The Objective View

February 2011

Newsletter of the Northern Colorado Astronomical Society

Robert Grover, President
pres@
Tom Teters, Vice President
vp@
Dave Chamness, Secretary and AL Correspondent
sec@ 970 482 1794
Dave Auter, Treasurer
treas@
Greg Halac, Web Editor and Outreach Coordinator
outreach@ 970 223 7210
Dan Laszlo, Newsletter Editor
objview@ office 970 498 9226
append ncastro.org to complete email addresses

Next Meeting: February 3 7:30 pm

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

By Rodney Howe

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

Mar 3	Bill Possel	Kepler and MAVEN Missions
Apr 7	Vern Raben	All Sky Cameras
May 5	TBA	

NCAS Public Starwatch at Fossil Creek Reservoir

Feb 11	7 pm
Mar 25	8 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

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

Other Events

Chamberlin Observatory Open House, 7 to 10 pm
Feb 12 Mar 12 Apr 9 May 14
303 871 5172 http://www.du.edu/~rstencel/Chamberlin/

Cheyenne Astronomical Society 7 pm Feb 25 Moon Phases with Oreos 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 Feb 24
http://www.angelsabove.org/

Little Thompson Observatory, Berthoud 7 pm doors open; 7:30 program Feb 18. Human Exploration of Asteroids, Josh Hopkins, Lockheed-Martin. http://www.starkids.org

Longmont Astronomical Society 7 pm Feb 17. Cassini Mission, Luke Dones, SWRI. IHOP 2040 Ken Pratt Blvd
http://www.longmontastro.org/

January 6 Program: Sky Surveys and Web Portals

By Tom Fay, Agilent Technologies

Tom's interest in internet resources has deepened as he realizes he is more of a day person, and really does not care to be outdoors freezing. The explosion of data on the web has fortunately been accompanied by new tools for access, and we are about to take another leap in quantity and quality. Users should get used to the alphabet soup we have already. The goals in sky surveys are fine, deep, wide, and fast. In 1945-1955, the standard was the Palomar Sky Survey by Schmidt Camera with glass plates. It imaged in red and blue to 2 arcsecond resolution.. DSS2 added Near IR, from 1984-99. The IRAS spacecraft in 1983 recorded IR at 2 minute resolution. 2MASS charted IR to 1 arcsed from 1997 to 2002. Sloan Digital Sky Survey started in 2003-08. It used g, r, I, z, and u bands, to 1 arcsec and magnitude 22. It made 1 pass for its coverage. Spacecraft GALEX surveyed UV to 5 arcsec in 2007. FIRST is a radio map at 20cm wavelength, 5 arcsec, from 1994-2009. We can look forward to CSS, Pan-STARRS and LSST which will include g, r, I, z. Pan-STARRS has 2 telescopes, 1.7 meter aperture, with detectors that have 1 billion pixels. Resolution is 0.3 arcsec and it will reach 29th magnitude by coadding. It will complete a pass every week of the sky north of Dec -30. Sloan Filters have peaks at u=3590; g = 4810; r = 6230; I = 6230; z = 9060. WISE is infrared to be released in 2011. Ideally surveys cover the whole sky. Spacecraft or multiple sites are needed. Tom provided these links for survey websites:

FIRST: http://sundog.stsci.edu/index.html
IRAS: http://irsa.ipac.caltech.edu/IRASdocs/iras.html
2MASS http://www.ipac.caltech.edu/2mass/
GALEX http://www.galex.caltech.edu/
DSS http://archive.stsci.edu/dss/
SDSS http://www.sdss.org/
NEAT http://neat.jpl.nasa.gov/
CSS http://www.lpl.arizona.edu/css/
Pan-STARRS http://pan-starrs.ifa.hawaii.edu/public/
WISE http://wise.ssl.berkeley.edu/

The profusion to petabytes of data has been accompanied by development of sky portals. These sites allow users to visualize astronomical data. Some require selection of an object, some allow you to browse a virtual sky.

Skyview is the granddaddy of portals and is straightforward if you have a target in mind. It accepts object name or coordinates. It can output images as JPEG or FITS files. http://skyview.gsfc.nasa.gov/cgi- bin/titlepage.pl

National Virtual Observatory is the place to search for images. http://www.us-vo.org/
It is a who's who of surveys and data, with 12,000+ resources. Tom's run with M82 gave 390 matches.

Google Sky shows DSOs, Moon, Mars and other planets. SDSS is the default, and WMAP, GALEX, Chandra and HST are optional overlays. HST images overlay SDSS with no way to turn it off. Mouse click + drag to pan; nav buttons to zoom, double click to center. www.google.com/sky/

Aladin is a professional tool that works well. http://aladin.u-strasbg.fr/aladin.gml

It accesses SDSS, DSS, IRAS, Skyview, NVO and more. It is a Java App that runs on Macs as well. Use File-> Open to start. Pick database and object or coordinates. . It does many operations, blink, difference, overlay data ref's, rgb merge, mosaics. It is scriptable. It can import and export JPEG and FITS.

Microsoft's World Wide Telescope is a portal on steroids and one of Tom's favorite portals. http://www.worldwidetelescope.org/Home.aspx

It has sky, planets, Moon, even telescope control. It draws on DSS, SDSS, Hiparcos, 2MASS, FIRST, GALEX, ROSAT, HST and more. Change the view with collections, "look at", "imagery." To navigate, drag to pan. Mouse wheel to zoom. Double click for finder with close at bottom. Bottom of window shows objects in the area. Tours are animations by pros and amateurs.

Astronomy Lookup is another generally useful site. It is a mashup by Stuart R. Lowe. You can get quick links to various astronomical views, photos, blog posts, and papers. Enter an object, click search and follow the links. http://www.strudel.org.uk/lookUP/

Other sites worth a visit are:
SkyMorph (NEAT image access)
http://skyview.gsfc.nasa.gov/skymorph/obs.html

SkyAlert (for real time astro event alerts)
http://www.skyalert.org/

Sky Map (WikiSky) http://sky-map.org/

SDSS Search (for SDSS images)
http://cas.sdss.org/dr7/en/tools/explore/

FIRST Cutout (for FIRST images)
http://third.ucllnl.org/cgi-bin/firstcutout

Tom is a software engineer at Agilent Technologies. He was among the first NCAS members. We will probably all be in wrist splints from RSI next month thanks to Tom's comprehensive talk. See his slides in PDF on the NCAS website:
www.ncastro.org/Contrib/Fay_T/2011-01_Sky_Surveys_and_Portals.pdf

January 6 2011 NCAS Business

President Bob Michael called the meeting to order. Bob enjoyed a recent news report about a homebuilt planetarium on CBS Sunday Morning. He read a thank you letter from City of Fort Collins Natural Areas. Educator Deborah Price thanked volunteers for their outreach and invited them to the Volunteer Appreciation Dinner Jan 28. Max Moe dropped by to say hi. Officer nominations for 2011 are: Robert Grover, President. Tom Teters, Vice President. David Auter, Treasurer. Dave Chamness, Secretary. The slate was elected unanimously. Congratulations to our new officers! Greg Halac, our tireless outreach coordinator, distributed Certificates of Appreciation from the Night Sky Network for 2010. The club website has a log of volunteer events and hours. It total, 42 of 49 events were completed. We had 7 weather cancellations and one due to firefighting in RMNP. Highlights were the Perseid Shower at Bobcat Ridge, and the Total Lunar Eclipse at Fossil Creek Reservoir. We had 135 total hours of events, attended by 3208 visitors. 13 members participated. Jon Caldwell gave 116.5 h. Rob Grover, 102.5 h. Greg Halac, 90 h, bolstered by addition of summer events for Larimer County Parks and Recreation. Dan Laszlo, 88 h. Tim Antonsen, 65.5 h. Dave Auter, 41 h. Paul Price, 24 h. Jolene Pilcher, 16 h. Tom Teters, 11h. Dave Chamness, 3 h. Chad Moore, 3 h. Mike Fitzgerald, 2.5 h. Dave Getzy, 2.5 h. Apologies to any we missed. A huge thank you to all for a great year, we'll hope 2011 is even better.

From Tom Teters: Half a Million Take a Gander at Space Images

The first-ever NASA/JPL iPhone app, Space Images, has reached 500,000 downloads just as JPL prepares to release its newest version of the free app. Space Images features breathtaking views of Earth, the solar system and the universe beyond.

Soon after its release in January 2010, Space Images was selected as a "Staff Favorite" in iTunes and quickly became a top app in the Education category. It has since received praise from users for its extensive and stunning collection of images taken by NASA/JPL spacecraft and for its educational uses.

The new version, Space Images 2.0, optimized for iPad and iPhone 4, brings even more stellar photos to viewers' fingertips, plus videos, Facebook and Twitter connectivity, and a new format that makes it easier to browse through photos at a higher resolution. It will be available in the iTunes Store this spring.

Droid more your style? Space Images 2.0 for Android devices is coming soon.

Visit http://bit.ly/e2yy4y to download Space Images free in the iTunes App Store. Explore more mobile offerings from JPL at http://www.jpl.nasa.gov/onthego/index.cfm?cid=500kemail .

#2011-020

Priscilla Vega (818) 354-1357
Jet Propulsion Laboratory, Pasadena, Calif.
Priscilla.r.vega@jpl.nasa.gov

From Andrea Schweitzer: California astrophotographer wins AAS Chambliss Amateur Achievement Award

The American Astronomical Society (AAS) is honored to announce that R. Jay GaBany, a product manager for internet-based companies from San Jose, California, is the 2011 winner of the Society's Chambliss Amateur Achievement Award. The award is given annually to an amateur astronomer from North America who makes outstanding contributions to scientific research.

Using a 20-inch telescope at the remote Black Bird Observatory in New Mexico, GaBany has been one of the world's leading amateur astrophotographers for the past decade. But his contributions go far beyond just taking pretty pictures. In recent years, GaBany has devoted hundreds of hours to work with a team of astronomers led by David Martinez-Delgado of the Max Planck Institute for Astronomy in Germany to take deep CCD images of galaxies far beyond our Local Group.

GaBany's images have revealed faint tidal streams and rings in the outer halos of large spiral galaxies, indicative of recent and ongoing gravitational interactions with dwarf satellite galaxies. These images are helping scientists better understand how large galaxies such as our own Milky Way are built up through the collisions and mergers of many smaller galaxies.

Observing under very dark skies, and using very sensitive cameras, long exposure times, and advanced imaging and processing techniques, GaBany has managed to capture details not seen in professional images. Papers based on GaBany's images have been published in leading scientific journals such as the Astrophysical Journal, the Astronomical Journal, and Astronomy & Astrophysics, with GaBany being listed as a coauthor.

"It has been an amazing adventure that, thankfully, has not ended," says GaBany. "I never dreamed that Dr. Martinez-Delgado's invitation to participate in his research group would result in a multi-year relationship and transport me on a modern day voyage of discovery. While professionals and amateurs commonly collaborate on planetary research, I realize such associations involving astrophysicists are rare. It's a great honor to receive the AAS's Chambliss Award.:

"I came to know Jay in March 2006 when I chanced upon his website of astrophotos and was struck by an image of the galaxy M94 that displayed never-before-seen structure in the faint outer halo surrounding the galaxy," recalls Martinez-Delgado. "I quickly realized he possessed enthusiasm, time, talent, and research-grade instruments that could be beneficial to my projects. So I invited him to join my team of professional researchers. He accepted, and we have been working together ever since in what has proven to be an extremely fruitful example of professional-amateur collaboration."

More about GaBany's work and images:
http://www.cosmotography.com/press.html

An article by Dr. Martinez-Delgado and Jay GaBany describing their research appears in the January 2009 issue of Sky & Telescope magazine.

January Observing: 29th at Horseshoe Park, RMNP

Greg Halac and I "braved" the outdoors in Horseshoe Park. It was calm and the temp started near 40 deg F around sunset, and dwindled to 27F by the time we packed up at 2330. Some low clouds blocked over half the sky at first and the cirrus lingered most of the time, and it finally opened up for the last 90 minutes. The Milky Way really untangled itself from the Front Range glow that last hour or two. Jupiter looked soft until the scope cooled, and never settled down 100%. Clouds and zodiacal light kept us from hunting the faint stuff in the SW. Open clusters were punching through almost everywhere else. The Pleiades had really nice nebulosity once it cleared. Mottling in the Perseus-Auriga Milky Way was there after dusk, just not etched. M33 never really popped out to unaided eye, with cloud at first and probably the transparency. M31 had obvious dark lanes. M81 and M82 were in a clear patch

and looked great. The Double Cluster, M35, M36, M37, M38, M41, M46, M47 were sparkling.

Greg spent much of the night doing a shakedown of his tracking mount, and I was starhopping to the objects with and 18 inch Dob and 10x42 binoculars. It was hard not to stare at M42 with a UHC filter all night. It also helped the Rosette Nebula. No H-Beta filter, so our Horsehead hunt gave up some mottling at the spot, not a clean confirm. Mike Prochoda would have pretty easily when it cleared the clouds. A couple planetary nebulae less familiar to me were NGC 1360 (huge) and 1535 in Eridanus. We got a distinct look at the white dwarf and red dwarf companions of Omicron Eridani 2. NGC 1514, The Eskimo NGC 2392, and the dim Medusa, PK205 +14.1 rounded out the planetaries. And sorry Greg, I think I saw an Iridium flare by Rigel, got indecisive since we had some airplanes so did not call it ;-) .

The wildlife made their presence known. With no wind, there were some bugling elk cracking their antlers, and some yipping coyotes came pretty close. About half a dozen cars on the road early, so the site was just fine. Hope next time it's a more premeditated trip and a few of you can make it. Cheers, Dan L

From Mike Prochoda:

I managed to get some pretty good observing from my Estes Park backyard over the past couple of nights (28th and 29th) though the seeing was "iffy". Strangely, the clouds were apparently much less of an issue in Estes Park than at Horseshoe Park on the 29th.

On Friday night (the 28th) the seeing was pretty poor, but the transparency was good to very good. Some glow from the front range to the East and SE, but most of the rest of the sky looked good. The seeing was horrible below about 20 degrees, but closer to the zenith it was about Pickering 5-6/10. I observed from 7 PM until about 1 AM with my C-11 on the Alt-Az mount. I logged 16 objects in SkyTools 3, mostly SJ O'Meara's "Hidden Treasures" list. Beyond that, I observed the usual "eye candy" including a bunch of Winter Milky Way cluster, nebulae, etc. I did manage to barely pull-in B33 (Horsehead N.) with my 31mm Nagler T5 and a Lumicon H-Beta filter. Overall a good night with cool but not freezing temperatures. A little breezy at times however.

On Saturday the 29th, the Clear Sky Chart predicted better seeing, so I set up the C-14 / CGE mount combo on my deck. Some clouds to the NW just as dusk was giving way to total darkness, but then it cleared. The seeing was actually pretty good for the first couple of hours of the night (about Pickering 7/10) but after that it crashed rapidly and soon was poor (Pickering 4/10). Coincident with the poor seeing a slight breeze picked up along with a dramatic drop in temperatures into the 20s (probably a weak front passed through). However, I did stay up until 1:30 AM and logged a bunch of objects (26 objects logged in SkyTools 3). I started with the Winter Milky Way, with the Orion N. looking great (could see E star in the trapezium continuously, and the F star flickered in and out with the seeing). B33 was "easy" using the Panoptic 41 with the H-Beta filter and I could trace IC 434 nebulosity almost all the way to Zeta Orionis. Sigma Orionis multiple star looked fantastic! I could just split the 1" equal pair 52 Orionis with a 12mm Nagler. Then off to some more interesting fodder. I hunted down the objects in Orion from Sue French's March 2011 S&T Deep Sky Wonders column. Managed to get them all, though Abell 10 is faint and Abell 12 is a real challenge being only 50" away from 4th mag. Mu Orionis. The Lumicon OIII filter saved the day, otherwise there was no way I could see Abell 12 in the glare of the star without the filter.

I finished the night off with a few objects in the Caldwell Catalog that I had not logged so far (I finished logging the whole Caldwell list which is visible from 40 degrees N. last night). I also hunted down a few lesser NGC open clusters in Puppis and Monoceros. Next, Leo / Coma / Virgo were beckoning in the East so I perused the usual suspects in that neck of the woods. M51, M64, M65, M66, NGC 2903, M53, M3 all looked good because of decent transparency, but the lousy seeing limited me to lower powers for the most part. By 1:30 I was getting pretty cold despite plenty of trips inside to log observations on my laptop, so I started tearing down. I had not noticed it earlier, but my OTA was totally covered with frost! Fortunately, the corrector plate stayed clear all night (using a dew shield of course). Ahh... Winter observing (or Fox Park in August) ;-)

Tonight is looking clear here at dusk, so I'm thinking of pulling out my TEC 140 for some wide-field views of the Winter Milky Way (seeing is predicted to be poor tonight). Overall not a bad weekend (3 clear nights in a row with no moon)! Finally getting a fix for my photon addiction!

Cheers,- Mike Prochoda (Estes Park)

Best Looks

Moon	By Mercury Feb 1; by Jupiter Feb 6; By Saturn Feb 21; by Venus Feb 28
Mercury	Difficult by Sun in dawn 1st week
Venus	Brilliant in predawn SE
Mars	Hidden in glare. Dance with Mercury, Neptune Feb 19-22, run on computer
Jupiter	In SW at dusk
Saturn	In S predawn
Uranus	By Jupiter at dusk
Neptune	Hidden in glare

Nanosail-D Photo Contest Images are starting to trickle in. See: www.nanosail.org or www.spaceweather.com

Moon Jan 7 2011 Canon Rebel XSi ISO200 1/100s f/8 1400mm Near Ft Collins CO Dan Laszlo

International Space Station Passes for Loveland – Fort Collins February 2010

Date	Mag	Starts			Max. Altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
2 Feb	-0.9	06:36:49	10	N	06:37:47	11	N	06:38:44	10	NNE
4 Feb	-0.8	05:54:12	10	N	05:55:15	11	N	05:56:18	10	NNE
5 Feb	-1.3	06:19:57	10	NNW	06:22:02	17	NNE	06:24:07	10	ENE
6 Feb	-0.7	05:12:59	12	NNE	05:12:59	12	NNE	05:13:49	10	NE
6 Feb	-2.4	06:45:51	10	NW	06:48:37	36	NNE	06:51:22	10	E
7 Feb	-1.3	05:38:16	15	N	05:39:22	18	NNE	05:41:32	10	ENE
8 Feb	-2.6	06:03:34	14	NW	06:05:52	40	NNE	06:08:40	10	ESE
9 Feb	-1.0	04:57:21	18	NE	04:57:21	18	NE	04:58:51	10	ENE
9 Feb	-3.4	06:29:13	10	WNW	06:32:11	57	SSW	06:35:00	10	SE
10 Feb	-2.8	05:22:45	43	NNE	05:23:02	45	NNE	05:25:52	10	ESE
11 Feb	-3.3	05:48:15	32	W	05:49:13	49	SW	05:52:04	10	SE

12 Feb	-0.6	04:42:14	16	ESE	04:42:14	16	ESE	04:42:59	10	ESE
12 Feb	-1.5	06:13:50	11	WSW	06:15:08	14	SW	06:16:46	10	SSW
13 Feb	-1.4	05:07:55	20	SSE	05:07:55	20	SSE	05:09:01	10	SSE
18 Feb	-1.5	18:55:57	10	S	18:57:07	16	SSE	18:57:07	16	SSE
19 Feb	-2.5	19:20:55	10	SW	19:22:52	37	SSW	19:22:52	37	SSW
20 Feb	-1.9	18:12:27	10	S	18:14:40	20	SE	18:16:52	10	E
20 Feb	-1.1	19:47:04	10	W	19:48:28	23	W	19:48:28	23	W
21 Feb	-3.7	18:37:32	10	SW	18:40:26	74	SE	18:42:20	20	ENE
22 Feb	-2.2	19:03:43	10	W	19:06:26	33	NNW	19:07:39	23	NNE
23 Feb	-3.6	17:54:05	10	SW	17:57:00	84	SE	17:59:56	10	NE
23 Feb	-1.1	19:30:37	10	WNW	19:32:37	17	NNW	19:32:52	16	NNW
24 Feb	-2.0	18:20:18	10	W	18:22:57	31	NNW	18:25:37	10	NE
25 Feb	-1.1	18:47:12	10	WNW	18:49:07	16	NNW	18:51:02	10	NNE
26 Feb	-0.7	19:14:38	10	NNW	19:15:26	11	N	19:16:15	10	N
27 Feb	-1.1	18:03:43	10	WNW	18:05:32	15	NNW	18:07:22	10	NNE
28 Feb	-0.7	18:31:06	10	NNW	18:31:49	11	N	18:32:30	10	N
2 Mar	-1.0	19:23:00	10	NNW	19:24:14	13	N	19:24:14	13	N

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 if possible.

Date	Mag	Starts			Max. altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
19 Feb	4.2	19:40:27	10	N	19:41:05	13	NNE	19:41:05	13	NNE
20 Feb	3.9	20:02:12	10	N	20:03:32	19	N	20:03:32	19	N
21 Feb	3.8	18:46:58	10	NNE	18:48:32	12	NE	18:48:32	12	NE
21 Feb	3.9	20:24:24	10	NNW	20:26:03	22	NNW	20:26:03	22	NNW
22 Feb	3.1	19:07:50	10	N	19:11:08	25	NE	19:11:08	25	NE
22 Feb	4.4	20:47:02	10	NW	20:48:38	19	WNW	20:48:38	19	WNW
23 Feb	2.0	19:29:34	10	NNW	19:33:50	54	ENE	19:33:50	54	ENE
23 Feb	5.0	21:10:40	10	WNW	21:11:21	12	WNW	21:11:21	12	WNW
24 Feb	3.7	18:13:55	10	NNE	18:16:16	14	NE	18:18:35	10	E
24 Feb	2.2	19:51:41	10	NNW	19:56:08	64	WSW	19:56:41	58	SSW

25 Feb	2.8	18:34:53	10	N	18:38:46	28	ENE	18:42:13	12	ESE
25 Feb	3.8	20:14:18	10	NW	20:18:05	27	WSW	20:19:46	21	SW
26 Feb	1.8	18:56:34	10	NNW	19:01:01	61	ENE	19:05:25	10	SSE
26 Feb	5.0	20:38:11	10	WNW	20:39:49	12	W	20:41:26	10	WSW
27 Feb	2.5	19:18:38	10	NNW	19:23:02	57	WSW	19:27:24	10	S
28 Feb	2.7	18:01:37	10	N	18:05:36	31	ENE	18:09:34	10	ESE
28 Feb	4.2	19:41:13	10	NW	19:44:50	24	WSW	19:48:26	10	SSW
1 Mar	1.8	18:23:13	10	NNW	18:27:42	69	ENE	18:32:09	10	SSE
1 Mar	5.3	20:05:38	10	W	20:06:26	10	W	20:07:14	10	WSW
2 Mar	2.9	18:45:14	10	NNW	18:49:35	50	WSW	18:53:53	10	S

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