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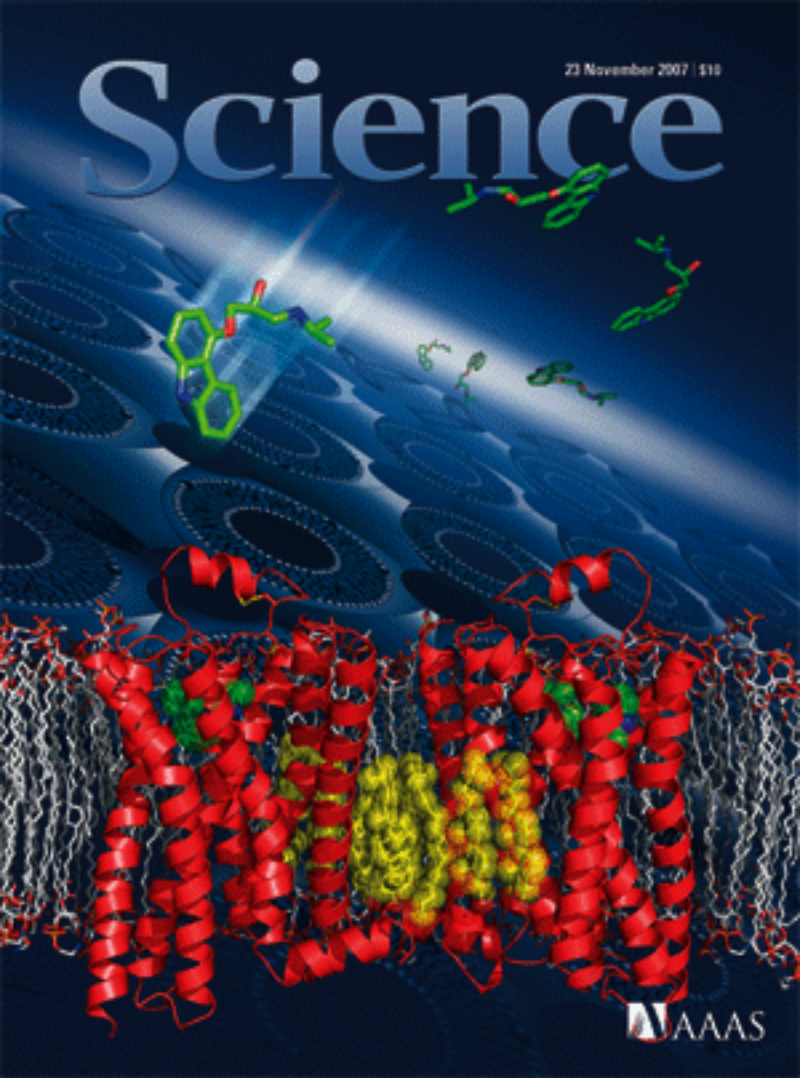


AAAS

ASTRONOMY

If You Build It, Will They Come?

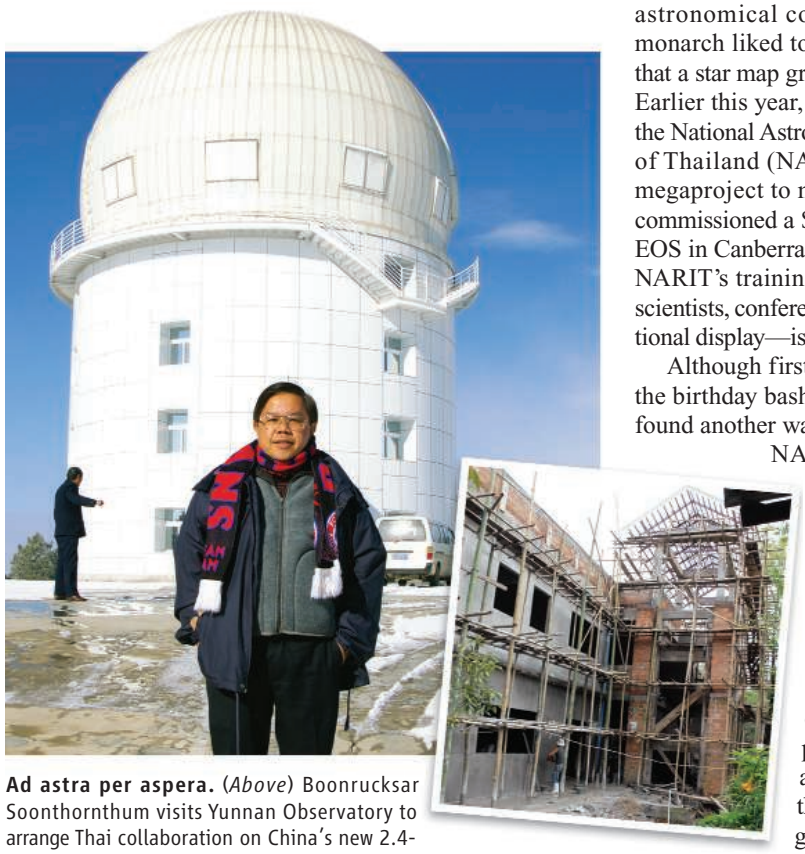
CHIANG MAI, THAILAND—With an espresso stand, a gift shop, and a misty forest festooned with orchids and red rhododendrons, the 2550-meter summit of Inthanon Mountain lacks the grandeur of Fuji or the towering remoteness of Everest. But new construction atop Thailand's tallest peak is still making a statement: This Southeast Asian nation intends to become a serious player in global astronomy and a regional leader in the field.

Earlier this year, Thailand began building an observatory complex on Inthanon, about 100 kilometers west of the temple city of Chiang Mai in northern Thailand. The centerpiece of the $40 million program will be a 2.4-meter optical telescope for studying binary stars and searching for extrasolar planets. It will match the size of the largest instrument in mainland Asia—a newly installed 2.4-meter scope at Yunnan Observatory in Kunming, China, that is about to undergo a year of testing—and serve astronomers from across Southeast Asia and beyond. "It's a bold vision," says John Hearnshaw, an astronomer at the University of Canterbury in Christchurch, New Zealand, who assessed Thailand's ambitions on behalf of the International Astronomical Union.

Not everyone is enamored with the project, which is expected to be completed in March 2009. Some scientists have questioned such a large investment in astronomy by a country struggling to build capacity in biology and other fields more tightly coupled to economic growth. Others assail the telescope itself. "People in their right mind would not invest a huge sum of money to build an optical telescope in a tropical area with high humidity," says one Thai astronomer, who dismisses the project as "a white elephant."

Hearnshaw defends the decision. "Certainly the rainy season will curtail the observing season," he says. "But that won't be a disaster." He predicts that observing "should be reasonably good" for 9 months a year and that the telescope will be a valuable addition in tracking sudden events like gamma ray bursts and supernovae. "Many of the most exciting discoveries of the last 25 years in optical astronomy have come from small to medium telescopes on the ground," Hearnshaw says.

Thailand is home to only about a dozen research astronomers. Even so, the new telescope, to be dedicated to King Bhumibol Adulyadej, the world's longest serving head of state, won't be the first major astronomical facility on the mountain. Earlier this year, three universities—Mahidol, Chulalongkorn, and Ubon Rajathanee—used equipment donated by Japan's Shinshu University to build a cosmic-ray detector at a unique spot in Earth's geomagnetic profile.



Ad astra per aspera. (*Above*) Boonrucksar Soonthornthum visits Yunnan Observatory to arrange Thai collaboration on China's new 2.4-meter telescope. (*Inset*) A dormitory for scientists takes shape in Thailand.

The neutron monitor is named after Princess Maha Chakri Sirindhorn, an astronomy buff, and situated on the grounds of a Royal Thai Air Force radar installation adjacent to the 2.4-meter telescope site. It studies solar cycles and serves as a space-weather sentinel. The geomagnetic equator passes through Thailand, and Earth's magnetic field bulges toward Southeast Asia, producing the strongest horizontal magnetic field on the planet. That dynamo allows only the toughest cosmic particles through. "Our station is registering the most energetic cosmic rays of any neutron monitor in the world," says astrophysicist David Ruffolo of Mahidol University in Bangkok. Such sensitivity, his group has shown, could provide a 4-hour warning of an oncoming geomagnetic storm—more than twice the lead time of space-weather satellites.

Four years ago, the Thai government requested proposals to commemorate King Bhumibol's 80th birthday this month. Astronomer Boonrucksar Soonthornthum, who has labored to raise education standards and the country's profile in the international astronomical community, noted that the monarch liked to stargaze in his youth and that a star map graces a ceiling in his palace. Earlier this year, the Thai cabinet approved the National Astronomical Research Institute of Thailand (NARIT) as the sole science megaproject to mark the birthday. NARIT commissioned a $7.8 million telescope from EOS in Canberra, Australia. Construction of NARIT's training center—dormitories for scientists, conference facilities, and an educational display—is in full swing.

Although first light will occur long after the birthday bash, Boonrucksar's outfit has found another way to celebrate. Next week, NARIT will host an International Olympiad here in astronomy and astrophysics. Some two dozen countries have agreed to send teams of five high school students.

Boonrucksar sees the Olympiad as part of a larger effort to "teach young people how to think critically and analytically." That's also the goal behind funding four graduate fellowships a year in astronomy, for study abroad, as part of the telescope project. Thailand hopes to lure foreign talent, too. Expanding the ranks of astronomers "is certainly necessary if the investment in the telescope is to be justified," Hearnshaw says.

Boonrucksar deserves credit for succeeding "against all odds" in putting Thailand on the astronomical map, says cosmologist Burin Gumjudpai of Naresuan University in Phitsanulok, Thailand. "It gives us hope," he says, "that astronomy can be a real career here."

–RICHARD STONE

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