New Blanco Instrumentation

Alistair Walker

In November 2003, CTIO issued an Announcement of Opportunity to develop a major new instrument for the Blanco 4-meter telescope. Letters of intent were due by 15 February 2004. We received a single letter of intent from the Dark Energy Survey (DES) Consortium (Fermilab, University of Illinois, University of Chicago, and Lawrence Berkeley National Laboratory) to build a very large mosaic CCD camera for the Blanco prime focus. The Dark Energy Camera would bridge the gap between the Blanco telescope and the Large Synoptic Survey Telescope (LSST) in time (2008–2012). The DES would occupy 30 percent of the Blanco time over five years, producing a deeper set of data than the Sloan Digital Sky Survey (SDSS), over a similar area. Presentations on the Dark Energy Camera and DES can be downloaded from *www.ctio.noao.edu/telescopes/dec.html*.

Prior to February 15, the role of CTIO was mainly to answer technical questions from the potential proposers, although direct participation of NOAO scientists in the preparation of science cases was permitted under the terms of the solicitation. Given that only a single letter of intent was received, the character of the relationship can change, and the timeline has been shortened a little. However, the review process stays the same. Consequently, CTIO will work closely with the DES team so that their proposal, due on 15 July 2004, describes an instrument that, although optimized for the DES, will also be useful for a wide variety of science projects by the general community. The proposal will be evaluated by an external expert panel, which will make a recommendation whether or not to actually build the instrument on this basis. The announcement describes the process in more detail (see *www.ctio.noao.edu/telescopes/TheFuture/Blanco_prop.html*).

The DES Consortium will be publicizing their project at the Denver AAS meeting, and we at CTIO will be actively working to solicit views and suggestions from our community. We encourage you to read about the camera and survey at *www.ctio.noao.edu/telescopes/dec/html* and respond to the questions asked there, and if so inclined, give an opinion on any aspect of the instrument design and the project.

Retirement of the Blanco Echelle and RC Spectrographs

Alistair Walker

With some regret, we announce the imminent retirement of two work-horse instruments, the Blanco Echelle and RC spectrographs (though see below for a possible temporary reprieve for the latter). The need to simplify operations on the Blanco as we begin to operate the SOAR 4.1-meter on Cerro Pachón, plus the availability of superior facilities on SOAR, Gemini, and Magellan, has driven the decision to retire these instruments after semester 2004B.

The RC spectrograph, with its long slit, good range of resolutions, high throughput, and for the past several years, its use of the UV-flooded high-QE Loral 3K CCD with Air Schmidt camera, has always been very popular, averaging 27 percent of the time through the 1990s. Requests still are at the 15 to 20 percent level. Thus, we will review the retirement decision for the RC spectrograph shortly before proposals are due for 2005A (approximately 1 September 2004), in case commissioning of the SOAR Goodman Spectrograph is delayed. If that were the case, we would likely offer the Blanco RC Spectrograph in severely blocked mode in 2005A.

There are some other good options for spectroscopists. Users of the RC Spectrograph can migrate to the Goodman Spectrograph on SOAR, GMOS on Gemini, or IMACS on Magellan via time made available through the Telescope System Instrumentation Program. There is a less direct upgrade path for Echelle users. Part of the reason for the sharp decline in demand for the Blanco Echelle must surely be due to the overwhelming superiority of UVES on the VLT. For US users, MIKE on Magellan is the only large-telescope high-resolution optical spectrograph presently available. In 2005, bHROS on Gemini, with R=150,000 and fiber-feed, may become available, and STELES, a beam-fed bench echelle for SOAR (see *www.lna.br/~bruno/Steles*), is not likely to appear before 2006. The high-resolution infrared spectrograph Phoenix is available on Gemini, and will be shared between Gemini and SOAR, perhaps as early as mid-2005.

The Blanco Echelle and RC spectrographs were delivered in the mid-1970s. Since then, each has gone through a series of detector upgrades, from photographic plates to thinned large-format CCDs, via the SIT vidicon, 2D-Frutti, and early generation CCDs. Keeping the instruments state-of-the-art and operational for more than two decades on the southern hemisphere's largest telescope enabled users to make some of the most exciting and important scientific discoveries of these years.

A Wonderful Day for SOAR Dedication

Douglas Isbell

The Southern Astrophysical Research Telescope (SOAR) was dedicated on Cerro Pachón on April 17 during a bright sunny day in north central Chile, with more than 200 guests and many current and former project officials celebrating the formal inauguration of the $32 million telescope facility.

(Clockwise from upper left) The crowd at the SOAR telescope dedication on 17 April 2004, including Sidney Wolff (front center), who chaired the SOAR Board of Directors in its formative years through 2003; the SOAR telescope and one of the transport buses for attendees parked next to the white tent where the dedication ceremony was held, as seen from Gemini South; Brazilian Professor João Steiner, President of the SOAR Board, and his wife Eliana Steiner speak with a fellow dedication guest; Hugo Schwarz of the NOAO South scientific staff talks with Chilean Region IV Intendente Felipe del Río Goudie.

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SOAR Dedication continued

"Chile is heaven for astronomers, and SOAR is both an astronomical treat and a treat for the soul," said NOAO Director Jeremy Mould, in remarks at the dedication that were later echoed by the Archbishop of La Serena during his blessing of the telescope.

"We expect SOAR to discover how stars form, and to help us fully understand the ecology of galaxies and the chemical evolution of the Milky Way from its early days to the present," Mould added. "After the Hubble Space Telescope is turned off, the highest-resolution images of the Universe will come from SOAR. The future is very bright."

"The SOAR project team was a very small team, and they have done a magnificent job," said William Smith, president of the Association for Universities for Research in Astronomy (AURA), Inc.

Officials from SOAR partners Brazil, Michigan State University, and the University of North Carolina at Chapel Hill cited the promise of SOAR for uncovering clues about "the deepest mysteries of the Universe," and its ability to serve as an educational and motivational tool for their science students.

The Intendente (governor) of Chile's fourth region, Felipe del Río Goudie, noted that the Chilean government is actively seeking to limit artificial light contamination in three key regions of the country, both to enable future research and to foster increasingly popular local efforts in astrotourism. "We know that it is very important for these types of projects," he said.

Articles and color photos from the SOAR dedication appeared on page 1 of the *El Mercurio* and *El Día* newspapers in Chile, and several Chilean TV reporters covered the event. A Reuters news wire service story on the dedication went around the world, and numerous local US media outlets in North Carolina and Michigan reported the story, with related Associated Press wire stories reaching *USA TODAY*, CNN.com, Yahoo.com, and other national venues.

For more NOAO photos from the dedication, see *www.noao.edu/outreach/press/soar.*

SOAR Sees Stars at Last

Steve Heathcote

The past few months have been a very exciting and hectic time at the Southern Astrophysical Research Telescope (SOAR), culminating in the acquisition of its very first images just in time for the formal dedication of the telescope on 17 April 2004.

Following its successful aluminization in the Gemini South mirror-coating plant, the 4.1-meter SOAR primary mirror was integrated with its 120-actuator support system, and the complete assembly was installed in the telescope on 25 February 2004. Following an intensive period of optical alignment and testing, the very first photons were collected on the night of March 18. Over the next several nights, the optical system was carefully calibrated and adjusted with the help of the facility wavefront sensor, resulting in a steady improvement in image quality. On the night of April 12 we were able to use the SOAR Optical Imager to obtain images with 0.74 arcsec full-width half-max, indistinguishable from the prevailing site seeing on the night.

After a brief pause for the dedication ceremony, the SOAR team returned to the hard work involved in completing the tasks that remain before the telescope and its instruments are ready for regular science operations. Over the next few months, efforts will focus on further tuning and calibration of the optical system, including the implementation of tip-tilt correction using a fast-readout guide camera to generate the error signals needed to drive the tertiary steering mirror. At the same time, work will proceed on the scientific commissioning and characterization of the SOAR Optical Imager.

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SOAR Sees Stars at Last continued

Attention will then turn to the Nasmyth foci, preparing the way for the installation and commissioning of the OSIRIS infrared imager/spectrometer during July and August. If all goes well, it is currently anticipated that both these instruments will be made available on a limited basis during the second part of the 2004B observing semester. Both the Spartan Infrared Camera, and Goodman High-Throughput Spectrograph are slated for delivery to the telescope during the last quarter of the year, and they should be available during the 2005A semester.

The SOAR team.