

# MONTHLY STATUS REPORT

Engineering & Technical Services  
June 2001

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### Departments

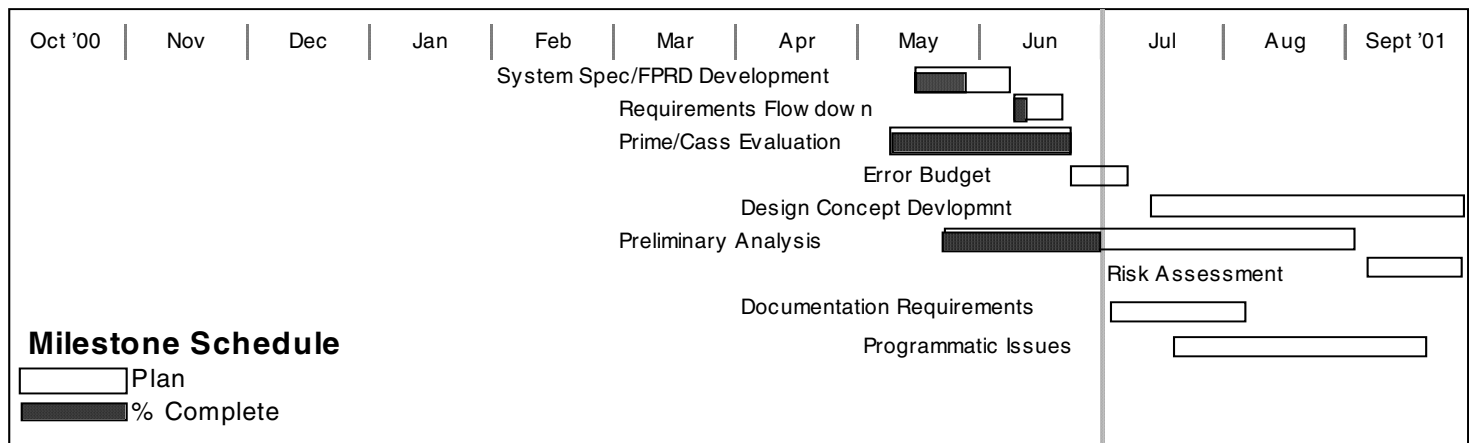
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## N-NX 529-448 NEWFIRM

**DESCRIPTION:** This is the first year of a multiyear project to develop a wide field, near infrared imager designed for use at the Cassegrain focus of the Mayall 4-M telescope. A draft of the concepts for this instrument can be found at <http://www.noao.edu/ets/newfirm/newfcon.html>.



FY2001	
Budgeted Hours	1239.6
Actual Expended Hours	1061.5
Capital Expended	\$61,100

### ACCOMPLISHMENTS:

- Most of the effort for this reporting period went into performing sufficient design and analysis on the NEWFIRM configuration for the telescope Cassegrain (“Cass”) focus location to compare it with previous work done by Ball Aerospace for a NEWFIRM configuration to be located at the telescope primary mirror focus location (“Prime”). This effort included:
  - Notional design of a warm, external truss for the Cass configuration, with resulting reduced Dewar volume.
  - Preliminary FEA of the truss to determine its flexure characteristics
  - Preliminary evaluation of heat removal techniques from the optical elements
- This design and analysis effort successfully addressed all of the issues raised by Ball Aerospace when they did a quick study of the Cass concept, following their development of the Prime concept. Their initial Cass concept included an internal, cold truss and a much larger Dewar.
- The results of the Prime/Cass comparison study were presented to IPAC on June 18, along with operational considerations for both concepts and a discussion of the risk factors common to both (filter and detector array procurement). IPAC voted to continue with the Cass concept for conceptual design.
- Roy Autry and Ron Probst also developed a preliminary software and hardware architecture for the NEWFIRM control and data readout/processing system. This followed a discussion with Richard Wolff.
- For the remainder of June, the NEWFIRM team worked on reviewing the FPRD and system requirements written by Ron Probst last November and developing from it a NEWFIRM requirements flowdown.
- Roy also is working on the staffing requirements for the conceptual design effort.

### PLANS:

- Finish the FPRD/system specification review and the requirements flowdown.
- Establish a preliminary error budget.
- Finalize staffing requirements for conceptual design.
- Commence the conceptual design effort.

## Z-ZUP44-200 GEMINI CONTROLLER 1f/Sec UPGRADE

**DESCRIPTION:** The 1F/sec upgrade is a project that will upgrade the GNAAC controller to meet the 1F/sec throughput specification. Both hardware and software modifications are required to the existing controller.



FY2001	
Budgeted Hours	929.7
Actual Expended Hours	1201.5
Capital Expended	\$29,690

**ACCOMPLISHMENTS:**

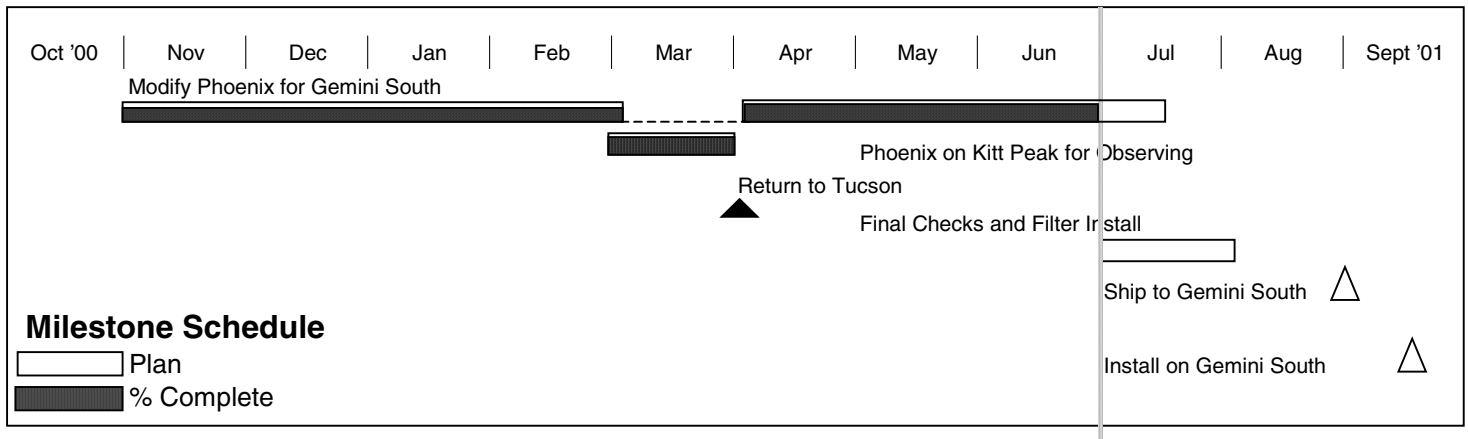
- No efforts this month due to staffing issues and workload.

**PLANS:**

- S/N 21001 Currently awaiting debug. Expected completion 7/31/01.
- S/N 21002 Currently operational in Hawaii. Requested to be returned to NOAO for rework, inspection, retest cycle. Estimated Completion TBD
- S/N 21005 Currently awaiting debug. Expected completion 8/15/01.

# Z-ZUP44-5XX GEMINI MODIFICATIONS TO PHOENIX

**DESCRIPTION:** Modify, ship and install Phoenix on Gemini South.



FY2001	
Budgeted Hours	1239.6
Actual Expended Hours	1781.5
Capital Expended	\$56,887

## Accomplishments:

- Calibration mechanism in fabrication. Parts due July 16.
- Shipping box 5 design in progress. Three of 5 complete.
- Electronics box being modified for remote on/off and power supply changes.
- Interface unit location holes corrected by vendor.

## Plans:

### Mechanical

- Add chilled water connection to electronics rack.
- Fab shipping boxes.
- Install Gemini filter set.

### Electrical

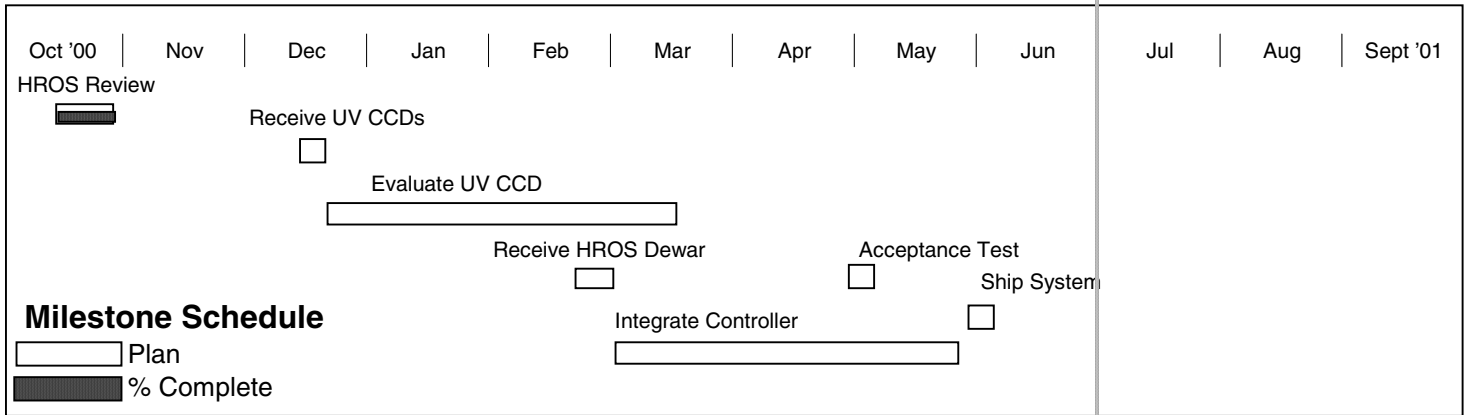
- Add remote on/off relay.
- Change power supplies.

### Software

- Sun stand alone code.
- TCS interface for header information.

# Z-ZUP44-6XX GEMINI CCD CONTROLLER INTEGRATION (bHROS)

**DESCRIPTION:** Investigation of CCDs provided by Marconi, CCD Controllers provided by LEACH and bHROS camera provided by UCL. CCDs will be tested and installed in the camera.



FY2001	
Budgeted Hours	0
Actual Expended Hours	42
Capital Expended	\$0

**ACCOMPLISHMENTS:**

- New workscope in process.
- Evaluated CCD #12.

**PLANS:**

- A fresh plan will be done for “bHROS” when things are firmed up.
- Bill Ditsler to visit UCL second or third week of July 01.

**PROBLEMS:**

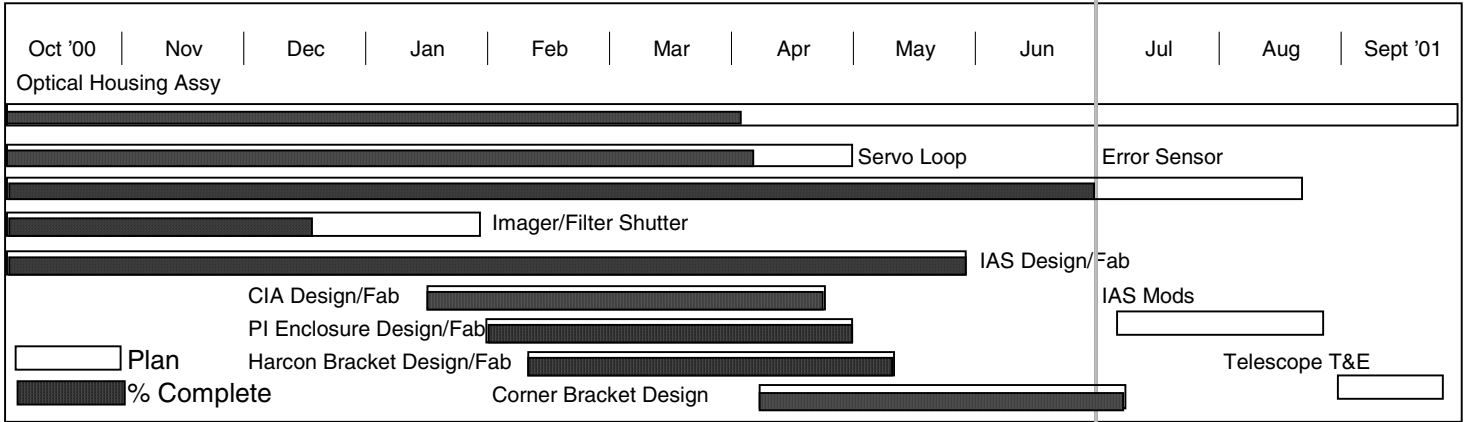
- No items.

**SOLUTIONS:**

- No items.

## N-NX539-202 WTTM

**DESCRIPTION:** The WTTM is a step to provide VIS-NIR adaptive optics to the NOAO/KPNO/WIYN community. A module will be developed in lab and then integrated into the WIYN IAS as a second port. It is designed for upgrades and will be commissioned in FY '02.



FY2001	
Budgeted Hours	6197.9
Actual Expended Hours	8287
Capital Expended	\$47,514

**ACCOMPLISHMENTS:**

- Machining of pick-off mirror mechanism parts 100% complete.
- Beam splitter assembly completed.
- IM backlog continuing to be managed, help from KPNO.
- IAS off telescope for modifications.
- Error sensor optics completed.
- Pickoff mirrors completed, ready for coating.
- Tip-Tilt masking fixture completed.
- Error sensor fibers completed.
- Pickoff mirror assembly parts completed.
- X-Y stage ready for systems integration.
- CIA fiber feed design completed.

**PLANS:**

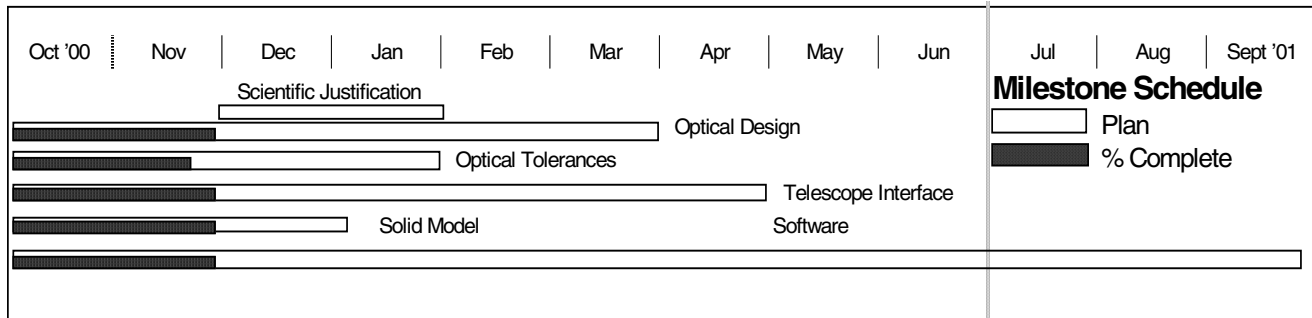
- Complete mechanical documentation.
- Continue IAS mods.
- Assemble and test error sensor.
- Coat pickoff mirrors.
- Test Tip-Tilt masking fixture.
- Continue working with vendor on M3 schedule.
- Software systems work.
- Fabricate installation bracket.
- Fabricate CIA fiber feed assembly.
- Aeroglaze snout cap.

**PROBLEMS:**

- M3 rework contract has slipped; expected delivery Aug 31, 2001. NOAO is working to expedite process.
- Masking technique for TT mirror unsuccessful (see plans).

## N-NX539-203 Next Generation Optical Spectrograph (NGOS)

**DESCRIPTION:** This is a conceptual design phase of a multi-year project to produce a wide field, imaging spectrograph utilizing state-of-the-art technology, thus permitting high efficiency and spectral resolution over a wide field of view. It will be designed for use at the Cassegrain focus of the Mayall 4 meter telescope.



FY2001	
Budgeted Hours	1859.4
Actual Expended Hours	948
Capital Expended	\$21,866

**ACCOMPLISHMENTS:**

- Optical design and tolerance completed. No further work on this project until it is reactivated.

**PLANS:**

- Project inactive.

**PROBLEMS:**

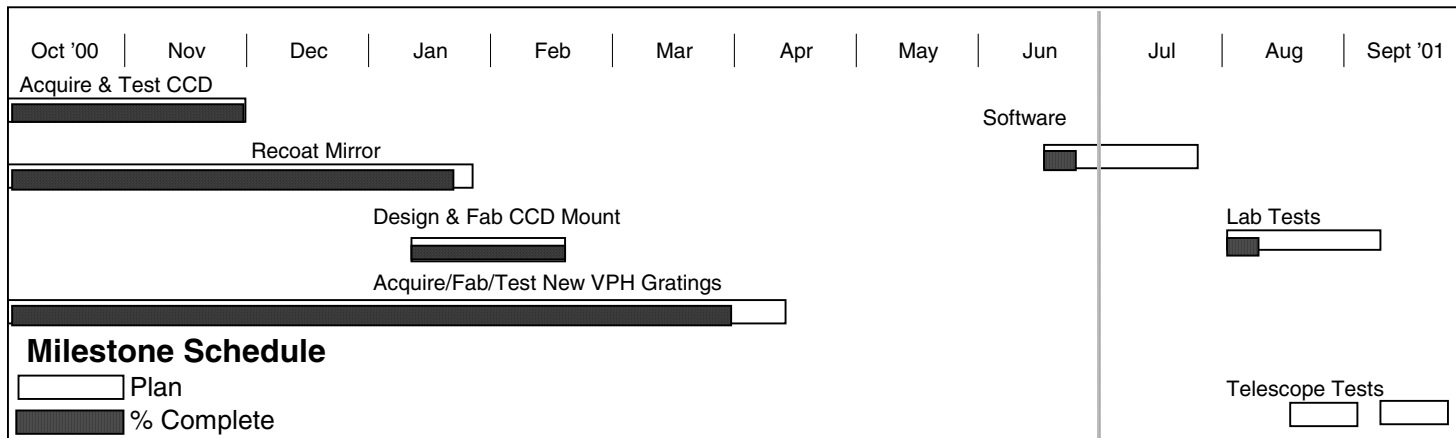
- Due to lack of assigned resources, effort will be reduced to optical design and tolerancing.

**SOLUTIONS:**

- Reduce scope of project, with resource allocation that will preserve existing accomplishments.

# N-NX539-211 Cryo Cam Upgrade

**DESCRIPTION:** Recoat the Schmidt camera reflective mirror with a protected silver. Acquire and install a new LBNL Hi-Rho CCD. Acquire two new VPH prisms.



FY2001	
Budgeted Hours	1859.4
Actual Expended Hours	1083
Capital Expended	\$22,013

**ACCOMPLISHMENTS:**

- Successful T&E at the WIYN telescope.
- Field flattener fabrication contract finalized, to be delivered June 27.
- Schmidt mirror being recoated by vendor.
- CCD Mount work package sent to vendor for fabrication.
- Optical work on grism completed.
- Test dewar CCD mount fabricated.
- Test dewar personality module fabricated.
- Electronics box rewired to accommodate LBNL CCD's.
- Begun evaluation of LBNL special CCD package.

**PLANS:**

- Continue work on VPH Grating.
- Modify grism cell holder.
- AR coat field flattner.

**PROBLEMS:**

- Due to lack of resources, T&E run for July 26-29 rescheduled for Sep 7-9.

**SOLUTIONS:**

- Elevate priority and assign resources.

## Instrument Shop (R. Repp)

### Small Purchase Orders (Account Numbers, Vendors, Products Purchased, and Cost)

NNK360-000, Precision Plating, Anodize .....	\$47.70
NNU531-190, Precision Plating, Anodize .....	\$61.80
NNU531-730, Precision Plating, Anodize .....	\$61.27
NNU531-830, Precision Plating, Anodize .....	\$47.70
NNU532-213, Precision Plating, Anodize .....	\$47.70
NNU532-423, Perfection Powder Coating, Aeroglaze .....	\$122.68
NNU533-013, Precision Plating, Anodize .....	\$47.70
NNU533-193, CB Oasis, Passivate.....	\$50.00
NNU533-193, Perfection Powder Coating, Paint Bench Cart .....	\$225.00
NNU580-310, MSC, Perishable Tooling, Plastic Bins (3 Orders).....	\$1,240.65
NNU580-310, Cadillac Plastics, Vespel .....	\$798.40
NNU580-310, TMX, Brass for Bearing Separators .....	\$322.82
NNU580-310, McMaster Carr, Plastic Bags.....	\$53.79
NNX539-202, Precision Plating, Anodize (4 Orders).....	\$217.30
SNP100-710, Precision Plating, Anodize .....	\$47.70
SNP140-110, Precision Plating, Anodize .....	\$47.70
SNP140-110, Bralco, Aluminum Stock .....	\$198.74
SNP140-110, Laird Plastics, G-10 .....	\$447.57
SNT400-120, Precision Plating, Anodize .....	\$47.70
ZZUP44-572, Precision Plating, Anodize (2 Orders) .....	<u>\$116.18</u>
Total May/June Small Purchase Orders .....	\$4,250.10

### Hard Purchase Orders: May/June, 2001 (Non-Shop Accounts)

NNP140-110, Req Number 3118240, 6-11-01, A-Arm Fab, Solis .....	\$720.00
ZZUP44-572, Req Number 3118241, 6-11-01, Phoenix Interface Details ...	\$3,529.00
NNU580-330, Req Number 3118244, 6-18-01, Stainless Threaded Inserts .	\$7,499.41
ZZUP44-572, Req Number 3118247, 6-25-01, Phoenix Int. Mandrel Lift...	\$3,237.00

### Instrument Shop Monthly Spreadsheet

Since 1995, all work in the shop has been tracked by using spreadsheets. Each major assembly is logged on a spreadsheet, and the information from the assembly sheets is passed on to one other spreadsheet entitled "Instrument Shop Work Sheet." Any manager of project engineer who has work in the instrument shop, and wants to track it can use this sheet to help them know what stage their project is in. Since this is the first time some of the readers have seen this work sheet, a brief explanation of how the sheet works follows:

**Name:** The name of the instrument maker assigned to the project.

**Project:** Wherever possible, drawing numbers, and proper titles are included under this column.

**Charge Number:** The all mighty account number.

**EST:** The estimated time, (in hours) remaining on the project.

**EST Start:** The date the project was started, or is expected to start.

**ECD:** Estimated Completion Date.

**Revised ECD:** If a project is starting to fall behind schedule, a new ECD is established. There is a number before the date, that is the "revision number" of the changed ECD.

**Date Complete:** The date that the project is deemed fabricated "complete per drawing." (There are often minor changes and revisions to any given assembly after it is deemed complete.)

**Comments:** Miscellaneous remarks about job progress, processes, etc.

## Instrument Shop (cont.)

### Instrument Shop Work by Employee

NAME	PROJECT	CHARGE	EST.	EST.	ECD.	REV	DATE	COMMENTS
		NUMBER				EST.	ECD.	
BENNETT	GNIRS POST SLIT BENCHES AND OTHER DUTIES AS REQD	NNJ532-130	160	7/2/01	7/31/01			SEE GNIRS DATABASE "INSTRUMENT SHOP FAB" FOR DETAILS
HARRIS	MISC GNIRS DUTIES AS REQD	NNJ531-830	160	7/2/01	7/31/01			SEE GNIRS DATABASE "INSTRUMENT SHOP FAB" FOR DETAILS
HAUTH	MISC. SOLIS WORK	SNT400-310	160	7/2/01	7/31/01			FED DETAILS AND ASSEMBLIES THROUGH NEILL MILLS
IRVINE	MISC. WTTM AND PHOENIX INTERFACE WORK	NNX539-202	160	7/2/01	7/31/01			DETAILS FED THROUGH RICH REED AND RUEBEN DOMINGUEZ
LEDERER	89-NOAO-4200-1156, GRATING TURRET MOTOR MOUNT	NNJ531-830	160	7/2/01	7/31/01			SEE GNIRS DATABASE "INSTRUMENT SHOP FAB" FOR DETAILS
MILLS	MISC SOLIS WORK	NNP140-120	160	7/2/01	7/31/01			MISC ASSIGNMENTS FROM SOLIS
RATH	MISC. STAFF SHOP WORK	VARIES	160	7/2/01	7/31/01			MISC WORK AS REQUIRED
STEIN	ASSEMBLY OF FILTER WHEEL AND OTHER DUTIES AS REQD	NNJ531-730	160	7/2/01	7/31/01			SEE GNIRS DATABASE "INSTRUMENT SHOP FAB" FOR DETAILS
	TOTAL HOURS IN SHOP: 6-29-01		1,280					
	<b>QUEUE WORK</b>							
	UNI.8025.0038, PANEL, FRONT	NNX510-001	16					2 PANELS FOR PAUL SCHMITT--IN SMALL JOBS FOLDER

### GNIRS work in Fab

FAB ORDER NUMBER	PART NUMBER	TITLE	QTY TO FAB	QTY FABBED	IN SHOP DATE
GNIRS-ORDER-2001-06-28	89-NOAO-4200-0039	FILTER WHEEL ASSEMBLY	1	0	06/28/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1037	LONG BLUE CAMERA COUNTERWEIGHT	1	0	06/11/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1057	LONG BLUE CAMERA BAFFLE, FRONT	1	1	06/11/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1115	LONG BLUE CAMERA BAFFLE, IN	1	1	06/11/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1121	LONG RED CAMERA LENS 1 AXIAL MOUNT RING	1	0	06/11/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1122	LONG RED CAMERA LENS 2 AXIAL MOUNT RING	1	0	06/11/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1123	LONG RED CAMERA FOLD MIRROR NO. 1 PRELOAD	1	0	06/11/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1128	LONG BLUE CAMERA BAFFLE REAR	1	1	06/11/2001
GNIRS-ORDER-2001-04-09	89-NOAO-4200-1156	GRATING TURRET MOTOR MOUNT	1	0	05/17/2001
GNIRS-ORDER-2000-10-02	89-NOAO-4200-1167	OIWFS BENCH HOGOUT	1	1	10/02/2000
GNIRS-ORDER-2001-01-22	89-NOAO-4200-1183	BOTTOM BENCH HOGOUT	1	0	01/22/2001
GNIRS-ORDER-2001-01-22	89-NOAO-4200-1185	TOP BENCH HOGOUT	1	0	01/22/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1194	LONG BLUE CAMERA FOLD MIRROR NO. 1 PRELOAD CAP	3	3	06/19/2001
GNIRS-ORDER-2001-06-28	89-NOAO-4200-1234	HEAT SINK PLATE	2	0	06/29/2001
GNIRS-ORDER-2001-05-04	89-NOAO-4200-1244	TAPERED ROLLER BEARING CAGE	8	8	05/21/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1252	LONG RED CAMERA FOLD MIRROR NO. 1 STOP	1	1	06/11/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1261	LONG RED CAMERA COUNTERWEIGHT	1	0	06/11/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1263	LONG RED CAMERA BAFFLE, OUT/IN	1	1	06/11/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1264	LONG RED CAMERA BAFFLE, REAR	1	1	06/11/2001
GNIRS-ORDER-2001-04-11	89-NOAO-4200-1309	111 LINE/MM GRATING MASK	1	1	05/21/2001
GNIRS-ORDER-2001-06-12	89-NOAO-4200-1316	LIMIT/HOME SWITCH DOVETAIL SLIDE	3	0	06/15/2001
GNIRS-ORDER-2001-03-09	89-NOAO-4200-1382	CAMERA BAFFLE	1	1	05/01/2001
GNIRS-ORDER-2000-04-30	89-NOAO-4200-1411	LONG RED CAMERA FOLD MIRROR NO. 1 RETAINER	1	0	06/11/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1477	LONG RED CAMERA FOLD MIRROR NO. 2 PRELOAD	1	0	06/11/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1493	LONG BLUE CAMERA LENS 1 AXIAL MOUNT RING	1	0	06/11/2001
GNIRS-ORDER-2001-05-24	89-NOAO-4200-1495	LONG BLUE CAMERA LENS 2 AXIAL MOUNT RING	1	0	06/11/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1509	LONG BLUE CAMERA LENS 3 AXIAL MOUNT RING	1	0	06/19/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1510	LONG BLUE CAMERA FOLD MIRROR NO. 2 STOP	1	1	06/19/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1658	LONG RED CAMERA FOLD MIRROR NO. 1 PAD	1	0	06/19/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1659	LONG RED CAMERA FOLD MIRROR NO. 2 PAD	1	0	06/19/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1660	LONG BLUE CAMERA FOLD MIRROR NO. 1 PAD	1	0	06/19/2001
GNIRS-ORDER-2001-06-19	89-NOAO-4200-1661	LONG BLUE CAMERA FOLD MIRROR NO. 2 PAD	1	0	06/19/2001

## **Infrared R&D Program (K. M. Merrill)**

- Fowler and Merrill went to Flagstaff to meet with Vrba and Hedden of USNO to apportion the Aladdin arrays. A total of 14 "science grade" devices, of varying utility, were produced under the Consortium. A mutually agreeable arrangement was concluded. USNO, NOAO and NSO will now officially have the devices they require. We will formally close out the Aladdin Project in July. (Note: we are still owed an Aladdin device from the PAIDAI consortium.)
- Began testing a RIO 1024X1024 HgCdTe detector on Aladdin mux. Device uses the Aladdin setup, but requires operation at liquid nitrogen temperatures.
- Continued planning for operating ORION muxes with the lab system. IR Labs was selected to produce the Orion lab dewar.

## **Optical Coating Laboratory (G. Poczulp)**

### **MDM 2.4 Primary Mirror Aluminization**

Z-ZKP00-034

The MDM 2.4m primary mirror was successfully aluminized in the 4m aluminizing chamber on 5 June 2001. Reflectivity and scattered light measurements made the next day using the Minolta 2002 spectrophotometer indicated an excellent coating and the mirror was placed into the shipping box in preparation for the short trip back to the southwest ridge.

### **SOLIS VSM Telescope**

S-NP140-110

The SOLIS VSM mirrors were shipped to Newport Thin Films Laboratory and G. Poczulp was there to oversee the safe handling of the optics, M1 and M2, in particular. Enhanced silver coatings were applied to all of the surfaces, but there were some minor surface cleaning flaws that were undetected prior to coating. The beamsplitter, one Offner flat, the eight inch fold flat and the M1 all suffered from some form of residual cleaning defects. The coatings on these surfaces were rejected and it was decided that all optics would be shipped back to NOAO to remove the rejected coatings. A technique for stripping the protective dielectric layers over the silver was developed and the coatings from the Offner flat and the beamsplitter were successfully removed. Preparations are underway to strip the coatings from the eight inch fold flat and the primary mirror.

### **WTTM Fabrication**

N-NX539-202

No significant work was done on this project.

### **WKU 1.3m Primary Mirror Aluminization**

Z-ZKP00-035

The WKU 1.3m primary mirror (formerly the KPNO 1.3m remote control telescope) was successfully aluminized in the Solar aluminizing chamber on 19 June 2001. Reflectivity and scattered light measurements made the next day using the Minolta 2002 spectrophotometer indicated a coating with excellent reflectivity and low scatter. After the mirror was measured it was placed into the shipping box in preparation for the short trip back to the 1.3m dome.

## Optics Excel sheet

Upcoming Coating Lab Projects	Chamber	Coating	Contact	Received	Need Date	Planned Start	Duration	Planned Completion	Delivery Date	Account #
KPNO 4m Primary	4m	Al	T. Abraham			8/2/01	5 days	8/6/01		
KPNO 2.1m Primary	4m	Al	T. Abraham			8/28/01	5 days	8/31/01		
SDSS 2.5m Primary	4m	Al	M. Klaene			10/1/01	5 days			
Cryocam Field Flattener	NRC-3177	MgF2	S. Barden		7/13/01	7/9/01	3 days	7/11/01		
Completed Coating Projects	Chamber	Coating	Contact	Received	Need Date	Actual Start	Duration	Actual Completion	Delivery Date	Account #
MDM 2.4m Primary	4m	Al	J. Halpern	6/4/01		6/4/01	5 days	6/6/01	6/6/01	Z-ZKP00-034
WKU 1.3m Primary	2m	Al	S. Howell	6/18/01		6/18/01	3 days	6/20/01	6/20/01	Z-ZKP00-035
Ongoing Miscellaneous Projects			Contact	Received	Need Date	Planned Start	Duration	Planned Completion	Delivery Date	Account #
SOLIS VSM Telescope			J. Wagner	ONGOING						S-NP140-110
GONG+ Optical Preventative Maintenance			R. Kroll	ONGOING						S-NP100-740
WTTM Fabrication			C. Claver	ONGOING						N-NX539-202

## Computer Services (C. Danielson)

- Recable Room B-50-A
- Install extension cables for Bob Marshall
- Rebuild Larry Reddell's PC
- New Basset problems booting
- Antivirus definition subscription has expired on nt-test-gate
- check other servers for av expiration
- Jay Elias PC reload - do bu first
- Roger's keyboard, mouse and monitor
- Neill's IBM Thinkpad still
- install retrospect 5.5 on nt-test-gate
- install retrospect 5.5 on draftserver2 - many problems before it worked
- req for Barry's software
- media pack for Norton Enterprise Antivirus - need numbers from Softmart
- Andy Peter's Theremin nt password problem
- Neill's network pcmcia adapter setup
- Dave (new machinist) e1000 problem computer
- Dave (new machinist) web email setup
- order cd writer for nt-test-gate-done
- install new ghost corporate edition 7.0
- install new server antivirus
- update Starjeep to Enterprise AV
- Neill Mill's extra cat5 cable hooked up
- reload new basset
- Barry Starr's new Dell PC load
- place orders for software
- turn off, and disable, service Mike F. recommends turning off

# Programming Group (R. Wolff)

## Behzad Abareshi

- Built a gcc (v. 2.95.3) cross compiler for Motorola targets running vxWorks, with Linux as host. For details please see <http://bordeaux.kpno.noao.edu/behzad/vxWorksUnderLinux.html>. Also, set up a development environment for vxWorks 5.3.1 and 5.2 on Cabbage. Please see <http://bordeaux.kpno.noao.edu/behzad/vxWorksOnCabbage.html> on how to build your vxWorks applications on Cabbage. This should give us one less reason to rely on SunOS/Solaris for software development. I can now do a clean build of the wiyntcs on Cabbage in 1/10th of the time it takes on Cerebus (Sparc 5).
- Tkcomet is finally up and running on Ivory (thank you to Dave Mills for his help).
- The WIYN TCS part of the temperature low-pass filter is operational now, although some final tests are required and will be done soon. Also, now temperature is updated even when the dome is tracking.
- On the same note, there were some observing glitches at WIYN that could be related to erratic pressure changes recorded by the met station (which in itself could be a problem). The plan is to test the sensitivity of the telescope to pressure changes, and, if need be, apply a low-pass filter similar to the one already in place for temperature.
- The WIYN TCS was tested in simulation mode. Although tracking and pointing work OK, the encoder values are wrong, and more than likely garbage. This will be a back-burner project and looked into later on.
- The main components of the telescope position back calculation were incorporated in WIYN TCS. However, the back calculation, along with the WFS/WTTM additions, involve changes to some data structures. Consequently, every component of the WIYN system that relies on these data structures needs to be recompiled. The plan is to create a structure for this rather massive recompilation, so that similar changes in the future could be done painlessly.

## Nick Buchholz

- Worked on software infrastructure issues related to new Systran drivers spending a week getting decapod upgraded to RedHat 7.1 and the LINUX 2.4.2 kernel, which is required for the SL100 Systran driver.
  - Spent almost a week getting the LINUX desktop environment back to a usable condition.
- Ran some tests with Systran SL100 and fxsl boards, discovered a fiber termination incompatibility.
- Attempted to get fxsl board driver to operate under LINUX 2.4.2. FAILED.
- Loaded and tested RABBIT "Dynamic C" Development software and tools. Tested simple hello world program downloaded to Rabbit processor.
- Completed the Gemini VII interface for TCS header information. No testing done yet.
- Started on Gemini VII commands interface.
- Began reviewing PCI Bus specification and documentation to learn how to deal with recalcitrant boards.
- Fixed some wire related configuration problems for SQUIID. Attempted some debugging of SQUIID hang problem.

## Phil Daly

- Reviewed some documentation on NewFIRM and assisted with decapod/theremin interconnectivity.
- Further learning curve work on the WTTM XY stage - an intern is now working on the servo loop characterization so I sashayed over to writing some sample code for updating guider positions from WTTM. This seemed to work but re-connecting to a gwcrouter on Indus or beet would crash the router. Odd. Bob Marshall set up an account on spinach for me and the same code using the Linux router works perfectly. Tidied up some WTTM GUIs.

## Shelby Gott

- Finished incorporating the new high-resolution, low-noise ADC into the f/8 control software, and participated in installation and testing on the telescope. New data from the T&E on June 8 suggests that features of the potentiometers (not ADC noise, nor software "overshooting") are the cause of the image wobble we see when doing a focus sequence. KPES are planning to test a linear incremental encoder (from Heidenhain) in their lab, so I expect to have more work to do on f/8 software.
- Spent some time upgrading and re-installing operating systems on my Windows/Linux pc.
- Began actual work on the 4-m cass guider, by building a prototype "Guider Step Motor Indexer" board, and started adapting an earlier version of the SMI firmware to run on it.

## **Bob Marshall**

- Project related work:
  - Interface to the new TCS at the 0.9-meter:
  - Investigated possible methods to interface to "Windows NT Named Pipes". Installed 'samba' and 'Solaris PC NetLink' but could not use either one to access the Named Pipes from Unix or Linux.
  - Peter Mack of ACE is now adding socket access to the TCS commands.
  - Prepared socket test code in TCL.
  - Helped to setup 'navajo' networking at WIYN for new CCD testing.
  - Setup GWC files on the Lab linux system 'spinach' for WTTM testing.
- Operations:
  - Updated the KPNO backup list.
  - Updated the WIYN shutdown script.
  - Summer shutdown planning.
- Maintenance:
  - 4-meter: PFCCD.
  - WIYN: FSA troubleshooting, VNC updates, 'moby' disks.
  - 2.1-meter: teal disk full (slocate).
- Computers:
  - Relocated the Sun and Linux PC from my office to the computer room.
  - Removed an OS patch on banana in order to fix a non-working second monitor.

## **Dave Mills**

- On vacation.

## **Peter Ruckle**

- The integration of the IS, CC, and DC has started. Most of the work will involve changing capfast diagrams to make all parts communicate together. I expect to be working on this portion for at least the next month or two.

## **Richard Wolff**

- Minor work on the low level GNIRS code. Some additional documentation written.
- A little GMOS support as they struggle with the DHS.
- The Gemini DHS system has been turned on and does run. Difficulties connecting with the VxWorks system meant that I have spent far too much time on this. However, Peter found the last problem, and it now works.
- Some administrative time spent on bench HROS and IPAC.

## Safety (J. Mortimer)

- During the month of June we have had one lost time injury and one first aid injury. The lost time injury occurred at the 4 meter telescope when an instrument maker sustained a dislocated shoulder. He missed two days of work and has since returned without restriction. The first aid incident occurred when an optician sustained a minor thumb laceration.
- Ongoing efforts continue to remove excess and unwanted chemicals from our properties in an approved manner.
- On 6/20 a meeting was held with the Tohono O'dham Department of Public Safety and NOAO staff. The result of this meeting was an agreement to work together on several issues of mutual concern.
- Personal protective equipment for the mirror coating process has been updated.
- An update of our Commercial Drivers License (CDL) driver's files has been completed.
- Employee training:
  - Personal fall protection was conducted for Kitt peak employees and several tenants.
  - Asbestos Supervisor refresher class was completed for two Kitt Peak employees.