrared system. As proposed in the decadal survey, TSIP will be a \$5 million per year program to fund the development of facility-class instruments for the telescopes of the independent observatories. TSIP will provide time on these telescopes to the community, thus simultaneously enhancing the capabilities within the system and broadening access to its components. NOAO will administer the program and support the NSF in the development and operation of TSIP. The instrument development efforts are expected to span several years, and NOAO's role will include oversight of these efforts. In addition, guidance of the program will require an evolving understanding of community interests and concerns, as well as ongoing interaction with the independent observatories.

The decadal survey recommended that we move beyond TSIP to formulate a strategic plan for U.S. ground-based astronomy. In order to explore the issues and make progress toward this goal, NOAO will organize and support the activities of a "System Committee," which will initially be composed of the individuals who organized the Scottsdale workshop in 2000. This committee will report directly to the AURA president to preclude the perception of any conflict of interest with NOAO, and its members have been chosen to be as free from conflict of interest as possible. The charge to this committee will be to: (1) assist with the planning and organization of community meetings; (2) maintain an overview of the ground-based O/IR system and its needs and constraints; (3) help

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formulate the community-based discussion into a strategic plan; and (4) advocate the resulting plan.

TSIP is now underway with \$4 million available in FY 2002 and \$4 million more expected in FY 2003. The NSF has asked NOAO to administer the proposal and review process, negotiate contracts with the selected groups, oversee the instrument development funded, and distribute the telescope time to the community. The proposal and review processes and the oversight activities will be handled by part-time efforts of a program head, T. Boroson, an administrative program manager, D. Brouillette, and a technical program manager, M. Trueblood. Selection of proposals will be done by a community-based committee. Some staff travel funds have been budgeted to permit the required technical oversight of selected projects.

Science Operations

Science Operations is the work package supporting the NOAO telescope Time Allocation Committee (TAC) process, as well as certain meetings through which NOAO interacts with the community (specifically the NOAO Users' committee), and the annual meeting of the NOAO survey teams.

Software support efforts in FY 2002 have streamlined much of the TAC proposal processing procedures; conversion of the old ACCESS-based database system to a new one that will run under Unix will be completed in FY 2003. Longer-term goals include integration of proposal preparation tools (such as exposure time calculators) into the Web-based proposal interface and the development of software to further facilitate the reviewing and scheduling processes.

Development of the Integrated Ground-Based O/IR Observing System

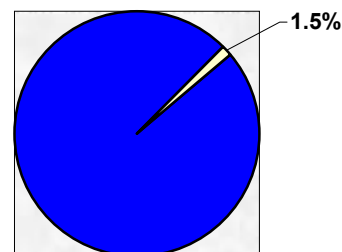
The funding of the TSIP program focuses renewed attention on the notion of an “integrated observing system”—essentially a community partnership among the private and federally funded observatories—and makes the development of a community-based strategic planning effort both plausible and feasible. The first steps in this cooperative effort were taken in

TUCSON
SCIENCE OPERATIONS/SYSTEM **
FY03 Spending = \$332
(Dollars in Thousands)

Work Package	FTE	Total
TAC & Users' Committees	2.5	253
TSIP Program Admin. (Cost Recovery: TSIP Admin.)	0.6	70 (70)
"System" Management	0.2	79
Program Total	3.3	\$332

*** Table shows costs budgeted in Tucson division only and does not include work package costs and activities allocated to "Science Operations" in KPNO (\$107K) or CTIO (\$220). Total FY 2003 cost of all activities defined as "Science Operations" at NOAO is thus \$660K (\$332 + \$107 + \$220)*

Tucson - Science Operations
FY 03 Spending = \$332K



October 2000 through a broad-based workshop held in Scottsdale, Arizona, in which the basic issues concerning a complementary or collaborative approach to the public/private capabilities were formulated. Unfortunately, in FY 2003, funds to support a second community workshop are not available; hence, only a meeting of the System Committee is planned.

SCIENCE RESEARCH PROGRAM

Milestones FY 2003

- Hold a joint meeting of the NOAO North and NOAO South scientific staff focused on research, as the first part of a subsequent staff retreat
- Recruit proactively for a second NOAO five-year postdoctoral fellow
- Obtain and award funds to support staff research goals
- Plan, organize, and conduct the first of a new NOAO series of topical scientific meetings
- Explore NOAO-staff-led campaigns aimed at innovative use of the NOAO–Gemini system of telescopes

Excellence in Research, Service, and Community Leadership

The core mission of NOAO is to enable research and discovery in U.S. ground-based astronomy. Central to this mission is a scientific staff committed to excellence in research, service, and community leadership.

Excellence in research is essential to setting the overall standards of the institution: the quality of current research capabilities, the ability to anticipate future research needs, and the talent and innovation to meet those needs. Excellence in service is required for NOAO to continue to enable the best researchers with the best ideas in the community to have access to smoothly functioning, efficiently operated state-of-the art facilities, instruments, and software tools. Excellence in leadership is needed to work successfully with the community to develop common strategic visions for the future, to articulate those visions to funding agencies, and to evolve the fair processes and community partnerships fundamental to achieving these visions.

To recruit and retain individuals with the unusual blend of talents and temperaments needed at NOAO has always been a challenge, but perhaps never more so than at present, as the observatory enters an era of rapid evolution from its focus on 4-m class telescopes to Gemini, and soon to the era of LSST and GSMT.

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The need to address simultaneously the ongoing operations at CTIO and KPNO, the gateways to the Gemini telescopes, and to plan for LSST and GSMT, has required that a staff of very modest size assume both service and community leadership functions that now take up most available creative cycles. The result has been that time available for research has now dropped to perilously low levels for nearly all staff members.

Time Available for Scientific Research

At the beginning of FY 2002, NOAO initiated a process to record and quantify the hours spent by staff on functional activities, research, education and public outreach activities, and external service. Analysis to date indicates that a typical NOAO astronomer reports working between 50 and 55 hours per week, of which about 80 percent is devoted to functional projects, usually several. Effectively, time for research is restricted to nights and weekends. Moreover, the bleak budgets of the past decade have led to an erosion of staff salaries to the point where individuals of comparable rank are compensated at rates nearly 20 percent below those of competitive institutions. It is remarkable that in the face of a highly multiplexed functional burden, many NOAO staff members continue to carry out internationally competitive research programs. Despite increasingly non-competitive salaries, staff morale and commitment to institutional goals remain high.

This Provisional Program Plan places a high priority on reversing these obstacles to scientific productivity, specifically by:

- Making a “down payment” toward right-sizing the scientific staff to ensure an appropriate balance between research and functional responsibilities
- Working with NOAO associate directors to maximize the time available for coherent and effective research, and ensuring the best match between research interests and functional responsibilities
- Working with NOAO associate directors to develop a team approach, where appropriate, to functional responsibilities
- Continuing quantitative assessment of service/functional contributions
- Recognizing and rewarding research productivity through increased internal support
- Encouraging research innovation through judicious use of the director’s discretionary time

Science Research FY 2003 Budget and Major Work Packages

- **Program Management:** Management and planning by the Associate Director for Science, S. Strom, supported by an administrative assistant.

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- **Science Program**

NOAO Five-Year Post-Doctoral Program. Funds for the second appointment in the new five-year postdoctoral fellowship program permitting outstanding candidates to work closely with the core NOAO staff in advanced planning and ongoing operations. These fellows have a time-averaged service obligation of 25 percent over the first three years of the fellowship; the last two years are focused on research, enabling the fellow to synthesize work carried out during the previous three years, and to define future programs. The final year of the fellowship could be spent at a university or split between a university and NOAO.

NOAO Extended Staff Program.

Specific funds have also been allocated in FY 2003 to support the NOAO “extended staff” program, in which non-NOAO scientists are recruited from the community to work in collaboration with NOAO scientists in the planning of major new initiatives (e.g., LSST, GSMT, data mining), new instruments (e.g., NEWFIRM), or in carrying out major research programs. NOAO will provide salary support for the “external” staff members, who will typically spend between six months and two years in residence, primarily at NOAO.

Visiting Scientists, Graduate Students, and Professional Mentoring Programs.

FY 2003 funds have also been specifically earmarked for visiting scientists and graduate students, scientific workshops and meetings, and professional mentoring and skills enhancement programs for NOAO scientific staff.

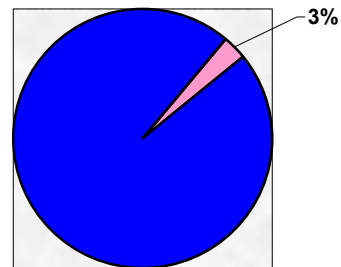
NOAO Deep Wide-Field Survey

(NDWFS). The NOAO Deep Wide-Field Survey is a very deep optical and IR imaging survey of 18° of the sky with the primary goal of studying the evolution of large-scale structure from z~1-4. In

TUCSON
SCIENCE RESEARCH PROGRAM
FY 03 Spending = \$652
(Dollars in Thousands)

Work Package	FTE	Total \$
Program Mgmt	1.3	127
Deep Wide-Field Survey	0.7	64
Science Program	1.6	237
Travel & Publications		123
Staff Development		75
(Indirect Revenue: Grants)		(75)
Tucson Library	1.0	141
(Indirect Cost Recovery: Library)		(40)
Program Total	4.7	\$652

Tucson - Science Research Program
FY 03 Spending = \$652K



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addition, the survey will enable further investigation of the formation and evolution of the red-envelope galaxy population and the detection of luminous, very distant ($z > 4$) star-forming galaxies and quasars. NOAO Deep Wide is mapping an exceptionally large area to very faint flux limits (optical 26 AB mag. and infrared 21.5 AB mag. $5\text{-}\sigma$ detection limits in a 2" diameter aperture). This survey will be valuable in addressing many other problems, and its execution and the presentation of the data to the community have been designed in a manner that will maximize the scientific return. First release of calibrated data and object catalogues constructed from the already completed portions of this survey occurred in 2001. Additional releases will be made as significant subsets of the survey are reduced and calibrated. All of the current data will be placed in the NOAO Science Archive in 2003.

- **Staff Development.** In FY 2003, the Science Research Program will take steps to establish a new research environment at NOAO with the specific goals of:
 - Enabling effective research by individuals and teams by recruiting additional staff and continuing to explore innovative mechanisms for maximizing science time
 - Fostering a stimulating professional environment through workshops and larger meetings focused on developing scientific problems
 - Encouraging research programs of high impact and visibility using the NOAO–Gemini system by funding programs carried out by individual staff members and staff/community teams, and through judicious use of the director’s discretionary time.

NOAO DIRECTOR’S OFFICE

Milestones FY 2003

- Work with NSF Astronomical Sciences to implement and assure the success of the proposed NOAO Advisory Committee, a feature of the new cooperative agreement in FY 2003.
- Participate in a “Town Meeting” to be held at the January 2003 AAS meeting in Seattle.
- Conduct a three-day NOAO-wide internal review in February 2003. The purpose of this review, recommended by the scientific staff at a retreat held earlier this year, is to monitor progress on the Long Range Plan and, if necessary, suggest changes in emphasis or direction. The review will be open, and attendance by Observatory Council members will be welcome.

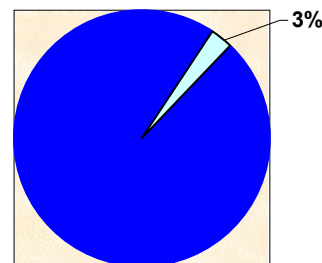
NOAO-TUCSON
Director's Office
FY 03 Spending = \$627
(Dollars in Thousands)

Work Package	FTE	Total \$
Management/Planning	4.9	550
Safety & Risk Mgmt	1.0	77
Total Tucson	5.9	\$627

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- Initiate a five-year program aimed at “right-sizing” the scientific staff to enable and maintain an appropriate service/science balance by recruiting two additional staff members.
- Present NOAO FY 2005 budget needs to the NSF/AST in May 2003.

NOAO Director's Office
FY 03 Spending = \$627K



Tucson Director’s Office FY 2003 Budget and Major Work Packages

- **Management/Planning:** Direction, policy, strategic planning, day-to-day operations, and external relations by director and deputy director, including administrative support, travel, publications, and other non-payroll costs. The NOAO director has primary responsibility for external relations, especially vis à vis NSF and AURA. Deputy director acts for the director in any and all areas; in addition, deputy director heads the NOAO-wide Science Operations/System programs (including the new TSIP program), is associate director for the Data Products Program, and oversees Tucson Computer Infrastructure Support (CIS). (Costs not directly associated with deputy director functions are allocated in the budgets of those latter programs.)
- **Safety and Risk Management:** Risk management specialist is responsible for safe operations and compliance for all NOAO divisions and sites; he also advises on the NOAO Business Contingency Plan, currently in preparation. (An appropriate charge to NSO for its share of safety and risk management services provided by NOAO remains to be negotiated.)

COMPUTER INFRASTRUCTURE SUPPORT (CIS)

Milestones FY 2003

- Establish a centralized and automated system for the maintenance and distribution of anti-virus software and definitions for PCs running Windows.

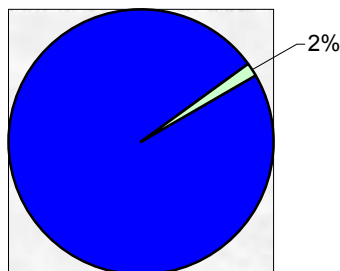
CIS provides computer and networking infrastructure support for the NOAO–Tucson facility. An important achievement in FY 2002 was the establishment—after three years of effort—of a DS-3 data line (45 Mbps) between the Tucson building and the facilities on Kitt Peak.

COMPUTER INFRASTRUCTURE
SUPPORT
FY 03 Spending: \$374
(Dollars in Thousands)

Work Package	FTE	Total \$
CIS	6.1	\$ 581
(NSO Recovery)		(207)
CIS Tucson	6.1	\$ 374

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CIS FY 03 Spending = \$374K



CIS FY 2003 Budget and Major Work Packages

The major tasks for CIS in FY 2003 are the following:

- Maintenance and improvement of the facility network and of a secure connection of the facility network to the Internet
- Maintenance and improvement of a secure software infrastructure providing services to the NOAO–Tucson facility including e-mail, Internet, ftp, and remote access.
- Configuration and connection to the network; support and maintenance of computers (including scientific workstations and office PCs) used in the facility

CENTRAL ADMINISTRATIVE SERVICES (CAS)

Milestones FY 2003

- Perform a total Quality Management Review (QMR), aligning CAS staff and procedures with future needs of NOAO
- Move towards increasing NSO autonomy in administrative services
- Modify current accounting and reporting software to increase efficiencies in areas of human resources, payroll, procurement, and Work Breakdown Structure (WBS) management reporting
- In collaboration with CFO, design and implement an integrated internal Web site among NOAO staff and sites
- Continue investment in NOAO staff development through periodic Human Resources topic briefings and short workshops

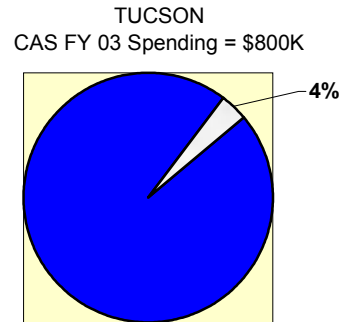
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CENTRAL ADMINISTRATIVE SERVICES
FY 03 Spending = \$800
(Dollars in Thousands)

Work Package	FTE	Total \$
Human Resources	3.7	250
Procurement	9.0	653
Accounting	6.0	453
Payroll	1.8	124
(Indirect Cost Recovery)		(330)
(Cost Recovery: NSO)		(350)
Total CAS Tucson	20.3	\$800

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CAS FY 2003 Budget and Major Work Packages

- **Human Resources:** Employee benefits administration, recruitment, topic briefings, compensation surveys, benefit negotiations, policy development, employment regulations and compliance. Includes Chile, NSO, AURA, and Gemini South Operations Support.
- **Accounting:** Administration and accounting support to NOAO; varied related services to NSO and AURA. All areas of budgeting, financial reporting, compliance, accounts payable/ receivable, U.S. visa support and liability insurance.
- **Procurement:** Purchasing, grants and contracts, shipping and receiving functions, exports, CTIO travel, mail support to NOAO, and varied support to NSO.
- **Payroll:** Payroll processing for NOAO, NSO, WIYN employees in Tucson, and SOAR US hires; federal government reporting for all AURA centers, including AURA corporate, Gemini, and STSci.



CENTRAL FACILITIES OPERATIONS (CFO)

Milestones FY 2003

- Phase II of electrical system change-over for code compliance and improving power
- Air handler evaluation of the 15+ units to identify deficiencies and repair/replacement options and costs
- Expand building access control system and implement key card lock system
- Installation of plumbing isolation valves to prevent major flooding

Tucson Facilities Operations/Maintenance

The Central Facilities Operations (CFO) group is responsible for maintenance and support of the 137,000-square foot, nine-building Tucson

Central Facilities Operations (CFO)
FY 03 Spending = \$819
(Dollars in Thousands)

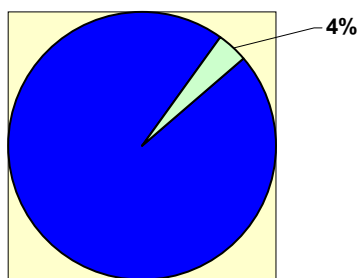
Work Package	FTE	Total \$
Bldg. Maintenance	3.0	285
Vehicles	0.5	95
Utilities	0.4	264
Support Services to NOAO-Tucson and NSO	4.1	617
(Cost Recovery: SOLIS/ATST)	0.3	(17)
Roads & Grounds	0.3	37
(Indirect Cost Recovery)		(215)
(Cost Recovery: NSO)		(240)
(External receipts)		(7)
CFO Tucson	8.5	\$819

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facility. CFO staff provide support to the needs of approximately 330 FTEs and ensure daily operation of the facility. Responsibilities include: custodial services, grounds control, building maintenance and repairs, phone and voice messaging system administration, vehicle motor pool, parking, office supplies, mail services, building security, utility services, energy conservation, records administration, safety and environmental compliance, and general support to staff. With the age of the Tucson facility exceeding 40 years, increased maintenance efforts are required and critical components are in need of replacement. CFO continues to focus on reduction of operation costs and corrective efforts in maintaining the facility.

CFO FY 2003 Budget and Major Work Packages

CFO FY 03 Spending = \$819K



- **Building Maintenance:** Facilities and building operation, maintenance, and repairs to the Tucson headquarters buildings and infrastructure systems. Painting, equipment replacements, re-roofing, energy conservation improvements, and office relocations.
- **Vehicles:** Operation and maintenance of the Tucson vehicle fleet, including fuel, repairs, and replacement when necessary.
- **Utilities:** Electrical, water, sewer, gas, and trash services for headquarters building, including record keeping and reporting.
- **Support Services:** Telecommunications system, mail and postage, office supplies. Custodial and fire/after-hours security costs. Facilities management, administrative, engineering, and other support for compliance, record keeping, and budgeting.
- **Roads and Grounds:** Landscaping and grounds control, including lease of parking lot.