NATIONAL SOLAR OBSERVATORY



NSO Quarterly Report (2) FY 2005 January 1, 2005 – March 31, 2005

Submitted to the National Science Foundation Under Cooperative Agreement No. AST-0132798 Scientific Program Order No. 2

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Submitted to the National Science Foundation under Scientific Program Order No. 2, Cooperative Agreement No. 0132798

May 1, 2005

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This report consists of summary statistics and other data on NSO observing programs and telescope usage, and a safety report for the fiscal quarter ended March 31, 2005. Quarterly highlights of public and educational outreach activities are also described. The appendix contains a comprehensive list of principal investigators and collaborators, program titles, telescopes used, and observing hours associated with the quarter's observing programs.

Scientific highlights and current updates on NSO initiatives, new capabilities, instrumentation, and operational activities are published separately in the quarterly *NOAO-NSO Newsletter*.

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I. Observing Programs*

29 observing programs were carried out at NSO this quarter, three of which were thesis programs involving six graduate students. A comprehensive list of PI's, Co-I's, and collaborators, as well as program titles, telescopes used, and observing hours associated with the quarter's observing programs is attached as the Appendix.

NSO Observing Programs by (US vs Foreign)	Гуре	
3 Months Ending Mar-2005	Nbr	% Total
Programs (US)	24	83%
Programs (non-US)	2	7%
Thesis (US)	1	3%
Thesis (non-US)	2	7%
Total Number of Unique Science Projects*	29	100%

*Includes observing programs conducted by NSO/NOAO staff scientists.

Users of NSO Facilities by Category					
		Vis	NSO/NOAO Staff		
	US	Non-US	Total	% Total	
PhDs	27	8	35	81%	12
Graduate Students	3	3	6	14%	0
Undergraduate Students	2	0	2	5%	0
Other	0	0	0	0%	9
Total Users	32	11	43	100%	21

Institutions Represented by Visiting Users**				
	US	Non-US	Total	% Total
Academic	11	5	16	89%
Non-Academic	2	0	2	11%
Total Academic & Non-Academic	13	5	18	100%

**Note: Total number of institutions represented by users do not include departments or divisions within an institution as separate entities (e.g., US Air Force and NASA are each counted as one institution even though several different sites/bases/centers are separately listed in the data base).

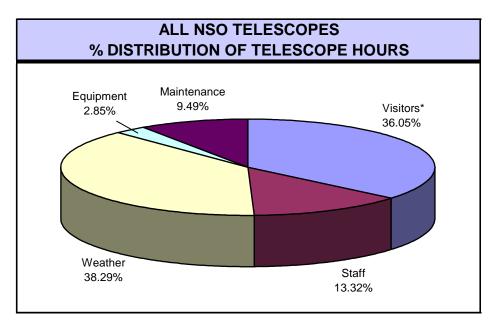
Number of Users by Nationality				
Canada	3	Switzerland	6	
Egypt	1	United States	53	
Mexico	1			

INSTITUTIONS REPRESENTED BY USERS			
Foreign Institutions (5)			
ETH Zurich, Institute for Astronomy			
National Research Institute of Astronomy & Geophysics, Egypt			
University of Calgary			
Universidad de Monterrey, Mexico			
University of Waterloo			
US Institutions (13)			
California State University, Northridge			
Carnegie Institution of Washington			
College of William & Mary			
East Carolina University			
NASA Jet Propulsion Laboratory			
NASA/Goddard Space Flight Center			
NASA/Langley Research Center			
New Jersey Institute of Technology			
San Francisco State University			
University of Arizona			
University of Hawaii			
University of Maryland			
University of Washington, Seattle			
University of Wisconsin, Madison			
US Air Force/Philips Lab (USAF/PL/GSS)			

II. Telescope Usage and Performance Data

In the quarter ending March 31, 2005, 36.05% of total available telescope hours at NSO/Sacramento Peak and NSO/Kitt Peak went to the observing programs of visiting principal investigators and synoptic programs; 13.32% were devoted to the programs of NSO and NOAO scientists. Scheduled maintenance, including instrument tests, engineering, and equipment changes, accounted for 9.49% of total allotted telescope hours.

Total "downtime" (hours lost to weather and equipment problems) for NSO telescopes was 41.14%. Almost all of these lost observing hours were due to bad weather (38.29%), with 2.85% lost to equipment problems.



NSO TELESCOPES Percent Distribution of Telescope Hours (Scheduled vs. Downtime) January - March 2005						
Telescope	Hours	% Hours Used By:		% Hours	s Lost To:	% Hrs. Lost To: Scheduled
Telescope	Available	Visitors ^a	Staff	Weather	Equipment	Maintenance
Dunn Solar Telescope/SP	774.0	10.7%	22.5%	43.4%	4.4%	19.0%
McMath-Pierce*	1,055.5	44.1%	9.9%	44.0%	2.0%	0.0%
KP SOLIS Tower ^b	0.0	0.0%	0.0%	0.0%	0.0%	0.0%
FTS Lab*	430.0	76.5%	0.0%	1.2%	0.0%	22.3%
Evans Facility	301.5	15.3%	20.6%	58.2%	6.0%	0.0%
All Telescopes	2,561.0	36.1%	13.3%	38.3%	2.9%	9.5%

^aIncludes synoptic programs for which all data are made available immediately to the public and the scientific community at large.

^bThe KPVT was closed on September 22, 2003 to prepare for SOLIS. The KPVT is now the Kitt Peak SOLIS Tower (KPST).

*Totals include both day and night hours. (All others are day only.)

III. User Statistics – Archives/Data Bases

A. NSO/Sacramento Peak (NSO/SP)

Combined User Demographics (NSO/SP)				
Demographic Group	Requests	Traffic		
U.S. Science (.gov, .edu, .mil)	7.2%	7.6%		
Other U.S. (.com, .net, misc.)	67.7%	69.0%		
Foreign	23.2%	21.8%		
Unresolved	2.0%	1.7%		

NOTE: Sac Peak statistics exclude the use of NSO archives and data bases from within the NSO/SP Local Area Network (LAN), from the NSO/Tucson LAN, and from NOAO as a whole.

FTP Archive Statistics

There were 136,394 successful user requests, serving 846 distinct files to 6,134 distinct hosts. A total of 29.596 Gbytes were served, averaging 336.849 Mbytes per day.

FTP User Demographics (NSO/SP)					
Demographic Group	Requests	Traffic			
U.S. Science (.gov, .edu, .mil)	6.4%	9.8%			
Other U.S. (.com, .net, misc.)	70.8%	67.1%			
Foreign	21.3%	22.0%			
Unresolved	1.5%	1.2%			

FTP Products (NSO/SP)					
Product Requests Traffic					
Realtime Images	6.7%	6.7%			
Corona Maps	91.8%	83.5%			
Staff Outgoing	0.9%	9.5%			
Other	0.6%	0.3%			

World Wide Web Statistics

There were 1,115,387 successful user requests, serving 22,279 distinct files to 66,988 distinct hosts. A total of 25.823 Gbytes were served, averaging 293.809 Mbytes per day.

WWW User Demographics (NSO/SP)					
Demographic Group	Requests	Traffic			
U.S. Science (.gov, .edu, .mil)	7.3%	5.1%			
Other U.S. (.com, .net, misc.)	67.3%	71.1%			
Foreign	23.4%	21.5%			
Unresolved	2.1%	2.2%			

WWW Products (NSO/SP)					
Product	Requests	Traffic			
Realtime Images and Movies (ISOON, Other)	16.8%	17.6%			
Other Images	4.8%	19.8%			
General Icon and Background Images	22.5%	6.6%			
Public Relations Pages	14.5%	9.8%			
Press Releases	1.9%	5.4%			
Telescope Home Pages	6.5%	3.8%			
ISOON	4.8%	3.7%			
Adaptive Optics Pages	1.3%	10.2%			
General Information	12.6%	10.6%			
Staff Pages	2.9%	6.6%			
Other	11.4%	5.9%			

FTP Upload Statistics

FTP uploads are using a significant amount of available bandwidth. Most of the FTP upload activity is related to the USAF Solar Mass Ejection Imager (SMEI) experiment.

There were 5,085 successful user requests uploading 429 distinct files from 30 distinct hosts. A total of 184.407 Gbytes were uploaded, averaging 2.053 Gbytes per day.

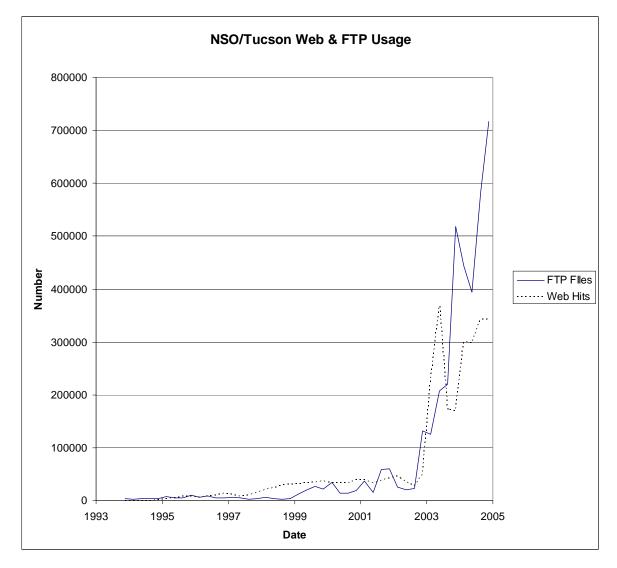
FTP User Demographics (NSO/SP)					
Demographic Group Requests Traffi					
U.S. Science (.edu, .mil)	97.3%	99.9%			
Other U.S. (.com, .net, misc.)	0.6%	0.0%			
Foreign	2.1%	0.1%			

FTP Uploads (NSO/SP)			
Product	Requests	Traffic	
SMEI Data	95.3%	99.9%	
Workshop Talks	4.7%	0.1%	

B. NSO/Tucson

- Most recent complete quarter (01 January 31 March 2005)
 - 1. 537 FTP users
 - 2. 61,039 FTP logins
 - 3. 717,145 files downloaded via anonymous FTP
 - 4. 342,595 Web page hits (not counting in-line images)
 - 5. 1,890,881 Web page hits including in-line images

- Distribution of downloaded data products by number of files for the most recent quarter:
 - 1. 4% KPVT (magnetograms, synoptic maps, helium images).
 - 2. 1% SOLIS (VSM magnetograms, synoptic maps, helium images)
 - 3. 1% FTS (spectral atlases, general archive).
 - 4. <1% Sac Peak spectroheliograms (H α , Calcium K images).
 - 5. 94% GONG (magnetograms, spectra, time series, frequencies).
- Demographics of FTP logins for most recent quarter:
 - 1. Science domains: 63%
 - 2. Public domains: 5%
 - 3. Foreign domains: 32%



Note: All statistics are for NSO/Tucson archive usage by non-NSO and non-NOAO personnel. The numbers do not include NSO/Sunspot.

V. Public and Educational Outreach Activities

NSO public and educational outreach encompasses activities at the Sunspot Astronomy and Visitor Center, including the Visitor Center's retail operations, educational exhibits, and NSO/Sac Peak tours; tours of the NSO/Kitt Peak facilities; Web site outreach, including public information requests; scientific press and media relations; and staff involvement in programs to enhance science education in grades K–12, as well as higher education. Highlights for this quarter follow.

A. Educational Outreach

1. Research Experiences for Undergraduates (REU), Research Experiences for Teachers (RET) Programs

During this quarter, 51 applicants were accepted for NSO's 2005 Research Experiences for Undergraduates Program and 10 applications were accepted for NSO's graduate Summer Research Assistantship Program. 44 teachers applied for NSO's 2005 Research Experiences for Teachers Program. In addition, applications were accepted by NSO's Air Force Research Laboratory Sunspot contingent for the 2005 Summer Space Scholars Program. In all, a combination of approximately 22 students and teachers will participate in summer research opportunities at locations in both Tucson and Sunspot for 2005. Also included are several PhD and Masters candidates supplementing their individual thesis projects.

2. Other Educational Outreach

Alexei Pevtsov gave nine lectures as part of a graduate course on "Observational Astrophysics" (PHYS580) at Montana State University in Bozeman.

Joel Mozer taught the spring semester Astronomy 110 course at New Mexico State University in Alamogordo.

In January, Mark Giampapa gave presentations to first, third and fifth grade classes at Fruchthendler Elementary School in Tucson on how to do a science fair project for the school's annual science fair in February and the regional (Southern Arizona Regional Science and Engineering Fair (SARSEF)) competition that followed in March.

Members of the NSO staff (Mark Giampapa, Frank Hill, Claude Plymate, Matt Penn, Bill Sherry) participated in the LAPLACE-University of Washington (UW), Seattle exchange on 19-21 March which involved a visit to Kitt Peak by 14 graduate students from the UW astrobiology program along with members of the Life and Planets Astrobiology Center (LAPLACE) of the University of Arizona. The graduate students represented a broad range of disciplines in the life and physical sciences, and engineering. During their three days on the mountain, the students participated in demonstration observing exercises in order to gain an understanding of how astronomical data relevant to goals in astrobiology are obtained, reduced and analyzed. At the McMath-Pierce Solar Telescope, the grad students obtained infrared spectra of sunspots and measured umbral field strengths based on the observed Zeeman splitting of a magnetically sensitive Fe I line at 1.56 microns. In addition, they saw Ca II H and K spectra acquired for active regions in the vicinity of the spot, similar to the kind of spectra obtained at the nighttime telescopes for active solar-type stars. The solar observations were interspersed with presentations on solar-terrestrial interactions, solar-stellar activity, and helioseismology.

B. Public Outreach

1. Sunspot Visitor Center

Sunspot Astronomy & Visitor Center Summary of Visitors and Tours (3 Months Ending 03/31/05)				
Group/Program	No. of Visitors			
General Public Tours (Visits to Center and Self-Guided Tours)	2,200			
Guided Public Tours:				
- School Groups K-12	41			
- Special Tours	54			
Total Visitors2,295				

2. Other Public Outreach

In January, agreements were finalized between NSO and NOAO Public Affairs and Educational Outreach (PAEO) for the NSO Razdow dome at Kitt Peak to be used for promoting solar astronomy to the public.

The first issue of the ATST Quarterly Newsletter was published in January.

The NSO sponsored three months of the American Astronomical Society 18-month 2005-2006 calendar, featuring ATST (Jan-2005), GONG (Jul-2005), and SOLIS (Jan-2006).

Alexei Pevtsov gave a public lecture on "The History of Space Exploration in Postage Stamps" at the Museum of the Rockies in Bozeman, Montana on 29 February.

Bill Livingston met with *LA Times* reporter Dan Neal for discussions and solar observing demonstrations at the McMath-Pierce Solar Telescope on 12 March as part of the Einstein Day activities at Kitt Peak. NSO Visiting Scientist Jim LoPresto (Edinboro University, PA) was also available at the Kitt Peak Visitor Center that day to talk about his work with Keith Pierce on the measurement of the solar gravitational redshift.

400 handouts about NSO were distributed to visitors who participated in FunFest at the Southern Arizona Regional Science and Engineering Fair in March.

On the evening of 15 April, Mark Giampapa hosted a star party at Fruchthendler Elementary School for the first, third, and fourth grade students, teachers and parents. NSO Celestron telescopes were used for this event.

3. External Coordination

NSO REU students presented poster papers at the 205th Meeting of the American Astronomical Society in San Diego on 09-13 January:

- "Plasma Flows in Emerging Sunspots," Joel B. Lamb, University of Iowa (2004 REU student; first author).
- "How Reliable is the Inversion of Stokes Profiles?" Michelle T. McMillan, Northern Arizona University (2004 REU student; first author).
- "Solar Wind Forecasting with Coronal Holes," Stuart J. Robbins, Case Western Reserve University (2004 REU student; first author).
- Former NSO REU student Adam Kraus (2002 REU student from the University of Kansas, currently an astronomy graduate student at Caltech) was represented on three posters papers involving work that are extensions of his 2002 REU project involving the Moving Object and Transient Event Search System (MOTESS)-Global Network of Astronomical Telescopes, Inc. (GNAT) surveys.

In January, Dave Dooling spoke to the La Noche Women's Club in Alamogordo (10 Jan.), represented NSO at the Cloudcroft High School Career Day (12 Jan.), and prepared and gave the astronomy test for the regional Science Olympiad (22 Jan.)

Jackie Diehl provided support to the Tularosa Basin Science Fair in Alamogordo in February, and in March she and Ramona Elrod represented NSO with an exhibit at the annual National Science Teachers Association conference in Dallas, Texas.

C. Media and Public Information

1. Press Releases and Image Releases

On 06 January, a press release was issued: "Haleakala, Hawaii, Endorsed for the Advanced Technology Solar Telescope" (*http://www.nso.edu/press/ATST/ATST_FinalSite.html*).

NSO Deputy Director Mark Giampapa, as well as NOAO Director Jeremy Mould, LPL Director Mike Drake, and Steward Observatory Mirror Laboratory Director Roger Angel, participated in a roundtable discussion titled "Astronomy's Eyes: Why Every Scope Matters" at the *Arizona Daily Star* building in Tucson on 18 January. A condensed transcript of the discussion was reported in the *Arizona Daily Star* 23 January newspaper edition and on their Web site.

On 03 February, Mark Giampapa did an interview about the Advanced Technology Solar Telescope at the KUAT radio studio on the University of Arizona campus with Bob McMillan of the Canadian Broadcasting Corp.

V. Safety Report

A. OSHA Recordable Occupational Injuries, Illnesses, and Other Incidents

- There were no injuries reported this quarter. Sunspot had one non-reportable incident involving a slip on ice that did not involve any lost time or need for medical attention.
- A complaint was received about excessive computer noise from a GONG employee in Tucson in January. The situation was discussed and recommendations were made to the employee. GONG staff corrected the problem.
- Vandals threw a rock at the Tucson GONG/DMAC west door window and shattered it on the morning of 21 February. The security guard on duty filed a police report. The window was promptly replaced.

B. Safety and Health

- As an annual requirement, NSO/Sunspot posted its OSHA 300 A log on 01 February.
- Information was provided to GONG staff in Tucson about risk management during projects and travel safety.
- After a question by a supervisor, current use of aerial lifts at Sacramento Peak was investigated and found to be in compliance. Modifications will be made to procedures when use involves "hot" lines.
- With the onset of the busy season at the Sunspot Visitor Center, NSO staff revisited and reiterated their procedures for emergency response.
- The US Air Force purchased an Automated External Defibrillator (AED) for use at Sunspot. This brings the total to three AED's on site. The AED's are currently located at Apache Point Observatory, in the Sunspot ambulance, and at the NSO Main Lab. There are plans to purchase another defibrillator, or to relocate the Main Lab AED for use at the Visitor Center.

C. Fire Protection and Prevention

• The Sunspot Volunteer Fire Department has received funds for a new fire truck. The truck is being manufactured and should be delivered by summer 2005.

D. Insurance

• An insurance certificate was acquired for the new Sac Peak van.

Risk Management services at NSO/Kitt Peak and Tucson are shared with NOAO. See also the "Tucson and Kitt Peak Safety Report" section of the NOAO January - March 2005 Quarterly Report for additional details on risk management activities.

APPENDIX National Solar Observatory 01 January - 31 March 2005

January - March 2005: During this period, 29 observing programs, three of which was a thesis programs involving six graduatestudents, were carried out at the National Solar Observatory. Graduate and undergraduate students are indicated by (T) for thesisstudents, (G) for non-thesis graduate students, (UT) for undergraduate thesis students; and (U) for undergraduate students.(TLRBSE) identifies middle and high school teachers who are Teacher Leaders in Research Based Science Education programparticipants, and (RET) identifies Research Experience for Teachers participants.NightsDaysHours

participants, and (RET)	identifies Research Experience for Teachers participants.	Nights	Days	Hours
8		0.0	12.0	96.0
Michael Dulick	National Solar Observatory			
FTS Beamsplitter Chang	ges; System Maintenance			
McMP FTS Lab				
1222		0.0	9.0	3.0
Curtis Rinsland	NASA Langley Research Center	0.0	9.0	5.0
Curus Kinsianu	NASA Langiev Research Center			
Monitoring of Long-Terr	m Trends in the Concentrations of Atmospheric Gases from	McMath FTS	Solar Spectra	
McPE FTS/Mc-P				
1661		0.0	5.0	60.0
Linda Brown	Jet Propulsion Laboratory			
Miller	Jet Propulsion Laboratory			
Laboratory Infrared Spe	ctroscopy			
McMP FTS Lab				
1854		0.0	4.0	2.0
William Livingston	National Solar Observatory			
Line Asymmetry Change	s in the Solar Irradiance Spectrum			
McMP FTS/Mc-P				
1948		0.0	3.0	36.0
Peter Bernath	University of Waterloo			
Ram	University of Arizona			
Laboratory Spectroscopy	of Molecules Found in the Sun			
McMP FTS Lab				

		Nights	Days	Hours
1978		0.0	1.0	8.0
R. Paul Butler	Carnegie Institution of Washington			
Fischer	San Francisco State University			
Iodine Cell Spectrum				
FTS Lab				
1985		0.0	2.0	0.0
Γ. Alan Clark	University of Calgary			
Bergman	University of Calgary			
Extreme Solar Limb Obse	rvations of Infrared Lines of HI, MgI and Other Ele	ements		
McMP Main spectrograp	h			
2127		0.0	15.5	46.0
Richard Altrock	USAF Research Laboratory			
Three-Line Coronal Photo	ometer			
Evans Facility Sac Peak				
2128		0.0	13.4	28.0
Simon Worden	University of Arizona			
Keil	National Solar Observatory			
Ca K Solar Rotation [No	te 6 hrs. maintenance]			
Evans Facility Sac Peak				
2232		0.0	12.0	79.5
an Stenflo	ETH-Zürich			
Feller (T)	ETH-Zurich Institut fur Astronomie			
Gandorfer	Max Planck Institute for Aeronomy			
Gisler (T)	ETH-Zurich Institut fur Astronomie			
Fhalmann	ETH- Zürich			
	tral Lines Near the Solar Limb			
McMP Main spectrograp	h			
		0.0	10.0	39.0
2245		0.0	10.0	

ATST Key Technology Developments

McMP Main spectrograph

		Nights	Days	Hours
2282		0.0	3.0	7.0
Donald Jennings	NASA/Goddard Space Flight Center			
McCabe	NASA Goddard Space Flight Center			
Sada	Universidad de Monterrey			
Wallace	NASA/Goddard Space Flight Center			
Zeeman Splitting in OH at	12 Microns			
McMP FTS/Mc-P				
2317		0.0	5.0	192.0
Charles Miller	Jet Propulsion Laboratory			
Benner	College of William and Mary			
DiComo (U)	College of William and Mary			
Nugent (U)	College of William and Mary			
Measurements of CO2 in t	he Near Infrared with the McMath-Pierce FTS			
McMP FTS Lab				
2367		0.0	7.0	9.0
Andrew Potter	National Solar Observatory			
Plymate	National Solar Observatory			
Killen	University of Maryland			
Adaptive Optics for Planet	ary Observations at the McMath-Pierce Telescope			
McMP Main spectrograph	I.			
2391		0.0	5.0	23.0
Debi Prasad Choudhary	NASA/Marshall Space Flight Center			
Penn	National Solar Observatory			
Walton	California State University, Northridge			
Three-Dimensional Struct	ure of the Magnetic Field of the Solar Atmosphere			
McMP Spectromagnetogr	aph			
2400		0.0	3.0	30.0
Stephen Kukolich	University of Arizona			
Subramanian	University of Arizona			
Karunatilaka	University of Arizona			
Infrared Spectroscopy of C	Organometallic Complexes			
FTS Lab				

		Nights	Days	Hours
2401		0.0	10.0	8.0
Matthew Penn	National Solar Observatory			
Aladdin Infrared Camera	Testing			
McMP Main spectrograp	1			
2414		0.0	6.0	47.0
Mark Giampapa	National Solar Observatory			
Plymate	National Solar Observatory			
Meyer	University of Arizona, Steward Observatory			
Sullivan	University of Washington, Seattle			
Interdisciplinary Graduate	e Training in Astrobiology: Demonstration Solar Observing a	t the McMa	th-Pierce	
McMP Main spectrograp	1			
2415		10.0	0.0	150.0
Jeffrey Morgenthaler	University of Wisconsin, Madison			
Harris	University of Wisconsin, Madison			
Oliversen	NASA/Goddard Space Flight Center			
Mierkiewicz	University of Wisconsin-Madison			
Neef (T)	University of Washington, Seattle			
Observations of Comet C/2	2004 Q2 (Machholz)			
McMP				
2415a		9.0	0.0	180.0
Jeffrey Morgenthaler	University of Wisconsin, Madison			
Corliss (T)	University of Wisconsin, Madison			
Cash (T)	University of Washington, Seattle			
Observations of Comet C/	2004 O2 (Machholz)			
МсМР				
2424		0.0	1.0	0.0
2424		0.0	1.0	8.0
Basheir Marzoke	Natl Research Institute of Astronomy & Geophysics, Egy	pt		
Livingston	National Solar Observatory			
Center-to-Limb Observation	ons of the IR Triplet Lines			

McMP Main spectrograph

		Nights	Days	Hours
2426		0.0	9.0	72.0
Joe Elrod N	lational Solar Observatory			
Bradford N	lational Solar Observatory			
Gilliam N	lational Solar Observatory			
Hegwer N	lational Solar Observatory			
Spence N	lational Solar Observatory			
Dunn Solar Telescope Maintena	nce			
Dunn Solar Telescope/SP Sac Pe	zak			
2426a		0.0	7.5	75.0
loe Elrod N	lational Solar Observatory			
Bradford N	lational Solar Observatory			
Gilliam N	lational Solar Observatory			
Berst N	lational Solar Observatory			
Fletcher N	lational Solar Observatory			
Dunn Solar Telescope Maintena	nce			
Dunn Solar Telescope/SP Sac Pe	eak			
2427		0.0	15.5	80.0
Thomas Rimmele N	lational Solar Observatory			
Richards N	lational Solar Observatory			
ATST Wavefront Sensor Tests				
Dunn Solar Telescope/SP Sac Pe	eak			
2428		0.0	8.0	20.0
Alexei Pevtsov N	Jational Solar Observatory			
Visible Light Broadband Imager	(VLBI) Wavelengths and Bandpass Testing			
Dunn Solar Telescope/SP Sac Pe	eak			
2429		0.0	9.0	4.0
Han Uitenbroek N	lational Solar Observatory			
Balasubramaniam N	lational Solar Observatory			
Fritschler E	ig Bear Solar Observatory/NJIT			
Spectro-Polarimetry in the G-Ba	nd			
Dunn Solar Telescope/SP Sac Pe	eak			

		Nights	Days	Hours
2430		0.0	10.0	15.0
Kasiviwanathan	National Solar Observatory			
Uitenbroek	National Solar Observatory			
Accurate Line-of-Sight (LOS	S) Magnetograms for Active Regions			
Dunn Solar Telescope/SP Sa	ac Peak			
2431		0.0	10.0	20.0
2431 Krishna Balasubramaniam	National Solar Observatory	0.0	10.0	20.0
Keil	National Solar Observatory			
Rapid Evolution of Small-Sc	ale Eruptive Activity at the Dunn Solar Teles	cope Diffraction Limit		
Dunn Solar Telescope/SP Sa	ac Peak			
2432		0.0	10.5	54.0
Haosheng Lin	University of Hawaii, IFA			
Sankarasubramanian	National Solar Observatory			
TCM2620 IR Polarimeter an	nd Fiber Optics Image Slicer (FOIS)			
Dunn Solar Telescope/SP Sa	ac Peak			
2433		0.0	9.5	64.0
Thomas Rimmele	National Solar Observatory	0.0	2.5	04.0
Sankarasubramanian	National Solar Observatory			
High-Resolution Studies of I	Pores Using the Diffraction-Limited Spectro-	Polarimeter (DLSP)		
Dunn Solar Telescope/SP Sa	ac Peak			
2424		0.0	7.0	24.0
2434 E. Seykora	East Carolina University	0.0	7.0	34.0
E. SEYKUIA	East Carolina University			

Solar Photometry

Evans Facility Sac Peak