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Chile-Based Telescope Collects Images in Optical, Infrared

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Description

When the Southern Astrophysical Research telescope opens its eye later this year and captures what astronomers call "first light," it will not only open a new window on the night skies of the Southern Hemisphere, but will also shine new light on science research and education at MSU.

Newswise — When the SOuthern Astrophysical Research (SOAR) telescope opens its eye later this year and captures what astronomers call "first light," it will not only open a new window on the night skies of the Southern Hemisphere, but will also shine new light on science research and education at Michigan State University.

With the ability to capture extraordinary images and spectroscopy in both the optical and infrared, the instrument will set the standard for astronomical viewing.

"I consider this a quantum leap for our astronomy group," said Wolfgang Bauer, chairperson of MSU's Department of Physics and Astronomy. "Only the most elite programs have access to their own telescope."

The 4.1-meter telescope, located atop a 9,000-foot Chilean mountain called Cerro Pachón, is a joint project between MSU, the University of North Carolina at Chapel Hill, the country of Brazil and the National Optical Astronomy Observatories. The nation of Chile is a de facto partner.

More than 10 years in the making, the SOAR Telescope will feature some of the world's most advanced technology, including "adaptive" optics that correct for both image motion and distortion due to atmospheric disturbances, and an infrared camera that was developed and built at MSU.

"The Spartan Infrared Camera will be the prime first-light instrument of the telescope," Bauer said. "The images it captures will be so extraordinarily detailed they will rival those taken from space-based telescopes."

"This instrument will allow us to penetrate through the dust and debris of deep space to see the star-forming regions of our universe," said Timothy Beers, an MSU professor of physics and astronomy who will use the SOAR Telescope. "The data collected by SOAR will provide clues to many fundamental questions, including how stars and galaxies were formed."

MSU President Peter McPherson said the telescope will move science research and

education at MSU well into the 21st century.

“Not only will this serve our scientists, but all of our students, from doctoral students to undergraduates and even to K-12,” he said.

One of the major features of the SOAR project is the remote observing room located in the Biomedical and Physical Science Building on the MSU campus. Images gathered by SOAR will beam back to East Lansing where they can be viewed by MSU students and K-12 students who are visiting the campus. In time, it may be possible to share these images directly with K-12 students in their classrooms.

“We feel very strongly about improving science education at all levels,” Beers said. “This will give not only MSU students, but K-12 students throughout Michigan, an opportunity to have a ‘hands-on’ science experience.”

Total cost of the project is \$43 million, including \$32 million for initial construction and 18 years of operations costs.

In return, MSU astronomers will have 12 percent of the available viewing time per year, or approximately 40 nights – a giant leap over what they’ve been able to use in the past on non-MSU instruments.

“When astronomers apply for time on shared facilities, including other ground-based 8 meter- and 4 meter-class telescopes, as well as the Hubble Space Telescope, usually one can hope for only a small sliver of time,” said physics and astronomy chairperson Bauer. “This is going to be a major boost for our research.”

In addition to the extraordinary images the telescope will capture, its location in the Southern Hemisphere will offer astronomers from the north a different view of the sky.

“There are a lot of special things to be seen in the southern sky,” said Jack Baldwin, professor of physics and astronomy. “For example, the very center of our own galaxy is directly over the telescope site. In addition, two major neighboring satellite galaxies are visible only in the south.”

For information on the SOAR telescope, visit the Web at <http://special.newsroom.msu.edu/soar/>

Additional information on SOAR is available at <http://www.pa.msu.edu/soarmsu/soar.html> or <http://www.soartelescope.org>