# MONTHLY STATUS REPORT

**Engineering & Technical Services**  
**March 2002**

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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 in late summer, 2002. See regular monthly reports on the web at http://www.noao.edu/ets/gnirs/.
**DESCRIPTION:**  Monsoon Image Acquisition system is the NOAO solution for scalable, multi-channel high-speed image acquisition systems required for next generation projects.

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**Milestone Schedule**

<table>
<thead>
<tr>
<th>Oct ’01</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sept ’02</th>
</tr>
</thead>
</table>

- CoDR: Accord Controller Workshop
- IR Prototype
- IR Subassy Fab Complete
- Initial IR Proto System Intg Comp
- Initial IR System SW Comp

**FY 02**

<p>| | |</p>
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<tr>
<td>Actual Capital</td>
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**ACCOMPLISHMENTS:**
- Held Monsoon and Asteroid review of ICD 4.0.
- Updated Monsoon project plan.
- Collaboration efforts under way with CARA (Keck, UCLA, Lick, Cal Tech), IRTF, CFHT, ESO, etc.) ASTEROID Project
- 2 CCD Prototypes fully fabricated and currently in test.
- 2 IR Master Control Board Prototypes fabricated and currently in test.
- The 16-Channel IR Acquisition Board Prototype is currently in Design Review
- The IR Clock & Bias Board Prototype is under specification and initial design
- Draft ICDs generated for multiple levels of MONSOON in circulation
- MONSOON Document List Generated

**PLANS:**
- Continued evaluation of CCD prototype.
- Continued development of IR prototypes.
- Continue system design targeting toward PDR.
- Continue effort to formalize collaboration with ASTEROID effort
N-NW 1 NEWFIRM

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.

Schedule to be revised

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<td>Actual Capital</td>
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SCHEDULE:

The NEWFIRM schedule currently is undergoing a major review and revision to account for:

- The careful effort the NEWFIRM team has put into addressing the CoDR Committee report responses
- Labor resource conflicts, and
- The exploration of new design possibilities opened up by the decision to use a smaller FPA and a smaller FOV.

An updated schedule for the Preliminary Design and follow-on efforts will be established as the NEWFIRM team comes to closure on the design concept for the modified instrument.

ACCOMPLISHMENTS:

- The NEWFIRM optical designs have been modified for compatibility with a focal plane array (FPA) using four 2-edge buttable Orion arrays from Raytheon Infrared Optics (RIO). These arrays will be 2k x 2k InSb devices with 25 µm pixel sizes. Ron Probst and Mike Merrill have been very active in establishing a “foundry run” cost and schedule with RIO and in modifying the current NSF detector funding request to be compatible with that cost and schedule. We expect to hear from the NSF in April.

- The NEWFIRM Project Manager made and “executive decision” to eliminate from further consideration the “short doublet” optical configuration. This was based on consideration of the risk factors associated with fabricating, mounting and maintaining a 405 mm diameter by 90 mm thick $200,000 CaF2 lens for the field lens doublet. While the alternative “short singlet” configuration with a fused silica field lens has some reduced optical characteristics (e.g. vignetting in the range of 5% - 6%, as opposed to the <1% vignetting for the short doublet), the reduced risk more than compensates for this performance compromise. The Project Manager will look at the operational cost impacts for this reduced optical performance, but the need for a detailed cost benefit analysis of the short doublet and short singlet configurations has been obviated.

- Mechanical design personnel have identified two concepts for supporting the optical train barrel inside the Dewar and for attaching the Dewar to the telescope primary mirror cell. These two concepts have been named the girth ring concept and the arcuate beam web (ABW) concept. The girth ring concept employs a machined and bolted high strength ring assembly around the optics barrel which connects to the Dewar shell and through the Dewar to the...
braces to the primary mirror cell. The ABW concept uses belts of arcuate beams at several axial levels to attach the barrel to a heat shield and the heat shield to the Dewar shell. For certain material choices and material thicknesses, the ABW concept could be fabricated from flat sheets with appropriate slots and openings cut out by band saw and then rolled into the appropriate shapes. Ruben Dominguez performed a quick fabrication cost comparison for titanium, aluminum and stainless steel fabrications. He found that the titanium was least expensive to fabricate, even though the material was more expensive, because the thin titanium sheets could use the flat sheet construction method. FEA mechanical analysis of the ABW concept is now underway by Ed Hileman and by Ruben.

- Ron Probst has completed a preliminary thermal gradient analysis of the optical train inside of a notional Dewar. Assuming a detector FPA at 33°K and a (singlet) field lens at ambient, he found that the field flattener lens (just before the FPA) temperature requirement was 90°K, the filter temperature was 150°K and the first collimator lens (the first lens after the field lens) temperature was about 250°K. These temperature calculations, however, are strongly dependent on the behavior of the blocking filter (just before the detector FPA) at wavelengths above about 4 µm. The more effectively the filter blocks these wavelengths, the more relaxed the upstream optical element temperature requirements can be.

- Barry Starr has assumed the responsibility of NEWFIRM System Engineer for Electronics and Software. As his first assignment, he is developing a draft system architecture for review by the other members of the NEWFIRM electronics and software staff.

- Doug Tody and his staff have completed a requirements definition for the quick look capability and other aspects of the instrument data handling system.

- The Project Manager has been working with the ETS Manager to bring the NEWFIRM capital budget for FY03 and beyond into line with the reduced NOAO budget. This may require a stretch out of the system fabrication, integration, test and delivery, but the current engineering and design effort will be unaffected. The design effort is proceeding apace.

PLANS:

- Carefully review and complete the optical design effort for the short singlet configuration.
- Complete the formal response to CoDR Committee report
- Complete initial FEA mechanical analysis for the ABW Dewar support concept
- Refine the initial thermal analysis
- Define instrument system architecture
- Open discussions with Richard Green and Alistair Walker about the NEWFIRM software interface with the observatories and about responsibilities for operating and maintaining observatory-level software once NEWFIRM is delivered.
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.

MILESTONE SCHEDULE

<table>
<thead>
<tr>
<th>Oct ’01</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sept ’02</th>
</tr>
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<tbody>
<tr>
<td>Complete Fab, M3, Housings</td>
<td>Assembly &amp; Integration</td>
<td>Final IAS Optics Fab</td>
<td>Final IAS Optics Install</td>
<td>Commissioning - Align to IAS</td>
<td>Commissioning - Elect &amp; SW Testing</td>
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FY 02

<p>| | |</p>
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<tr>
<td>Budgeted Hours</td>
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<td>Actual Hours</td>
<td>2,575.5</td>
</tr>
<tr>
<td>Actual Capital</td>
<td>$38,226</td>
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ACCOMPLISHMENTS:

- Completed alignment of WTTM to IAS
- Error sensor has been optimized to the telescope
- Solved phase delay in closed loop system
- Integrated guiding and focus control from WTTM to TCS
- Vendor selected for beamsplitter coatings
- Filter wheel control implemented at telescope
- IAS + WTTM counter balance installed and tested
- Mounted WTTM HARCON and filter motor control electronics to IAS.
- Implement strain relief for error sensor fiber optics

PLANS:

- Continue with commissioning and T&E.
- Temperature control repair of EEV CCD.
- Implement and optimize EEV CCD thermal control
- Integrate dedicated CCD head electronics
- Detail IAS-WTTM light baffles
- Fab IAS-WTTN light baffles
- Implement WTTM control GUI
- Implement Focus control GUI

PROBLEMS:

- No items.
**N-NX539-211 Cryo Cam Upgrade**

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

<table>
<thead>
<tr>
<th>Oct '01</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
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<th>Sept '02</th>
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<td>Shared risk of service</td>
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<td></td>
<td></td>
<td>Fabricate field flattner</td>
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<td>Acquire &amp; Test new CCD</td>
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**Milestone Schedule**

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<tr>
<td>Actual Hours</td>
</tr>
<tr>
<td>Actual Capital</td>
</tr>
</tbody>
</table>

**ACCOMPLISHMENTS:**

- Field flattener fabrication started, waiting on final chip dimensions to complete.

**PLANS:**

- Still waiting for new chips from LBNL.

**PROBLEMS:**

- CCD is not optimal—very sensitive to the reset clock level.

**SOLUTIONS:**

- Parts for 4 new packages are at LBNL awaiting suitable CCD for fabrication.
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.

<table>
<thead>
<tr>
<th>Oct '01</th>
<th>Nov</th>
<th>Dec</th>
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<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sept '02</th>
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**Milestone Schedule**

- Cold Test
- Fab Cables
- Mod CCD Mount
- Wire Dewar
- Check Coplanarity

**FY 02**

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<tr>
<td>Actual Capital</td>
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**ACCOMPLISHMENTS:**

- No items.

**PLANS:**

- No items.

**PROBLEMS:**

- No items.
**Electronic Design (D. Stover)**

**Priority jobs / newly submitted**

<table>
<thead>
<tr>
<th>Acct No</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNX 510 000</td>
<td>Jerry Penegor still tweaking the schematic</td>
</tr>
<tr>
<td>NNW 023 913</td>
<td>on hold</td>
</tr>
<tr>
<td>NNW 023 209</td>
<td>22 docs that I can finalize</td>
</tr>
<tr>
<td>NNX 510 000</td>
<td>Helping Paul when he asks and digging into items between current jobs</td>
</tr>
</tbody>
</table>

**Finished Items**

<table>
<thead>
<tr>
<th>Acct No</th>
<th>COMMENTS</th>
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<tbody>
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<td>SNP 140 120</td>
<td>in assembly and checkout</td>
</tr>
<tr>
<td>NNU 541 300</td>
<td>assembled and checked out. Finalize documents</td>
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</tbody>
</table>

**Ongoing jobs**

| Library standards & Libraries | NNX 510 000 |
| library standards written | NNX 510 000 |

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**Priority jobs / newly submitted**

<table>
<thead>
<tr>
<th>Acct No</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td>NNX 510 000</td>
<td>Jerry Penegor still tweaking the schematic</td>
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<td>Helping Paul when he asks and digging into items between current jobs</td>
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**Finished Items**

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<tr>
<th>Acct No</th>
<th>COMMENTS</th>
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<tr>
<td>SNP 140 120</td>
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<tr>
<td>NNU 541 300</td>
<td>assembled and checked out. Finalize documents</td>
</tr>
</tbody>
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**Ongoing jobs**

| Library standards & Libraries | NNX 510 000 |
| library standards written | NNX 510 000 |
Small Purchase Orders (Account Numbers, Vendors, Products Purchased, and Cost)

NNK360-001, Precision Plating, Anodize ..............................................$120.84
NNU531-190, Perfection Powder Coating ..............................................$235.00
NNU531-930, Precision Plating, Anodize ..............................................$55.12
NNU531-330, Precision Plating, Anodize ..............................................$55.12
NNU533-143, Perfection Powder Coating, Paint Trusses ......................$250.00
NNU580-310, MSC, Endmills ...............................................................$261.05
NNU580-310, MSC, Metric Helicoils ......................................................$116.16
NNU580-310, MSC, Bench Stones and Metric Sockets .........................$89.65
NNU580-310, MSC, Metric Taps .............................................................$159.75
NNU580-310, Barnhill Bolt, Metric Screws ............................................$32.67
NNU580-310, CGS, Grind Special Endmills ............................................$100.00
NNU580-310, MSC, Endmills and Metric Socket Sets .............................$199.80
NNU580-330, Precision Plating, Anodize ..............................................$55.12
SNP140-110, McMaster Carr, T-Nuts ....................................................$30.65
SNP140-110, Precision Plating, Anodize ..............................................$65.72
SNP140-110, McMaster Carr, Spherical Washers ................................$31.20
SNP140-110, Herco, Polish Aluminum Disks ........................................$30.00
SNP140-110, Laird Plastics, Delrin (2 orders) ......................................$638.42
SNP140-110, McMaster Carr, Misc Hardware .......................................$42.50
SNP140-120, McMaster Carr, Steel Handles .........................................$11.14
SNP140-030, Perfection Powder Coating, White Powder Coating ...........$320.00
SNZT04-009, Precision Plating, Anodize ..............................................$69.11
SNZT04-009, Laird Plastics, Delrin ......................................................$115.00
SNZT04-009, Tube Service, Aluminum Tubing ....................................$246.00
ZZKP00-002, Precision Plating, Anodize ..............................................$59.36
Total Non-Shop Expenses .....................................................................$3,389.38

Instrument Shop Work in Progress Spreadsheet (See Next Page for Details)

- 1367 hours in shop as of 4-1-02
- 831 hours in shop queue
- Two potentially huge jobs require quoting on my part. The 600 hours on the spreadsheet for these projects is probably a conservative number. The NASA work will be quoted by 4-4-02. The Gemini Periscope Project will be quoted as soon as the drawings are in my hands, expected 4-8-02.
## Instrument Shop (cont)

### Work in Progress

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<th>ECD</th>
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<td>CONNECTOR PANEL BACK PLATE</td>
<td>R BENNETT</td>
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<td>12/20/2001</td>
<td>COMPLETE--ON HOLD FOR 1719</td>
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<td>CONNECTOR PANEL</td>
<td>R BENNETT</td>
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<td>NEEDS ENGRAVING--ON HOLD SINCE 1-22-02</td>
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<td>TOP CLAMP PLATE</td>
<td>R BENNETT</td>
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<td>89-NOAO-4202-0129</td>
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<td>R BENNETT</td>
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<td>1/3/2001</td>
<td>3) 4/15/02</td>
<td>ON HOLD SINCE 1-22-02</td>
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<td>89-NOAO-4202-1839/40</td>
<td>AFT BULKHEAD RAD SHIELD STANDOFF/CAP</td>
<td>R BENNETT</td>
<td>4</td>
<td>1/23/2002</td>
<td>2) 4/15/02</td>
<td>ON HOLD AS OF 4-1-02</td>
</tr>
<tr>
<td>SLS.2512.2265</td>
<td>CALIBRATION BOTTOM COVER PLATE</td>
<td>R HARRIS</td>
<td>16</td>
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<td>4/12/2002</td>
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<td>89-NOAO-4200-0016</td>
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<td>R HARRIS</td>
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<td>2/1/2002</td>
<td>2) 4-15-02</td>
<td>FINAL ASSEMBLY REQUIRED</td>
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<td>N/A</td>
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<td>N/A</td>
<td>VISITOR CENTER HELIOSTAT REPAIR</td>
<td>J IRVINE</td>
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<td>4/23/2002</td>
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<td>4/30/2002</td>
<td>ASSIGNMENTS AS REQUIRED</td>
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<td>N/A</td>
<td>MISC STAFF SHOP WORK</td>
<td>S RATH</td>
<td>457</td>
<td>4/1/2002</td>
<td>6/30/2001</td>
<td>HRS REFLECT BACKLOG, MUCH WALK IN BIZ ENSUING</td>
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<td>R REPP</td>
<td>160</td>
<td>4/1/2002</td>
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**TOTAL HOURS IN SHOP 4/1/02:** 1367

### INSTRUMENT SHOP QUEUE

- **N/A MISC GNIRS WORK**
  - 131
  - CONSULT THE GNIRS DATABASE FOR DETAILS

- **20S123-128 NASA MIRROR SHIMS**
  - 60

- **SLS.2528.2010 QTY 1) MASK**
  - 80
  - GLID COPPER--WILL NEED SOME WIRE EDM

- **SLS.2528.2035 QTY 2) ARRAY CLAMP**
  - 3

- **SLS.2528.2050 QTY 4) SPACER .1**
  - 2

- **SLS.2528.2055 QTY 2) SPACER .2**
  - 3

- **SLS.2528.2070 QTY 4) SHIM TEMPLATE**
  - 3

- **SLS.2528.2075 QTY 16) COLD FINGER**
  - 12
  - B COPPER

- **SLS.3013.1005 SPAR COOLANT MANIFOLD ASSEMBLY**
  - 12

- **SLS.3014.0038 QTY 1) FDP ELECTRICAL KEVIN BRACKET ASSY**
  - 6

- **SLS.3014.0039 QTY 2) FDP ELEC POWER SUPPLY BRACKET**
  - 3

- **SLS.3014.0040 QTY 1) FDP ELEC RIEZO AMP BRACKET ASSY**
  - 7

- **SLS.3014.0041 QTY 4) FDP ELEC CARD CAGE BRACKET**
  - 5

- **SLS.3014.0042 QTY 1) FDP SERVICE ENTRY ASSY**
  - 6
  - FARM OUT SHEET 4, LASER CUT SHT 2 AND 3

- **SLS.3058.2020 QTY 1) MOUNTING BLOCK, GUIDER ASSY**
  - 8
  - THIS AND ABOVE WORK STORED IN TOWER ASSY

- **N/A FIBER MOUNTS**
  - 40
  - JAMES ROBINSON

- **N/A FIBER GUIDES/SOLIS**
  - 80
  - JAMES ROBINSON

- **N/A WALL LINING**
  - 40
  - JAMES ROBINSON

- **N/A COVER BLADE SEAL**
  - 60
  - JAMES ROBINSON

- **N/A SERVICE ENTRY ADAPTER**
  - 40
  - JAMES ROBINSON

- **N/A MISC GNIRS FAB WORK ON DATABASE**
  - 32
  - MISC UNASSIGNED WORK

- **N/A GONG TURRET REBUILD #2**
  - 40
  - WAITS IM AVAILABILITY

- **NEO-1 McMATH-PIERCE OPTICAL TOWER ASSY**
  - 158
  - IN INSTRUMENT SHOP QUEUE

**TOTAL QUEUE HOURS: 4-1/02**

**831**

### ANTICIPATED UPCOMING PROJECTS

- **N/A NASA: FIRM QUOTE BY 4-4-02**
  - 300
  - HRS REFLECT PLACEHOLDER NUMBERS ONLY

- **N/A GEMINI PERISCOPE ASSEMBLY**
  - 300
  - EXPECTING DRAWINGS TO QUOTE BY 4-8-02

**TOTAL: 4/1/02**

**600**
Infrared R&D Program (K. M. Merrill)

- We have successfully operated an ORION mux with the lab system using the new IR LAB dewar and modified Cob electronics. Based on initial results, we have undertaken minor modifications to the system to assure that we will be able to successfully operate a functional Pathfinder device.
<table>
<thead>
<tr>
<th>Project</th>
<th>Charge #</th>
<th>Contact</th>
<th>Received</th>
<th>Need Date</th>
<th>Crit Date</th>
<th>Started</th>
<th>Comp</th>
<th>Ship Date</th>
<th>Status</th>
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<tbody>
<tr>
<td>Thin Grating Improvement</td>
<td>NNX 517 181</td>
<td>S. Barden</td>
<td>7/-/-01</td>
<td>N/A</td>
<td>N/A</td>
<td>7/-/-01</td>
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<td></td>
<td>65%</td>
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<td>Field Flattener Fabrication</td>
<td>NNK 360 012</td>
<td>S. Barden</td>
<td>12/5/2001</td>
<td>N/A</td>
<td>N/A</td>
<td>12/10/2001</td>
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<td>70%</td>
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<tr>
<td>WTTM Fibers</td>
<td>NNX 539 292</td>
<td>C. Claver</td>
<td>11/-/-01</td>
<td>N/A</td>
<td>N/A</td>
<td>12/-/-01</td>
<td></td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td>WIYN 0.9 Meter Filters</td>
<td>WWZ 300 000</td>
<td>H. Schweiker</td>
<td>9/12/2001</td>
<td>11/21/2001</td>
<td>12/3/2001</td>
<td>11/7/2001</td>
<td></td>
<td></td>
<td>30%</td>
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<tr>
<td>CUS04 Filter Windows</td>
<td>WWW 360 000</td>
<td>S. Andree</td>
<td>1/11/2002</td>
<td>N/A</td>
<td>N/A</td>
<td>1/14/2002</td>
<td>3/7/2002</td>
<td>3/7/2002</td>
<td>100%</td>
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<tr>
<td>Thick Grating Improvement</td>
<td>NNX 517 181</td>
<td>S. Barden</td>
<td>7/-/-01</td>
<td>N/A</td>
<td>N/A</td>
<td>3/18/2002</td>
<td></td>
<td></td>
<td>15%</td>
</tr>
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</table>
Optical Coating Laboratory (G. Poczulp)

SOLIS VSM Telescope
S-NP140-110
Working with the optics shop, completed the installation of the corrector lenses into their respective cells. It was necessary to return both the cell and the sub-cell to the instrument shop for smoothing of the surface finish on the lens seats.

GNIRS Camera Turret Testing
N-NU531-280
Participated in the testing of the four GNIRS cameras using the ZYGO interferometer. The testing was straightforward and one camera was found not to meet specification.

Palomar Observatory Trip
N-NX500-500
Visited Palomar Observatory to observe the removal of the 5m mirror from the telescope and the subsequent aluminization. I was also able to take a number of reflectivity measurements of the mirror in various states using the NOAO Minolta 2002 spectrophotometer. The measurements helped document a persistent reflectivity problem with the outer 20” of the 200” mirror and will serve as a baseline while changes in their aluminizing process are implemented.
## Upcoming Coating Lab Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Chamber</th>
<th>Coating</th>
<th>Contact</th>
<th>Rec'd Date</th>
<th>Planned Start</th>
<th>Estimated Duration</th>
<th>Planned Completion</th>
<th>Del Date</th>
<th>Account #</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIYN 0.9m Filter Set</td>
<td>NRC-3177</td>
<td>MgF2</td>
<td>H. Schweiker</td>
<td>3/13/2002</td>
<td>12/4/2001</td>
<td>3 days</td>
<td>N-NK360-000</td>
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<tr>
<td>Spare U Filter Cover Glass</td>
<td>NRC-3177</td>
<td>MgF2</td>
<td>S. Andree</td>
<td>3/13/2002</td>
<td>4/1/02</td>
<td>5 days</td>
<td>WWZ-300-000</td>
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<tr>
<td>50 Watt Lamp Reflectors (20)</td>
<td>NRC-3177</td>
<td>Al</td>
<td>B. Schoening</td>
<td>12/4/2001</td>
<td></td>
<td>3 days</td>
<td></td>
<td></td>
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<tr>
<td>WIYN 16&quot; Focal Reducer Primary</td>
<td>NRC-3177</td>
<td>Al/SiO2</td>
<td>C. Corson</td>
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<td>3 days</td>
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<td>NRC-3177</td>
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<td>D. Jaksha</td>
<td>1/22/2002</td>
<td></td>
<td>3 days</td>
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## Completed Coating Projects

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<tr>
<th>Project Description</th>
<th>Chamber</th>
<th>Coating</th>
<th>Contact</th>
<th>Rec'd Date</th>
<th>Planned Completion</th>
<th>Del Date</th>
<th>Account #</th>
</tr>
</thead>
</table>

## Ongoing Miscellaneous Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Contact</th>
<th>Rec'd Date</th>
<th>Planned Start</th>
<th>Estimated Duration</th>
<th>Planned Completion</th>
<th>Del Date</th>
<th>Account #</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLIS VSM Telescope</td>
<td>J. Wagner</td>
<td>ONGOING</td>
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<td></td>
<td></td>
<td></td>
<td>S-NT400-310</td>
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<tr>
<td>GONG+ Optical Preventative Maintenance</td>
<td>R. Kroll</td>
<td>ONGOING</td>
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<td></td>
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<td></td>
<td>S-NP100-510</td>
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<td>Silver Coating Development</td>
<td>NRC-3177</td>
<td>G. Poczulp</td>
<td>12/31/02</td>
<td></td>
<td></td>
<td></td>
<td>N-NX500-500</td>
</tr>
</tbody>
</table>

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**ETS Projects & Departments**  15  **March 2002**
Computer Services (C. Danielson)

- Basset backup problem with graydawg
- Gary M's ePO NAV uninstall problems
- Set Diver up for ePO McAfee install
- Check Basset
- Check LePew to see why it is no longer reporting to ePO
- Beth question regarding retrospect check retrospect setup on DS & DS2
- Beth's email not working
- Diver reboot request via email from Mike F
- Beth questions re: PC list - many questions/phone calls!
- New boot cd
- Mike F re: snort Yumin print problems
- Sang recycled pc
- Ron G's recycled pc
- Nav corp problems
- Antivirus defs
- Earl P question re: daughter's Win XP conversion
- Barry re: software order
- Melissa's McAfee & epo install
- NG's McAfee & epo install
- Carol's PC problems (on Europa)
- Beth's stuck DAT tape
- Lonnie Cole re: PC backup/recovery
- Lonnie Cole re: Retrospect
- Lonnie Cole re: backpack hdd
- EZ CD creator software upgrades on Eggs, NT-Test-gate
- Mike F re: releasing control on Nav corp.
- Roger Repp printer problems
- Roger Repp req for printers & monitor
- Recycled PC for Win98SE test machine
- Dell for Barry S Intern? (Yumin)
- VMware upgrade before deadline ends
Behzad Abareshi

- Redesigned the WTTM APD GUI and tested it during the early March T&E. The original GUI is suitable for engineering tests, whereas the new one is suitable for observing.
- Attended the San Francisco Embedded Systems Conference (March 12 to 16). I took a one-day course in real-time/embedded CORBA, and 13 short classes (1.5 hours each) dealing with various aspects of real-time/embedded systems programming. The overall quality of the courses was high, and the instructors in most cases went out of their way to provide generic solutions and avoid promoting any commercial products. Thanks to George Jacoby and Larry Daggert for sponsoring this trip.
- Began Participating in weekly telecons with the University of Wisconsin group on CassIAS. Jeff Percival provided us with an outline of the software effort involved in integrating CassIAS into WIYN TCS, and I start coding the parts that can be done independent of the hardware in April.
- Added the WIYN Primary Mirror System (PMS) code to the source tree.
- Finished migrating from a Sparc 5 (Cerebus) to an Ultra 5 (Chard reincarnated).

Nick Buchholz

- Spent most of the month working on documentation of the Monsoon interface descriptions. Completed first drafts of:
  - ICD 4.0 Generic Pixel Server (GPX)
  - ICD 6.0 Generic Detector Head Electronics
  - ICD 4.1 GPX Data Stream Interface
  - ICD 6.1 Monsoon Detector Head Electronics
- Fixed Orion unscrambling algorithm to correctly unscramble 264x960 portion of the array.
- Participated in video con with Asteroids group to discuss ICD 4.0

Phil Daly

(The request for reports for this month was:
The time has come," Melissa says,
"To write of many things:
Of T and E and mountain woes
Of GUI widget things--
And if the WTTM is running well--
And if MONSOON has wings."
(The Walrus and The Carpenter, Lewis Carroll, [redux])
(with apologies to J K Rowling, the Poet Laureate et al)

Let me tell you a story about a making the grade,
For it was years ago when the request was made,
I'd left the City at Richard's behest
To come to Tucson to fulfill his request:
"Just make the WTTM work, is all I ask",
So I set about this most singular task.

Well, there's been up and downs and hits and misses,
Late deliveries, brickbats, boos and hisses,
Staff turnover was high and I suspect
That there weren't enough of us to genuflect
To the desires and wishes of our political masters,
But we'll have no more talk of project disasters.

So here we are in March 2002
What's Happening? Are we really through?!
Can we write this one off the books?
Apart from a ORR, that's how it looks;
And then - one last gotcha - a massive phase delay,
But what to do to save the day?

Merlin was Welsh and there was a sense of magick,
Not least because failure would be oh so tragic,
Working the numbers: 45ms seemed so small,
But I reduced to 50us in no time at all
With trickery and wizardry and spells that were cast,
Move over Harry Potter: you're a thing of the past.

Chuck was happy, the Board ecstatic
Even LabVIEW didn't look too drastic
So onto the telescope to see if it works
And - by crikey! - it does: are we fantastic?!
And what of the phase error caught at last
To you I say this, with tongue in cheek:

It was just a thought - an intellectual nodule -
but it saved the bacon of the tip-tilt module.

(Next month, I shall try a haiku ...)

Shelby Gott

- Installed the GWC-for-Linux version of VDU on 4m-vdu-1, and disabled the VDU software on cinnamon. The new version has been running on both VDUs without complaint for almost a month. Replaced the power supply fan in 4m-vdu-1 in anticipation of bearing failure.
- Still waiting for CassIAS hardware from UW. June, maybe.
- Began writing tel software for CassIAS control, working on ways of sending a series of commands to a motor module, waiting for each command to be acknowledged before sending the next, etc.
- Completed a Motor Module user's manual, and put it on the web at http://moby.kpno.noao.edu/mmmman/contents.html
- Started studying manuals, example software, and how-to books (on Linux device drivers and the PCI bus) in preparation for work on the Fast Centroiding Camera. The hardware has recently gone missing while being shipped to the mountain.

Bob Marshall

- Project related work:
  - 4m PMTC update: Wrote a simple simulator for the PMTC ICU in order to have a test bed for the PMTC software update. Wrote an interface document for the PMTC ICU. Wrote code for thermocouple data filtering, tracking last night's low, and cooling status description. Changed the set point adjustment algorithm. The next step is to update the Operator's GUI, test with the simulator, then install at the 4-meter.
  - Did some research and planning for the new KPNO backup system.
  - Prepared an order for another Linux guider system (to replace the Coude Feed DTI and to serve as the 2.1m spare).
- Operations:
  - WIYN: archived some message log files.
  - Did a manual backup of bordeaux:/home, since it now is too large for the normal KPNO backup.
- Maintenance:
  - 4m: Mosaic power controller updates, various guider issues.
  - 2.1m: guider angle.
- Other:
  - Looked into ssh/sshd issues.
  - Attended the GPX meeting (MONSOON Image Data Stream discussion).

Dave Mills

- A major effort this month was in supporting multiple WTTM engineering runs. The guider and focus control where integrated. The new WTTM aware sectilt was installed and tested. The WTTM filter control was installed and tested. A WTTM aware icsInfo client was installed and tested.
• A new integrated DIQ/Wfscam tool was developed for WIYN. This may see T&E testing by months end.
• The WIYN autofocus tool was debugged using a test dataset generated by Charles. A number of improvements resulted.
• Work continued on the 4MAPS motor controller. After a lot of study it was determined that the selected motor controller will not get Linux support from NI. Another model, which does have a Linux driver, was substituted. I am studying the 400-page manual. The driver was installed and communicates with the controller card. The comedi package was installed for use with the DIO card that will be used to sense limit switches and encoders.

Peter Ruckle

• GNIRS mechanism testing is still continuing. The slit mechanism seems to still be having some problems. I will perform further testing on it while the prism turret is cooling.
• The acquisition mirror is waiting for a new part to be fabricated.
• I have sent software updates to Matthieu Bec for the DC coadder software that is now being run on the ppc. I will make these same changes and run the DC with shorting plugs, and if there are no problems, connected to the test dewar. I want to be sure that the DC is still in working order before it is connected to GNIRS.
• Ron and I have been working through some electronics problems that have been popping up. Minor things like pins not making good contact when removed and reconnected.
• The slit is the one mechanism that has given us most of the trouble. I will probably concentrate on it to find out what could be causing the home drift.
Safety (C. Gessner)

The following were accomplished during the month:

- We experienced a vehicular accident involving one employee and a company vehicle. The employee was driving down the Kitt Peak road and hit a deer at a slow speed. The employee was not injured and the deer walked away. Property damage to vehicle #66 includes front grill, hood, and radiator.
- Investigated a third loss of a personal item in room Q-30, the individual will be filing a police report. A meeting was held with CAS and CFO to determine action plans to enhance security at the La Quinta building. Action items in progress.
- Continued to coordinate and monitor the continued medical treatment of a Kitt Peak injury that occurred on September 11, 2001. This injury resulted in an OSHA lost time in January of 2002. Employee returned to work on restricted duty March 15.
- Continued to coordinated paperwork related to automobile accident that occurred on Kitt Peak on February 2.
- Established a GSA blanket order with MSA that will save the organization 30% to 50% in the purchase of various safety and health supplies.
- Continued with the GONG respirator protection project for Mauna Loa. Will be meeting with staff to discuss final recommendations.
- Informally audited the Nightly Guided tour, discussed several ideas with Adam Block and John Glaspey.
- Requisitioned and scheduled three training seminars for Kitt Peak and Tucson; Hazardous Materials for drivers, Hazardous Material for supervisors and Forklift training.
- Worked with Engineer Will Goble on the safety requirements for the WIYN platform design.
- Conducted a courtesy safety inspection at the WIYN 0.9m with Heidi Schweiker. Participated in a WIYN safety committee meeting and assisted in re-write of the WIYN 0.9m Safety Guidelines.
- Requested Safety-Kleen to prepare a proposal for the proper disposal of light bulbs, batteries, and spray cans, computers and others wastes.
- Proposed re-write of the NOAO safety manual to Larry Daggert, Tony Abraham and John Dunlop with favorable results.
- John Dunlop and I attended the March ASSE meeting to hear Mark Norton’s presentation on AZOSH direction, strong enforcement and consultation and training support.
- Completed the draft standard for Hazard Communication.
- Conducted a safety meeting with CFO staff, “What is Safety”.
- Participated in the HR seminar “Coaching for Performance Results”.
- Completed the Arizona Department of Environmental Quality Hazardous Waste 2001 Facility Annual Report. Rather than contracting a consultant, bartered for two nightly guided tour tickets.
- Consulted on a number of risk management issues during the month, including workers compensation, safety glasses, respirator protection, front door security, missing mail, weekend security, construction safety, brush reduction at Kitt Peak, oxygen sensors, chemical disposal and EMT training.
- Was the recipient of a letter from a person that attended the Nightly Observing Program. The visitor was concerned about the number of people that were in the visitor observatory. Researched Uniform Building Codes and Life Safety Codes with facilities engineer and concluded that we are in compliance, as long as the door remains open. The public outreach manager will respond to the letter.
- Scheduled a safety walkabout with CFO Kitt Peak on April 17. During this inspection, we will be recording chemical for the MSDS manual.