

An Innovative Open-Air Planetarium

Most planetariums simulate the starry sky indoors on a domed ceiling. This one presents the genuine article outdoors on the dome of the night. *By David Schlom*

FOR ASTRONOMY EDUCATOR Kris Koenig, necessity was literally the mother of invention. Koenig directs the small but well-equipped Kiwanis Chico Community Observatory north of Sacramento, California. On some nights visitors swamp the place, especially when there's a bright comet or meteor shower in the sky.

"We get 100 guests at a time during our normal operating hours and more than 500 during special events," says Koenig. "So we started doing constellation tours outside with green laser pointers to reduce the crowds around the telescopes. These are extremely popular, but I thought we could do better than standing by the porta-potty and point-

ing out the Big Dipper and the Summer Triangle."

Koenig came up with a simple but elegant solution: an open-air "planetarium" in the shape of a bowl, with comfortable, reclined seating for 60. Observatory docents conduct sky tours there, freeing up space in the observatory for another 60 guests to enjoy a telescopic observing experience.

The \$50,000 project took four years of planning, public review, and construction. Koenig raised money from businesses and individual donors in the community, and a local contractor offered his construction services at a discount. The result is a concrete bowl 32 feet (9¾ meters) in diam-



The Shoemaker Open Sky Planetarium in Chico, California, seats up to 60 people in concentric circles and is wheelchair accessible. *Left:* Docent Anita Berkow stands in the central pit where "star masters" conduct sky tours. Note the celestial symbols inlaid in the tops of the walls. *Below:* Visitors familiarize themselves with wireless handheld devices that will display images from a nearby telescope after dark.



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Above: Kiwanis Chico Community Observatory, seen with the future site of the Shoemaker Open Sky Planetarium in the foreground, features a roll-off-roof design. *Right:* The observatory houses twin Celestron 14-inch Schmidt-Cassegrain telescopes on Astro-Physics computerized mounts. The setup on the right is configured to broadcast digital video images to small displays held by visitors to the outdoor planetarium nearby.



eter — it resembles a crater with its raised rim — surrounding a central area where the docents (called “star masters”) conduct their stellar programs.

What makes this unique facility especially noteworthy is the interaction between the real sky and 21st-century information technology. Each participant gets a small, hand-held monitor that displays an image from a Celestron 14-inch telescope in the adjacent observatory. The scope is coupled to a Starizona HyperStar lens and Astrovid StellaCam II digital video camera, creating a fast f/2 imaging system that captures bright images of all the most popular deep-sky objects.

The monitors offer more than live feeds from the telescope. Preprogrammed graphics and animations can also be displayed, using software from Scala Broadcast Multimedia. Koenig, an Emmy-winning producer of astronomy films, scripts complete planetarium shows. These combine real-time views from the telescope with educational video clips that convey complex ideas such as stellar evolution and the expansion of the universe.

While the system currently requires coordination between two people — one operating the telescope and another directing the program — eventually the software will be configured to allow one docent to pace the program and control the telescope remotely using a simple infrared clicker.

Famed comet hunter Carolyn Spellman Shoemaker, widow of the great planetary scientist Eugene Shoemaker, hails from the Chico area. She was on hand to dedicate the Shoemaker Open Sky Planetarium last November 17th.

“I think this is a wonderful idea, and I am really honored,” said Shoemaker. “Gene would have been thrilled as well. This is a great way of getting people to appreciate the beauty of the night sky,

which is something that we both shared.”

Kiwanis Chico Community Observatory is located in Bidwell Park, a stunning natural setting at the interface between the northern Sacramento Valley and the canyons of volcanic mud and lava that abut the Sierra Nevada and Cascade mountain ranges. Chico, a bustling college town, is one of California’s most livable places, and the observatory consistently draws large crowds of individuals and families looking to strengthen their connection to science and nature.

“Bidwell Park has many wonderful trails, so we like to think of the observatory as just another of its trailheads,” says Koenig. “But this one leads to the universe.” *

Science writer DAVE SCHLON hosts the Northern California Natural History Museum’s “Blue Dot Report” on National Public Radio affiliate KCHO 91.7 FM in Chico.



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Observatory director Kris Koenig applauds comet hunter Carolyn Shoemaker, who grew up near Chico, at the dedication of the outdoor planetarium in her honor last November. Shoemaker is a research scientist at Lowell Observatory.