MONTHLY STATUS REPORT

Engineering & Technical Services
February 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 in late summer, 2002. See regular monthly reports on the web at http://www.noao.edu/ets/gnirs/.
**N-NW 0 MONSOON**

**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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**FY 02**

<table>
<thead>
<tr>
<th></th>
<th>Budgeted Hours</th>
<th>Budgeted Capital</th>
<th>Actual Hours</th>
<th>Actual Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14,220</td>
<td>$301,000</td>
<td>2347.7</td>
<td>$62,480</td>
</tr>
</tbody>
</table>

**ACCOMPLISHMENTS:**

- CoDR held on October 29th.
- Accord Controller Workshop held on November 5th & 6th.
- Collaboration efforts under way with CARA (Keck, UCLA, Lick, Cal Tech), IRTF, CFHT, ESO, etc.) ASTEROID Project
  - Attended ASTEROID Project Meeting Feb 22nd @ Cal Tech
- 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.
- System design targeted toward PDR.
- Formalize Collaboration with ASTEROID Effort
- Establish Updated Project Schedule
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

<table>
<thead>
<tr>
<th>FY 02</th>
</tr>
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<tbody>
<tr>
<td>Budgeted Hours</td>
</tr>
<tr>
<td>Budgeted Capital</td>
</tr>
<tr>
<td>Actual Hours</td>
</tr>
<tr>
<td>Actual Capital</td>
</tr>
</tbody>
</table>

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.

At this point, it is anticipated that the PDR and the following efforts will be delayed by at least two months. 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 configuration decisions reported for the previous two months (FPA will be four 2k x 2k, 2-edge buttable detector arrays with 18 μm pixels, and FOV will be 28 x 28 arcmin, incident ray angle at the filter as steep as 12 degrees) is being reconsidered due to some recent conversations with the NSF regarding the NOAO proposal for purchasing the NEWFIRM detector arrays. Because of funding limitations, it looks very likely that NEWFIRM will be driven to a focal plane array using RIO InSb 2k x 2k arrays with 25 μm pixels. The optical and mechanical design implications of this are being defined.

- The “short doublet” optical configuration, which uses a doublet field lens assembly to reduce Loyt stop vignetting, has been explored further. Optically and mechanically, this design offers many advantages. However, one of the doublet field lenses is a CaF$_2$ lens 382 mm in diameter and 90 mm thick. A budgetary quote from a vendor for this lens (material purchase and fabrication) was $190,000. The question arose about whether the short doublet design, in spite of its performance advantages, might be prohibitively expensive. Alternative designs using a singlet fused silica lens are being explored (the change to a larger FPA does not significantly affect the field lens diameter or the overall system optical path length). A cost benefit analysis of the short doublet and a competing fused silica singlet configuration (for the 25 μm FPA) will be conducted as the competing singlet design concept is defined.
• The H, J and Ks wide band filters for the NEWFIRM instrument were ordered as part of the consortium order to Barr Associates. Because the new optical design concepts made possible following the FPA, FOV and filter incident ray angle decisions, NOAO was able to order smaller diameter filters for a cost savings of about $30,000.

• Mechanical design personnel have been proceeding with single Dewar concepts for the NEWFIRM instrument. With a 90° fold near the field flattener lens just prior to the FPA, the short doublet and its competing short singlet concept can fit into the Mayall and Blanco Cass cages. At this point we are considering two Dewar design approaches – one which encloses everything in a single, 36” diameter structural Dewar, and one which encloses the optical elements and the FPA in a single 22” diameter Dewar, with an additional structure on one side to enclose the filter wheels.

• The NEWFIRM team completed the thermal analysis report on the CoDR configuration as requested by the Review Committee. Now a similar analysis is being undertaken for the new configuration. For purposes of this analysis, the short doublet and short singlet configurations are very similar.

• Responses have been received to the NEWFIRM Functional Software Requirements Document issued in January to help identify candidate software packages for the NEWFIRM instrument control software. The software team is defining criteria by which to evaluate the candidate software packages. Once these are in place, we will be able to complete our evaluation of ArcVIEW, as requested by the CoDR Committee, and evaluate the competing software packages.

PLANS:

• Perform cost benefit analysis of short doublet and short singlet optical configurations.
• Complete formal response to CoDR Committee report (only ArcVIEW evaluation is outstanding)
• Define Dewar concept for NEWFIRM instrument.
• Perform thermal analysis for new optical/Dewar configuration.
• Define instrument software architecture.
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.

<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>
<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>
<td></td>
<td></td>
<td></td>
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MILESTONE SCHEDULE

FY 02

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<th>Budgeted Hours</th>
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<td>Budgeted Capital</td>
<td>$10,000</td>
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<tr>
<td>Actual Hours</td>
<td>2,056.9</td>
</tr>
<tr>
<td>Actual Capital</td>
<td>$37,922</td>
</tr>
</tbody>
</table>

ACCOMPLISHMENTS:

- First light at telescope achieved 28 Feb. 2002!
- Installed remounted IAS pickoff mirrors for WTTM and IAS
- Mechanical assembly of WTTM to IAS
- Engineering grade EEV CCD put into service to replace LB2A during WTTM commissioning
- Vendor selected for beamsplitter coatings
- Aligned EEV CCD WTTM optical housing.
- IAS + WTTM counter balance installed and tested
- Recovered slip in commission schedule due to LB2A failure during the 26-28 Feb. 2002 T&E run.

PLANS:

- Continue with commissioning and T&E.
- Error sensor fiber optimization
- Integrate focus sensing with telescope
- Fab and install IAS-WTTM assembly shims.
- Align CCD to WTTM optical system.
- Temperature control repair of EEV CCD.
- Integrate filter wheel operation at telescope
- Mount WTTM HARCON and filter motor control electronics to IAS.

PROBLEMS:

- No items.
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.

<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>T&amp;E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shared risk of service</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fabricate field flattner</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acquire &amp; Test new CCD</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Integrate new CCD &amp; Field Flattner</td>
</tr>
</tbody>
</table>

FY 02

<p>| | |</p>
<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Budgeted Hours</td>
<td>778.5</td>
</tr>
<tr>
<td>Budgeted Capital</td>
<td>$5,000</td>
</tr>
<tr>
<td>Actual Hours</td>
<td>273.4</td>
</tr>
<tr>
<td>Actual Capital</td>
<td>$1,120</td>
</tr>
</tbody>
</table>

ACCOMPLISHMENTS:

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

PLANS:

- Evaluate more CCDs when they arrive; expected 2/11/02; waiting for wire bonding.

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>
<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>
<tbody>
<tr>
<td>Received bHROS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Milestone Schedule**

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

- Examine chips, install dry run
- Install chips, lab test
- Acceptance Test

**FY 02**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Budgeted Hours</td>
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<tr>
<td>Budgeted Capital</td>
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</tr>
<tr>
<td>Actual Hours</td>
<td>318.3</td>
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<tr>
<td>Actual Capital</td>
<td>$281</td>
</tr>
</tbody>
</table>

**ACCOMPLISHMENTS:**

- Received the two damaged CCDs back from inspection at Marconi. The chips are damaged beyond repair.

**PLANS:**

- When the work required for GNIRS eases up, we will go through the installation process, using the damaged chips, to try to determine what went wrong and to rehearse improved procedures. The remaining two chips will then be installed in the bHROS cryostat, operation verified, and an acceptance test performed.

**PROBLEMS:**

- No items.
Electronic Design (D. Stover)

**Priority jobs / newly submitted**

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>Acct No</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete organization area &amp; tasks</td>
<td></td>
<td>finish spread sheet with efile locations then on to investigating the jobs with the &quot;unknown&quot; status (still continuing, I don't have all the efile locations yet)</td>
</tr>
<tr>
<td>IR Acquisition Brd 1</td>
<td>NNW 023 209</td>
<td>passed off to Jerry Penegor not known when I will get it back</td>
</tr>
<tr>
<td>IR Acquisition Brd 2</td>
<td>NNW 023 913?</td>
<td>on hold</td>
</tr>
<tr>
<td>GNIRS</td>
<td></td>
<td>22 docs that I can finalize</td>
</tr>
<tr>
<td>SOLIS</td>
<td></td>
<td>58 docs that I can finalize</td>
</tr>
<tr>
<td>GONG</td>
<td></td>
<td>No input from Gong people</td>
</tr>
<tr>
<td>PHX</td>
<td>NNX 510 000</td>
<td>Helping Paul when he asks and digging into items between current jobs</td>
</tr>
<tr>
<td>SOLIS FDP Camera Interface</td>
<td>SNP 140 120</td>
<td>routing done, in review and waiting on part to verify pattern</td>
</tr>
</tbody>
</table>

**Finished Items**

- Master Control Board: NNX 023 208
- SOLIS VSM Cover Driver: SNT 400 310
- WYIN CIAS Motor Module: WWW 370 204

**Ongoing jobs**

- Library standards & Libraries: NNX 510 000
- drawing standards written: NNX 510 000

Comments: In addition to the completion of the various designs this month and last I have been able to get 40 drawings off my work list and into archive. If I can continue to do 28-30 drawings per month I should be able to reach the goal of 30% completed by the end of the calendar year.
Infrared R&D Program (K. M. Merrill)

- Al Fowler and Michael Merrill returned from a contractor's meeting held on February 20 at Raytheon Infrared Operations where they witnessed the initial testing of the first Pathfinder device for the Orion Project. We (NASA Ames, NOAO, RIO, USNO Flagstaff) have succeeded in producing the world's largest infrared array (55mm with a 50mm imaging area). Two Pathfinder devices have already been made and the first one tested revealed better than 98% operability. The Orion Project devices are two side buttable 4 million pixel InSb array modules with 0.6 to 5 micron wavelength response that can be mounted as a 2 by 2 unit with over 16 million pixels.

- Continued preparations for operating ORION muxes with the lab system. With the impending arrival of a working Pathfinder device, work has shifted towards bringing the new IR LAB dewar, freshly arrived from IR Labs, on line. Connectors, wiring, and hardware will be shifted from CROC to the new dewar. We anticipate coming on-line with the modified COB electronics in early March.
### Optical Shop Schedule (A. Comacho)

#### NOAO Optical Shop Schedule

**FEBRUARY 2002**

<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>
</tr>
</thead>
<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>
<td>N/A</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<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>
<td>N/A</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>WTTM Fibers</td>
<td>NNX 539 202</td>
<td>C. Calver</td>
<td>11/--/01</td>
<td>N/A</td>
<td>N/A</td>
<td>12/--/01</td>
<td>N/A</td>
<td>40%</td>
<td></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>N/A</td>
<td>30%</td>
<td></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>N/A</td>
<td>95%</td>
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</tbody>
</table>
Optical Coating Laboratory (G. Poczulp)

SOLIS VSM Telescope
S-NP140-110

Worked with the optics shop on the installation of the corrector lenses into their respective cells.

McMath-Pierce Integrated Light Feed
N-NK510-715

Aluminized the integrated light feed mirror for the McMath-Pierce Solar Telescope. The mirror had been coated two years ago and measurements with the Minolta 2002 reflectometer showed the coating to be in good condition except for one prominent oil streak nearly across the diameter. The oil streak was quite tenacious and residual contamination could be seen on the glass after the aluminum was stripped. The normal cleaning procedure successfully removed residue prior to coating. The coating went well - the mirror was removed from the chamber on 14 February 2002 and installed into the telescope later that day.

<table>
<thead>
<tr>
<th>Date</th>
<th>Mirror</th>
<th>Initial Pressure (torr)</th>
<th>Initial Thickness</th>
<th>Final Pressure (torr)</th>
<th>Final Thickness</th>
<th>Reflectivity at 400 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/13/02</td>
<td>Integrated Light Feed</td>
<td>4.2e-06</td>
<td>818 Å</td>
<td>4.5e-06</td>
<td>1010 Å</td>
<td>91.3 %</td>
</tr>
</tbody>
</table>

Instrument Concept Study
N-NB202-800

Participated in an exercise to derive cost estimates for a variety of coatings, some large vibration isolation tables, and several optical elements for a suite of GSMT instruments.
<table>
<thead>
<tr>
<th>Upcoming Coating Lab Projects</th>
<th>Chamber</th>
<th>Coating</th>
<th>Contact</th>
<th>Rec'd Date</th>
<th>Need Date</th>
<th>Planned Start</th>
<th>Estimated Duration</th>
<th>Planned Completion</th>
<th>Delivery 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></td>
<td></td>
<td></td>
<td>5 days</td>
<td></td>
<td>WWZ-300-000</td>
<td></td>
</tr>
<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></td>
<td>3 days</td>
<td></td>
<td>N-NK360-000</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>
<td></td>
<td></td>
<td></td>
<td>3 days</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></td>
<td></td>
<td>3 days</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Completed Coating Projects</th>
<th>Chamber</th>
<th>Coating</th>
<th>Contact</th>
<th>Rec'd Date</th>
<th>Need Date</th>
<th>Actual Start</th>
<th>Actual Duration</th>
<th>Actual Completion</th>
<th>Delivery Date</th>
<th>Account #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrating Light Mirror at McMath-Pierce</td>
<td>2m Solar</td>
<td>Al</td>
<td>T. Abraham</td>
<td>2/12/2002</td>
<td>2/14/02</td>
<td>2/12/2001</td>
<td>2 days</td>
<td>2/14/2002</td>
<td>2/14/2002</td>
<td>N-NK510-715</td>
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<table>
<thead>
<tr>
<th>Ongoing Miscellaneous Projects</th>
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<th>Rec'd Date</th>
<th>Need Date</th>
<th>Planned Start</th>
<th>Estimated Duration</th>
<th>Planned Completion</th>
<th>Delivery Date</th>
<th>Account #</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLIS VSM Telescope</td>
<td>J. Wagner</td>
<td>ONGOING</td>
<td></td>
<td></td>
<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>
<td></td>
<td></td>
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<td></td>
<td>S-NP100-510</td>
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<tr>
<td>Silver Coating Development</td>
<td>NRC-3177</td>
<td></td>
<td>12/31/02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N-NX500-500</td>
</tr>
</tbody>
</table>
Computer Services (C. Danielson)

- Beth questions regarding Tiba as BU Server for Draft domain
- Check antivirus definition dates
- Continue w/ PII-233 W98SE build - not for Sang
- Meeting w/Beth, Carl, Frank, & Jnc re: Tiba into Draft domain
- Find technet article on w2k server as dc
- Ron Harris machine
- Graydawg retrospect connect problem
- Graydawg sound "card" problem
- Roger Repp Retrospect problem
- Beth's Retrospect problems
- Carld's antivirus update problem - attached carld to techserv
- LarryD's antivirus update problem on desktop - completed
- Req to Barry Starr for software & pc - completed w/w2k specified
- Req to Carl for XP order
- Req to Carl for Network security (hacking)
- Beth turns over WiynPC & Nick B connecting to Draftserv problem
- Load retrospect client onto tiba - done
- Compressed disk on tiba - blakely area would not uncompress
- Meeting re: Antivirus stuff
- Roger's printer not working
- New printer to Optics
- Heidi Y's PC problems again - need to check
- Roger/RonH win2000-upgrade for gibbs-crashes - Ron got Gibs update will try 1st
- Updates to Fringes
- NG's PC sleep problem - done
- Melissa's retrospect version update
- Basset connection to europa
- Nick B Dell pc for win2k install
- Check with Frank B re: linux install on Dell pc
- Norton Antivirus updates
- Help Mike P w/new Xerox/Tektronix Phasor Color Laser Printer
- Mike F questions re: Norton Corp Ed. updates - gave him a box of 7.5
- Beth questions re: Retrospect and Randy Bennett
- Check Randy Bennett's pc sleep mode in control panel and bios - okay!
- Frank Bull consultation re: Linux on pc w/ win2k
- Barry Starr re: unix printing
- Barry Starr re: software req.
- Barry Starr re: pc w/win2k & linux
- Basset backup problems
- ETS PC list to Beth re: Steve's management memo
- Req for europa & tinkertoy
- Mike F re: ePO, Diver, McAffe, Mike F re: Norton
- Corporate edition issues
Programming Group (R. Wolff)

Behzad Abareshi

- Followed up on the Tpro status with KSI; they eventually said it was not worth their while to fix the Tpro firmware bugs, as they were in the process of redesigning the Tpro board; since the new design won't be available until the 1st quarter of 2003, we decided to return the new Tpro board and check with them later.

- Met with Larry Gobel, Charles Corson, George Jacoby, and Pat Knezek to discuss the next step in the path to Hydra upgrade. Larry has picked the smart motors for the project, and has drafted a plan to set up a test stage for the motors at NOAO Tucson. The test stage will allow me to develop and test the new motion control module, that would later replace the current one for Hydra. Also, it was decided to port Hydra from SunOS to Linux; this will involve adopting the CTIO Tcl/Tk interface. George Jacoby approved the purchase of the motors and a new Linux box, and Larry will start setting up the test stage when he has all the parts.

- Fixed several bugs in the WIYN TCS archiver program, which now is less prone to crashing and reconnects to the WIYN router if the connection is lost.

- Finished the WTMM XY stage GUI, which is in LabVIEW. The XY stage GUI, along with the photon counter GUI that was finished earlier (also in LabVIEW), was successfully tested at NOAO Tucson and also during the (ongoing) T&E at the end of February. Minor modifications to both GUI's are expected during the commissioning phase of WTTM.

Nick Buchholz

- Continued to refine ICD description document for GPX.
- Began NICD 4.0 GPX Communications and Command ICD.
- Began NICD 6.0 Monsoon Detector Controller Communications and Command ICD.
- Prepared for IPAC discussion on software standards.

Phil Daly

- Most of the time was spent finalizing the WTTM software for the commissioning run. In fact, Mon 25 Feb 2002 was the first time we truly closed the loop with all the hardware and software up and running in the lab. A milestone.
- I spent a little time with clearing up my involvement in the AURA s/w workshop. Mainly, co-writing a report on the telescope and instrument control focus session.
- A lot of time was spent contemplating, writing, debating the input to the IPAC special session on software standards. In the end, this amounted to some reasonable slides that a future committee will, probably, take as a starting point for a further discussion.
- Wrote a document for NEWFIRM which was distributed to UKATC, CFHT, ESO, AAO and SOLIS for input regarding their software. This document was written at the behest of Roy Autry who was pleased with the end result.

Shelby Gott

- WIYN CIAS: Completed GWC version of the diagnostic software.
- Worked with Dee Stover through several iterations of checking and correcting the circuit board layout for the Motor Module.
- Assembled six Motor Modules using the new pc boards. Programmed their microcontrollers and tested them in the lab.
- 4-M VDU: Repaired 4m-vdu-2 by replacing its power supply.
- Modified VDU software to use the Linux version of GWC, and installed this version in 4m-vdu-2 for trial run.

Bob Marshall

- Project related work: Mosaic Power Controller: sent the second unit to the mountain for installation in the rush cabinet and updated documentation.
• Operations:
  WIYN: updated netscape, disk cleanup.
  Moved the www files on bordeaux to a larger file system for the new Operations documentation.
• Maintenance:
  4m: 4MAPS restart.
  2.1m: VDU, focus runaways and timeouts.
  Various Mosaic investigations.
• Other:
  Discussions about IPAC Software Standards, LabView, and ArcView.
  Did performance evaluations.
  Gave a Kitt Peak tour to Eduardo Toro from CTIO.
  Started ssh installations.
  Attended GSMT meeting.

Dave Mills
• Continued development of new probe control gui for WIYN. Some testing may be done at upcoming T&E (depends on WTTM tests).
• Supported Flamingos 2m run, some changes were made to scripting interface to the guider to help them control it.
• 2m/4m T&E time was used to sync up guider versions. Added mouse control to 2m, improved background subtraction on both, guider coord readback on both. Fixed bug in "lock positions". Another round of 4MAPS T&E. Tip/Tilt corrections can now be activated/tweaked.
• Started working with motor controller (NI PXI). Attempting to work out how to control this board from Linux without much help from NI.
• Updated WIYN online schedules/scripts.
• Support WTTM testing efforts.
• Processed 12months worth of 4MAPS logs into web hosted graphics form.
• Added capability to control Wifoe (WIYN) mechanism to support 2 currently unused positions of the mechanism.

Peter Ruckle
• Extensive testing was performed on the slit, decker, and camera mechanisms for gnirs. Results:
  ◦ slit - Metal filings were found beneath the bearings. Slit was taken apart and track, bearings and bearing races were machined to fix the problem.
  ◦ fw1,fw2 - still need to be tested further, but initial tests were positive
  ◦ camera - a small amount of brass filings were found. Gear was deburred and problem went away. The speed of the camera had to be dropped when cold to make the mechanism run reliably. The current was increased at the same time to give .55 amps at the lower speed.
  ◦ grating testing is starting now.
  ◦ an init string of LF (limits off) was added to gnirsconfig for all of the rotary mechanisms
Safety (C. Gessner)

The following were accomplished during the month:

- No industrial injuries or illnesses were reported this month.
- Coordinated the reporting of a minor automobile accident on Kitt Peak. One of our employees backed into a parked car causing minor damage.
- Investigated a second loss of a personal item in room 170, the individual did file a police report. There were no solid leads.
- Coordinated the paperwork and notification for continued medical treatment of an Kitt Peak injury that occurred on September 11, 2001. This injury resulted in an OSHA lost time in January of 2002. Records will be modified after his recovery from surgery.
- Met with Dr. Mould to discuss the objectives of the 2002 Business Contingency Plan.
- Organized the risk management office filing system.
- Met with GONG management to discuss the concerns of visiting technicians and emergency response at Mauna Loa. Respirator protection is the primary focus. I will be proposing an alternative method for protection against volcanic gases. Because of the inquiry, I have had several e-mail discussions with the Mauna Loa safety officer and suggested improvements and other options for their program.
- Hosted the ITT Hartford workers compensation-safety “inspection” on February 7, recommendation report to follow.
- Conducted a safety meeting by request of the Instrument Shop.
- Reviewed Kitt Peak Facilities safety training records, which appeared to be in reasonable good order. As a result of the review, compiled a list of mandated training requirements and discussed priorities with the Facilities Manager.
- Coordinated the repair of a Kitt Peak oxygen sensor.
- Received Dr. Mould’s approval for the 2002 Risk Management Strategy, Goals and Objectives
- Consulted on a number of risk management issues during the month, including workers compensation, safety glasses, cranes, respirator protection, product recall, security and hazardous materials.
- Investigated SARA Title III environmental standard to determine compliance. No further action to this specific standard is required.
- Completed the Arizona Department of Environmental Quality Hazardous Waste 2001 Facility Annual Report. Due to a monthly disposal quantity, we are required to report as a Large Quantity Generator.