

The Objective View

Newsletter of the Northern Colorado Astronomical Society

December 2006

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Next Meeting: December 7 7:30 PM
Astronomy Equipment for Beginners
Nate Perkins
Discovery Science Center, Ft Collins

Meeting directions Discovery Science Center
703 East Prospect Rd, Fort Collins
<http://www.dcsm.org/index.html>

In Fort Collins, from the intersection of College Ave and Prospect Rd, head East about 1/2 mile. See the Discovery Center sign to the South. Enter the West Wing at the NE corner. From I-25, take Exit 268, West to Lemay Ave, continue West 1/2 mile, see Discovery Center on the left.

NCAS Programs

January 11	TBA, Elections
February 1	Richard Dietz Solar Eclipses
March 1	Dan Durda SWRI

NCAS Public Starwatch

November 24 6 pm Observatory Village

Other Events

Little Thompson Observatory Star Night
December 15 7:00 pm Jamie Riggs, DSES
<http://www.starkids.org>

CSU Madison Macdonald Observatory Public Nights
On East Drive, north of Pitkin Street
Tuesdays 8 pm if clear, when class is in session

Cheyenne Astronomical Society, Cheyenne Botanical Garden
Dec 15 Christmas Party, RSVP 635 5944
<http://home.bresnan.net/~curranm/wuts.html>

Chamberlin Observatory Open House, dusk to 10 pm
Dec 2, Dec 30, Jan 27, Feb 24, Mar 24, Apr 21, May 26
303 871 5172 <http://www.du.edu/~rstencel/Chamberlin/>

Longmont Astronomical Society
December 21 6 pm Fiske Planetarium, CU Boulder
<http://longmontastro.org/>

November 2 Program Ken Van Lew's "Transits"

A picturesque woodcut by William Nitschke in 1852 illustrates the setting Sun with Mercury in transit. It reflects the interest in transits at the time. They were valued as an opportunity to measure the scale of the Solar System. Transits retain their attraction to amateur imagers and astronomers. Dominique Dierick composited images at 15 minute intervals to trace Mercury's path across the Sun on May 7 2003 from Belgium. The November 8 transit is our next opportunity. The event takes about 5 hours. This one is not visible from Africa, Europe, and most of Asia. North America and South America can see at least part of it until sunset, and the whole event was potentially visible from the extreme Western US and most of the Pacific. Contact times of the disk of Mercury with the Sun are accurately predictable. The transit or passage of a planet across the disk of the Sun may be thought of as a special kind of eclipse. As seen from Earth, only transits of the inner planets Mercury and Venus are possible. Planetary transits are far more rare than eclipses of the Sun by the Moon. On the average, there are 13 transits of Mercury each century. In comparison, transits of Venus usually occur in pairs with eight years separating the two events. However, more than a century elapses between each transit pair. The first transit ever observed was of the planet Mercury in 1631 by the French astronomer Gassendi. A transit of Venus occurred just one month later but Gassendi's attempt to observe it failed because the transit was not visible from Europe. In 1639, Jerimiah Horrocks and William Crabtree became the first to witness a transit of Venus.

At the present time, all transits of Mercury fall within several days of May 08 and November 10. Since Mercury's orbit is inclined seven degrees to Earth's, it intersects the ecliptic at two points or nodes which cross the Sun each year on those dates. If Mercury passes through inferior conjunction at that time, a transit will occur. During November transits, Mercury is near perihelion and exhibits a disk only 10 arc-seconds in diameter. By comparison, the planet is near aphelion during May transits and appears 12 arc-seconds across. However, the probability of a May transit is smaller by a factor of almost two. Mercury's slower orbital motion at aphelion makes it less likely to cross the node during the critical period. November transits recur at intervals of 7, 13, or 33 years while May transits recur only over the latter two intervals. The following table lists all transits of Mercury from 1901 through 2050. For a more complete and detailed list, see [Seven Century Catalog of Mercury Transits: 1600 CE to 2300 CE](#). Larry Koehn simulated a lunar astronaut's view of a partial solar eclipse, showing the apparent size differential between Earth and Sun.

The Opportunity Rover has imaged transits of the Sun by Mars' moons Phobos and Deimos. Deimos is smaller and farther away. Duration is 50 to 60 seconds. Phobos crosses in 20 to 30 seconds and covers at most half of the Sun's disk. The transits are used to refine the moon's orbits. Transits of Venus are typically twice in a lifetime events. They were first predicted by Edmund Halley, observed by Captain Cook. They gave the first means to measure the size of the Solar

System. They continue to fascinate and amaze observers. Ken's favorite image by Duane Clausen shows the transit at sunrise from Michigan at the Menominee Lighthouse Pier. Tomas Maruska used a prediction by Thomas Fly to image the International Space Station and Venus against the Sun. The ground track for the event fortuitously went through the yard of Tomas' uncle. Another rare transit was imaged by HST on July 26, 2006. It captured the transit of Uranus by its moon Ariel. Opportunities to image this occur every 42 years, because Uranus has a greater than 90 degree inclination of its spin axis. Ken wishes clear skies to all transit watchers this month!

Observing Site for Travelers South, by Dan Laszlo

Since Dan LaFaive broached the question about observing sites to our South, I have been reviewing some possibilities. Here are some criteria: better atmospheric seeing than our Front Range sites, within a day's drive, no lights, accessible at least in part for Gary G's motorhome. I expect less wind and fewer clouds in the winter on the plains. Some amenities for family within an hour or two would be a plus. I was generally looking for a match to the Pawnee National Grassland/Crow Valley Campground sites we enjoy. A site allowing dispersed camping on an undeveloped site was my preference. An unobstructed South horizon is desirable. I was surprised on a recent trip to notice the Kiowa National Grassland east of Wagon Mound. The website offers views of wildlife and wildflowers similar to the Pawnee site. After 2 trips to the site, that it remains promising. I awoke one morning to readily trace the Zodiacal Band and saw the Gegenschein. The Zodiacal Light formed a triangle in Leo that matched brightness of the Winter Milky Way. Sirius was annoyingly bright. Seeing was not too stable that day. The site is just within the maximum darkness contour of the Bortle Sky Darkness plot, (reached via link from the Clear Sky Clock site). It is indeed possible to set up where no yard lights are visible. No light domes on a transparent night, with a few clouds you could tell there were small towns in the direction of Springer, Wagon Mound, and Roy. In October, I only heard 5 other vehicles on a weekend, most were entering or leaving the Mills Canyon site. I picked a spot with a little wind cover. From the entrance at Mestino Canyon Rd, a 4 mile ride reaches the campsites in the canyon. The last 2 miles are not recommended for trailers or motorhomes. It is a nice little walk or mountain bike trek. There is a large turnaround at the canyon rim. The canyon of the Canadian River is home to fish, a Golden Eagle nest, a bear, and Mountain Lions. Pronghorn are plentiful. The Campground has fixed picnic tables. In spite of dire signs about road condition, I saw a new Honda Civic at the campground that made it with judicious driving. Deep ruts and potholes in rare places were the hazard. The region is reminiscent of the Pawnee National Grassland, with fewer people. There are pit facilities at the campsite, no water available. Day trips to Las Vegas NM, Taos, even Santa Fe would not be too difficult.

The site is can be reached by taking I-25 south of Raton to Springer NM. A fuel stop in Raton should allow you to make

a trip out and back plus a cushion. Go east about 19 miles on US 56/412, then south about 16 miles on County Rd 39. This is about 10 miles north of Roy NM Go west on Mills Canyon Rd. Approach the site on this graded gravel road for 6 miles. Just past the corner with Mestino Rd, look southwest for a two track with a sign for the Wood Cutting Area. I set up by a small line of trees about 0.3 miles up the two-track.

Are there negatives? Wind has little to stop it above the canyon rim. I did pick goathead thorns out of my shoes in the canyon, so bikers beware. There are a variety of adherent seeds in the fields. The river needs tamarisk remediation. Not so many cactus, most are prickly pear or cholla and pretty obvious. Aside from the large toothy animals, expect rattlesnakes, and mosquitos in season. Wandering in the dark is not recommended. The soil is light and dusty so a groundcloth for tent and equipment will save cleaning later. The quiet in mid October was amazing, no drone of traffic, only a couple airplanes. The Ranger said, expect some ATV traffic, they are supposed to be restricted/licensed I believe. "Improvements" are likely in the near future, in the mean time it's a great site. Tread softly!

Google Map of site:

<http://maps.google.com/maps?q=Mills,+NM&ie=UTF8&z=15&ll=36.067001,-104.342179&spn=0.020953,0.044718&t=h&om=1>

NCAS Business, November 2 2006

Club President Greg Halac called the meeting to order. He invited members to begin thinking about new officers for December's nominations. Next starwatch for Observatory Village is November 24. Mercury transit is November 8 starting shortly after noon. Club members are invited to Kruse Elementary. Members ideas for programs include a talk on eyepiece designs. Treasurer Dave Chamness notes \$490 in our club account.

Sighting the CALIPSO satellite laser

Laser light from CALIPSO was observed the morning of 3 November from a location a few meters west of the predicted sub-satellite ground track.

10 to 15 green spots were seen passing quickly along the edge of some high, thin, cirrostratus clouds brightly lit by the nearly full moon. The spot line covered an arc of about 40 degrees in length running NNE to SSW and seemed to be east of the observing location.

The green color made the spots easy to see but they did not appear much brighter than the moonlit cloud. Nice but not spectacular.

Gregg Hendry
kt.mag@att.net

2007 Texas Star Party - Sign up Now!

The great tradition of dark sky observing continues with the 29th Annual TEXAS STAR PARTY, May 13 - 20, 2007! TSP WILL NOT BE MAILING A FLYER this year, so keep this e-mail or print it out!

Note: If you have already filled out the TSP form and received a reply email with your choices, then there is no need to submit another form.

1. You should submit a Registration/Reservation Request Form to ENTER THE TSP DRAWING before January 20, 2007. This will provide you the highest possible chance of being selected as one of the 700 people who will be able to attend TSP this year.

<http://www.texasstarparty.org/draw.html>

or fill out the Request Form immediately at:

<http://www.alphadata.net/cgi-bin/forms/forms.cgi?form=3>

READ THE REST OF THIS E-MAIL BEFORE SUBMITTING YOUR REQUEST.

2. Participants at the TEXAS STAR PARTY can select from a variety of accommodations on the Prude Ranch, including bunkhouses, private cabins, trailer hookups, and campsites with convenient bathhouses. All accommodations include access to a TV lounge, a western-style dining room, and an indoor swimming pool. And of course the convenience of the observing fields!

For rates and more information on ranch and nearby accommodations please visit:

<http://www.texasstarparty.org/travel.html>

3. The TSP Registration Fee (DOES NOT INCLUDE your accommodations) is \$50/person if you pre-register before April 7, 2007. (Each additional family member is just \$30 more.) For more information about TSP Registration rates and policies, visit:

<http://www.texasstarparty.org/tspreg.html>

The drawing for names is in late January, and if your name is drawn you will get a link to a TSP Registration Form (and optional Prude Ranch Reservation Form) to send in with your payments in February/March.

SIGN UP NOW!

Questions? Visit our web site for the latest and complete details!

<http://www.texasstarparty.org/> or email tsprooms@texasstarparty.org

We look forward to seeing you next May!

Sincerely,
the volunteers for Texas Star Party

Best Looks

Moon By Saturn 12/9 eve/ am 12/10
By Jupiter and Mars 12/18; by Venus 12/21
Mercury Trio with Mars and Jupiter second week of Dec
Venus Low in WSW at dusk
Mars Difficult in SE at sunrise
Jupiter Low in SW at sunrise
Saturn High after middle of night
Uranus In Aquarius early eves
Neptune In Capricornus early eves

Geminid Meteor Maximum Dec 12-13 and 13-14

Favorable views are before moonrise about 0100 MST

From:
Daniel Laszlo
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TO:

Check times when STS mission is underway

Date	Mag	Starts		Max. Altitude			Ends		Alt.	Az.
		Time	Alt.	Az.	Time	Alt.	Az.	Time		
05 Dec	0.5	05:15:05	35	NE	05:15:05	35	NE	05:17:24	10	ESE
06 Dec	-1.0	05:34:50	69	WSW	05:34:54	71	SW	05:37:49	10	SE
07 Dec	0.8	05:54:37	21	WSW	05:55:01	21	SW	05:57:18	10	S
08 Dec	2.6	04:43:13	11	SE	04:43:13	11	SE	04:43:18	10	SE
15 Dec	1.7	18:36:09	10	SSW	18:36:55	16	SSW	18:36:55	16	SSW
16 Dec	1.6	17:23:26	10	SE	17:24:02	10	SE	17:24:38	10	ESE
16 Dec	2.3	18:55:48	10	WSW	18:56:24	15	WSW	18:56:24	15	WSW
17 Dec	0.1	17:41:03	10	SSW	17:43:34	31	SE	17:44:34	24	E
18 Dec	-0.9	18:00:28	10	WSW	18:03:17	74	NNW	18:03:49	51	NNE
19 Dec	0.7	18:20:37	10	W	18:22:58	27	NNW	18:22:58	27	NNW
20 Dec	-1.0	17:05:02	10	SW	17:07:50	87	NNE	17:10:37	10	NE
20 Dec	2.0	18:41:18	10	WNW	18:42:02	13	NW	18:42:02	13	NW
21 Dec	0.4	17:25:00	10	W	17:27:32	31	NNW	17:29:49	12	NE
22 Dec	1.4	17:45:31	10	WNW	17:47:23	16	NNW	17:48:44	13	NNE
23 Dec	1.8	18:06:34	10	NNW	18:07:22	11	NNW	18:07:34	11	N



Google Map of Mills Canyon Rd at Mestino Road, NW of Roy, NM