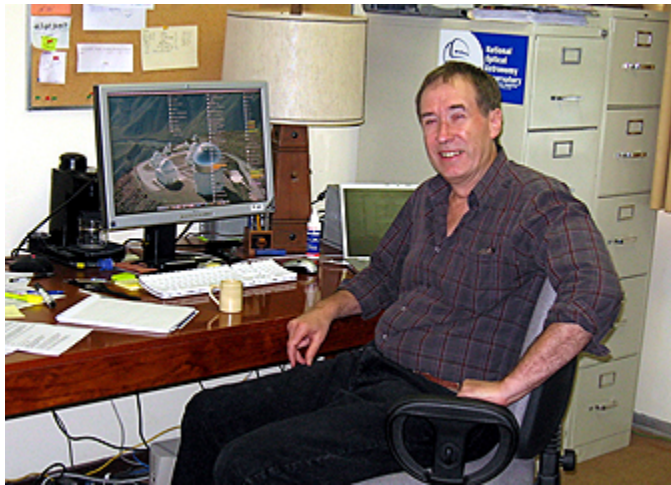




Thanks to Alistair Walker for Multiple Contributions as CTIO Director

Malcolm Smith

Alistair Walker stepped down as director of Cerro Tololo Inter-American Observatory on November 10 after five remarkable years. In fact, Alistair has been consistently and efficiently guiding large parts of the observatory for many more years than this, through several crucial stages in its evolution.



Alistair Walker.

Alistair's research interests—in stellar populations, the Magellanic Clouds, and the distance scale—involve use of a wide range of instrumentation and detectors. These research interests have provided the motivation to acquire the expertise that has allowed him to play a key role, for several decades, in the support and development of the instrumentation program at CTIO. His work for the observatory has ranged from instrumentation at the detector level up through the full range of telescope sizes, and from broad strategic planning through to pragmatic implementation of fine detail. It is this breadth and depth that has made him such an asset to the observatory.

His talent was well recognized even before he first arrived in Chile several decades ago. A well-known colleague from South Africa once described Alistair's move to Chile as one of the most serious losses to astronomy in South Africa at that time.

Several years before he became director of CTIO, Alistair anticipated the need for a careful yet fundamental restructuring of the operation of our observatory on Cerro Tololo. This would prove essential to the continuation of a balanced approach to the provision of telescopes for the community in the face of a decadal review that heavily emphasized the need for very large facilities. Alistair worked with several energetic and talented university astronomers, led by Charles Bailyn at Yale, to set up the initial Small and Moderate Aperture Research Tele-

scope System (SMARTS) consortium—thus preserving, coordinating, and upgrading productive smaller facilities (telescopes with dedicated instrumentation) at a first-class Southern Hemisphere site, in a cost-effective way. If not for these efforts, these telescopes—along with the research and training opportunities that they provide—would have been lost to astronomy by now. Alistair took primary responsibility for the contribution by NOAO to that transition. One perhaps unexpected positive outcome is the large amount of interesting solar-system science that is being done with these telescopes.



Figure 2: Handing over the "steering wheel" to Chris Smith, the new CTIO director.

Alistair played one of the most crucial roles in CTIO's direct response to the most recent decadal review. His carefully argued case explaining the advantage of our experience in telescope operations at a world-class site in the Southern Hemisphere provided a foundation for the decision to locate the Large Synoptic Survey Telescope (LSST) on Cerro Pachón. But Alistair did not relax once that LSST decision was announced. He realized, more clearly than most, that significant upgrades to the Blanco telescope and its wide-field imaging capabilities would be an essential introduction for our community and our observatory in preparation for the start of LSST operations. Strong and growing support for the Dark Energy Survey is being secured, based on first-class science matched with wise, strategic preparation for the longer-term future.

Fortunately, Alistair continues as a staff astronomer at CTIO, and he will certainly enjoy having more time for his research. His input, both at a strategic and a detailed level, will remain crucial to the optimum development of the observatory in the coming years.

Spartan Infrared Camera Arrives at SOAR

Sean Points, Jayadev Rajagopal (NOAO), Ed Loh (Michigan State University) & Steve Heathcote (SOAR/NOAO)

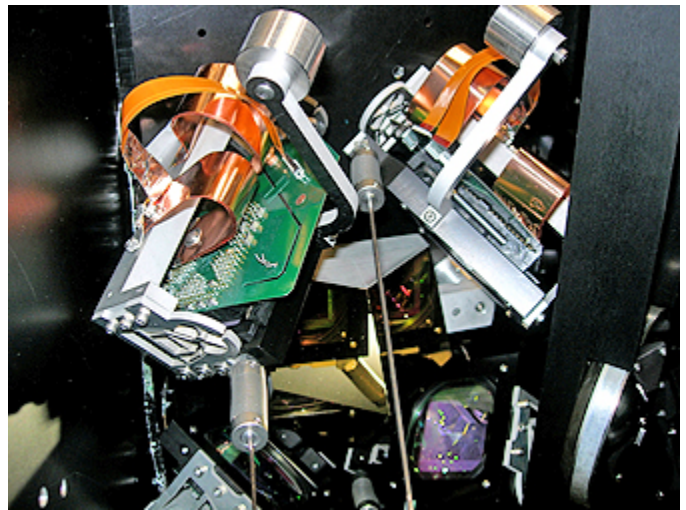
The Spartan Infrared Camera (IRC) was delivered to the Southern Astrophysical Research (SOAR) 4.1-meter telescope facility on Cerro Pachón on October 7. Laboratory tests performed on arrival successfully reproduced the results of similar tests carried out prior to shipping, demonstrating that the instrument arrived in good condition. Thus all is ready for initial testing on the telescope, expected to begin in mid November.

Built at Michigan State University (MSU) under the leadership of Ed Loh, the Spartan IRC is a high-angular resolution, near-infrared (NIR) camera with a spectral range from 1.0–2.5 micrometers. Two different plate scales are provided: the *f*/21 channel has a field of view (FOV) of 1.5 × 3.0 arcmin with a scale of 0.043 arcsec/pixel chosen to resolve the diffraction limited core of Tip-Tilt corrected images in the H and K bands; the *f*/12 channel offers an FOV of 2.5 × 5.0 arcmin at 0.073 arcsec/pixel.

When deployed for regular science observing, the Spartan IRC will have a focal plane consisting of four “Hawaii-II” 2048 × 2048 pixel HgCdTe detector arrays. Furthermore, the Spartan IRC has two filter wheels, which together can hold a total of 29 50-millimeter-diameter filters of thickness up to 15 millimeters. The initial filter compliment consists of broadband Y, J, H, and K filters (based on the MKO-NIR prescription). In addition, a set of narrowband filters purchased by Cassio Leandro Barbosa of UNIVAP, Brazil, will be available to all users of Spartan. This set includes HeI (1083/10 nm),

[FeII] (1644/15 nm), Cont. 1 (2045/30 nm), HeI/CIV (2070/30 nm), H₂ (2121/20 nm), Cont. 2 (2140/30 nm), Br-gamma (2161/20 nm), Cont. 3 (2210/30 nm), and CO (2325/70 nm).

Commissioning and science verification testing of Spartan is expected to continue through the 2009A semester, with regular science use beginning in 2009B.



The Spartan detector arrays.



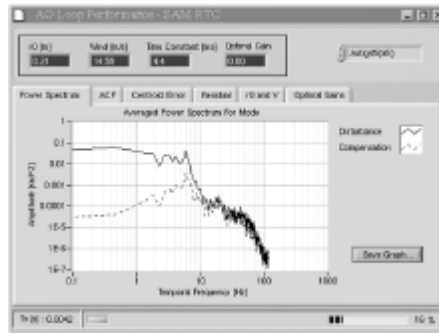
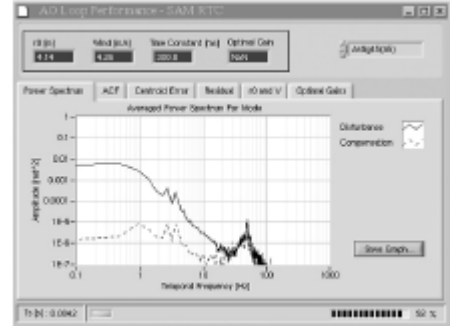
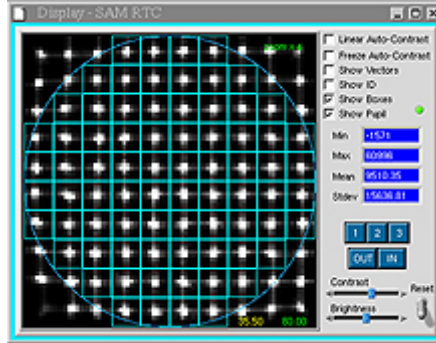
Spartan leaving MSU (left) and arriving at SOAR (right).

Integration & Testing of the SOAR Adaptive Module Proceeds Well

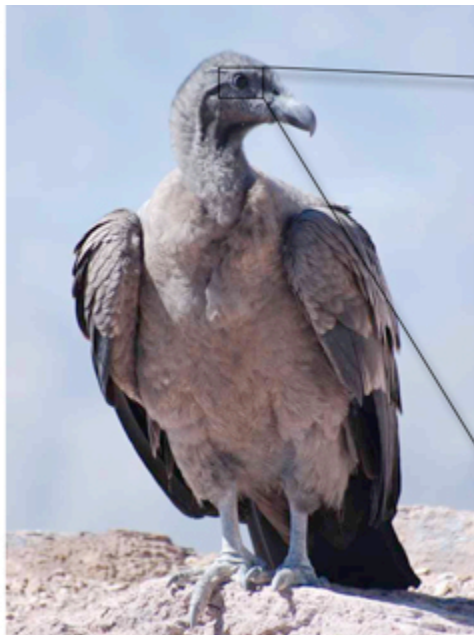
The SAM Team

Significant progress has been made with the integration and testing of the SOAR Adaptive Module (SAM) since our last report in the September 2008 *NOAO/NSO Newsletter*. All hardware related to the Natural Guide Star (NGS) mode of SAM has been fabricated, and most of it is installed in the main module. Cabling and wiring of the hardware is well underway, as is the development of the motion-control software. And with all optical elements in place and aligned, we were able to test the real-time software with the actual instrument by closing the loop, while introducing turbulence into the beam.

The figures to the right illustrate the results of these tests. At the top left are Shack-Hartmann spots for “closed loop” operation. The top right and bottom left images give the “Adaptive optics loop” performance, showing the uncorrected power spectrum (solid, black line) and the corrected power spectrum (dashed, blue line) for one of the Zernike modes, in this case astigmatism: the top right image shows it without turbulence and the bottom left shows it with turbulence. The amplitude of the power spectrum is an order of magnitude higher under the presence of turbulence. The predicted image at the SAM Imager focus, reconstructed from delivered wavefront data measured with a Wavescope wavefront sensor, appears in the bottom right image.



The instrument is currently scheduled to be commissioned on the SOAR 4.1-meter telescope in NGS mode in mid 2009. For updates and pictures on the integration of SAM, go to www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/.



Eye of nature focused on CTIO.

Goodman Spectrograph Update

Sean Points (NOAO) & Steve Heathcote (SOAR/NOAO)

Commissioning and shared-risk science use of the Goodman High-Throughput Spectrograph (HTS) continued during the 2008B semester at the SOAR 4.1-meter telescope, located on Cerro Pachón, Chile. As shown by the example results illustrated in the figures, the Goodman HTS is now well on its way to becoming a regular facility instrument.

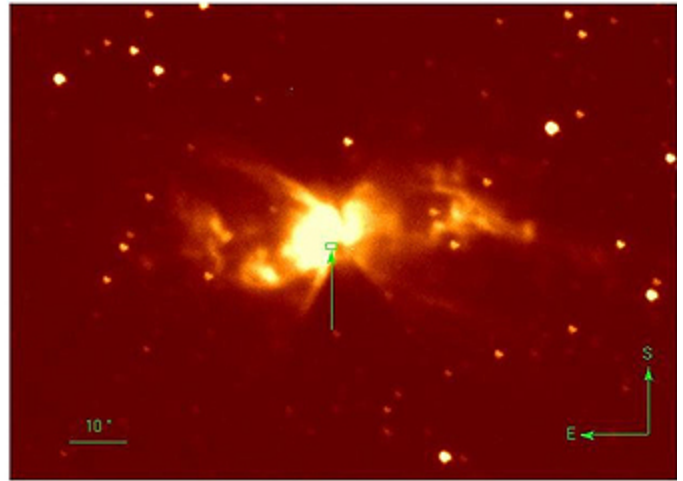
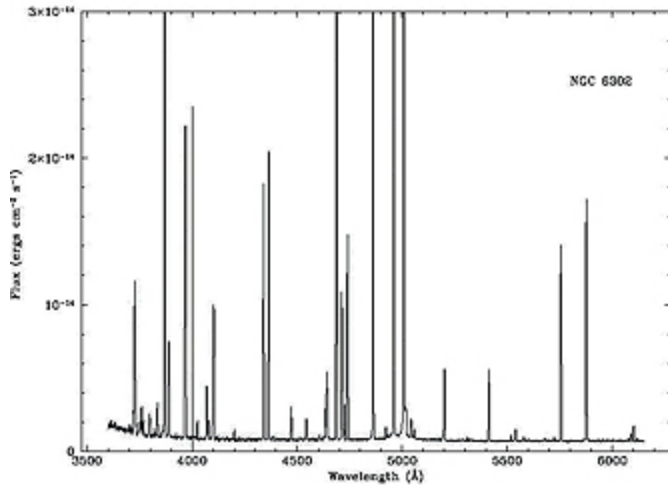


Figure 1: A one-dimensional spectrum of the planetary nebula NGC 6302 obtained with the Goodman HTS in the 600 l/mm Blue setup (left). This one-dimensional spectrum corresponds to an aperture of 1.5 arcsec by 1.03 arcsec shown in the false-color image on the right. Credit: A. Krabbe (SOAR)

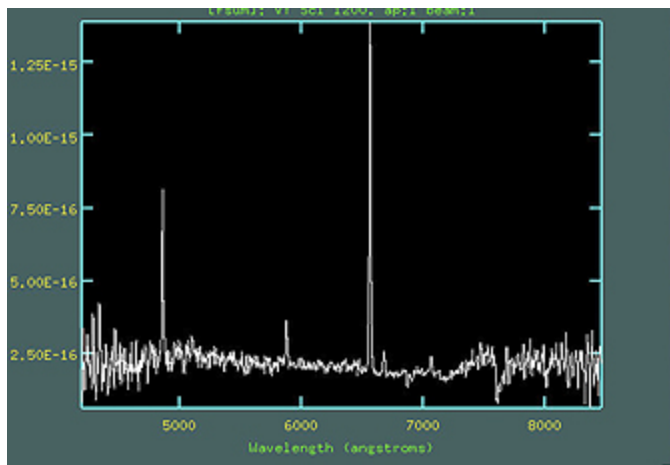


Figure 2: A spectrum of the interacting binary star VY Scl obtained on 10 October 2008 UT. The star was near magnitude $V = 19$ and the spectrum is a median of 3×20 -minute observations with the 300 l/mm grating. This SOAR observation is the first spectrum of VY Scl ever obtained while the system was in this faint state. Narrow Balmer and He I emission are seen, indicating that during such extreme low states the accretion disk in the interacting binary disappears. Credit: S. Howell (NOAO)