

The Objective View

Newsletter of the Northern Colorado Astronomical Society

September 2007

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Longmont Astronomical Society Sept 20 7 pm

FRCC, 2121 Miller Rd <http://longmontastro.org/>

Western Nebraska Star Gaze Sept 7 - 9

Bridgeport NE

www.panhandleastronomyclub.com/StarGaze.htm

Next Meeting: September 6 6:30 PM

NCAS Potluck Picnic

Little Thompson Observatory

850 Spartan Ave
Berthoud CO

www.starkids.org for map

www.ncastro.org for weather cancellation

NCAS Programs

Oct 4 Greg Halac Skygazing in Australia

Discovery Science Center Starwatch, 703 E Prospect

Sept 21 7 pm

Oct 19 7 pm

Bobcat Ridge Starwatch Sep 26 6:50 pm sunset

Bobcat Ridge is just south of Masonville. Directions to the site can be found at <http://fcgov.com/naturalareas/bobcat.php>

Other Events

Little Thompson Observatory Star Night: TBA

Aug 17 7:30 pm <http://www.starkids.org>

CSU Madison Macdonald Observatory Public Nights

On East Drive, north of Pitkin Street

Tuesdays 8 pm if clear, when class is in session

Cheyenne Astronomical Society Sept 21 8 pm

Comparative Planetology

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

Chamberlin Observatory Open House, dusk to 10 pm

Sept 22, Oct 20, Nov 17, Dec 15 303 871 5172

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

August 2 Program

GNAT: Global Network of Astronomical Telescopes

Dr Roger Culver, Colorado State University

At a time when proposals press for massive successors to the Keck telescopes and HST, why would opportunities remain for modest telescopes under 3 meters? Roger responds that there are numerous opportunities to advance our knowledge of stellar evolution by more intensive long term monitoring projects. The CCD revolution has given amateurs detectors with a quantum efficiency near 100%. A 16 inch telescope with a CCD can beat the results obtained with the 5 meter Palomar telescope at its 1950 opening. The GNAT approach is relevant to variable star monitoring, supernova detection, photometric standards, long term synoptic observation, cool star characterization, extrasolar planet transit detection, and near Earth asteroids. The equipment investment is \$30,000 per GNAT instrument, over half of that for its CCDs. Photometric standards are needed in the range from 12th to 20th magnitude. The prototype Moving Object and Transient Event Search System (MOTESS) 3-shooter has a trio of 35 cm f/5 Newtonians at a Tucson AZ site. The primary mirrors are matched to 0.1%. They are thermally compensated. They are undriven and aimed such that the same field is sampled at 20 min intervals. This time is selected to catch asteroids and fluctuations in variable stars. The 24.5 mm CCD, 1024 x 1024, gives a 48 arcminute field. The CCDs continuously read out to the computer. The effective integration time is 193 seconds. The system can reach 20.5 magnitude stars. They give 120 square degrees per night. The data allowed 285,000 asteroid and comet astrometric positions from 2001 to 2006. 700 new asteroids were discovered, 2 new NEOs and 1 comet. A new version of the detection software is needed to deal with the data flow. Comet Tucker is C/2004 Q1. The GNAT MG 1 collection ran from April 2001 to July 2003 centered on declination 3 degrees 18 minutes. GNAT MG 2 ran from August 2003 to July 2005, at dec +2 d 05 m. MG 3 was from August 2005 to July 2007. The dec at +12 d 18 m was set to sweep a number of open clusters, targeting flaring in sunlike stars. MG 4 is underway and set for dec +5 degrees. The project desires worldwide longitudinal distribution of 48 scopes, to allow 24 hour observation. 5 to 8 scopes per site would all be aimed in an equatorial band. GNAT is divided in working groups, with tasks to support equipment or analyze the copious data. The data contain 3.5 million light curves at

precision of 0.03 magnitude. There are 50,000 new variable star candidates. There is a long list of constant reference stars. 12,425 galaxies are under surveillance. There are 45 supernova observations per year. GNAT can contribute uniquely with rise-time light curves for the supernovae. GNAT trades field of view for frequency of observation, compared to other sky surveys. Objectives are monitoring of known variables, confirmation of suspected variables, supernova searching, catalog cross correlation, brown dwarves. It can follow some quasars and BL Lacertae objects (active galactic nuclei). Roger wrote a paper with 8 light curves for AGN. The project has a new Meade 16" SCT in Tucson for follow-up studies. They have observed the contact variable VO 868 Ophiuchi and the long-period variable T Leonis. The supernova SN 2005 cl was recorded pre-discovery, so its rising light curve was published. Though numerous, red dwarf stars are poorly studied. There is a serious lack of data on their masses and radii. Adam Crouse studied an M2 eclipsing binary. GNAT has 121 candidates and 10 have been analyzed. Expect the list of known M-class eclipsing binaries to double. High cadence photometry confirms the eclipsing nature of systems and establishes the eclipse timing. High resolution spectroscopy remains the province of 5 meter+ telescopes. Monitoring of clusters should turn up Cepheid variable to allow distance estimates. Russell Genet is supervising student follow-up projects. Cuesta College has a student program. GNAT membership is a modest \$125 annually. The MG1 scan is online. MG 2, 3 and 4 are prioritized for student research. See www.egnat.org to learn more about NOTESS and GNAT.

NCAS Business, August 2 2007

President Nate Perkins called the meeting to order. The meeting schedule and observing nights were announced. The club potluck picnic is at Little Thompson Observatory this Sept 6. Treasurer Bob Michael reported on the club account, stands at \$294.37. Bob also noted the Galaxy Zoo project.

WUTS 2007

WUTS is like not being able to have a beer for months, and suddenly you get a cold refreshing one and its fantastic....Been landlocked here in Loveland all summer due to other commitments and it was great to see that sky again!!

I was only there Thursday and Friday but those nites were warm and very dry....almost no dew at all.

Knocked off a number of the Herschels and had some plain old fun down visiting Gary at the 30 after midnite....

Was flat out warm at night, esp Friday nite....

Some Perseids came by and the space shuttle was easy to pick up as well.

Was a really good fix and always a good time.

Dick M

From: [Vern Raben](#)

To: [Front Range Astronomical Community](#)

Sent: Tuesday, August 14, 2007 12:23 PM

Subject: Re: * FRAC * Perseids, in retrospect...

For answer to part 1, see the James Richardson article, "Meteor Meniscus: Meteor Distance versus Meteor Distance Angle" at <http://amsmeteors.org/richardson/distance.html>

At Fox Park early Monday morning we abandoned the scope, put a tarp on the ground, some cushions and blankets from the RV and enjoyed a great show.

My counts were:

12:30 to 1:30 am 57 total (54 Perseids and 3 Delta Aquarids)

1:30 am to 2:30 am 77 total (73 Perseids and 4 Delta Aquarids)

Those numbers are pretty close to the typical rate for the Perseids which is 60 to 80 per hour at peak. It seems to me that if you want to see meteors (or much else), get away -- far away from city lights.

Excellent conditions at Fox Park this weekend, especially Sunday night. The sky was clear, no wind, temperature in the low 50s, no dew, and transparency very good. I counted about 30 stars within the great square of Pegasus which indicates a limiting magnitude of about +6.5 (and I'm an old geezer, those with better eyesight would do better).

A special thanks to the Cheyenne clubs for once again hosting this excellent event!

From Mike Prochoda:

We had a spectacular weekend with 4 straight nights of clear skies, little or no dew, no wind at night, and good to great seeing. The main problem was no time for "catch-up sleep". By Saturday night I was a walking zombie and about 3 AM I took a short break from the eyepiece and sat in a chair - and promptly fell asleep! I woke up 30' later with a stiff neck and realized I was pushing myself to the limit (Max Moe was still up but most of the rest of the usual crew had gone to sleep a couple hours earlier). I finally had to go to bed, but it was really hard to do because the night was so great! The 18" worked spectacularly and I saw some stuff that I didn't think was possible visually (only photographically). We chased down the tadpole galaxy, Minkowski's Butterfly, the tiny IC galaxy next to M13, some incredibly faint planetaries, etc. I was able to trace two dust lanes in M31 all the way from near the core, out to the outer spiral arm, followed the curve, and traced the lanes to the back side near the core once again. I've only seen this in photos before. I traced 5 spiral arms out of M33 and counted about a dozen HII regions / stellar associations. The central star in M57 (the ring) was plainly visible on Friday night with my 4 mm Radian (Max Moe was pretty impressed with this). Tracked-down several great galaxies - many in Canes Venatici, the Draco galaxies NGC 5907 and the triple group including NGC 5985 were

spectacular! ?NGC 253 showed structure I've only seen in photos before. The usual suspects (Sagittarius and Cygnus showpieces, etc.) were spectacular. I had a line of people looking through the 18" at M11 and M22 on Thursday night - many oohs and aahs! Overall a spectacular weekend. BTW, I got up at 3:30 AM this morning to check the skies for the lunar eclipse - Estes Park was totally socked-in. I went back to sleep, but just (luckily) woke-up spontaneously at about 5:15 AM. I looked out the window and the skies were partly cloudy with many stars visible! I went out on my deck with my binos and watched the tail-end of totality with 3rd contact and then the early partial phases until the moon slipped behind some low clouds near the Western (mountain) horizon. It was a gorgeous eclipse. There was a dark "spot" skewed to the west of the moon's center with a copper "halo" around the moon's limb. The "halo" was brighter on the Eastern limb area which gradually came into light with 3rd contact. Very cool! Your photo from Wyoming captured this view quite well (on the FRAC site).

Perseids for 2007

Same Old Frank <sameoldfrank@yahoo.com> wrote:

>
> I have a two-part issue I want to raise.
>
> The first part is technical. Namely, during any
> meteor shower, to what extent are two viewers of it,
> separated by some reasonable distance, seeing the
> same show? In other words, as I stand looking
> skyward in Boulder, and I observe any given meteor,
> to what extent is that meteor also seen by an
> observer a mile away, ten miles away, a hundred
> miles away, five hundred miles away? I guess
> answering that question boils down to the
> approximate height of the region of atmosphere in
> which a typical meteor ignites and becomes visible,
> followed by a little bit of trigonometry.
>
> The other part of this thought is to ask you
> all for your opinions of the recent Perseids.
> Conspicuous by its absence is any large number of
> FRAC email exchanges saying, "Boy, wasn't that a
> great meteor display last night?!" I for one found
> it pretty disappointing. I admit that I wasn't in
> some nice remote area with truly dark skies; I was
> instead in an area within the city limits of Boulder
> that's about as dark as you can expect, all things
> considered. And I admit that I didn't have my eyes
> open all night long - but rather I "camped out"
> informally and scanned the skies for a fair
> duration, every hour or so, from sunset to sunrise.
>
> And, operating in this admittedly limited mode,
> I saw maybe a total of six meteors which, measured
> on a coolness scale of 1-to-10, I'd say that one
> meteor was maybe a "3," at best, another was a "2,"

> and the rest were all a "1" or less. Pretty ho-hum.
> Or maybe, due to just plain bad luck, I was just
> watching from an area where there just weren't many
> meteors visible, and other people in the Colorado
> and Wyoming area got to see a really spectacular
> show that I alas didn't get to see.
>
> Comments?
>
>
> Cheers,
>
> Frank

From Paul Robinson:

To all "meteorologists." A friend of mine and I (independently) found the Perseid rates to be best BEFORE about 11 pm. This is in line with at prediction I had read. After that I saw very few til midnight when I quit. My friend counted a rate of about 60/hr then, which is good for being so early.

From Mike Hotka

I too felt the show was a bit less than other Perseid shows I have seen in the past. I drove up to the Mountain Research Station north of Nederland and had great skies. I observed from sunset till about 1 AM. I saw many Perseids, but they seemed to come in pairs, a few seconds (30 or so) apart, then none for some time. I observed meteor streaks going 180 degrees the wrong way and was told that these were the Eta Aquarids. I saw some head from south to north, which also may be the eta aquarids.

BUT...I did see one that was unique, awesome and just plain incredible. This one made the night worth staying up for. This guy was a bright one, happened sometime just before 11 PM, was long from NE to SW, directly overhead (and where I happened to be looking at the time) and had a 3 second lingering smoke trail.

BUT, the smoke trail was not uniform but uniformly knotted, as if the meteor had a rapid spin and only one side of it was burning up, so it puffed off the smoke. Pretty neat to see. It was knotted like this the entire length of the smoke trail.

With S&T indicating that North American observers would see the peak activity this year and no moon, I expected more meteors. I kept on waiting hoping that soon the debris would concentrate and I would see several streaks in short succession. As twilight deepened, I expected to see meteors then also, but saw none. I could see 3rd magnitude stars so I would have expected to see some meteors also. I once saw an Iridium flare in this twilight time, but that was another night.

I saw several satellites pass overhead and that Navy (NOSS) trio. That one is really neat. There was one in the NE just about midnight that surprised me. I would have figured that the Earth was in the way to let sunlight hit it and make it visible.

All in all, I did have a good time watching these meteors. I took my winter clothes, so I was warm. Had plenty of sodas and snacks and just had a good time. Drove home and just before entering the house, looked skyward again and saw two nice, fast long meteors streak overhead, again that pair thing...

Mike H

From Chris Peterson

I only watched for around an hour all told, but thought the display was pretty good. I've seen better, though. Still, the rate was over one per minute, and many left trails. No whopper fireballs, though. If you haven't seen it, I have some information posted at

<http://www.cloudbait.com/science/perseid2007.html> . The instrumental rates agree pretty well with the visual rates (compensating for the lower sensitivity of the cameras compared with the eye). There was a brief period of activity the day before the peak which is interesting.

>>During any meteor shower, to what extent are two viewers of it, separated by some reasonable distance, seeing the same show?

>From a practical standpoint, you can basically think of yourself as standing in the center of a 100 km radius cylinder of activity. You will seldom see a meteor farther away than that, unless it's a fireball. Really bright fireballs have a maximum visible distance determined by simple geometry, which works out to about 1000 km. I've never heard of any fireball being seen that far away, however- in part because they burn at their brightest somewhat lower than the usual meteor forming zone. This is consistent with what the meteor cameras show. It is very common to have the same meteor on the Denver and Guffey cameras, 117 km apart. It is less common between the Guffey and Montrose cameras, 211 km apart. In the first case, just about any meteor between here and Denver will be caught on both cameras if it's bright enough; in the second case, meteors need to be near the midpoint of the two cameras. The most distant fireballs I've recorded have been about 400 km from a camera, which is similar to what witnesses report.

And the Aurigid Burst

Yup, right on schedule. I recorded 51 Aurigids. Some pictures and video are at <http://www.cloudbait.com/science/aurigid2007.html>

Chris L Peterson
Cloudbait Observatory
<http://www.cloudbait.com>

Colorado Project Astro Geo

Colorado Project ASTRO-Geo (CPAG) is a nationally affiliated program with the Astronomical Society of the Pacific. CPAG pairs a scientist, engineer, or community member with a strong astronomy and/or geology background to classrooms for four or more classroom visits over the course of the school year. CPAG volunteers work closely with teachers to implement engaging astronomy lessons. If you are interested in participating in CPAG for the 2007-2008 school year, visit:

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

Download a scientist application and join us for our fall workshop on Saturday, September 15th in Boulder, CO. For more information, please contact Suzanne Metlay at suzanne.metlay@colorado.edu or 303-492-4073.

Best Looks

Moon By Mars 9/4, 5 by Venus 9/8, 9
by Antares + Jupiter 9/17, 18
Mercury Low in WSW at sunset
Venus In E predawn
Mars In SE predawn
Jupiter Low in S evenings
Saturn By Regulus at dawn
Uranus In S late evenings
Neptune In S late evenings
Pluto In S early evenings

Variable Chi Cygni Maximum: September 22

From: Daniel Laszlo
2001 S Shields St Bldg H
Fr Collins CO 80526

TO:

International Space Station Passes for Loveland – Fort Collins

September 2007

Date	Mag	Starts Time	Alt.	Az.	Max. Altitude		Ends Time	Alt.	Az.	
					Time	Alt.				
08 Sep	0.2	05:53:37	10	S	05:55:39	18	SE	05:57:42	10	E
10 Sep	0.1	05:03:50	14	SSE	05:04:56	17	SE	05:06:53	10	E
11 Sep	-2.0	05:25:30	26	SSW	05:26:51	57	SE	05:29:38	10	ENE
12 Sep	1.0	04:15:41	11	E	04:15:41	11	E	04:15:56	10	E
12 Sep	-1.7	05:47:02	17	W	05:48:57	42	NNW	05:51:39	10	NE
13 Sep	-0.3	04:37:07	28	ENE	04:37:07	28	ENE	04:38:42	10	ENE
13 Sep	-0.4	06:09:00	10	WNW	06:11:09	19	NNW	06:13:19	10	NNE
14 Sep	-1.3	04:58:26	39	N	04:58:26	39	N	05:00:41	10	NE
15 Sep	-0.4	05:19:40	19	NW	05:20:06	20	NNW	05:22:18	10	NNE
16 Sep	1.3	04:09:31	11	NE	04:09:31	11	NE	04:09:35	10	NE
16 Sep	0.3	05:41:08	10	NW	05:42:24	12	NNW	05:43:41	10	NNE
17 Sep	0.7	04:30:37	13	NNE	04:30:37	13	NNE	04:31:10	10	NNE
18 Sep	0.5	04:51:40	12	N	04:51:40	12	N	04:52:30	10	NNE
21 Sep	0.6	05:56:47	10	NNW	05:58:06	12	NNE	05:59:25	10	NE
22 Sep	0.0	06:17:59	10	NNW	06:20:13	20	NNE	06:22:27	10	ENE
23 Sep	0.7	05:05:29	10	N	05:06:32	12	NNE	05:07:46	10	NE
24 Sep	0.1	05:26:36	11	NNW	05:28:36	19	NNE	05:30:46	10	ENE
25 Sep	-1.2	05:47:48	11	NW	05:50:31	42	NE	05:53:12	10	ESE
26 Sep	0.7	04:37:47	16	NE	04:37:47	16	NE	04:38:59	10	ENE
26 Sep	-2.3	06:09:18	10	WNW	06:12:05	57	SW	06:14:54	10	SE
27 Sep	-0.7	04:59:15	34	ENE	04:59:15	34	ENE	05:01:23	10	ESE
28 Sep	-1.8	05:20:53	46	SSE	05:20:53	46	SSE	05:23:05	10	SE
29 Sep	-0.3	05:42:41	16	SSW	05:42:41	16	SSW	05:43:43	10	S
02 Oct	-0.4	19:58:01	10	S	19:59:10	17	S	19:59:10	17	S
03 Oct	-1.2	20:18:44	10	SW	20:20:34	36	SW	20:20:34	36	SW



August 28 2007 Celestron 102F

Dan Laszlo



August 28 2007

Canon 70-300mm at 210mm

Dan Laszlo