

## Getting Ready for the Next 50 Years - Part 2

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In the June 2007 *Newsletter*, we described how Kitt Peak National Observatory (KPNO) has begun a program of modernization projects in response to the recommendations of the NSF Senior Review. Since then, we have also benefited from the advice of the NOAO Users Committee. Our continuing efforts are part of the NOAO commitment to provide the community with outstanding research opportunities through the instruments and telescopes of Cerro Tololo Inter-American Observatory (CTIO) and KPNO. This article provides an update on the modernization activities planned for KPNO, as well as brief descriptions of the new capabilities coming to KPNO in the near future. Progress reports will appear in future editions of this *Newsletter* and on our Web site

### **New Capabilities**

This semester, KPNO is welcoming two near-infrared imagers to our telescopes. The NEWFIRM wide-field infrared imager has begun shared-risk observations at the Mayall 4-meter telescope, and the WIYN High-Resolution Infrared Camera (WHIRC) is undergoing commissioning tests at the WIYN 3.5-meter. WHIRC will begin shared-risk observing during the 2008A semester and is anticipated to become a facility instrument by semester 2008B. NEWFIRM will be shared between the Mayall and Blanco telescopes, with the first move of the instrument to Chile currently scheduled for early 2010 (see [www.noao.edu/ets/newfirm/NEWFIRM\\_info.pdf](http://www.noao.edu/ets/newfirm/NEWFIRM_info.pdf)). The first NOAO Survey Program observing campaigns using NEWFIRM are anticipated to begin in semester 2008A.

The second half of 2010 will see the commissioning of the One-Degree-Imager (ODI) at WIYN. Following in the path of OPTIC and QUAD OTA (QUOTA), ODI will use similar orthogonal-transfer CCDs to deliver superb images, but over a much wider field of view. Both NEWFIRM and ODI will come complete with data-reduction pipelines that will deliver flat-fielded frames, together with astrometric and photometric information, to the NOAO Science Archive (NSA).

The evolution of the system of telescopes and instruments available to the US astronomical community via NOAO will be informed by the report of the Renewing Small Telescopes for Astronomical Research (ReSTAR) committee, due at year-end. This report will influence our plans for the future of instrumentation for the System of telescopes accessible through the NOAO observing-time allocation process, and for KPNO in particular.

We will also use the ReSTAR report and input from the community (including the Users Committee) to inform our consideration of restarting queue and/or service observing at

one or more of the KPNO telescopes. Your thoughts regarding either new instruments or the utility of non-classical observing modes to your science goals are welcome--send them to me at [bjannuzi@noao.edu](mailto:bjannuzi@noao.edu).

### **KPNO Modernization**

Several projects to modernize KPNO are underway. To aid in the installation and maintenance of large new instruments such as NEWFIRM and ODI, we have begun renewing our ability to support engineering activities on the mountain, including the purchase of new instrument-handling equipment and planning for the construction of a new instrument-handling facility. Equipped with a clean room suitable for all needed maintenance of the next generation of large instruments represented by NEWFIRM and ODI, the new facility will reduce the risk of damage to these valuable instruments and increase the amount of time the instruments can be used on the telescope.

New instruments are being deployed on Kitt Peak to help all the telescopes on the mountain keep better track of observing conditions and to aid in the long-term characterization of the site and archived data products. See the related article titled “The KPNO Site Monitoring Suite” for more details.

The telescopes are also receiving attention. We are restocking depleted stores of spare parts for all three of our main telescopes. New computers and networking hardware are being purchased for the Mayall and other telescopes to improve communications between subsystems and improve reliability. A preventative maintenance plan is being expanded and, coupled with inspections and testing of key sub-systems, will lead to the identification of additional modernization projects during the next three years.

Some of our existing instruments are being considered for upgrades and modernization, and we welcome your suggestions for improvements. Plans are being developed to replace aging detector controllers with new MONSOON systems, with the Mayall spectrographs and Mosaic-1 imager among the possible instruments to be upgraded. New guiders are also being considered in order to improve the performance of our existing instruments.

In addition to modernizing our instruments and telescopes, we also continue to renew our staff. New technical and engineering positions have been created, and you will be introduced to the new hires in future *Newsletters*. The additional staff are essential not only for the successful completion of our modernization efforts, but will be needed to properly support complex instruments like ODI in the years ahead.

NOAO is committed to operating KPNO at the highest level of performance in partnership with the Tohono O’odham Nation, on whose land we are fortunate to locate our observatory. We will continue to support the tenant observatories on the mountain as a critical parts of the US system of observing facilities, and we look forward to

continuing to work closely with the community as we start another 50 years of operations.