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Next Docent Meeting Monday, March 20

The next docent meeting will be held on Monday, March 20. The meeting will convene at 6:00 in the main conference room and will feature dinner and a speaker. Docents should visit the docent forum calendar to schedule their hours. Docents who do not have web access may contact Nick Petrosino. See the URL for the docent calendar at lower left.

Kitt Peak Docent Program

950 N Cherry Ave
Tucson, AZ 85719

Docent Forum: <http://groups.yahoo.com/group/docentforum/>

Docent Calendar: <http://groups.yahoo.com/group/docentforum/>

Volunteering at Kitt

Peak: <http://www.noao.edu/outreach/kpoutreach.html>

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Kitt Peak Docent Program

DOCENT NEWS

Number 101

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LOOK FOR NEW VISITOR CENTER OBSERVATORY TO OPEN SOON

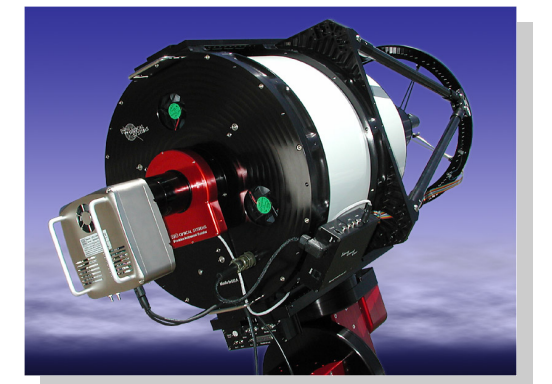
A brand new 16-inch Ritchey-Chretien telescope from RC Optical Systems is being installed in the new visitor center observatory, formerly the site of the Explosive Transient Camera operated by MIT. The 12-inch pier arrived last week and maintenance is handling the installation.

A number of things have to be taken into account before this telescope can be used for public viewing. The roll-off roof structure requires that a fail-safe be installed to prevent the roof from contacting the telescope when opening and closing. Careful measurements were taken to insure the proper height for the pier because even with the telescope laid on its side the roof does not miss it by much.

The pier will support a Paramount and the final assembly will look identical to the 20-inch RC in the main visitor center observa-

tory, only a bit smaller.

The goal is to have this facility in limited operation by March. This is months ahead of the original goal of next fall. Benches have been installed on the patio to the south of the structure for the comfort of NOP guests.



Carbon truss 16-inch f/8.4 Ritchey-Chretien

CEILING-MOUNTED PROJECTOR IN THE VISITOR CENTER

It is not obvious yet but installations has begun on a ceiling-mounted Panasonic projector for the visitor center. Its location is about eight feet from the screen used for the solar image, which will now also be used as a projection screen.

Until now the only way guest speakers for special programs could get their presentations on the screen was by hooking up to a portable projector that was balanced atop a couple of boxes set on the audio-visual cart and leveled with magazines. This is hardly a technologically inspiring arrangement and certainly not one befitting a visitor center at a national research facility.

Now, though, guest speakers will be able to attach a cable, running down from the ceiling behind the screen, to their computers, which may be placed on the AV cart at the

front of the room where they will be convenient, and have a bright display on the screen above them. No more will staff have to shuffle the guests around to make room for the projector and cart.

The Panasonic PT-LB20U LCD Multimedia Projector boasts a brightness of 2000 lumens, enough to outshine almost any ambient lighting in a sizable room. The projector will also be available to docents on days when the solar image cannot be displayed. A laptop computer is available in the NOP office and can be loaded with Powerpoint images with which docents may augment their introductions or entertain guests on days when tours are cancelled for weather.

Suggestions for such images are welcome. Docents having ideas may submit them to the docent coordinator.

Points of Interest:

- The docent meeting is scheduled for Monday, March 20, featuring dinner and a speaker.
- March 6: Asteroid 23187 (2000 PN9) near-Earth flyby at 0.020 AU.
- March 10: Mars Reconnaissance Orbiter, Mars orbit insertion.
- March 13: 225th anniversary (1781) of William Herschel's discovery of Uranus.
- March 15 to 18: Annual meeting of the International Dark-Sky Association.
- March 20: Vernal Equinox, 18:26 UT.
- March 25 to 26: All Arizona Messier Marathon, near Arizona City.
- March 29: Sun-Earth Day 2006.

For additional information about these points of interest, visit <http://www2.jpl.nasa.gov/calendar/>.

AMATEUR ASTRONOMERS MAKE FIRST SIGHTING OF "10TH PLANET" THROUGH EYEPIECE OF McDONALD OBSERVATORY TELESCOPE

A group of amateur astronomers has used the 2.1-meter (82-inch) Otto Struve Telescope at McDonald Observatory to make the first through-the-eyepiece sighting of so-called the tenth planet, an object orbiting the Sun in the Kuiper Belt, far beyond Pluto. The group included members of the St. Louis and Rockland Astronomical Societies, and a few others.

The object's official designation is 2003UB313. Its discoverers, led by Dr. Michael Brown of Caltech, have nicknamed it Xena. The actual discovery and confirmation of the object were made by mining images taken by sensitive electronic imagers mounted on a telescope, called CCDs (charge-coupled devices).

According to Louis Berman of the St. Louis Astronomical Society, Brown confirmed to the group of amateur astronomers before their attempt that, to his knowledge, they were the only people in the world attempting to see Xena through the eyepiece of a telescope.

In terms of brightness, Xena is what astronomers would call a 19th magnitude object. That means that it's about five million times dimmer than Polaris, the North Star, which is sometimes difficult to see with the unaided eye. Xena is just at the limit of what can be seen with the human eye through the Struve Telescope.

The sighting took place on October 9, 2005, at 1:08 a.m. CDT. The first sighting was made by Keith Murdock of the St. Louis Astronomical Society. Confirmation occurred at 1:15 a.m. when Louis Berman, also of the St. Louis group, located the object. Eight more members of the group saw Xena, in addition to two McDonald Observatory staffers, Kevin Mace and Frank Cianciolo. The observers followed a strict protocol and kept detailed records to verify their observations.

McDonald Observatory's Frank Cianciolo recalls the event: Since UB313 would not be high enough to observe until roughly 1:30 a.m. or so, the group planned to observe a number of other objects prior to the Xena attempt. The views of these other objects indicated that while we had reasonable conditions, we didn't have the excellent conditions the group had thought we may need to acquire UB313, so there was a bit of tension as the viewing window approached.

At the proper time, the guys from St. Louis worked with Kevin [Mace] to get the telescope pointed to the coordinates where they had calculated UB313 should be at that precise time. Fortunately, there were no bright stars in the field of view that would cause glare and possibly ruin any chance of seeing the object. Due to some confusion about sky orientation in the eyepiece, Keith [Murdock] spent several long minutes not recognizing the field he expected to see. Once that confusion was cleared up and a small correction to the telescopes point were made, however, it didn't take long for Keith to announce that he believed he could identify, conclusively, UB313.

After Keith's sighting, it took each observer several minutes

to properly understand the orientation of the field and then to hop from brighter stars to fainter stars and finally to see Xena. At the staggering distance of roughly 90 AU [that is, 90 times the Earth-Sun distance], an object the size of UB313 essentially displays no measurable size. Due to this, it was no easy task to actually identify the incredibly faint fuzzy dot as anything but a star at the very limit of visibility through the 82-inch [Struve Telescope].

The object, Berman says, was a very dim, point-like source that could only be seen through averted vision. If you looked straight at it, you'd never see it. McDonald Observatory's Mace agrees. It looked like a faint star, he said. A little difficult to pick out against the field stars. It's not visually stunning. However, Mace continued, how many people on the planet have seen this? Pretty much just our group.

Cianciolo credits the sighting with the group's early preparations. Had it not been for the excellent charts and CCD images which the St. Louis group spent weeks preparing, there would have been no way to conclusively identify UB313, Cianciolo said. It is a testament to the incredible skill and dedication some amateurs show to their passion of astronomy that the folks on the dome floor that night are, to anyone's knowledge, the only humans on the planet to have seen UB313 at an eyepiece. Truly this has to go down as extreme astronomy, he said.

These days, it is unusual for large telescopes at professional observatories to even have eyepieces. The astronomers at McDonald don't use the eyepieces for their observations -- images are recorded onto computers. But the eyepiece capability makes three of McDonald's research-grade telescopes accessible to the public a few nights each month. The Struve, as well as the 2.7-meter (107-inch) Harlan J. Smith Telescope, may be the largest telescopes in the world available for public observing sessions. McDonald's smaller 0.9-meter (36-inch) telescope is also used for special public viewing programs.

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March 2006

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Sheila, Punch	2 Jerry, Barbara	3 Don, Doug	4 Eugene, Ken
5 Jerry, Larry L.	6 Jim S., Bill	7 Joyce, Larry E.	8 Sheila, Punch	9 Jerry, Barbara, Bob	10 Don, Richard G., Doug	11 Jerry, Jim O.
12 Ken, Anna	13 Jim S., Bill	14 Jerry, Joyce	15 Sheila, Punch	16 Richard G., Eugene	17 Don, Doug	18 Ken, Jim O.
19 Jerry, Anna	20 Bill, Jim S. <i>Docent Meeting</i>	21 Joyce	22 Sheila, Punch	23 Jerry, Richard G.	24 Don, Doug	25 Jim O., Larry L.
26 Jerry	27 Bob <i>Project Exploration 100</i>	28 Joyce, Bill	29 Sheila, Punch	30 Eugene, Jerry		

RAZDOW ARRAY FINALLY MAKING PROGRESS

It has been well over a year since Meade proposed installing an array of Coronado refractors in the small dome that used to house the Razdow telescope. Little progress has been made in the interim, but that may change soon.

Two hydrogen-alpha refractors just arrived from Coronado Instruments. One telescope, a 60-mm, will have a camera attached to it to feed data to a web site where near real-time images will appear. The other telescope, a 90-mm, will be used for visual observing by visitors touring the McMath-Pierce facility. The dome already contains a 70-mm calcium-K refractor, given to the department previously by Coronado, that will also supply data to the web site.

In addition to the telescopes, public outreach will receive a dome automation package, which will synchronize the dome with the telescope and eliminate the need for staff to run repeatedly to the observatory to move the dome manually.

If all goes as planned, the images produced by the telescopes will eventually be displayed via computers in the visitor center as an addition to the solar display. Producing this addition would entail running cables in the visitor center for the monitor and mounting it where it could be seen but not touched. Computer cables have already been run to the Razdow dome.

The H and K Fraunhofer lines in the violet portion of the Sun's spectrum result from singly ionized calcium in the chromosphere. Because the wavelengths are near the limit of visibility, seeing the Sun in calcium-K can be difficult but obtaining an image of the Sun at that wavelength is not. The line that Fraunhofer labeled C is hydrogen-alpha, produced by ionized hydrogen in the Chromosphere. At a wavelength of 656.3 nanometers, hydrogen-alpha is easy to see and creates the reddish solar image familiar to many observers.