

The Objective View November 2000
Newsletter of the Northern Colorado Astronomical Society

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Meetings first Thursday of each Month

Next Meeting: Show and Tell

November 2 7:30 PM
Members, bring tales, images, equipment to show
Discovery Center Science Museum
703 E Prospect Rd Fort Collins
Club business will precede the program at 7PM

November 2 NCAS Meeting Directions

Discovery Center
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 its NE
corner. From I-25, take Exit 268, West to Lemay Ave,
continue West 1/2 mile, see Discovery Center on the left.

Starwatch at at Discovery Center

Scopes are appreciated at monthly evening starwatches. Set
up in the South parking lot on the Friday nights near 1st
quarter Moon. Contact Dan Laszlo if you can come, 498-
9226, djlaszlo@aol.com. Weather cancellations will be
posted at 472-3990. Events to come:

November 3	Dusk
January 12	7 PM
February 2	7 PM
March 2	7 PM
March 30	7 PM
April 27	8 PM
May 25	8:30 PM

NCAS Star Party Dates, November 17, 18, 24, 25

Cactus Flats site is on undeveloped parcel of prairie about 6
miles west of Briggsdale. Take Colo Highway 14 East from I-
25 (Exit 269). From there about 19 miles east to Ault.
Continue 18 miles East of Ault, at County Rd 65 (milepost
170), turn North, go one mile. Site is through the gate on the
right (no road), close gate and set up. Beware of the cactus!
Our standard nights are the weekend of the New Moon,
sometimes a weekend before and after. If the weather is bad
on a Friday night we will try the following night. The site is

now offically wheelchair accessible, but there are no facilities
so bring essentials. Call Tom Teters, tom@ezlink.com, with
questions about the star party status, site or dates, 482-5702
or 482-0807.

Virginia Dale

This is a brand new (Sept 2,2K) star party site just south of
the Wyoming border on Hwy 287. It appears that this should
be a site darker than Pawnee, but not as good as Fox Park,
limiting mag. about 6.81, it's 40 miles from the hospital in Ft.
Collins and about 18 miles from Laramie at about 7560'
elevation. The owner is also entertaining our idea of having
an invitational star party there next
June new moon. Any thoughts members? Write to Tom
Teters. There is more information about this site in the star
party notes page, NCAS webpage.

Other Events

Little Thompson Observatory Star Night, Berthoud 7 p.m.
Space Sciences Initiative, by Denver Museum staff
November 17 <http://www.starkids.org>

Denver Museum of Nature and Science 303 322 7009
<http://www.dmns.org/space/current.htm>
Solar telescopes on West Patio
November 11 11 AM to 3 PM

Cheyenne Astronomical Society Mayan Astronomy
November 17 7 pm Cheyenne Botanic Gardens

Open House, Chamberlain Observatory, dusk
November 4 303 871 3222

Longmont Astronomical Society Meetings 7PM
November 16 at Longmont Christian School 550 Coffman St

DAS Star Party at Deer Trail Site
November 25 For more info:
<http://www.denverastro.org>

October 5 Meeting: Radio Astronomy from Backyard to the National Radio Astronomy Observatory, by Rodney Howe

A basket of electronic junk turned out to be a homemade antenna and associated circuitry for Rodney's Extremely Low Frequency radio receiver. Instead of the tedium of wrapping a wire multiple times, a 50 meter wrap is easily made by plugging a SCSI 50 pin connector with an offset of one pin. It makes a great directional antenna. The receiver was tuned in the range of 10 kHz, and in that range the whole ionosphere sparkles with activity. A friend with a similar unit sets up away from interference in the desert, and can pick up the effects of discharges in tropical thunderstorms. A SID radio can be made for \$40 which will detect solar disturbances in the ionosphere. The radio feeds a digital voltmeter, which outputs an analog signal, which Rodney analyzes with a laptop computer. He put together a radio kit for the 20 MHz frequency, intended for listening to Jupiter. Unfortunately, the shortwave time signals from WWV have swamped his local observing efforts. Rodney is a member of the Society of American Radio Astronomers. He attended a July 17 2000 meeting in Green Bank, West Virginia. After a 5 hour trek southeast of Pittsburgh, he reached the home of the largest steerable radiotelescope in the world. He was able to view the design of Karl Jansky's pioneering 1931 radiotelescope, an antenna rotated on Model A Ford wheels. He could see a 9 meter parabolic dish which Grote Reber used to map the galaxy. Green Bank has a 40 foot dish open to the public. There is a 3 antenna array, and a 22 meter dish used by the Navy which is decommissioned. A 140 foot dish is used for work on deep space and galaxies. The newest instrument, which experienced first "light" in August, is 30 stories high. Its diameter approximately matches a football field, and there are 2000 computer-adjustable panels in the antenna. The 15 foot feedhorn was undergoing tests when Rodney was touring. There is a cryogenic amplifier adjacent to the antenna. After slides and a look at his own data collection, he took interested members away from the radio hum of the building to listen in on the ionosphere. For more information, see Rodney's Radioastronomy Bookmarks (dozens) at:

http://ncastro.org/ra_bookmarks.html

<http://www.nrao.edu/>

From the NRAO Website:

The 100-meter Green Bank Telescope

Construction has been completed on the world's largest fully steerable radio telescope at the National Radio Astronomy Observatory's site in Green Bank, Pocahontas County, West Virginia (79° 50' 23.40" W, 38° 25' 59.23" N).

The GBT achieved "first light" at 403 MHz on August 22, 2000 with observations of the radio galaxy 1140+223 and the pulsar B1133+16. The GBT was dedicated as the Robert C. Byrd Green Bank Telescope in a ceremony on August 25, 2000. Outfitting and commissioning of the GBT commence this autumn (2000).

The GBT is described as a 100-meter telescope, but the actual dimensions of the surface are 100 by 110 meters. The overall structure of the GBT is a wheel-and-track design that allows

the telescope to view the entire sky above 5 degrees elevation. The track, 64 m (210 ft) in diameter, is level to within a few thousandths of an inch in order to provide precise pointing of the structure while bearing 7300 metric tons (16,000,000 pounds) of moving weight.

The GBT is of an unusual design. Unlike conventional telescopes, which have a series of supports in the middle of the surface, the GBT's aperture is unblocked so that incoming radiation meets the surface directly. This increases the useful area of the telescope and eliminates reflection and diffraction that ordinarily complicate a telescope's pattern of response. To accommodate this, an off-axis feed arm cradles the dish, projecting upward at one edge, and the telescope surface is asymmetrical. It is actually a 100-by-110 meter section of a conventional, rotationally symmetric 208-meter figure, beginning four meters outward from the vertex of the hypothetical parent structure.

The GBT's lack of circular symmetry greatly increases the complexity of its design and construction. The GBT is also unusual in that the 2,004 panels that make up its surface are mounted at their corners on actuators, little motor-driven pistons, which will make it easier to adjust the surface shape. Such adjustment will be crucial to the high-frequency performance of the GBT in which an accurate surface figure must be maintained.

The GBT is being equipped with a novel laser-ranging system. Beams of light will be reflected within the structure and between the telescope and a series of ground stations surrounding the telescope in a broad ring. Monitoring of these beams will show the deformation of the figure under such stresses as gravity, wind and temperature differences, and will allow the telescope's motors, subreflector and surface panel actuators to compensate for any ill effects.

For those interested in Gamma Ray Bursts!

Forwarded from Rodney Howe:

Date: Wed, 25 Oct 2000 13:53:17 -0400 (EDT)

From: Aaron Price <aaronp@shore.net>

To: SARA <sara@bambi-a.bambi.net>

Subject: GRB001007, Radio observations (fwd)

The following is a GCN Circular circulated via the AAVSO network. For an archive and more information on circulars visit:

http://lheawww.gsfc.nasa.gov/docs/gamcosray/legr/bacodine/gcn3_archive.html

TITLE: GCN GRB OBSERVATION REPORT

NUMBER: 860

SUBJECT: GRB001007, Radio observations

DATE: 00/10/25 17:35:42 GMT

FROM: Edo Berger at Caltech <ejb@astro.caltech.edu>

D. A. Frail (NRAO) and E. Berger (Caltech) report on behalf of a

larger collaboration: "We used the VLA to observe a field centered at the position of the optical object identified by Price, Axelrod and Schmidt (GCN #843) in the IPN error

box of GRB 001007 (GCN #841). Our images, taken on 2000 October 14.28 UT and October 21.43 UT, show an unresolved radio source coincident with the optical source. We measure 8.46 GHz flux densities on these two days of 222 +/- 33 uJy and 101 +/- 28 uJy, respectively. The optical (GCN #843, #845) and radio properties of this object make it a strong candidate for an afterglow. Further observations are planned."

Tom Teters on the Virginia Dale observing site:

Greetings All,

Well for once I beat out the weather and got a night of star gazing. With a potential storm coming in for this weekend. V. Dale Star party site is 7560' elevation, a 1K feet west of Hwy 287, and about 40 feet south of the Wyoming border. It was cool (45°F), air was calm and slightly hazy, stayed clear until 1:40 and I was setup at 7pm. Is it dark there? I could see the rift in the Milky Way at Zenith at 7:30. quite early I thought. I started shooting wide angle twilight shots (50mm@f/4) about 7:10. Venus in Scorpius, Sagittarius & the M. W. There were quite a few jets in that area at that time.

After that it was dark enough to do 10 min. exposures. I experimented with tracking but not guiding on U. Minor. I'll find out tomorrow if it streaked. Then took the Milky Way from Sag. to Delphinus, Lyra to Hercules, all of Cygnus, I think I got the Veil Nebula. Around 9:20 being quite dark, calm and clear, I started 10 min. exposures w/ a 200mm lens @ f/4. This will give about 7*x5*, (~6 power) but the tracking is quite a bit more demanding. So I tried a new way of guiding and it should allow me more accuracy. I started this on the Veil nebula, then the constellation of Lyra. Was it dark? Visually I could see the 14.8 mag galaxy (IC1296) next to the Ring Nebula, then BOOM, clouds came in, so I warmed up for an hour and voila', it was clear again.

Around then I got the coyote serenade, they couldn't have been more than 200 yards away and then STOPPED immediately. Haunting!! I was in the area so I checked out NGC6543 in Draco, The Cat's Eye PN, quite distinct, easy to find with the guide stars that were visible, then back to the 200mm work, I got the North American Nebula in Cygnus and the dew started to roll in. With the clouds moving in from the west I turned my attention to the rising planets and Orion.

After getting the Hyades & Jupiter, I concentrated on Orions' Belt and Sword, hopefully the Nebula will show up well. At 1:41 the murk reached Orion and I shut down the camera. 15 minutes later the whole sky was cloudy and I snuggled into my warm van and got a few hours of shut eye before packing it up and drivin' down the mountain. All in all a very successful foto session if not the longest. I hope to post a couple of good shots next week at <http://ezlink.com/~tjteters/sag.html> with the

rest of my astro-fotos'.

It Only Takes One
Ask Any Dinosaur,
Tom T

Scope For Sale

For Sale: Celestron 8 inch telescope. Scope, wedge, tripod and digital setting circles, f/8 focal ratio, plus Telrad, solar filter and storage locker, all in excellent condition. Recently laser collimated.. Asking \$795 or best offer. Call Patrick Earhart (970) 898-1057 days, (970) 204-9009 evenings.

Magazine Renewals

Members are entitled to discounts on Sky and Telescope, and Astronomy Magazine. Member rates are \$29.95 for S&T. Rate is \$29 for Astronomy Magazine. Please write a check to the magazine(s) of your choice, for the proper amount and forward to Dan Laszlo, 2001 S Shields St Building H, Fort Collins CO 80526.

Best Looks

Moon	By Saturn & Jupiter 11/11 to 12 by Mars 11/21 and 22 by Venus 11/29
Mercury	In E, dawn, midmonth
Venus	Low in WSW at dusk
Mars	Eastern Leo predawn
Jupiter & Saturn	In Taurus, rise in evening
Uranus & Neptune	In Capricornus, eves

Leonid meteors: November 17 Moon will interfere with peak

AstroAlerts from Sky & Telescope

To subscribe to rapid E mail notification of events such as supernovae in neighboring galaxies, comets or good chances for viewing an aurora, see www.skypub.com/news/astroalert.html

Iridium Flares

Observers continue to report views of the flares, so the satellites are still maintaining attitude control. Here are a few opportunities, computed for the crossing of Lemay and Trilby in Fort Collins. Move a few miles East or West, and the brightness plummets.

Date	Time	Magnitude	Altitude	Azimuth
Nov 3	05:59:51	-6	18deg	73 deg (S)
Nov 4	06:42:52	-5	17deg	132 deg (SE)
Nov 5	05:00:31	-7	30deg	178 deg (S)
Nov 6	05:22:33	-5	11	63 (ENE)
Nov 7	06:15:49	-6	19	138 (SE)