

The Objective View

Newsletter of the Northern Colorado Astronomical Society

February 2009

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add ncastro.org to complete email address

Cheyenne Astronomical Society Feb 20 7 pm

Cheyenne Botanic Garden.

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

Chamberlin Observatory Open House, 7 to 10 pm

Mar 7, Apr 4, May 2, May 30, 303 871 5172

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

Longmont Astronomical Society Feb 19 7 pm TBA

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

Feb 6: Space, the Final Frontier, a Family Concert with astronaut Anna Fisher. Greeley Philharmonic, Union Colony Civic Center. \$8 to \$28. 970 356 5000

www.greeleyphilharmonic.com

Next Meeting: February 5 7:30 pm

**Active Galaxies, by Max Moe,
University of Colorado, Boulder**

**Club Business with Officer Elections at
7:15 pm**

**Discovery Science Center
703 E Prospect Ave, Fort Collins**

<http://www.ncastro.org/Sites/DiscoveryCtr.htm>

Club Brochure: http://www.ncastro.org/Contrib/2009_Brochure.pdf

NCAS Programs

March 5 Joel Parker, SWRI UIT, Rosetta, LRO

April 2 TBA

Public Starwatch at Discovery Science Center, South Lot

Mar 6 6:30 pm

Apr 3 7:30 pm

May 1 8:00 pm

Dark Site Observing Dates

Feb 20, 21, 27, 28

Pawnee-RAC

Other Events

Little Thompson Observatory, Berthoud Public Star Night:
February 20 7:30 pm <http://www.starkids.org>

CSU Madison Macdonald Observatory Public Nights
On East Drive, north of Pitkin Street
Tuesdays after dusk if clear, when class is in session

About our February 5 Program and Speaker:

Why are luminous quasars found at substantially high redshifts but not in the local universe? What are the similarities and differences among our own Milky Way galaxy, Seyfert galaxies, and quasars? How come we see billions of galaxies in the universe, yet none of them are more massive than a few times the mass of our own Milky Way? These questions will be answered as I discuss the recent scientific findings that connect the evolution of colliding and merging galaxies, starburst galaxies with an increased star formation rate, the formation of active galactic nuclei (AGN) and super-massive black holes, and the subsequent feedback of these active galaxies with their host environments in the form of supernova bubbles, relativistic collimated jets, and high mass outflows from AGN. I will then discuss my research on the most energetic quasar outflow observed to date, with a mass of several hundred million solar masses and the power of a trillion suns.

Max is a member of NCAS and former club officer. He received the National Young Astronomer Award from the Astronomical League. He is completing his undergraduate work at CU in Boulder and will be headed off to graduate school this summer.

A Note from Our Treasurer From Jon Caldwell

Hi everyone,

Just a reminder for anyone that has not yet paid their \$15 2009 dues to please bring your money to the meeting next Thursday. If anyone can't make it to the meeting and would like to pay by mail, my address is 7208 Fort Morgan Dr. Fort Collins, 80525. Thanks, Jon Caldwell

Secretary's Corner From Chad Moore

Being too slow to step back when volunteers were called, I find myself the club's secretary. I take over from Dave Chamness (tell him thanks!). In between Dan Laszlo's newsletter efforts and his reporting on the meeting speakers, most of my duties are otherwise attended to. So I'll try to cover some other bases that are a bit further a field, and bring a wide field view to the club on a monthly basis.

For starters, NCAS is a member of the Astronomy League- an umbrella organization that knits together astronomy clubs and does its fair share to defend dark skies, encourage young astronomers, and promote getting out and observing. One of the great programs AL provides is their observing clubs. If you haven't looked at their website lately (www.astroleague.org) there is a lot more there than the Messier and Herschel lists. There is something for every interest, from urban skywatchers to deep-sky aficionados. With some observing clubs you could get the first level pin with a 6 hour observing project, while others will take hundreds of hours. I myself enjoy the challenge and achievement of the observing clubs and it helps give me that extra push to get outside under a starry sky. I also end up with observing field notes, which makes me feel like a real scientist. Perhaps some of these observing club programs sound interesting to you: Double Stars, Globular Clusters, Herschel 400 (part 1 and 2!), Binocular Messier, Galileo Club (good project for this year), Lunar, or Meteor Observing? Recently they created an Outreach Award to give credit for all those public star parties you probably help out with.

Scanning the records, it looks like only one intrepid astronomer represents NCAS on any of the observing clubs. I bet the club could easily pull down five observing awards this year, any takers? I missed the Quadrantids this year, but I'm hoping to finish the first level of my meteor observer award and looking for observing partners if anyone is interested. Till next moon- Chad Moore.

January 8 Meeting Update on Earth's Moon, Featuring Image Processing for Short Attention Spans Dr. Dan Laszlo, NCAS

Eyes alone are enough to enjoy the spectacle of the Moon as it rises and sets. A typical month has a few nights with it near a bright planet, and its trio with Jupiter and Venus in December 2008 was a spectacular example. We were treated last year to a series of lunar Pleiades transits, seen best when the Moon is a crescent. We have also been treated recently to close passes by first magnitude stars Antares and Spica. These events are enhanced by the simplest binoculars. A minimal bit of magnification hints as Galileo discovered that the Moon is not a perfect orb. Instead it is a celestial museum piece formed 4.5 billion years ago, heavily battered for about the first

billion. Binoculars readily allow discrimination between the smooth, dark maria and heavily cratered highlands. A careful look with binoculars shows the patchy nature of the maria, hinting that different episodes of lava flooding occurred.



Moon with Canon 300mm f/5.6 and Rebel XSi

Binoculars will also reveal dozens of craters. Splendid ray systems extend from the newest. A 10x view is enough to clearly show craters 60 miles across, about the distance from here to Denver. Any phase of the Moon can look great in binoculars, from the thinnest crescent within a day of New Moon, the waxing crescent with Earthshine, the highly cratered terminator around First Quarter, then spectacular rays in the weeks to Gibbous then Full. Even a starter 60mm telescope brings another level of structure in reach. The mountainous nature of some mare edges comes in view when the lighting is right. The patchy nature of the floor of the maria is more obvious. More crater rays can be resolved. It is also possible to begin to see some prominent examples of rilles, pleasantly challenging lunar targets. Straight rilles can be found in the bottom of floor-fractured craters. Sinuous rilles are thought to be collapsed lava tubes. A telescope in the 4 to 6 inch range is a good starter scope for the Moon. It would allow nice framing at low power, and still gather enough light when a higher power eyepiece is in for 200-250x. Larger aperture is helpful for tracking down smaller features like fine rilles. One favorite type of subtle target for lunar observers is the lunar dome. These are likely shield volcanoes and spotting them and their summit crater pit require a look around lunar sunrise/sunset and very steady air. Appearances on the Moon change dramatically depending on the angle of sunlight hitting the region. Low angle lighting is helpful for subtle rilles and domes. High sun can emphasize albedo differences and make newer craters and rays stand out. The Moon has been a target of opportunity for DL the past year. We had a few nights of very good seeing in January 2008. This kicked off a photo project, initially intended to support a movie showing moon phases before and after the total lunar eclipse of Feb 2008. An initial plan to build a composite image for a lunar atlas was deferred; lunar libration



Moon July 24 2008 TMB 175 f/8 Canon Rebel XSi

intervened, preventing assembly of a tidy globe. Greg Halac has kindly placed the initial “phases” of the atlas project on the NCAS website. The initial attempt to get a few good months of images extended over the year of 2008. It just seemed like a shame to end a streak. The surprising number of nights allowing a Moon shot totaled over 250 by the end of 2008. Most months afforded a few nights of good seeing, or some otherwise interesting shot besides the eclipse such as very thin crescents, or nearby bright stars. The images are taken with a Canon Digital Rebel XSi. The sensor will barely fit the Moon at perigee with the 1400mm focal length of the telescope. A TMB 175 f/8 refractor is used at prime focus for most shots. An AP Barcon Barlow is added if the seeing is good. On a good night it was possible to spot Rima Birt by the Straight Wall in the photo. RAW images are converted to TIFF with Canon software then Photoshop CS2 is run to suppress the chroma noise. Stacking has not been used. The club was shown a preliminary movie of 1 lunation from crescent to total lunar eclipse to crescent. For now it exists in aligned frames, to be assembled in a brief HD movie in the near future. Digital imaging of the Moon can be found on the Lunar Photo of the Day. A truly spectacular mosaic of the Mare Imbrium region was created by Alan Friedman in Buffalo NY. The year has seen successful missions from the space programs of Japan, China and India. The Japanese broadcaster NHK provided a high-definition video camera for the Kaguya orbiter, and movies became available on YouTube in December 2008. The movie of Plato from orbit is an interesting counterpoint to Friedman’s mosaic. Amateur assistance has been invited for the LCROSS mission.

Dr. Dan Laszlo is a local amateur astronomer. He is an allergy/asthma physician with Big Thompson Medical Group.

Some Lunar Links

Alan Friedman’s Lunar and Planetary Images:
www.avertedimagination.com

Lunar Photo of the Day <http://lpod.wikispaces.com/>

Hitchhikers Guide to the Moon
<http://www.shallowsky.com/moon/hitchhiker.html>

Digital Lunar Orbiter Photographic Atlas:
http://www.lpi.usra.edu/resources/lunar_orbiter/

Consolidated Lunar Atlas:
<http://www.lpi.usra.edu/resources/cla/>

Inconstant Moon: Tours
www.inconstantmoon.com

Japan’s Kaguya site
http://www.jaxa.jp/press/2008/10/20081009_kaguya_e.html

China’s Chang e-1
<http://210.82.31.82/index.asp?modelName=eng/en-news>

India’s Chandrayaan-1
<http://www.chandrayaan-i.com/news/news.html>

Weather Clear Sky Chart www.cleardarksky.com

Regional and Mesoscale Meteorology Branch: animations
http://rammb.cira.colostate.edu/ramsd/online/goes-west_goes-east.asp

Large scale animations and medium-range forecast:
www.weather.unisys.com

Gunnison Valley Observatory Open for 2009 From Bob Michael

“The Universe is Yours to Discover” during the International Year of Astronomy. 2009 marks the 400th anniversary of the first recorded astronomical observations with a telescope by Galileo Galilei. During this International Year of Astronomy, so declared by the 62nd General Assembly of the United Nations, locals and visitors to the Gunnison Valley can share in this anniversary by discovering the astronomic wonders of our clear night skies.

The Gunnison Valley Observatory will begin its second season with public viewings being held on Friday evenings,

starting April 3rd and continuing through September 25th. The Observatory will feature astronomy presentations, outdoor viewing through small telescopes, and viewing the wonders of the night sky through the GVO's 30" telescope.

The distinctive silver, dome-topped, publically-owned observatory, located at the base of "W" Mountain at 2805 County Road 38 (south on Gold Basin Road), houses a telescope with a 30-inch mirror to view the moon, planets, stars and other astronomical wonders under Gunnison's clear, stable skies.

The Observatory grounds open at 7:30, with programs starting just after sunset. Admission is by donation and visitors are encouraged to dress warmly. Even summer nights can be chilly. Actual program start times can be found by calling 970-642-1111 or by visiting the Observatory website at www.coloradoskies.org. Carpe Noctem – Seize the Night!

Space X raises Falcon 9 on pad

From Ray Warren

SpaceX continues to charge forward toward the maiden launch of the Falcon 9 : <http://www.spacex.com/updates.php>

You Choose a Target for HST by March 1 for IYA 2009 From Andrea Schweitzer

<http://youdecide.hubblesite.org/>

In 1609, Galileo turned his telescope on the night sky for the first time. Now, 400 years later, your vote will help make the momentous decision of where to point modern astronomy's most famous telescope.

"Hubble's Next Discovery -- You Decide" is part of the International Year of Astronomy (IYA), the celebration of the 400th anniversary of Galileo's observations. People around the world can vote to select the next object the Hubble Space

Telescope will view. Choose from a list of objects Hubble has never observed before and enter a drawing for one of 100 new Hubble pictures of the winning object. The winning image will be released between April 2 and 5, during the IYA's 100 Hours of Astronomy, a global astronomy event geared toward encouraging as many people as possible to experience the night sky.

Vote by March 1 to swing Hubble toward your favorite target at:

<http://youdecide.hubblesite.org/>

For more information about 100 Hours of Astronomy, see:

<http://www.100hoursofastronomy.org/>

For more information about the International Year of Astronomy, see:

<http://astronomy2009.org/>

<http://astronomy2009.us/>

Comet Lulin at Maximum Brightness Feb 2009

<http://www.astrodrayer.com/lulin>

<http://cometchasing.skyhound.com/>

Shadow of Saturn's Titan Crosses North Edge of Planet Feb 24 Predawn

Rare event is associated with the near-edge-on rings. Start about 0350 am MST, mid-event at about 0500 am, and end in brightening sky about 0620 am.

Best Looks

Moon By Pleiades Feb 3; by Saturn Feb 10-11
By Antares Feb 17 by Mercury & Jupiter Feb 22,23
by Venus Feb 27,28

Mercury In SE dusk last week.

Venus In SW in evening all month

Mars Difficult in SE at dawn by Jupiter end of month

Jupiter In SE in morning last week

Saturn High in S middle of night. Rings very thin

International Space Station Passes for Loveland – Fort Collins

February 2009

Beware of ISS Boost Due After Feb 4 2009

Date	Mag	Starts			Max. altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
3 Feb	0.1	18:59:48	10	W	19:02:13	22	SW	19:04:03	13	S
4 Feb	-1.9	17:51:52	10	WNW	17:54:51	69	SW	17:57:50	10	SE
5 Feb	0.7	18:20:22	10	W	18:22:32	18	SW	18:24:41	10	S
7 Feb	1.3	17:40:57	10	W	17:42:46	15	SW	17:44:35	10	S

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