

The Objective View

Newsletter of the Northern Colorado Astronomical Society

March 2011

Robert Grover, President

pres@

Tom Teters, Vice President 970 482 5702

vp@

Dave Chamness, Secretary and AL Correspondent

sec@

970 482 1794

Dave Auter, Treasurer

treas@

Dan Laszlo, Newsletter Editor

objview@

office 970 498 9226

Greg Halac, Web Editor and Outreach Coordinator

outreach@

970 223 7210

append ncastro.org to complete email address

Next Meeting: February 3 7:30 pm

Kepler and MAVEN Mission Update

By Bill Possel, Director of Mission Operations and Data Systems, LASP

Club Business at 7:15 pm

**Fort Collins Museum, 200 Mathews St
Fort Collins CO**

http://nightsky.jpl.nasa.gov/club-view-directions.cfm?Adress_ID=2810

NCAS Programs

Apr 7 Vern Raben All Sky Cameras

May 5 TBA

NCAS Public Starwatch at Fossil Creek Reservoir

Mar 25 Fri 8 pm

Apr 23 Sat 8:30 pm

May 6 Fri 8:30 pm

http://www.co.larimer.co.us/naturalresources/fossil_creek.htm

City of Fort Collins Natural Area Program at Sunset

Bobcat Ridge: TBA

<http://www.fcgov.com/naturalareas/finder/bobcat>

Dark Site Observing Dates

Mar 4,5: Keota, or RMNP, ask FRAC newsgroup.

Other Events

Chamberlin Observatory Open House, 7 to 10 pm

Mar 12 Apr 9 May 14

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

Cheyenne Astronomical Society 7 pm Mar 18 TBA

Cheyenne Botanical Gardens

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

CSU Madison Macdonald Observatory Public Nights

On East Drive, north of Pitkin Street

Tuesdays after dusk if clear, when class is in session

Estes Park Memorial Observatory. 7 pm March 24

<http://www.angelsabove.org/>

Little Thompson Observatory, Berthoud 7 pm doors open;

7:30 program March 18. Jim Tolstrup, High Plains

Environmental Center: Lakota Native American and other

Ancient Astronomy Traditions . <http://www.starkids.org>

Longmont Astronomical Society 7 pm March 17. TBA

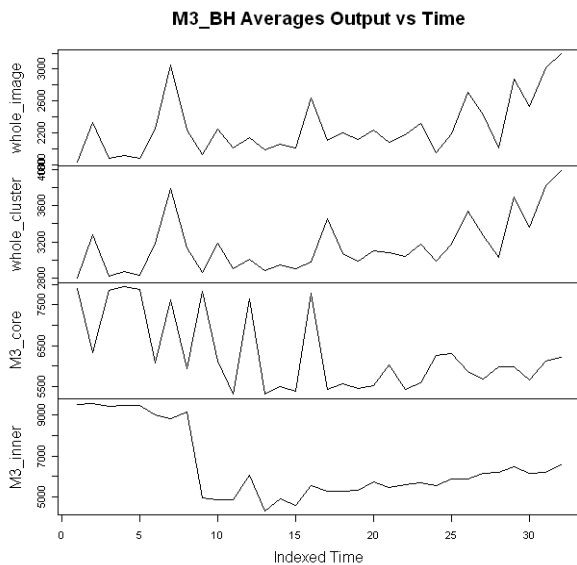
IHOP 2040 Ken Pratt Blvd <http://www.longmontastro.org/>

Can Amateur Astronomers Discriminate the Core of Dense Globular Clusters Like M3 and M15?

By Rodney Howe

The Milky Way is home to about 150 globular clusters distributed in a halo. Within a globular cluster, we know that stars in the crowded core experience a different gravitational environment from those on the periphery. Models of globular clusters are in development, and it would be useful to know from images which stars are peripheral and which are in the core. Relatively few images are available from HST and professional ground-based observatories. Rodney's collaborators have been performing serial imaging with amateur telescopes to characterize M3 and M15. Serial imaging by amateurs allows construction of light curves for some outer, individual stars. Ido Bareket imaged M3 over 3 nights and got 32 images. Oddly, these 20 isolated RR Lyrae stars appear to be synchronized in their periods. This was not expected, has no known mechanism, and needs more data to determine coincidence. They also desired to measure zones in clusters to see if the light curve for the center differed from zones farther out. The core is too dense for individual star images. The cluster was cut up and the period-luminosity ratio was measured. A different set of periods was obtained as the core was approached. The reason for this is not clear. They also wondered if pulsation of the cluster as a whole could be detected. A robotic telescope in Cloudcroft NM was used with a Sloan DSS filter set. 277 images were obtained

over 4 nights, and the filtered images were used to make magnitude comparisons. Star color plots over time were



From Imaging dense globular clusters like M3 and M15. Howe, Iakovos-Marios, Bareket, and Dimitrios. 2010.

made. They looked at period/luminosity plots. They made aggregate light curves for different filter magnitudes. They attempted to generate an index from the filter data that would explain the cluster core behavior, but need more data to define this phenomenon.

Rodney Howe's work in mapping animal disease models came after training in GIS and remote sensing. He has worked for the Western Area Power Authority. He has used homebuilt VLF receivers to monitor for solar ionospheric disturbances. He is now AAVSO's contact collecting sunspot number observations.

February 3 2011 NCAS Business

President Robert Grover called the meeting to order. Treasurer Dave Auter gave his report, club funds are \$600 in checking, \$400 in savings and \$200 in petty cash. He is still getting dues from members. The club had a request for an advertisement on our web page, for \$600 annually. Officers and members agreed this was not appropriate. Bob Michael offered contact info for the Lifelong Learning Institute, they are looking for an astronomer to do a series of talks over 6 weeks. Tim Antonsen outlined the request for community support proposals from the CEO of his young company. He is writing an application for funding. Tim would be happy to see a solar telescope funded so will make that the object of the grant. Dan Laszlo offered a companion motion, in light of the approaching solar maximum. It proposed that club funds plus a telescope-specific donations from members be used for a solar telescope. The anticipated cost was \$1300 to \$1700 for a Lunt 60mm model. Motion was seconded and approved.

NanoSail-D Mag +2 flare seen by Mike Hotka

Dan Laszlo was clouded out on Feb 24 UT for this pass: MST UT minus 7 h
23 Feb mag2.1 19:23:0510N 19:27:2346 ENE 19:27:2346 ENE

but another Colorado observer, Michael Hotka saw passes of NanoSail-D with a flare to mag +2. He is an experienced amateur and observed from Broomfield CO.

He reported:

On my second attempt to see this satellite, I too had success. Tonight's pass was well placed where the satellite passed by some bright stars I could find from my backyard. I sat on the brighter bowl star of the little dipper and waited. At the appointed time, the satellite passed thru the FOV of my mounted 20x80 binocs. When I first picked it up, it was maybe 4th magnitude and moving real fast. Must be in a lower Earth orbit. I followed it to the top of its path as predicted by Heavens-Above. In this region, it brightened twice, to about 2nd magnitude, for 3-4 seconds each time. At the appointed time and place in the sky, the satellite disappeared into the Earth's shadow. This was a very cool, very dim and fast moving satellite. I would recommend others see it also.

Did Mike see any flickering? ...The first flare was a bit brighter than the second. The first happened right near tail of Draco.

The second happened about 10-20 seconds later, near the bowl stars of the big dipper. It was noticeably not as bright as the first and a bit shorter in duration. The satellite did not appear to be tumbling though. It was constant brightness until it flared and returned to the previous brightness. I watched it until it disappeared into the shadow of the Earth.

I did not notice any fluctuations in brightness for most of the pass of the satellite. It was pretty constant. The first flare resembled an Iridium flare, but it seemed to have two stages of brightness. It brightened significantly, like an Iridium satellite does, held that brightness for a second or so and then brightened just a bit more for the last couple of seconds and then dimmed very quickly to the constant brightness of about 1/2 as bright (to what it was before it flared and what it was for most of the pass). The second flare was as bright as the first flare's initial brightening.

It did seem dimmer a few seconds before it entered the Earth's shadow though. This could have been due to thicker clouds overhead. I had a thin cloud deck in the north and was able to see Polaris, the two bowl stars of the little dipper, barely saw the tail star of Draco and just the main stars of the big dipper. Barely able to see 3rd magnitude stars with my unaided eye.

Hope this helps.

Mike My Homepage:

<http://skinny.jeans.tripod.com/astromy/>

Did you see ANY fluctuation in brightness? I thought I had some flickering the night before, but it was subtle and I did not mention it in my report. I was thinking maybe an artifact of passage into shadow. But I saw this today in the Spaceweather gallery from Peter Rosen:

=====

I photographed NanoSail-D from Stockholm, Sweden, on Feb. 4th. The sail was very low on the horizon, but I was able to catch it using my Canon EOS 5D digital camera. I estimate its magnitude between +6 and +7. There are many other satellites in the field of view and some airplanes coming in for landing at the local airport.

NanoSail-D behaves very differently from other satellites as its visibility seems to pulsate in short flashes sometimes several per second. This image zooms in on the phenomenon. I wonder if it due to small changes in the sail's direction and thus reflectivity?

Nanosail-D Photo Contest Images are starting to trickle in.

See: www.nanosail.org or www.spaceweather.com

For an experimental flare prediction website see:

Link for Simone Corbellini's online NanoSail Flare predictor:

You can see the Feb 26 event with at the following link:

<http://digilander.libero.it/SATrack/VisualSATFlareTrackerOnline.html?q=nanosail&lat=40.4999428&lon=-105.0573654&Chart=1&jd=2455620.59283&MapZoom=6>

(be sure the link is not broken when you copy and paste on your browser). Note the latitude, longitude, and Julian Day for start is coded in the URL.

... of course you can distribute it. Just keep in mind that the model is still experimental and I need more data to get confidence in it. This means the sail orientation can be completely different during a pass with respect that of the model, resulting in no flare at all. However, it seems to me that the sail is only fluctuating around the predicted orientation. If my intuition is right there is a good chance to see the satellite flaring, maybe at least to naked eye range. Let me know! (Each report will help me to improve the model). Simone

From Andrea Schweitzer: GLOBE at Night Campaign 2011

Something fun to participate in, especially if you are at a star party with kids and want to teach about light pollution.

Less of Our Light for More Star Light

Join the 6th worldwide GLOBE at Night 2011 campaign: Feb. 21 - March 6

What: The Globe at Night Campaign

When: 8pm to 10pm local time, February 21 - March 6, 2011

Where: Everywhere

Who: Everyone

How: See <http://www.globeatnight.org>

GLOBE at Night encourages citizen-scientists worldwide to record the brightness of the night sky. During 2 winter/spring weeks of moonless evenings, children and adults match the appearance of a constellation (Orion in February/March and Leo and Crux in March/April) with 7 star charts of progressively fainter stars found at www.globeatnight.org. They then submit their choice of star chart on-line with their date, time and location to help create a light pollution map worldwide.

The GLOBE at Night 2011 campaign dates are February 21 – March 6 (worldwide) and March 22 – April 4 (for the Northern Hemisphere) and March 24 – April 6 (for the Southern Hemisphere). 52,000 measurements have been contributed from more than 100 countries over the last 5 years of two-week campaigns, thanks to everyone who participated!

This year children and adults can submit their measurements in real time if they have a smart phone or tablet. To do this, you can use the web application at www.globeatnight.org/webapp/. With smart phones and tablets, the location, date and time are put in automatically. And if you do not have a smart phone or tablet, there are user-friendly tools on the GLOBE at Night report page to find latitude and longitude.

Through GLOBE at Night, students, teachers, parents and community members are amassing a data set from which they can explore the nature of light pollution locally and across the globe. Please make a difference and join our efforts in 2011. For activity packets, one- page flyers and postcards advertising the campaign, visit www.globeatnight.org/pdf/

20 Million Milestone for 100-Year Citizen Science Project

A program that you'll want to check out, if you aren't involved already:

<http://www.citizensky.org/>

Dr. Bob Stencel from DU is one of the main astronomers on this project, and I was a big supporter along with the International Year of Astronomy.

Text and photo-illustration:

<http://www.aavso.org/20-million-milestone-100-year-citizen-science-project>

20-MILLION MILESTONE FOR 100-YEAR CITIZEN SCIENCE PROJECT

A citizen science project running for over 100 years reached a

key milestone this month when an amateur astronomer contributed the 20 millionth observation of a variable star on February 19, 2011.

FEB. 23 NASA MISSION TO TOTE \$28 MILLION CU-BOULDER INSTRUMENT & TINY STUDENT SATELLITE

A \$28 million University of Colorado Boulder instrument developed to study changes in the Sun's brightness and its impact on Earth's climate is one of two primary payloads on NASA's Glory mission set to launch from Vandenberg Air Force Base in California on Feb. 23.

Designed and built by a team from CU-Boulder's Laboratory for Atmospheric and Space Physics (LASP), the instrument called the Total Irradiance Monitor, or TIM, will point directly toward the Sun to measure both short- and long-term fluctuations in the Sun's energy output as it reaches the top of Earth's atmosphere. Such measurements are important because variations in the Sun's radiation can influence long-term climate change on Earth, said LASP researcher Greg Kopp, principal investigator on the TIM.

The Taurus XL rocket ferrying the Glory satellite also will be carrying a tiny CU-Boulder satellite designed and built by about 100 students, primarily undergraduates, who are participating in the Colorado Space Grant Consortium. The CubeSat satellite will be ejected from the rocket at about 400 miles in altitude to orbit the Earth and study new space communications techniques.

From Gerry Reynolds: Aurora in UV Movie

From: [Andy Goris](#)

To: [Gerry Reynolds](#)

Sent: Sunday, February 20, 2011 7:29 PM

Subject:

http://earthobservatory.nasa.gov/images/imagerecords/6000/6226/aurora_img_2005254_lrg.mov

Check out this aurora movie. It takes a few seconds to download. It's a UV image of the Aurora, superimposed on a visible light model of the earth.

http://earthobservatory.nasa.gov/images/imagerecords/6000/6226/aurora_img_2005254_lrg.mov

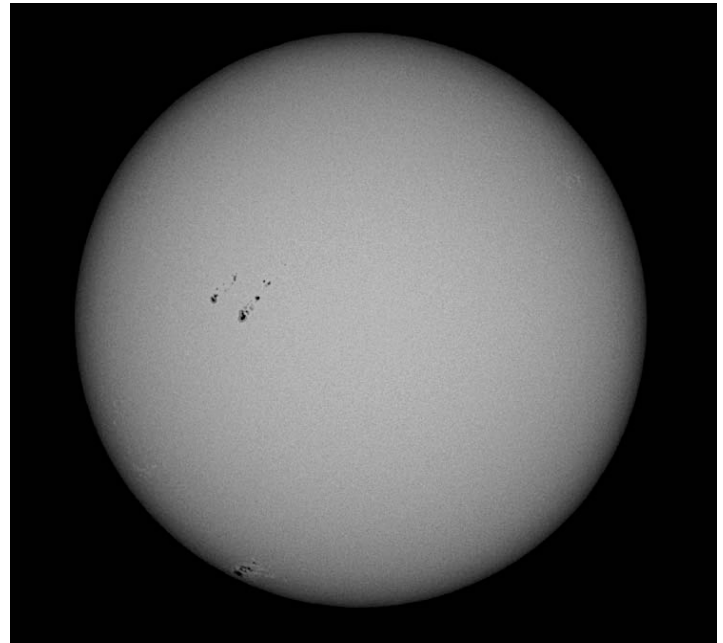
Space Station Visualization

Sent: Sunday, February 20, 2011 11:21 AM

Subject: Space Station FANTASTIC

[click here](#) Look at what happened from 1998 until 2008. In just ten years it has grown and grown. Watch the pieces come together as they are sent up from Earth. e.I had no idea the

Space Station had grown to this size. This is really cool....



Sun February 19 2011

A great morning of solar viewing at Dan Laszlo's today. Seeing stayed pretty steady until well after noon. The views of the sunspot activity and the prominences were stunning. This was my first experience trying to image the sun. Getting focus through the H-Alpha filter was trickier than I expected. While I got it close, the images came out just a little fuzzy. I can make out some of the prominences, but not quite good enough to share. I'll go through the images a little more thoroughly to see if it was really focus or if the seeing was the culprit. However, the shots through the Baader Herschel Wedge on Dan's TMB 175 f/8 refractor turned out much crisper. One is attached. Brian Kimball did some processing on the image I sent out earlier. Huge improvement! Thanks Brian!

Image Details: Canon XSi, ISO100, 1/2000sec, minimal processing with Canon DPP, compressed from RAW (CR2) to jpeg & cropped. Robert Grover

Best Looks

Moon	By Jupiter Mar 7, 8; By Saturn Mar 20; by Venus Mar 31
Mercury	In W last half of Mar; by Jupiter Mar 14, 15
Venus	Brilliant in predawn SE
Mars	Hidden in glare.
Jupiter	In SW at dusk
Saturn	In S middle of night

International Space Station Passes for Loveland – Fort Collins
 Recheck after March 3, a boost is planned.

March 2010

Date	Mag	Starts			Max. <u>Altitude</u>			Ends		
		Time	<u>Alt.</u>	<u>Az.</u>	Time	<u>Alt.</u>	<u>Az.</u>	Time	<u>Alt.</u>	<u>Az.</u>
01 Mar	-0.7	19:01:46	10	N	19:01:59	10	N	19:02:13	10	N
02 Mar	-1.0	19:27:10	10	NNW	19:28:16	13	N	19:28:16	13	N
03 Mar	-0.8	18:18:41	10	N	18:19:05	10	N	18:19:29	10	NNE
03 Mar	-0.8	19:52:49	10	NNW	19:53:31	14	NNW	19:53:31	14	NNW
04 Mar	-1.2	18:44:08	10	NNW	18:45:45	14	NNE	18:47:14	11	NE
04 Mar	-0.1	20:18:39	10	NW	20:18:48	11	NW	20:18:48	11	NW
05 Mar	-2.1	19:09:47	10	NNW	19:12:16	24	NNE	19:12:34	24	NE
06 Mar	-2.9	19:35:38	10	NW	19:37:58	49	NNW	19:37:58	49	NNW
07 Mar	-2.3	18:26:43	10	NNW	18:29:16	26	NNE	18:31:49	10	E
07 Mar	-1.2	20:01:56	10	WNW	20:03:27	23	W	20:03:27	23	W
08 Mar	-3.7	18:52:36	10	NW	18:55:32	76	NE	18:57:28	19	ESE
09 Mar	-1.8	19:18:57	10	WNW	19:21:32	28	SW	19:23:12	16	S
11 Mar	-1.4	18:35:57	10	WNW	18:38:26	25	SW	18:40:54	10	SSE
24 Mar	-0.6	06:09:51	10	SSE	06:11:30	14	SE	06:13:11	10	E
26 Mar	-0.9	05:26:28	11	S	05:28:12	16	SE	05:30:06	10	E
27 Mar	-3.2	05:51:52	17	SW	05:53:54	56	SSE	05:56:51	10	ENE
28 Mar	-0.9	04:45:33	17	ESE	04:45:33	17	ESE	04:46:57	10	E
28 Mar	-2.9	06:17:10	10	WSW	06:19:56	40	NNW	06:22:46	10	NE
29 Mar	-3.4	05:10:41	65	SE	05:10:41	65	SE	05:13:32	10	ENE
30 Mar	-2.7	05:35:44	28	WNW	05:36:36	36	NNW	05:39:24	10	NE
31 Mar	-0.8	04:29:07	20	ENE	04:29:07	20	ENE	04:30:12	10	ENE
31 Mar	-1.5	06:00:47	10	WNW	06:02:52	17	NNW	06:04:57	10	NNE

ISS predictions from:

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

Fort Collins – Loveland passes for NanoSail D, a 10 square meter surface. Mag was invisible to -2. So far, best views are in NW, N or E evening sky, not due W. Get new predictions from Simon Canelloni’s site for flares if possible.

Date	Mag	Starts			Max. <u>altitude</u>			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
1 Mar	2.0	18:12:08	10	NNW	18:16:29	53	ENE	18:20:51	10	SE
1 Mar	5.0	19:53:06	10	WNW	19:55:20	14	W	19:57:35	10	SW
2 Mar	2.3	18:33:14	10	NNW	18:37:39	68	WSW	18:42:04	10	SSE
3 Mar	4.0	18:54:44	10	NW	18:58:36	29	WSW	19:02:27	10	SSW
4 Mar	5.3	19:17:15	10	WNW	19:19:20	13	W	19:21:24	10	SW
5 Mar	2.5	17:57:06	10	NNW	18:01:31	64	WSW	18:05:57	10	S
6 Mar	4.4	18:18:30	10	NW	18:22:18	28	WSW	18:26:07	10	SSW
7 Mar	5.7	18:40:59	10	WNW	18:42:54	13	W	18:44:48	10	SW
9 Mar	5.7	05:54:43	10	SE	05:57:09	15	E	05:59:34	10	ENE

Predictions link:

<http://www.heavens-above.com/PassSummary.aspx?satid=90027&lat=40.585&lng=-105.084&loc=Fort+Collins&alt=1525&tz=MST>