

The Objective View

Newsletter of the Northern Colorado Astronomical Society

October 2010

Robert Michael, President

pres@ 970 482 3615

Dan Laszlo, VP and Newsletter Editor

objview@ Office 970 498 9226

Chad Moore, Secretary

sec@

Jon Caldwell, Treasurer

treas@

Greg Halac, Web Editor and Outreach Coordinator

web-edit@ 970 223 7210

Dave Chamness, AL Correspondent 970 482 1794

add ncastro.org to complete email address

Next Meeting: October 7 7:30 pm

Telescopes + Rockets: Bigger and Better Astronomy from Space

By Dr. Paul Lightsey, Ball Aerospace

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

Nov 4 Robert Arn Astrophotography
Dec 2 Bill Tschumy Escape from Plato's Cave: The
MW Galactic Coordinate System

NCAS Public Starwatch at Fossil Creek Reservoir

Oct 2, Nov 12, Dec 20

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

City of Fort Collins Natural Area Program at Sunset

Bobcat Ridge: Oct 14

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

Dark Site Observing Dates

October 8, 9 Keota, RMNP or other dark site, ask FRAC

Other Events

Chamberlin Observatory Open House, 7 to 10 pm

Oct 16, Nov 13, Dec 11

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

Cheyenne Astronomical Society 7 pm Oct 15 Space Shuttle

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 Oct 28

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

Little Thompson Observatory, Berthoud 7 pm Oct 15

<http://www.starkids.org>

Longmont Astronomical Society 7 pm Oct 14 at IHOP, 2040

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

Sept 2 Program: Design and Construction of a Backyard Domed Observatory, by Craig Betzina

Craig's home observatories started with his house in Seattle. In his day job, he was a Boeing engineer and enjoyed working on military and space projects, some flight testing and worked on airliners from the 747 to 777 airliner. He needed a place for his telescope that gave quick access but protected it from the elements. His first observatory took a year, and in the course of trying to do everything himself, it was shaped by lots of mistakes. An observatory should start with a usage plan. Will it be used for group outreach, or just solo? What are the extremes of winter and summer weather? What is the telescope type and size? Reflectors, refractors, and SCTs have different requirements for space and comfortable use. The site will bring constraints of the useful horizon, ambient light, and the soil type. Future relocation should be factored in for many. One example was a structure held up on 8 wood posts. It was sturdy but could be freed with 5 minutes and a chain saw. Each roof style has tradeoffs. Roll-off roofs offer unlimited sky views and readily scale up for additional scopes. The vistas come with a lack of protection from wind and ambient light. The Sky Pod is an opening half-dome. Views, sky access and wind protection are intermediate between full exposure and full domes. It's size is limited, tight for a 14 inch SCT, and it has poor zenith access. A full dome gives best weather and ambient light protection. Since it is a dedicated piece, the dome provides design flexibility for the rest of the building. A dome is also an aesthetic bonus, for most of us astronomers anyway. The construction material is critical. Fiberglass disintegrates in hail, and UV weakens it in a few years. Exploradomes are made of 1/4 inch polyethylene,

Great Nights at Independence Mountain Sept 3-5

From: Greg Halac

Friday night at Independence Mountain was outstanding! No clouds, virtually no bugs, temperature only dropped to mid-40's, and we only had occasional very light breezes before ~3am. We were advised by some campers that bear(s) were definitely in the area, though. 1 truck drove through after dark on the adjacent rim road, but no problems from ATVs or campfires this night.

Group consisted of Dan Laszlo (with his Obsession 25), Dave Dunn, Tim Antonsen, Robert Grover, and myself. We set up on the south side of the mountain overlooking North Park. Some lights visible in the valley below us, but the only light-polluted skies were the 5-10degrees high "dome" in the ESE from the front range.

Venus actually looked quite decent early, with stable skies revealing a crisply defined crescent. Saturn didn't really "rainbow" until it was down to about 3deg elevation. After dark, the night was filled looking at the old favorite DSOs ... especially with a clear, dark southern horizon. I noticed ~10-15 nice meteors during the evening. Planetaries and galaxies seemed to be the objects of choice. The "dark nebulae" in the Milky Way stood out nicely ... I think all of us spent time scanning with binoculars.

Moonrise at 1:45a lit up the valley landscape somewhat, but our "windbreak" grove of trees kept us in the shadows until ~3am. Seeing varied during the night, but a couple dark-adaptation ruining looks at Jupiter gave nice views of the GRS mid-evening and an Io shadow transit around 3am.



Dave Dunn and Greg Halac take in H-alpha solar views

Dan set up his H-alpha scope for some fine views this morning. When I left about 10:30 this morning, Dave, Tim,



Installation Oct 2006, from www.explora-dome.com

which is tough, relatively lightweight, reflective, and can ultimately be recycled. The 8 foot size is \$1800. They are starting to produce a 12 foot model intended for scopes up to 20 inch RCs. One of the domes in Craig's yard was blown 200 feet by a tornado and survived. That one now belongs to Wayne Green. Craig decided on a 10x16 foot room to allow space for visitors. The telescope pier is secured in concrete, and the pier should extend below the frost line. He has seen piers made of tree trunks and steel columns. A 24 inch drain culvert can be scavenged and filled with concrete for a cost-effective pier. There should be a provision for fine adjustment of polar alignment since settling is expected. An offset from center may be needed for a fork mount. German equatorials are stable, but watch your head around the counterweights. Wall height needs to be adequate for comfort, and appropriate to the useful horizon. The ultimate eyepiece height is better too high than too low. Basic cables are for power, data, and control. Ideally they run in the pier. A shielded cable is needed for power, since RF can bleed out and interfere with data. Craig is set up for observing and got a MallinCam VSS. The 3 second frames captured from video are amazing for the sensitivity of the camera, showing structure in bright planetary nebulae and M51. Members are invited to contact him for a visit in Strasburg, CO. Email to llamaboy@isp.com

<http://www.explora-dome.com/>

September 2 NCAS Club Business

NCAS returned to the Fort Collins Museum for the September meeting. Treasurer Jon Caldwell opened with his report. The club account stands at \$797.86 plus \$100 petty cash. He announced Astronomy Magazine calendars for 2011. Greg Halac brought a copy of the RASC Calendar and Observers Handbook. He is collecting orders for these. Greg announced public outreach events for the month. Summer of 2010 had an exceptional success rate. Only two events had to be cancelled for weather at Carter Lake, and for firefighter support in Rocky Mountain National Park.

and Robert (and maybe Dan) were planning to stay at least tonight and hoping for repeat conditions.

Hope the night at Keota was rewarding for those of you who ended up there. Greg Halac



Tim Antonsen, Dave Dunn and Rob Grover, Indep. Mtn.

From Dan Laszlo:

What a weekend. Surprisingly little holiday traffic and some great views. We were lining up showpieces for 2 nights. I was the last to roll in Friday night just as it was getting good and dark. Setting up in a highly exposed point was not an issue until midmorning Saturday. We wrapped Sat am observing with M42 and Jupiter. We think the Saturday wind forecast was overly conservative, Sat afternoon felt more like 15 to 30 mph.

Robert Arn and Al with his 16 joined us on Saturday We moved the 25 to the shelter of aspens and removed the shroud for the wind. Great sunset color was followed by a blanket of clouds that shut us down until near midnight Sat night-Sun am. We zipped through brighter objects and agreed the ones with dusty components like NGC 891 and NGC 253 were a little better defined Sunday am. You could faintly trace the fainter arm of NGC 7479. The object list for the nights is familiar: M51, M101, M5, M13, M7, M8, M20, M22, M28, M16, M17, NGC 6888 and the Veil. We saw globulars well including M2, NGC 6522 and 6528.

Planetaries were looking good and we saw M27, NGC 7008, NGC 7009, IC 1295, NGC 6781, NGC 6543, NGC 40, NGC 7293, NGC 246, NGC 1514. We compared views of the Veil Nebula, and the eastern component could be seen in Tim's 20x100 binoculars unfiltered. The Milky Way had decent dark mottling, but we did not see the Zodiacal Band or gegenschein. I wonder if the awakening solar activity has kicked up the airglow? We stuck a binoviewer on for brighter objects like M13, M2, and Jupiter was giving up subarcsecond

detail around midnight. It was worth some retinal photon abuse. If you are scoring the sites:

Gunshots heard? About 8 at our site Sat morning, we think the elk hunters warming up. Bonfires: 0. ATVs: about a dozen in daytime, and several visitors rode over to see the Sun with H alpha scopes. Longest time at observing site, Rob Grover or Tim Antonsen? Greatest Temp Extreme? Not sure on that. Fri-Sat was pretty mild. Greatest wind extreme, 0 to ~30 mph. Longest spacetime quest to observing nirvana with a unifying vector, Deadman and Independence Mtn, Dave Dunn. Longest spacetime quest to observing nirvana, ultimate division, Keota site *then* Independence Mtn, Robert Arn.

Low tech, noisiest astrophoto, hand driven barn door mount, Dan Laszlo. Attached. You can estimate our south horizon with it.

Site limiting magnitude: SQM reading 21.81 to 21.83 midnight Aug 3 to 4.

Congrats to all who found some dark skies to enjoy! Dan Laszlo, NCAS, Ft Collins

From Rob Grover: Amazing weekend!

Left the mountaintop around 2:30PM on Sunday. Was wavering on staying Sunday night, but was just feeling too worn out from the two wonderful nights and all the wind on Saturday. Friday night, I managed to see all 5 members of Stephan's Quintet in my 13.1" Telekit. The first 3 were easy, the 4th took me a few extra seconds and the 5th was difficult, maybe another minute of study but definitely there. That was a first for me in this scope. (did Snoopy's happy dance for that one) Nearby NGC7320C (mag 16+) was a no go for me in either my scope or Dan's 25 on Saturday. I saw much more detail in the Veil in my scope than I've coaxed out of it before and was awed by NGC891 and later a fine view of NGC253. Even had a satellite pass through the dust lane in 891!

Greg H. mentioned how nice Jupiter was at one point, so I decided to take a peek with my left eye. Seeing was quite steady and GRS looked mighty fine for several seconds at a time. Lots of detail in the cloud bands even at a modest 184x. Looked like maybe the southern cloud band is beginning to come back? It was there but quite faint. Was well worth the view and I did it without sacrificing my dark adapted right eye. Also got nice looks at Uranus & Neptune while I was on a planet kick. Then did a few PNs – Saturn, Cat's Eye & Helix were all quite memorable.

Spent some time Saturday afternoon putting together a list of 10 ARPs I wanted to look at Saturday night with mags between 12 & 14. I was set up a bit out in the wind and uncovered the scope in time to see M22, M20 & M8 before the clouds moved in. So, I covered the scope and considered calling it a night until Dan got a good weather report calling

for clearing around midnight. The sky cleared nicely but the winds remained fairly strong. So, I left my scope covered and had great fun with Dan's guided tour of the heavens.

Didn't get to the ARPs but I am seriously considering heading back up there (or maybe Keota) this coming weekend – weather permitting & especially if I can coax at least one more to join me!

Tim was still set up when I left on Sunday. We did move his scope back into the trees, near where Dan's 25 was the night before. He was not sure if he was staying Sunday night or coming back to town. Just our luck that it was probably the best night of the three – but Friday & Saturday weren't bad at all. Friday had less wind but Saturday was more transparent – after the clouds.

Robert Grover

Keota Site Observing, Labor Day Weekend

From Stan Jarrett:

Friday afternoon, I was headed up to Deadman with my 16" Astrosystems dob, when David's and Stephen's emails came in about the campers/atv'ers residing there. Since I was a couple of miles south of Highway 14, I weighed my options about where to go stargazing, if at all. So I decided to head east out to Keota, and hopefully join Tom out there. He was indeed there, and we were joined later by Robert Arn. Both Tom and Robert had brought new camera equipment. They were busy conducting scientific experiments throughout the night.

Along the way, there were lots of corn fields with the stalks taller than my truck. I also noticed more fields planted with sunflowers and squash than previous seasons. I spotted three small antelope herds once I was past the sheep farms and cattle pastures. Although the sky above was that stark "fall-blue", I was unable to see the mountains east of Ault until the Sun set behind them.

Since I had never been there before, my viewing plans for Deadman had been obscure globulars, moons of Uranus and Neptune, and some Hickson galaxy clusters. So I was unsure how well the plans would translate to Pawnee. Turns out that I had a great night viewing with pleasant company. There was very little moisture in the atmosphere, and in fact, I did not experience any dew the whole time. There was a light breeze most of the evening, so bugs were never a problem. I think the temperature was in the high 30's when I quit observing about 2am.

In regards to Tom's challenges, the lowest altitude object I observed was a globular cluster in Coronae Australis. NGC 6541 has a RA of 18h08m and a Dec of -43d43m. I pegged my sky commander at 0 degrees elevation. The dimmest galaxy group I observed was Hickson 100 which had its brightest member at ~13.6

I have been looking for Palomars at RMNP earlier this year, and was still searching for a few more. I had a definite on Pal # 8, pretty sure about Pal # 6, but could not see Pal # 11, even though I had the right star field. I had the star fields for Terzans # 7 & 8, but was unable to see their very faint glows. Pretty sure those last three would have been seen at double the elevation. Other challenging GCs I observed with my scope and old eyes were NGC 6366 and 6522. If you are tired of looking at M-13, try NGC 6717 (Palomar 9), it is real easy to find right now.

Moon observations for Uranus and Neptune were a bust. I did see Triton 2 nights in a row at WUTS 2 years ago, so was hoping for a repeat last night.

I have been studying the Astronomical League's "Galaxy Groups and Clusters" Observing guide. In my opinion, it is one of the best programs, and certainly packed with interesting information. I enjoyed studying a number of galaxy groups after midnight: Hickson 10(ngc0536), 92(Stephens Q), 93(ngc7550), 96(ncg 7674), and 100(ngc7803). If you save some of the photos from FRAC members, I suspect that you will find a few of these clusters in them. I would say viewing was excellent since I was able to find all but one of the galaxies in each of the groups. The most interesting group was a string of ~ 9 galaxies starting with NGC 0379 through NGC 0388 (not 0381) in the constellation Pisces. I definitely found five, but not totally sure which, so will have to go back for another look. Stan

From Bill Tschumy:

With hopes of clear skies, I headed to Keota around 4 PM Saturday. It was pretty cloudy in Longmont and things didn't look much better as I approached the observing site. Gary and Tom were already there and set up (Tom was there the night before as well). After I got set up we watched as dark clouds to the west approached. Some lightning was seen and we got ready for a bit of rain which turned out to be only a light sprinkle.

Around 9 PM it cleared from the west and led to 3 hours of extremely nice observing. Temperatures were mild and the skies were dark and clear. Transparency was maybe a 7 and seeing a 6. Two others had joined the group and we had a nice time swapping views. We found two comets, 103P/Hartley 2 and 10P/Tempel 2, and a host of other DSOs.

Around 12 midnight clouds rolled in from the west and shut down the session. I set an alarm for 2 AM in expectation of clearing. However at around 1:15 I was roused by wind and rain. I jumped up to protect my gear and I saw Gary hastily putting a cover on the 30". Upon returning to my tent I saw it had blown away. Not expecting bad weather I had neither staked it down or put on a rain fly (lesson learned). The rain and wind had stopped by this time so I repositioned my tent and then shaken up contents, reset an alarm for 3 AM and went back to sleep.

At 3 the skies were totally clear but it was apparent the moisture in the air was hampering transparency. I still wanted to observe. Everyone else was asleep and I didn't want to fire up my NJP mount with its high pitched servo motors (cool though they sound). So I set up my 16x70 Fuji binoculars again and spent an hour of pleasant observing. By this time the waning crescent Moon was high enough to really impact things so I shut down and went back to sleep. Awoke at 6:30, packed up and headed home to Longmont.

All in all a very, very pleasant evening. Good skies and good friends.

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Bill Tschumy
Think Astronomy -- Longmont, CO
<http://www.thinkastronomy.com>

From Gary Garzone:

Hey Bill, Nice write up on Keota. We had a good night despite few clouds, wind and rain, we got at least several good hours in. Tom T, Paul Robinson, John F. Bill and myself, along with Carol, my wife showed up for dark sky views. I love that I pod pad you had Bill with so much info at your finger tips. We got two comets bagged also got to check info on several planetary nebula and Jupiter red spot timing. I think it is even easier to use than a laptop. I am sold on it for finding interesting objects at literally your finger tips, while looking directly at sky. Makes maps somewhat different. Catching the comets was fun, where was Cometmon Vern? Paul Robinson and Bill helped me find comets rather quickly, faint on 10P/Tempel 2 and even fainter 103P/Hartley 2. 30 views nailed them good with 22 mm Nagler. Bill showed us the spider, form of stars, in Perseus double cluster, pretty cool. Jupiter was good for short time then average seeing as winds approached again. I fell asleep after clouds moved in, I was going to get up around 2:30 to 3 am but thought everybody else gave up. Moon was rising and getting brighter out. Great night anyway Glad you guys made it out. Vern gave me the weather report over the phone for Sunday night. They predicted high winds for tonight on Prairie so I packed up and came home. Gary G

From Bill Tschumy:

I thought I'd just expand on Gary's reference to the iPad/iPhone app I was using last night. It is called SkyVoyager and is a planetarium program that also has a wealth of information about the various objects displayed onscreen. You can find it on Apple's App Store by searching for SkyVoyager. It is basically much of Carina Software's popular Voyager desktop program shrunk down for the iPhone.

Using the SkyFi hardware (sold by Carina Mobile) you can wirelessly control your GoTo scope using SkyVoyager. Last

night I was standing by Gary's scope about 40 feet away from mine. I wanted to start my scope slewing to the same object we were looking at in Gary's. With a few taps on my phone you could hear my mount's servos ramp up as the slew started. By the time I had walked to my scope the object was in the FOV. Way cool!

Disclaimer: I am one of the authors of SkyVoyager so of course I think it is the "bees knees". Bill

From John Figoski:

Just my input for a Keota report. Did something I hadn't done before...

I was planning to observe on Sunday night. But a late afternoon check of CSC showed Sunday was to be a washout and Saturday looked great. So I grabbed all my gear and was on the road for Keota by 6:30. I drove the 1h45min all the way to the CR103 turnoff and noticed that what had been only a small band of clouds had developed into very dark, occasional rain showers, and lightning. I drove back West past Crow Valley when I noticed skies were clearing. I stopped again and sure enough something was pushing all the bad weather further east. So ... I turned around and headed back to Keota. Wasted 40minutes and 40miles, but when I got to Keota Gary and Tom T welcomed me (in spite of my car lights) and we all ended up with a reasonable night of observing (per Gary's summary).

It was a pretty good night for galaxy hunting. Saw all 4 "Fleas" around 7331 and saw 3 of 5 of Stephans Quintet (I have seen all five with my 12.5" at Fox Park, but not this time). Also saw 7 members of Abell 347 (West of Andromeda before Perseus) and other galaxy groups. Some of the faintest galaxies were listed dimmer than 14.5 so I'd say it was pretty good viewing. John F.

From Andrea Scheitzer: Online Universe

The SDSS website (www.sdss.org) gives browsers access to a three-dimensional map of the entire universe ... Using the SkyServer search tool, users can visually explore the heavens and sort through the reams of data available on the SDSS site...

More details are in the press release below -- Andrea

ONLINE UNIVERSE WINS AAAS EDUCATION WEBSITE AWARD

A website that brings the universe into the homes and onto the computer screens of professional and amateur astronomers alike has won a Science Prize for Online Resources in Education, known as SPORE, from the American Association

for the Advancement of Science.

Built by a Johns Hopkins University team led by astrophysicist and computer scientist Alexander Szalay, the SkyServer search tool of the Sloan Digital Sky Survey's database makes more than 350 million stars and galaxies available to students, teachers and the public. SkyServer's MapQuest-like interface allows them to pan through the sky, zoom in and out, and click on stars and galaxies for more information.

Best Looks

Moon By Venus and Mars Oct 9 in twilight
 By Jupiter Oct 19; by Pleiades Oct 25
 Mercury In E in predawn 1st week
 Venus Low in SW at sunset first 2 weeks
 Inferior conjunction Oct 29
 Mars Low in SW at sunset first 2 weeks
 Jupiter In S middle of night
 Saturn In E predawn
 Uranus 2 to 3 degrees from Jupiter
 Neptune At Cap-Aqr border
 Pluto In Sagittarius

International Space Station Passes for Loveland – Fort Collins October 2010

Date	Mag	Starts			Max. <u>Altitude</u>			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
30 Sep	-1.0	05:36:51	10	S	05:38:59	18	SE	05:41:06	10	E
01 Oct	-3.4	06:03:15	12	SW	06:05:48	69	SSE	06:08:46	10	ENE
02 Oct	-1.2	04:58:10	21	ESE	04:58:10	21	ESE	05:00:02	10	E
02 Oct	-2.7	06:30:13	10	W	06:32:54	34	NNW	06:35:40	10	NE
03 Oct	-3.7	05:24:33	83	SE	05:24:33	83	SE	05:27:28	10	NE
04 Oct	-2.5	05:50:48	26	WNW	05:51:35	30	NNW	05:54:14	10	NE
05 Oct	-0.5	04:45:17	16	NE	04:45:17	16	NE	04:45:59	10	NE
05 Oct	-1.4	06:16:55	10	WNW	06:18:47	16	NNW	06:20:41	10	NNE
06 Oct	-1.3	05:11:18	20	NNE	05:11:18	20	NNE	05:12:37	10	NE
07 Oct	-1.3	05:37:12	15	NNW	05:37:12	15	NNW	05:38:58	10	NNE
08 Oct	-0.8	06:03:54	10	NNW	06:04:30	10	N	06:05:05	10	N
09 Oct	-0.7	06:31:32	10	N	06:31:49	10	N	06:32:06	10	N
10 Oct	-0.7	05:22:55	10	N	05:22:55	10	N	05:23:05	10	N
11 Oct	-0.6	05:49:26	10	N	05:49:55	10	N	05:50:24	10	NNE
12 Oct	-0.9	06:15:22	10	NNW	06:17:03	14	NNE	06:18:44	10	NE
13 Oct	-0.5	05:08:20	10	NNE	05:08:20	10	NNE	05:08:31	10	NNE
13 Oct	-1.7	06:41:26	10	NNW	06:43:59	26	NNE	06:46:30	10	E

14 Oct	-0.9	05:34:01	13	N	05:34:53	15	NNE	05:36:42	10	NE
15 Oct	-1.9	05:59:43	14	NNW	06:01:43	28	NNE	06:04:19	10	E
16 Oct	-0.3	04:53:51	13	NE	04:53:51	13	NE	04:54:29	10	ENE
16 Oct	-3.6	06:25:28	11	NW	06:28:15	86	NNE	06:31:11	10	SE
17 Oct	-1.8	05:19:40	30	NE	05:19:40	30	NE	05:21:57	10	E
18 Oct	-3.8	05:45:33	75	W	05:45:43	82	SW	05:48:39	10	SE
19 Oct	-2.1	06:11:32	21	WSW	06:11:53	22	SW	06:14:13	10	S
24 Oct	-0.7	20:01:35	10	SSW	20:01:46	11	SSW	20:01:46	11	SSW
25 Oct	-1.3	18:54:12	10	SSE	18:55:19	12	SE	18:55:52	11	ESE
25 Oct	-0.1	20:27:21	10	WSW	20:27:28	11	WSW	20:27:28	11	WSW
26 Oct	-3.0	19:18:16	10	SSW	19:21:03	39	SE	19:21:24	37	ESE
27 Oct	-2.9	19:44:04	10	WSW	19:46:45	53	NW	19:46:45	53	NW

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>