

The Objective View

Newsletter of the Northern Colorado Astronomical Society

May 2006

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Longmont Astronomical Society

May 18 7 pm FRCC, 2121 Miller Rd

<http://longmontastro.org/>

April 6 Program

Mars Reconnaissance Orbiter HiRISE Imager

Jim Bergstrom, Ball Aerospace

The Mars Reconnaissance Orbiter was conceived for the 2005 launch opportunity. It is designed to conduct remote sensing science observation for one martian year. It will identify and characterize future landing sites. It will provide a UHF telecomm relay for spacecraft launched in 2007 and 2009. It will address atmospheric transport and dust storms, seasonal cycles, water sources and sinks, and ice cap structure. Visual imaging reveals structure and age; spectral imaging reveals composition and history. Moderately high resolution provides context, and very high resolution gives details. The mission timeline calls for launch August 2005, interplanetary cruise until March 2006, orbit insertion in March 2006, aerobraking from March to Oct 2006, and primary science and relay mission from Nov 2006 to Dec 2010. Aerobraking allows fuel to be saved until needed for the relay mission. Best resolution is 6 times better than previous missions. Images will be panchromatic, or color based on near IR, green and blue components. We will get hundreds of full resolution 20K by 40K pixel images. Color images run up to 4072 pixels wide. There will be thousands of smaller high resolution images. Hundreds of stereo pairs will support digital elevation models. The craft has 14 CCDs. Charge is moved off the array at a rate matching the spacecraft motion. There is too much data to beam it all to Earth. There are 2 Gbits of storage per CCD. The data would exceed the total from the Cassini mission in only 2 orbits. It only draws 60 watts. The structure is a graphite composite with very low thermal expansion to head off focus problems. The primary mirror is Zerodur substrate 50 cm diameter. The instrument only weighs 65 kg. The focal plane subsystem captures a 20K by 60K, 28 Gbit Mars image in 6 seconds. The system can resolve 1 meter scale objects. The pixel footprint is 25 to 32 cm, so the point-spread function is 3 pixels. Stereo imaging is achieved with observations on different orbit passes. The whole craft weighs 2180 kg. The high gain antenna churns out data as fast as the Deep Space Network can receive, 5 to 6 Mbits/sec. Cassini only uses 1 to 2 Kbps. The mission was the 5th launch of an Atlas V rocket. The 190 foot rocket is flanked by lightning protection towers. It went up on the 3rd day of the launch window, with a flame like a blue candle, little smoke. A focus test confirmed performance better than 0.046 RMS wavefront, adequate to resolve an ant on the Flatirons from the CU campus. Orbit insertion and aerobraking have come off without problems. Warm spots occur as expected over the high gain antenna and engine. Post orbit insertion imaging consisted of 4 images per orbit, for 2 orbits. Jim unrolled room-length prints of the initial images. They would take over 20 computer monitors to display at maximum resolution. The images showed varied Martian landscape, craters, dunes, boulder fields. The size and detail are unprecedented for a

Next Meeting: April 6, 7:30 PM

Show and Tell by NCAS Members

NCAS Business at 7:15 PM

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.

Discovery Science Center Starwatch

703 E Prospect Road, Fort Collins

May 5 8:30 pm

NCAS Programs, Discovery Science Center

June 1 Dr Bob Stencel and Aaron Reid, Intl Dark Sky Assoc

Rocky Mtn Natl Park Starwatch, Upper Beaver Meadows

June 16, 30; July 14, 28; Aug 4, 18

Other Events

Little Thompson Observatory Star Night

May 19 7:30 pm Henry Throop, Orion Nebula

<http://www.starkids.org>

CSU Madison Macdonald Observatory Public Nights

On East Drive, north of Pitkin Street

Tuesdays 7:30-8:30 pm if clear, when class is in session

Cheyenne Astronomical Society, Cheyenne Botanical Garden

May 19 7 pm

<http://home.bresnan.net/~curranm/>

Chamberlin Observatory Open House, dusk to 10 pm

May 6, Jun 3, Jul 1, Aug 5, Sep 30, Oct 28, Dec 2, Dec 30

303 871 5172 <http://www.du.edu/~rstencel/Chamberlin/>

planet mission. The dynamic range allows capture of sunlight and shadow detail. HiRISE is also meant as a camera for the people, so once a month a public image will be released. Targets for the camera will also be sought from the public this fall. The HiWEB site will allow submission of target requests. The Primary Science Orbit, 255 x 320 km, is to be met prior to solar conjunction, October 17 to 29. For orbiter stability at the highest resolutions, the solar array and MCS gimbals may be paused. The area of Mars covered at maximum resolution will comprise 1.5 to 3 percent of the surface. The camera can aim 30 degrees from nadir and coordinate with other instruments. No activities are planned after Dec 31, 2010 and MRO can boost to a 450 km quarantine orbit. In the meantime, Jim encourages us to get our target requests lined up.

NCAS Business

April 6 2006

President Greg Halac called the meeting to order. Public observing nights were announced at Discovery Science Center and Observatory Village. NCAS programs were announced. Dates for starwatching at Rocky Mountain National Park are June 16, 30; July 14 and 28; August 4 and 18. Steve Little brought his Sky Meter. It measures sky brightness and is available from www.unihedron.com for \$120. The treasurer's report by Dave Chamness shows \$843 in our account. Members may use the NCAS site for email and web space is available. Images are needed to illustrate the site. Greg Halac invites members who wish to participate in Astronomy Day in May.

Sterling Star Party from Gary G

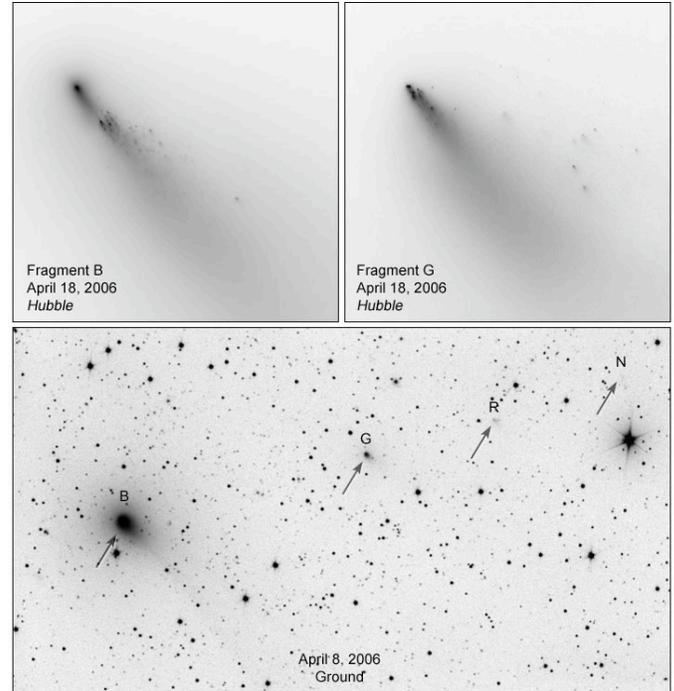
Hey gang, A few brave souls beared the cold and winds of North Sterling star party. Thursday was nice, warm, dry and clear, then by evening winds picked up and it rained most of the night long with sheets of rain coming down. My scope was under cover but got wet, luckily not the mirrors.

Friday, Vern, Brian, Leigh and myself ventured out to see where all the winds were coming from. Public Service has this huge windmill farm causing all the problems it seems. Whenever the wind mills were turning so were the winds blowing. They must have turned them off for Friday night because it was total clear skies and no winds all night long after a very long windy day. Friday night was one of those all night long clear skies viewing, so a long list of stellar wonders were seen. Saturday during the day the winds blew hard again but by evening they stopped blowing. I think it's pretty cosmic since Star party viewing for general public was scheduled for Saturday evening. We had quite a few people from town again with small children, parents, grandparents, whole families, good to see people still go out as families to events like these.

Sunday was beautiful morning to wake up to clear blue skies

Comet 73P/Schwassmann-Wachmann 3

HST • ACS/WFC



NASA, ESA, H. Weaver (JHU/APL), M. Jäger and G. Rhemann

STScI-PRC06-18

the way we like them in Colorado. Two out of three nights, not too bad I must say, well worth the drive there. some of the best home planet stellar views come from the dark places we visit. There was a about a dozen of us all together, few die hards from LAS, couple from Windsor, another couple from Loveland, two guys from Denver, with 10 inch Meade scope. Dave Cole from Sterlings Northeastern College and his family and students. Bob Loomis, State park Ranger came out for views and was a great host. We thank the park service for all the great years we have been doing these star parties, 8 years now, Wow! Pictures I got to share as always, I live for these kind of star party weekends. My wife Carol went along this time for a relaxing weekend under the stars. New LAS guy John F. got some 30 view treats in, long list of objects viewed again. We also found the comet, three pieces not four, still searching for other parts. I hope to get Brian K. to do a comet shot. Comet is a pretty good view even from the backyard here so check it out when you can. later, Gary

From Andrea Schweitzer

First images from Venus Express have just been posted at:

<http://sci.esa.int/science-e/www/object/index.cfm?fobjectid=39104>

From Jan Kok, Vega Discovery

Hi Dan,

This might be of some interest to the NCAS gang.

http://dsc.discovery.com/news/briefs/20060410/vega_spa_02.html

Date	Mag	Starts			Max. Altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
02 May	1.9	21:35:18	10	NNW	21:36:56	14	NNE	21:38:11	11	NE
03 May	2.3	20:24:04	10	N	20:24:18	10	N	20:24:32	10	NNE
03 May	1.0	21:57:44	10	NNW	22:00:05	25	NNE	22:00:05	25	NNE
04 May	1.8	20:46:02	10	NNW	20:47:38	14	NNE	20:49:16	10	NE
04 May	1.2	22:20:20	10	NW	22:21:58	29	NW	22:21:58	29	NW
05 May	0.9	21:08:23	10	NNW	21:10:50	24	NNE	21:12:29	15	ENE
05 May	2.2	22:43:20	10	WNW	22:43:51	14	WNW	22:43:51	14	WNW
06 May	-0.8	21:30:55	10	NW	21:33:51	64	NE	21:34:22	48	E
07 May	0.3	21:53:50	10	WNW	21:56:16	34	SW	21:56:16	34	SW
08 May	-0.7	20:41:22	10	NW	20:44:21	61	NE	20:46:49	12	ESE
08 May	2.2	22:18:10	10	WSW	22:18:11	10	WSW	22:18:11	10	WSW
09 May	0.3	21:04:12	10	WNW	21:06:53	35	SW	21:08:46	16	SSE
10 May	2.0	21:28:20	10	WSW	21:29:16	11	SW	21:30:12	10	SSW
12 May	2.1	20:38:22	10	WSW	20:39:28	12	SW	20:40:34	10	SSW

From:
Daniel Laszlo
2001 S Shields St Building H
Fort Collins CO 80526

TO:

Best Looks

Moon By Mars 5/1, 5/2; near Saturn 5/3, 5/4
by Jupiter 5/11, 5/12; by Venus 5/24
Mercury Low in WSW at dusk end of month
Venus Low in E predawn
Mars In W at dusk.
Jupiter In S at early am hours
Saturn High in evening. By Beehive cluster
Uranus In Aquarius predawn
Neptune In Capricornus predawn

