MONTHLY STATUS REPORT

Engineering & Technical Services
October 2002

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N-NU 500-000 Gemini Near Infrared Spectrograph (GNIRS)

DESCRIPTION: The Gemini Near Infrared Spectrograph is a $4.2 million long-slit spectrometer that will be mounted on the Gemini South 8-meter Telescope on Cerro Pachon, Chile. It will operate from 1 to 5 um and will offer two plate scales and a range of dispersions. The instrument is scheduled for completion early in 2003. See regular monthly reports on the web at http://www.noao.edu/ets/gnirs/.
DESCRIPTION: The MONSOON Image Acquisition System is the NOAO solution for scalable, multichannel high-speed image acquisition system. Additional information can be found at the MONSOON website [http://www.noao.edu/ets/monsoon/](http://www.noao.edu/ets/monsoon/).

The initial focus of MONSOON is to develop an IR Laboratory Test Set for the RIO ORION Project. This capability will also support the RIO VIRGO and Rockwell HAWAII 2 family of FPAs, prove the MONSOON system concept and provide the baselinesystem for NEWFIRM implementation. This test set is composed of a Linux-Based Ghz PC, 1Gb/s FiberLink, Detector Head Electronics Chassis (DHE), one Master Control Board (MCB), one Clock & Bias Board (C&BB), and two 36 Channel IR Acquisition Boards (IRACQ), along with associated software.

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<th>Jan</th>
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<td>DHE Chassis</td>
<td>Master Control Board Prototype</td>
<td>CLK &amp; BIAS Board Prototype</td>
<td>36 CH IR ACQ Board Prototype</td>
<td>Goal to run IR Array in Lab</td>
<td>FPGA Design</td>
<td>Software Design</td>
<td>IR Test Set Review</td>
<td>△ Functional IR Lab System</td>
<td>△ Monsoon CDR</td>
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**FY 03**

- **Budgeted Hours**: TBD
- **Budgeted Capital**: $100,000
- **Actual Hours**: 1,117.1
- **Actual Capital**: $8,383

ACCOMPLISHMENTS

- The CLK & BIAS Board PCB prototype (qty 5) has been received, inspected and shipped to Chile (qty 3) for board assembly and test. 90% of components received. Expected to have a tested assembled unit back in Tucson by end of December.
- The 36 Channel IR Acquisition Board prototype is composed of two physical PCBs (motherboard, daughter board) that mate together to form a single assembly and occupy a single chassis slot. Two mother boards have been assembled and partially tested with excellent results. Full test in a very involved process lasting through December. Noise levels are within desired range to support ORION testing and have been measured at the 1-2 ADU level (14 to 15 bit) with a “non-optimized” system configuration. The daughterboards have been through PCB layout and due to be delivered (qty 5) from PCB Fabrication on Nov 12th. They will be immediately assembled and tested.
- Three Master Control Board prototypes have been fabricated and tested. Adapter board prototypes for Rabbit 2000 and 3000 processor to MCB have been designed and are in layout.
- The DHE Chassis is composed of backplane, enclosure, power supplies and wiring. The backplanes have been received, the power supplies received, and the enclosures and wiring will be ordered and assembled in November.
- Laboratory PC and Fiber Links are on order and due in November.
- Assembled and Configured Pixel Acquisition Node (PAN) PC for Chile. This includes Dell Ghz PC, Systran Fiberlink, Redhat Linux Software, VMWare LINUX/WINDOWS Software, Windows 2000, XILINX WebPACK FPGA Development Package, and Rabbit 2000 Software.
- MONSOON Software development continues with emphasis of the low-level modules necessary for hardware development and test.
• MONSOON source code has been placed under CVS control.
• MONSOON DHE software simulator has been completed.
• Communications hardware library to isolate the high level code from dependence on the Systran board has been completed.
• DHE hardware library to isolate the high level code from dependence on the actual MONSOON DHE hardware has been completed to an extent which will allow hardware and software testing.
• Construction of the PAN daemon command processor, DHE control begun, and process initializer has begun and will be tested during November and December.
• Construction of the PAN Capture, PAN algorithm and PAN Saver processes is proceeding in parallel with the command processor.
• Custom software for hardware testing has been written and is being modified to handle specific hardware test functions.

RESOURCE ISSUES

• The difficult delivery and eventual safe arrival of a new edition to Gustavo Rahmer’s family has unavoidably and understandably impacted the Clk & Bias Board schedule, but Gustavo has made great efforts during this time. Congratulations to the Rahmer Family with the addition of a new son, Walter.
• Peter Moore will be starting with the Detector R& D Group the week of Nov 11th. Peter will provide much valued assistance to the effort.
• Continued resource conflicts with GNIRS for senior technicians, namely Ken Don and Paul Schmitt.

PLANS:

• Assemble and Test IR Acquisition Daughterboard and Combined Motherboard Daughterboard Assembly.
• Assemble and Test MCB Rabbit Adapter Boards.
• Optimization of IR Acquisition Performance.
• Continued test of IR PCB assemblies.
• Specify and Order Missing DHE Chassis Components.
• Assembly of IR Test Set DHE Chassis.
• Test of IR Test Set DHE Chassis.
• Continued Test of IR System.
• Continued Development of FPGA based logic in all 3 PCB assemblies. Focus on IR Acquisition needs.
• Continued Development of MONSOON Software with focus on IR Test system needs.
• Assembled and Configured Pixel Acquisition Node (PAN) PC for IR LAB. This includes Dell GHz PC, Systran Fiberlink, Redhat Linux Software, VMWare LINUX/WINDOWS Sofware, Windows 2000, XILINX WebPACK FPGA Development Package, and Rabbit 2000 Software.
• Continued Test of CCD Prototype System.
DESCRIPTION: This is 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.

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SCHEDULE:
An updated NEWFIRM Project Schedule is summarized above. The Design Update Presentation was given on October 28. The Preliminary Design effort is underway, and the PDR is tentatively scheduled for February, 2003, and CDR is tentatively scheduled for October, 2003. Note that the fabrication effort will have begun in advance of the CDR.

ACCOMPLISHMENTS:

- The key accomplishment for this month, and which allowed us to declare victory on the conceptual design, was the determination that a solution exists for a mechanical design that leads to an acceptable thermal gradient and thermal power extraction level in the optical support structure. It was necessary to define mechanical structures and resulting thermal gradients for which four criteria were met simultaneously. First, the mechanical optical support structure needed to be sufficiently stiff to maintain alignment of the optical elements and the detector array under various gravity loads. Second, the mechanical structure must not be overly stressed either by cool down from ambient temperature to operating temperature nor by the operating temperature gradient from the detector array to the first collimator lens (Lens 2). Third, each optical element operating temperature must be not greater than a value, determined several months ago, that assures that the thermal photon load on the detector array does not introduce unacceptable levels of noise. Fourth, the thermal load from the tangent bars holding the optical support structure to the girth ring (which is at ambient temperature) and from the warm (and currently notional) baffle stack must be handled by no more than three cold heads strapped to various parts of the optical support structure and the detector array support structure.

- The optical design effort is drawing toward initiating the procurement of the lenses. Final lens diameters and prescriptions will be defined following completion of the thermal environment analysis (see below). Test methods for the optical train at ambient temperature are being defined. Charles Harmer, using a different optical analysis code, has completed a performance verification of Ming Liang’s Zeemax model at operating temperatures (as defined by Ron’s initial “not-to-exceed” thermal analysis). Charles’ analysis confirms Ming’s results.

- Ed Hileman and Ruben Dominguez have been finalizing the girth ring Dewar support concept, particularly the “barrel” structure that holds the optical element mounts; the lens mounts; and the filter wheel mounting concept.
• Earl Pearson has been using his thermal FEA model to analyze the NEWFIRM optics thermal environment. He has completed a number of runs looking at heat flow from the tangent bar mounting structure into the optical support barrel, shield placement, use of insulation and baffle concepts. These results will be summarized and presented at the CoDR Update.
• The K band optical filters were delivered in July. They have a number of tiny point defects in the surface coatings, and Ron Probst is discussing their possible effects with Barr Associates. The H band filters were delivered in September, but they have not been inspected yet.
• The ISPI instrument had a very successful first light trial in September. This impacts NEWFIRM in that it confirms the performance of spring finger lens mounts for cryogenic mounting of fragile crystalline lenses up to eight inches in diameter.

PLANS:

• NEWFIRM Conceptual Design Review Update, October 28, 8:15 am to 5:00 pm in the Main Conference Room.
• Complete the optical element design effort following final temperature determinations by Earl Pearson. Prepare the drawing package for bids and, after receiving the bids, prepare the purchase order. NSF review will be required, because of the expected cost of the procurement.
• Complete the formal response to CoDR Committee report. This will incorporate some significant changes in the mechanical and thermal design compared to the original concept. These resulted from a change in focal plane geometry and from the detector technology selection.
• Complete project plan for project preliminary design, detailed design, fabrication, integration and test.
• Begin moving components to detailed design. This will begin with the dual filter wheel subassembly.
• Verify the Barr IR filter performance on astronomical targets, using filters from the same production run installed in ISPI. An existing set of “Mauna Kea standard” filters, on loan from Gemini, is also available in ISPI for comparison.
Electronic Design (D. Stover)

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**Finished Items**

- Monsoon Clock & Bias board NNX 053 213 in assembly
- SOLIS Serial EEPROM Daughter board SNP 140 040 in assembly

**Ongoing jobs**

- Library standards & Libraries NNX 510 000
- Drawing standards written NNX 510 000

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**COMMENTS**

Monsoon has been keeping me fairly busy, I sometimes experience a lag waiting for information. I fill this time with other projects, library work or documentation back log.

I am expecting one last board from SOLIS and a few redlines for on their existing documentation.
Instrument Shop (R. Repp)

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

NNU533-180, Reliance Steel, Square Tubing for Shipping Crate .......................$456.96
NNU533-180, EMJ, Steel for Shipping Crate .......................................................$1,002.79
NNU560-100, Precision Plating, Anodize ............................................................$55.12
NNU580-310, MSC, Metric Threaded Inserts .......................................................$298.14
NNU580-310, EMJ, Stainless Steel Stock for Manifold .....................................$377.89
SNP140-110, McMaster Carr, Brass Shim Stock ..............................................$27.61
SNP140-120, Perfection Powder Coating, Paint FDP Detail ..................................$85.00
SNZT04-009, Bralco Metals, Aluminum Stock ....................................................$241.65
SNZT04-009, Aremco, Machinable Ceramic Rod ..............................................$232.79
ZZXP00-044, Precision Plating, Chem Film .....................................................$55.12
ZZXP99-001, Precision Plating, Anodize .........................................................$95.40
Total Non-Shop Expenses ..............................................................................$2,928.47

Hard Purchase Orders, October 2002 (Acct. Number/Req Number/date/vendor/purchase/cost):
ZZXP00-044, 3118756, 10/28/02, Lord Chemical, Aeroglaze Z306 ...............$600.00

In addition to these expenses, the instrument shop budget contributed money to purchase needed stock and supplies for all projects that are manufactured at NOAO.

Instrument Shop Spreadsheet (page 2) at a Glance:

- 946 estimated hours of work in progress
- 278 hours in shop queue
- 488 hours of potential future projects for instrument shop

Projects Completed by Instrument Shop in October 2002

- Three complex IRMOS Longerons for STScI
- Orion storage Dewar and shutter assembly
- Two A&G Calibration Optical Benches for Gemini
- Two 8 inch mirror mounts and two 10” beamsplitters for Gemini
- Design and fabrication of white cell vacuum enclosure for NSO
- Numerous details and design modifications for GNIRS
### Instrument Shop (cont.)

<table>
<thead>
<tr>
<th>DRAWING NUMBER</th>
<th>DRAWING TITLE</th>
<th>PROJECT</th>
<th>INSTRUMENT MAKER</th>
<th>PERSONAL QUEUE HRS (PQH)</th>
<th>ECD</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DRAWINGS</td>
<td>ORION SHUTTER ASSEMBLY</td>
<td>ORION</td>
<td>RON HARRIS</td>
<td>16</td>
<td>10/31/2002</td>
<td>WAS CONSIDERED COMPLETE ON 10/22/02, MODS REQUESTED</td>
</tr>
<tr>
<td>N/A</td>
<td>GONG LENS SLIDE MODIFICATION</td>
<td>GEMINI</td>
<td>RON HARRIS</td>
<td>8</td>
<td>11/8/2002</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>GONG TURRET REBUILD</td>
<td>GONG</td>
<td>RON HARRIS</td>
<td>3</td>
<td>11/15/2002</td>
<td>TURRET WAS REBUILT, AFTER BREAK IN, WILL BE CLEANED</td>
</tr>
<tr>
<td>N/A</td>
<td>TIP/TILT PLATFORM TEST--STEERING ARRAY</td>
<td>GEMINI</td>
<td>RON HARRIS</td>
<td>16</td>
<td>11/22/2002</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>FLEXURE RIG SAFETY GUARDS</td>
<td>GNIRS</td>
<td>LOU LEDERER</td>
<td>12</td>
<td>11/15/2002</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>FLEXURE RIG ANGLE INDICATOR MOUNT</td>
<td>GNIRS</td>
<td>LOU LEDERER</td>
<td>4</td>
<td>11/15/2002</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>GNIRS SHIPPING CRATE</td>
<td>GNIRS</td>
<td>LOU LEDERER</td>
<td>260</td>
<td>12/2/2002</td>
<td>OTHERS WILL NEED TO ASSIST LOU TO MAKE THIS DEADLINE</td>
</tr>
<tr>
<td>N/A</td>
<td>MISC STAFF SHOP WORK</td>
<td>N/A</td>
<td>STEVE RATH</td>
<td>467</td>
<td>1/30/2002</td>
<td>ECD DOES NOT REFLECT WALK IN ASSIGNMENTS</td>
</tr>
<tr>
<td>N/A</td>
<td>ASSEMBLY MODIFICATIONS &amp; FABRICATION</td>
<td>GNIRS</td>
<td>JOHN STEIN</td>
<td>160</td>
<td>11/30/2002</td>
<td>EST INCLUDES &quot;NON-DATABASE&quot; FAB AND REWORK</td>
</tr>
</tbody>
</table>

**TOTAL HOURS IN SHOP: 11/01/02**

**946**

### INSTRUMENT SHOP QUEUE

<table>
<thead>
<tr>
<th>DRAWING NUMBER</th>
<th>DRAWING TITLE</th>
<th>PROJECT</th>
<th>INSTRUMENT MAKER</th>
<th>ESTIMATED HOURS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>FIBER MOUNTS</td>
<td>SOLIS FDP</td>
<td></td>
<td>40</td>
<td>AWAITING GO AHEAD FROM JAKSHA</td>
</tr>
<tr>
<td>N/A</td>
<td>FIBER GUIDES/SOLIS</td>
<td>SOLIS FDP</td>
<td></td>
<td>80</td>
<td>AWAITING GO AHEAD FROM JAKSHA</td>
</tr>
<tr>
<td>N/A</td>
<td>WALL LINING</td>
<td>SOLIS FDP</td>
<td></td>
<td>40</td>
<td>AWAITING GO AHEAD FROM JAKSHA</td>
</tr>
<tr>
<td>N/A</td>
<td>AIR DUCT</td>
<td>SOLIS FDP</td>
<td></td>
<td>40</td>
<td>AWAITING GO AHEAD FROM JAKSHA</td>
</tr>
<tr>
<td>N/A</td>
<td>GONG PLASTIC MIRROR COVERS</td>
<td>GONG</td>
<td></td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>GONG BAY AND CAMERA PANEL MODS</td>
<td>GONG</td>
<td></td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>EARTHQUAKE PROTECTION ASSEMBLIES</td>
<td>GONG</td>
<td></td>
<td>40</td>
<td>40 HOURS IS PLACEHOLDER--NO DRAWINGS TO QUOTE FROM</td>
</tr>
<tr>
<td>QTY 5) CHARA BEAMSPLITTER MOUNT PLATE</td>
<td>CHARA</td>
<td></td>
<td>16</td>
<td>TO REPLACE PARTS DAMAGED IN SHIPPING</td>
<td></td>
</tr>
<tr>
<td>QTY 10) ATTACHMENT PADS</td>
<td>CHARA</td>
<td></td>
<td>6</td>
<td>IN MY &quot;SMALL JOBS&quot; FOLDER</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL QUEUE HOURS: 11/01/02**

**278**

### ANTICIPATED UPCOMING PROJECTS

<table>
<thead>
<tr>
<th>DRAWING NUMBER</th>
<th>DRAWING TITLE</th>
<th>PROJECT</th>
<th>ESTIMATED HOURS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANY</td>
<td>IRMOS SPIDER ADAPTER</td>
<td>KPNO(?)</td>
<td>348</td>
<td>AWAITING GO AHEAD FROM ABRAHAM/STScI</td>
</tr>
<tr>
<td>FORTHCOMING</td>
<td>IRMOS CARTS X 2</td>
<td>KPNO</td>
<td>140</td>
<td>ON DEREK GUENTHERS DRAWING BOARD</td>
</tr>
</tbody>
</table>

**TOTAL: 11/01/02**

**488**
Infrared R&D Program (K. M. Merrill)

- Completed assembly of a spare set of Phoenix boards to operate a Virgo readout from RIO. This approach will preserve our ability to test both Virgo and Orion parts.

- Began tests of Virgo readout to determine characteristics as a function of temperature from the design value of 60-80K down to the 30K necessary for InSb. We are considering elements of the Virgo design as a path for improving the yield of Orion readouts.

- Incorporated external blackbody mount and internal dark slide into the Big Green Machine lab dewar. We appear to have in our midst the only extant lab system capable of housing and testing a 4KX4K device. All we need now is MONSOON.
Optical Coating Laboratory (G. Poczulp)

VSM Specific
S-NP140-110
It was determined that the protected silver coating on the SOLIS VSM M1 had failed necessitating removal from the instrument and then from the cell. Measurements were taken with the Minolta CM-2002 reflectometer verified not only a drop in reflectivity but also a dramatic increase in scattering. The coating was chemically stripped and the mirror was thoroughly cleaned in preparation for recoating at Newport Thin Films Laboratory. The mirror was hand delivered to NTFL where I performed the final cleaning and supervised the coating. The recently acquired capability of ion assisted deposition and improved masking techniques at NTFL allowed a change to an enhanced silver coating with the expectation of additional protection due to the increased number and density of the dielectric overcoat layers.

![Graph showing reflectance vs. wavelength for different coatings.](image)

The two Offner assemblies and beamsplitter prism with failed silver coatings were also removed from the VSM. The elements were removed from their cells and the recently acquired spare set of Offner optics was optically tested in preparation for changing to overcoated gold coatings.

VPH Grating Development
N-NX517-200
A wedge measurement was made on the large format (8.5”x 8.5”) volume phase holographic transmission grating received from CSL last month. S. Barden forwarded various measurements to Lawrence Livermore Laboratories to investigate the possibility of using a wet hydrofluoric etch process to correct the transmitted wavefront.

GNIRS Warm Tests
N-NU560-400
The fixed fold mirrors for the long camera as well as several other GNIRS optics were removed from their mounts for cleaning and optical testing after being contaminated during the first cool down of the instrument. The most challenging cleaning effort was on the diamond turned off axis collimating mirror that was also heavily soiled. The bulk of the contamination was removed by vapor degreasing, but the central area of the mirror remained stained a slightly different color. Thermal imaging tests by J. Elias showed this should not be a problem when the mirror is reinstalled and in use.
Optics Lab & Optical Shop (G. Poczulp)

<table>
<thead>
<tr>
<th>Upcoming Coating Lab Projects</th>
<th>Chamber</th>
<th>Coating</th>
<th>Contact</th>
<th>Received</th>
<th>Need Date</th>
<th>Planned Start</th>
<th>Estimated Duration</th>
<th>Planned Completion</th>
<th>Delivery Date</th>
<th>Account #</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIYN 0.9m Filter Set</td>
<td>NRC-3177</td>
<td>MgF2</td>
<td>H. Schweiker</td>
<td></td>
<td>4 days</td>
<td>000</td>
<td>Harris B, V, and R – Harris U completed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOLIS Cover Slides</td>
<td>NRC-3177</td>
<td>Al</td>
<td>D. Jaksha</td>
<td>1/22/2002</td>
<td>3 days</td>
<td>Fixturing on hand, parts are 0.005” thick</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Completed Coating Lab Projects</th>
<th>Chamber</th>
<th>Coating</th>
<th>Contact</th>
<th>Received</th>
<th>Need Date</th>
<th>Actual Start</th>
<th>Actual Duration</th>
<th>Actual Completion</th>
<th>Delivery Date</th>
<th>Account #</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLIS VSM Mt Recat at NTFL</td>
<td>J. Wagner</td>
<td></td>
<td></td>
<td>10/14/02</td>
<td>10/9/2002</td>
<td>8 days</td>
<td>10/16/2002</td>
<td>Successful recat, Mt integrated with cell - stored</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Upcoming Optical Shop Projects</th>
<th>Contact</th>
<th>Received</th>
<th>Need Date</th>
<th>Planned Start</th>
<th>Estimated Duration</th>
<th>Planned Completion</th>
<th>Delivery Date</th>
<th>Account #</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thin VPH Grating Polishing Rework</td>
<td>S. Barden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N/NI517-200</td>
<td>H.Y. - Started lapping side one on 8/28, in progress</td>
<td></td>
</tr>
<tr>
<td>SOLIS FDP Optics Installation</td>
<td>J. Harvey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G.P. - GPV, on hold until VSM optics reinstalled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Completed Optical Shop Projects</th>
<th>Contact</th>
<th>Received</th>
<th>Need Date</th>
<th>Actual Start</th>
<th>Actual Duration</th>
<th>Actual Completion</th>
<th>Delivery Date</th>
<th>Account #</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation</td>
<td>D. Joyce</td>
<td></td>
<td></td>
<td>5 days</td>
<td></td>
<td></td>
<td>Vapor degreasing w Branson 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>S. Barden</td>
<td></td>
<td>10/25/02</td>
<td></td>
<td></td>
<td></td>
<td>Wedge measurement of VPHG 2 CSL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Computer Services (C. Danielson)

- Mark Beth's new disk and put it in (with copy of po) Carl's office
- Replace batteries in Beth's Lepew UPS (APS Smart 700)
- Recycle Beth's old batteries to APC Recycling
- Reclaim W. Goble's loaner6 pc
- Install flat panel 17 inch monitors - Beth CarlD
- Install flat panel 15 inch monitors (stock, lab, server)
- Update nt-test-gate
- Update technet for sept 2002
- Check users on techserv for Dee
- Reboot techserv for Dryden
- Check retrospect 6 in prep for additional 3 copies
- Give Carl req for three copies of Retrospect for servers
- Order new admin pak from winternals
- Order new ghost/systemworks for general use and boot cd
- Order system migration software for new drafting computers
- Assist F Bull for keyboards/mouse
- Install flat panel in server room
- Assist Carl with cables in old Gemini trailers
- Get cd for AutoCAD Lt 98 & 2000i
- Get mouse and keyboard to Beth
- Assist Mike P with Richard Green's PC
- Install Beth's new keyboard and mouse
- Put stock-received into stock after marking
- Make cat5 cables for Mike P
- Dave Bell request for mice and suppression strips
- Make cat5 cable for Dave Bell
- Call for copier service for Al F (and CarlD?)
- Assist Dryden with usb stuff for linux box
- Assist with answers about win2k to Nick re: Barry's
- linux/vmware for windows
- John Andrew email re: virus hoax
- Respond to email re: Admin Pak quote expiration
- Call Kathy about ordering cd drives from Tiger Direct
- Call pc2pc to stop email kathy@noao.edu
Programming Group (R. Marshall)

Behzad Abareshi

- Put together a module to convert Cass IAS Ra/Dec values to X/Y motor steps, and passed it to Dave Mills to integrate it into XTCS package.
- Added logging to WIYN router. Also, the router now disconnects any unresponsive clients instead of flooding the screen with error messages. This way of dealing with clients seems more practical and so far no problems have been reported.
- The Hydra page in wijn_page is now functional. There still might be a couple of minor glitches that should be fixed by the next T&E.
- Worked with Charles Corson to verify that the process to build PMS lookup tables creates valid results and installs them in the right place.
- Investigated the wijn_page hang-ups (which seem to have started after migrating ivory from SunOS to Linux). In the process many parts of the code have been cleaned up and rewritten, and a variety of tools have been used: lint, gdb, electric fence, and strace, but so far no real smoking gun has been found. The current version is more stable than the original, but hang-ups still do occur from time to time. One suspect is the ncurses library. Using the latest ncurses library with debug information has not helped much though. However, the hang-ups are much less disruptive now that WIYN router disconnects from unresponsive clients (see item 2).
- Recently it was discovered that the ADC (Atmospheric Dispersion Corrector) was malfunctioning. It is likely that the problem has been around for quite a while and gone undetected because the feature hardly gets used. An initial attempt at fixing the problem seemed successful on both the live system and the simulator, but later failed on the live system. More work will be done on this next month to find the bug.

Nick Buchholz

- Continued writing and testing the common DHE hardware library for MONSOON.
- Installed all utility libraries, dheHdwLib and comHdwLib source code into CVS repository after: Recovered from near disastrous makefile incident.
- Worked about one week on linux/vmware/windows2k issues associated with new PC for MONSOON work in Chile.
- Completed code for testing virgo arrays.
- Debugged problems with virgo micro code compilation, as a result discovered another bug/feature of the sdc compiler. No action will be taken as there is a work around and the causes are not clear.
- Work on MONSOON code more important.
- Reconfigured keymaps on decapod to allow better functionality under xemacs.
- Started examining requirements for adding VMware and windows to Decapod.

Phil Daly

- WTTM - opened a support call to NI regarding the failure to build standalone applications under Red Hat 7.3 and LabVIEW 6.0.2. Nothing has worked so far.
- MONSOON - re-worked the DHE simulator to be compliant with ICD 6.x, the new command set that uses 2-bit commands, 14-bit addressing and 16-bit data. Separated the comHdw library to truly remove *all* Systran dependencies. Added a panCommands utility that allows the user to test the following commands (via the dheSim): ASYNC, ACQBD, DUMP, EXIT, HELP, LOOP, LOADR, LOADT, QUIT, READ, RESET, SEX, WRITE and XMIT. The makefile for this code follows the convention developed for WTTM: headers in source files are LaTeX format and the makefile extracts this information into the documentation automatically. This system is also being used for the upper-level PAN software.
- NEWFIRM - prepared and presented the NEWFIRM Observation Control System materials to the NEWFIRM Delta CoDR meeting held on Monday 28 October. The proposed system is based heavily upon re-use of elements of the ORAC system developed at UKATC/UKIRT. Since an important part of this system is written in Java, I downloaded the latest (and *free*) copy of the Eckel "Thinking in Java" book. Am reading this to see if it is sufficient for me to hack to code for NEWFIRM use. If not, a Java training course will have to be identified.
- I hope the delta CoDR documents will be put on the WWW "real soon now".
Shelby Gott

- The WIYN Universal Fiber Foot (WUFF) hasn't arrived, and nobody is saying when it will. I've developed software for it, as far as possible, without having the real article to look at.
- Other potential projects are not quite ready to start work on:
  - WIYN OSSCS re-design, waiting for a hardware design to be revealed by Scott Bulau.
  - 2-meter GCC (CAMAC replacement), a maintenance action proposed by Jim Hutchinson, needs input from the tcs programmer; how do we get probe position commands, etc., from the tcs?
  - I've been working with Charles Corson to update documentation and prepare a spare parts list for the WIYN SES.
  - I've started working on a Tcl version of the Bench Spec GUI and I've ordered an OEM-style Garmin GPS receiver to evaluate.

Bob Marshall

- Project related work:
  - PMTC: Finally returned to working on the PMTC software upgrade, after much urging from Nigel and in order to accommodate 16 new thermocouples being installed in November. When I last worked on the upgrade project a few months ago, I had completed a simulator for the ICU and had coded some of the requested additions. In October I rewrote the PMTC control program in tcl and am 80% done with that conversion. In the next two weeks I will finish the conversion and the requested upgrades and install the software at the 4-meter in conjunction with the new thermocouple installation. The new software will run on 'cinnamon' and we can then retire 'old-mocha'.
  - New Linux computers for the KP Admin building: Did the initial setup for rose (bordeaux replacement) and crimson (new backup machine). Installed 1 controller and 3 disks in rose and 2 controllers and 7 disks in crimson. Crimson is now a 1TB system (for under $3000). Work on these computers will be delayed until the after PMTC work is done.
  - Operations:
    - Installed a 120GB IDE drive and controller in Chuck Claver's Linux system (bromiliad). This was pay back for the SparcStation that Chuck gave up for the taupe/rust upgrades at the 0.9m done this summer. I also assisted his upgrade from RedHat 6.2 to 7.3 which was needed to support the new controller.
    - Attended a meeting concerning support of our GEMINI visitor instruments (Phoenix and ABU) and network issues for GEMINI access and GROC.
    - WIYN: prepared updates for the hosts.allow and hosts.deny files. Had a problem with the files on Linux 7.3, more testing is needed.
  - Maintenance:
    - Did extended testing of the DAT drive on 'tan' at the 4-meter. I saw a few errors, but performance improved after cleaning.
    - The drive then did not work for the observers, and was replaced with the spare. I then wrote full 3 tapes without error and turned the drive over to the observers. I tested a similar drive on 'sand' at WIYN and saw no errors. I also wrote some
    - WEB docs about our DDS-4 tape drive setup.
    - 4-meter: TCS and RPC.
    - 2-meter: pointing problems ('tele index' values).
  - Computers:
    - Added 1 controller and 3 disks to 'cabbage', our lab Linux system. The disks will be used to backup our laptops.

Dave Mills

- Modified the guider gui at WIYN to work with the Cass IAS. Tested on sky during T&E. Working well and will be used at next T&E to help complete commissioning tasks for Cass IAS.
- Modified WFS wavefront task to eliminate potential lockups due to PI camera stalls. Some testing during T&E, needs a little more.
- Implemented RPC failure protection for the 4m guider. Tested during T&E and working well.
- Completed RA/DEC readback feature for 2m guider, tested during T&E.
- Built and soak tested 2 copies of DSS image disks for CTIO/SOAR, shipped to Chile.
- Prepared "guider futures" document. Started work on top priorities (RPC protection - done), next up is moving all guider/gui interaction to use MPG router.
Peter Ruckle

- GNIRS testing and debugging is still continuing, and probably will be at least part time until the instrument gets shipped.
- Documentation for GNIRS will be finished this month.
Risk Management (C. Gessner)

- No “OSHA reportable” injuries were reported to this office this month. A bicycle was reported missing in CFO; a police report was filed.

- The Business Contingency Plan continues to progress. Reviewed plans with CAS and CIS. The majority of my time has been preparing and updating contact lists, integration of information from the departments into the master plan and retrieving resource information. As an example, the resource information includes emergency equipment lists, vehicle list and key list. I am also preparing the information that will ultimately be copied on CD’s for key employees.

- Electronic Access Control system will begin November 4. Working with CFO staff in preparation for the installation.

- Helped GNIRS staff with lifting requirements of the instrument and suggested formats for safe handling and use procedures.

- Helped mountain engineering with the re-write of the Agreement for Aluminizing Non-NOAO Optics. Particularly new Language that reduces the risk of third party liability.

- Continued to provide comments and performed periodic walkthroughs during the construction of the front lobby.

- Continue to consult on “past” worker compensation issues with various managers.

- Preparing for wild land firefighting training on Kitt Peak for November 6, 13, 20 and 27. This will be done by the T.O. DPS at no cost to our organization. Attempting to schedule various first responder training during the next several months.

- Participated in a number of safety reviews for the flex test rig and provided preliminary safety suggestions for the SOLIS project.

- Consulted on a number of risk management issues including waste disposal, hazardous materials use, transportation of hazardous materials, safety eyewear, DOT driver’s qualifications, ergonomics, elevator safety and keys.

- Continue to attend ARM 56 class to obtain my Associate in Risk Management.