

The Objective View            October 2001  
Newsletter of the Northern Colorado Astronomical Society

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Meetings first Thursday of each Month

**Next Meeting:**

**October 4            7:30 PM**

**Martian Geology, Signs of Water and the Possibility of Life  
by Bruce Jakosky, University of Colorado**

**Club business from 7-7:30 PM**

**Meeting Directions**

**Discovery Center Science Museum  
703 E Prospect Rd, Fort Collins**

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.

**NCAS Public Starwatch at Discovery Center**

Bring a scope or binoculars to share on Friday nights near First Quarter Moon. Set up in the South parking lot. Contact Dan Laszlo with questions: [djlaszlo@aol.com](mailto:djlaszlo@aol.com) 498-9226

October 26            6:30PM

**NCAS Starparties on the Pawnee Grasslands**

Join NCAS members and other local amateur astronomers at Cactus Flats, about 6 miles West of Briggsdale. Take Colorado Hwy 14 past Ault to milepost 170, turn North on County Rd 65. At 1 mile North, go right and pass through the wire gate, and set up on the prairie. No facilities. Please try to arrive before dark, and keep lights down.

**Other Events**

Little Thompson Observatory Star Night, Berthoud  
October 19            7PM  
Dr. Laura Danly, DMNS, Developments in Space  
<http://www.starkids.org>

Cheyenne Astronomical Society  
October 19            7PM  
<http://users.sisna.com/mcurran>

Open House, Chamberlain Observatory, dusk to 10 PM  
<http://www.du.edu/~rstencil/Chamberlin/>  
October 20            303 871 5172

Longmont Astronomical Society    7PM  
<http://laps.fsl.noaa.gov/cgi/las.cgi>  
October 18            Longmont Christian School, 550 N  
Coffman St

**September 6 Meeting:**

**A Backyard Radio Telescope  
by Rodney Howe and Joseph DiVerdi**

Rodney made his annual pilgrimage to the Society of Amateur Radio Astronomers at Green Bank WV. His focus has changed, and instead of attempting to analyze low frequency signals, he is in pursuit of 1420 MHz radio waves. Launched with the gift of an 8 foot dish from Ted Cline, Rodney is trying to build a good radiometer. Step one is good temperature control. Temperature swings in a backyard setup can easily swamp the desired signal. For a test, a 50 ohm terminator is attached to the end of the input cable, and a plot of signal vs temperature is generated. At first Rodney had his feedhorn and low-noise amplifier at the focus of the dish with the 50 ohm terminator. He picked this

configuration to minimize cable runs, but the signal fluctuated 7 volts over a day due to daytime heating. He then buried an ice bucket in the ground and placed the LNA + converter in it. The baseline was much better. There was still a visible signal change with temperature fluctuations. Therefore, additional stable cooling of the LNA was needed. He can currently do a drift scan of the Sun, and gets one big peak. The data show lots of background EM radiation. He can see every microwave oven in the neighborhood switching on and off. Although the preferred method is cooling the LNA to suppress noise, he elected to build a thermostatic heater to maintain a constant 40C. Small nichrome wires were used to attain low thermal mass. He presented his preliminary results to the SARA group in West Bank, and was advised to place the LNA at the focal point of the dish, put his converter indoors in the basement, reduce the gain when observing the Sun, and design a way to get temperature control at the feedhorn. Joseph built a log-scale detector for the system. Rodney and Joseph are contemplating the problem of detecting a coronal mass ejection with the radio telescope. The reception beam of the dish is 15 degrees, so at the moment, the problem of confining the reception beam is a major hurdle. There are other interesting projects at 1.4 GHz, such as mapping atomic neutral hydrogen clouds. With a background in NMR instrumentation, Joseph brings considerable expertise to the project.

### Local Astronomy Internet Group

"Astro-Colorado" is a Yahoo Group moderated by NCAS member Dave Larison intended to serve popular astronomy interests in the region. The site can also be used as a supplement to the NCAS webpage for announcements, discussions, and file uploads. Anyone can view the page contents, but only list members may post.

See: <http://groups.yahoo.com/group/astro-colo>

### Software For Sale SkyMap Pro version 4. \$25

By Chris Marriot of the UK. Includes printed manual. Current version is Seven which goes for \$95 these days. Randy Moench, 7348 Poudre Canyon Hwy, Bellvue CO 970-491-8429

### Best Looks

Moon Harvest Moon Oct 2, by Saturn 10/6,7  
By Jupiter 10/9, by Mars 10/23  
Mercury Within 1 degree of Venus 10/26 to 11/5  
Venus 10/29 and 11/4 less than a half degree from Mercury  
Mars Bright all month in Sagittarius & Capricornus  
Jupiter & Saturn In E at dawn  
Uranus & Neptune Evenings in Capricornus

Orionid Meteors best after midnight, around Oct 20

Shower members are fast, sometimes bright, and over half leave persistent trains. They are associated with Comet Halley. The radiant is in the "Orion's Club" asterism.

### A Few Iridium Flares

Calculated for Lemay and Trilby, Ft Collins

Date	LocalTime	Mag	Alt	Azimuth
04 Oct	20:19:57	-8	47	130 (SE)
07 Oct	05:08:48	-4	41	207 (SSW)

### LEONID METEORS LIKELY TO STORM THIS NOVEMBER

From Sky & Telescope's Astro Alerts:

If predictions by the world's top meteor experts hold up, early on the morning of November 18th skywatchers in North America can expect to see their most dramatic meteor shower in 35 years. These meteors, called Leonids because they appear to radiate from the constellation Leo (the Lion), will signal the collision of Earth with streams of fast-moving dust particles shed by Comet Tempel-Tuttle.

In the November 2001 SKY & TELESCOPE . . .

meteorologist Joe Rao assesses the predictions provided by three teams of specialists. Rao concludes that two dramatic displays called "meteor storms" appear likely. A burst lasting perhaps two hours is expected in the predawn hours of November 18th for observers throughout most of North and Central America. The maximum rates should occur at 5:00 a.m. EST (corresponding to 4:00 a.m. CST, 3:00 a.m. MST, 2:00 a.m. PST). With no moonlight spoiling the view, the storm may briefly generate anywhere from several hundred to 1,000 or 2,000 meteors per hour for observers with clear, dark skies. An even bigger storm arrives 8 hours later for viewers rimming the far-western Pacific Ocean. Because these locations are on the other side of the International Date Line, this peak occurs before dawn on November 19th. Several thousand meteors may streak across the sky for an hour or so starting at 3:30 or 4:30 a.m. in eastern Australia (depending on location); 2:30 a.m. in Japan; and 1:30 a.m. in western Australia, the Philippines, and eastern China. Meteors create momentary "shooting stars" when flecks of interplanetary dust strike Earth's atmosphere at high speed. The Leonids, which are one

of a dozen or so annual meteor showers caused by cometary dust, arrive at a blistering 44 miles (71 kilometers) per second -- the fastest known. Typically showers produce one meteor every few minutes, though often there are bursts and lulls. Two years ago the Leonids briefly peppered the skies over Europe and the Middle East with up to 2,500 meteors per hour. In

1966 lucky observers in the southwestern United States gaped in awe for 20 minutes as Leonid meteors fell at the rate of 40 per second! More about the prospects for a Leonid

storm appears in the November issue of SKY & TELESCOPE. SKY & TELESCOPE will issue another press release closer to the date of the Leonid meteor shower containing background information about meteors and how to observe them. More information is already available on the magazine's Web site at:

<http://www.skypub.com/sights/meteors/meteors.html>

From:  
Dan Laszlo  
2001 S Shields St Building H  
Fort Collins CO 80525

TO:

International Space Station Passes for Loveland/Fort Collins October 2001

Date Mag	Starts			Max Altitude			Ends		
	Time	Alt	Az.	Time	Alt	Az.	Time	Alt	Az.
01 Oct 1.7	20:05:07	10	S	20:05:49	14	S	20:05:49	14	S
02 Oct 1.7	20:41:44	10	SW	20:42:54	20	SW	20:42:54	20	SW
03 Oct -0.0	19:43:28	10	SSW	19:46:25	37	SE	19:47:20	29	E
04 Oct 0.1	20:20:37	10	WSW	20:23:42	50	NNW	20:23:47	49	NNW
05 Oct -0.7	19:21:45	10	SW	19:24:54	72	SE	19:27:40	13	ENE
05 Oct 2.4	20:58:48	10	WNW	20:59:55	16	NW	20:59:55	16	NW
06 Oct 1.0	19:59:13	10	W	20:02:05	31	NNW	20:03:34	20	NNE
07 Oct -0.2	18:59:50	10	WSW	19:02:57	61	NNW	19:06:05	10	NE
07 Oct 2.1	20:37:29	10	NW	20:39:14	15	NNW	20:39:14	15	NNW
08 Oct 1.5	19:37:30	10	WNW	19:40:02	22	NNW	19:42:29	10	NNE
09 Oct 2.2	20:15:44	10	NW	20:17:16	13	N	20:17:46	13	N
10 Oct 1.8	19:15:25	10	WNW	19:17:33	17	NNW	19:19:42	10	NNE
11 Oct 2.2	19:53:27	10	NNW	19:54:37	12	N	19:55:39	10	NNE
12 Oct 2.0	18:52:55	10	NW	18:54:37	14	NNW	18:56:21	10	NNE
12 Oct 2.5	20:30:19	10	NNW	20:30:28	10	NNW	20:30:28	10	NNW
13 Oct 2.1	19:30:30	10	NNW	19:31:30	11	N	19:32:31	10	NNE
14 Oct 2.0	20:06:33	10	NNW	20:07:35	13	N	20:07:35	13	N
15 Oct 2.0	19:06:45	10	NNW	19:07:54	11	N	19:09:03	10	NNE
15 Oct 2.7	20:42:02	10	NNW	20:42:04	10	NNW	20:42:04	10	NNW
16 Oct 1.5	19:42:14	10	NNW	19:44:19	16	NNE	19:44:19	16	NNE
17 Oct 1.8	18:42:20	10	NNW	18:43:48	13	N	18:45:16	10	NE
17 Oct 1.8	20:17:31	10	NW	20:18:39	19	NNW	20:18:39	19	NNW
18 Oct 1.0	19:17:27	10	NNW	19:19:55	21	NNE	19:20:48	18	NE
19 Oct 0.0	19:52:33	10	NW	19:55:03	46	N	19:55:03	46	N
20 Oct 0.5	18:52:13	10	NW	18:54:57	28	NNE	18:57:09	14	E
20 Oct 2.1	20:28:02	10	WNW	20:29:18	20	W	20:29:18	20	W
21 Oct -0.7	19:27:12	10	NW	19:30:18	87	SW	19:31:26	36	SE
22 Oct 1.8	20:02:49	10	W	20:05:11	20	SW	20:05:47	19	SSW
23 Oct 0.2	19:01:27	10	WNW	19:04:27	49	SW	19:07:27	10	SE
24 Oct 2.7	19:37:39	10	WSW	19:38:58	12	SW	19:40:17	10	SSW
25 Oct 1.5	18:35:21	10	WNW	18:38:05	29	SW	18:40:48	10	SSE