The Objective View

December 2008

Newsletter of the Northern Colorado Astronomical Society

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Next Meeting: December 4 7:30 pm

Astronomer on a Mission: The UIT (UV Imaging Telescope), Rosetta, and LRO (Lunar Reconnaissance Orbiter)
Dr. Joel Parker

Club Business with Officer Nominations at 7:15 pm

Discovery Science Center
703 E Prospect Ave, Fort Collins

http://www.ncastro.org/Sites/DiscoveryCtr.htm

Club Brochure: http://www.ncastro.org/Contrib/2008_Brochure.pdf

NCAS Programs

Jan 8 TBA, Elections

Public Starwatch at Discovery Science Center, South Lot

Dec 5 6:30 pm
Jan 9 6:30 pm

Dark Site Observing Dates
Dec 26 Pawnee- RAC
Jan 23 Pawnee-RAC

Other Events

Little Thompson Observatory Star Night: Update on Earth's Moon, Dr Dan Laszlo
December 19 7:00 pm http://www.starkids.org

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

Cheyenne Astronomical Society Dec 19 7 pm
Cheyenne Botanic Garden. Members Christmas Party, RSVP please http://home.bresnan.net/~curranm/

Chamberlin Observatory Open House, 7 to 10 pm
Dec 6, Jan 3, Jan 31, Mar 7 303 871 5172
http://www.angelfire.com/space/frl5/
http://www.du.edu/~rstencel/Chamberlin/

Longmont Astronomical Society
http://www.longmontastro.org/

Northern Colorado Rocketry, by Joe Hinton and Art Hoag

A brief history of rocketry was provided by Joe, starting with Chinese rockets used in battle against the Mongols recorded in 1232 CE. The first multistage rocket is noted in the 14th Century. The Mongols introduced use of rockets to the Europeans and Arabs in their conquests. The French introduced tube launchers, and the Germans pursued staging. The US National Anthem commemorates the use of Brit William Congreive's rockets at Fort McHenry. Another Brit, William Hale, introduced a stickless rocket in 1846 which was spin stabilized. Konstantin Tsiolkovsky advocated liquid hydrogen and oxygen for fuel. Robert Goddard experimented with liquid fuel burned in a small combustion chamber and exhaust through a de Laval nozzle. His pioneering liquid fuel rocket reached 41 meters in 1926. German engineers were experimenting in the 1920s and formed the German Rocket Society. Members from their group ultimately led to production of the V-2 rocket. Extensive work in the 1930s occurred in Leningrad but was hampered by Stalin's purges. German rocket engineers were sought at the end of WW II and came to the US and USSR. Sputnik I went up in 1957 and aided the birth of NASA the next year. 1969 marked the success of Apollo moon landings. Skylab was followed by the Space Shuttle, Mir, and ISS. We suffered the loss of the Challenger and Columbia shuttles. ISS continues as a work in progress. Joe then introduced the current hobby rocketry groups. As noted on their website, the **Northern Colorado Rocketry Club** is the premier rocketry club in Colorado and also the home of the Rocky Mountain West's two finest regional launches - Mile Hi Mayhem and Oktoberfest. NCR encourages and provides support for hobby rocketry in all it's forms - from the smallest 1/2A powered model rockets up to birds powered by the largest experimental motors. NCR's two launch sites with 12,000'AGL and 20,000'AGL standing waivers are amongst the finest launch sites anywhere in the country. With a full range of pads and launch equipment, including hybrid ground support for all commercial hybrids, NCR's state of the art launch system can fly everything from the smallest 2 oz. model rocket up through rockets weighing several hundred pounds. With launches scheduled usually on the 1st Saturday of every month and two all-club meetings a year, NCR strives to make hobby and amateur rocketry a safe, enjoyable and educational hobby for all - from the kids to teens and all the way up through the big kids." Joe gave a rundown on rocket motor sizes and power. The motors rated A, B, C, and D can be flown almost anywhere, subject to city regulations. E, F and G motors are midpowered. Airports within 5 miles need to be notified and cleared airspace is needed. Above G, rockets are considered high-powered. The club record flight reached 30,500 feet. Oktoberfest had 500 flights in 3 days. Before 2001 the hobby had minimal regulation, but post 9/11 there is more preparation involved with the larger rockets.

Certification is needed to fly the H class and bigger motors. Basic motors have black powder mixed in a binder. Larger rockets use ammonium perchlorate, like the STS solid booster rockets. Homebrew propellants are possible. A few use liquid fuel. The National Association of Rocketry supports a wide range of experience levels and hardware. The Tripoli Rocketry Association focuses on high performance and some science research. The local club can arrange up to 32 launch sites on the Pawnee National Grasslands. Joe and Art brought the rocket "Giant Leap" which is a "big, dumb rocket" known for putting on a loud show. It reaches 8000 ft AGL. The larger rockets are made of phenolic, PVC, or fiberglass. Some use carbon fiber. High performance rockets can have sensors with telemetry, with an accelerometer or barometer. Recovery needs careful planning so the rocket does not drift a few miles downrange. Rocket velocity of 300 mph and acceleration of 30 to 40 G is not unusual, and speeds over Mach 1 are realistic, some to Mach 2. . A good part of the rocket's flight is coasting. The wind limit is 20 mph, and they prefer below 12 mph. They can't fly into clouds. Rockets should not generally have offset weight or angled fins. Missing rockets often turn up a month or two later. Art directed construction of a 20 foot, 12 inch diameter, 350 lb rocket. It used 3 type N motors and reached 12,000 feet. It was featured on Channel 4 News. It was a $12,000 project. The club's next launch is December 6 at their Atlas site, aiming for 9 am if weather permits.

For current information see: http://www.ncrocketry.org/
http://www.nar.org/
http://www.tripoli.org/

NCAS Club Business, November 6 2008

President Nate Perkins called the meeting to order. The meeting calendar was announced. Treasurer Bob Michael reports the treasury at $339.89. National Geographic Magazine addresses light pollution with its "End of Night" article and cover. Celestial Classifieds is a new trading website. A NASA 50th Anniversary Celebration is scheduled for the Fort Collins Lincoln Center Nov 9. Astronomy Magazine offers their calendar at $6.50 with subscription renewal, and the monthly magazine is $34 for 1 year, $60 for two.

Geminid Meteors Dec 13-14 but Moon Interferes

Best Looks

Moon By Venus and Jupiter 12/1
Pleiades occultation 12/10
by Saturn 12/18
by Jupiter + Mercury 12/28; by Venus 12/31
Mercury In SW dusk last week. By Jupiter 12/28
Venus In SW in evening. By Jupiter 1st week
Jupiter In SW in evening
Saturn High in S predawn. Rings 0.8 deg 12/26
Uranus In Aquarius, early evening
Neptune In Capricornus, early evening

International Space Station Passes for Loveland – Fort Collins December 2008

Date	Mag	Starts			Max. altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
2 Dec	0.5	18:25:05	10	NNW	18:25:26	12	NNW	18:25:26	12	NNW
3 Dec	0.0	17:17:07	10	NNW	17:18:34	13	NNE	17:19:53	10	NE
4 Dec	-0.8	17:43:27	10	NNW	17:45:50	22	NNE	17:46:03	22	NNE
5 Dec	-1.8	18:09:58	10	NW	18:12:21	47	N	18:12:21	47	N
6 Dec	-1.0	17:01:43	10	NNW	17:04:11	24	NNE	17:06:38	10	E
6 Dec	-0.4	18:36:51	10	WNW	18:38:53	31	WSW	18:38:53	31	WSW
7 Dec	-2.4	17:28:11	10	NW	17:31:06	65	NE	17:34:00	10	ESE
7 Dec	1.2	19:05:16	10	WSW	19:05:44	11	WSW	19:05:44	11	WSW
8 Dec	-0.5	17:55:04	10	WNW	17:57:44	32	SW	18:00:23	10	SSE
9 Dec	-2.4	16:46:16	10	NW	16:49:11	77	NE	16:52:06	10	ESE
10 Dec	0.1	17:13:11	10	WNW	17:15:43	27	SW	17:18:16	10	SSE
18 Dec	-0.3	06:24:49	10	SSW	06:27:28	32	SE	06:30:08	10	ENE
19 Dec	1.3	05:17:56	10	SSE	05:18:47	11	SE	05:19:38	10	ESE

19 Dec	-2.3	06:50:49	10	WSW	06:53:43	65	NW	06:56:37	10	NE
20 Dec	-0.9	05:42:39	15	SSW	05:44:47	37	SE	05:47:31	10	ENE
21 Dec	-2.3	06:09:14	21	WSW	06:10:58	57	NW	06:13:52	10	NE
22 Dec	0.4	05:03:44	19	ENE	05:03:44	19	ENE	05:04:45	10	ENE
22 Dec	-0.9	06:35:21	12	WNW	06:37:23	22	NNW	06:39:47	10	NNE
23 Dec	-0.5	05:29:32	24	NNE	05:29:32	24	NNE	05:30:58	10	NE
23 Dec	-0.1	07:02:29	10	NW	07:03:58	13	NNW	07:05:26	10	NNE
24 Dec	-0.5	05:55:06	19	N	05:55:06	19	N	05:56:46	10	NNE
25 Dec	0.0	06:20:29	12	NNW	06:20:59	12	NNW	06:22:22	10	NNE
29 Dec	0.3	06:30:01	10	N	06:30:57	11	N	06:31:52	10	NNE
30 Dec	-0.1	06:55:21	10	NNW	06:57:20	16	NNE	06:59:18	10	ENE
31 Dec	0.4	05:47:31	11	N	05:47:32	11	N	05:48:33	10	NNE

http://www.heavens-above.com/main.aspx?lat=40.4997&lng=-105.05736&loc=Fort+Collins+CO+USA&alt=0&tz=MST