

The Objective View

Newsletter of the Northern Colorado Astronomical Society

October 2008

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Other Events

Little Thompson Observatory Star Night: Star and Planet Formation, Dr Larry Westrum

October 17 7:00 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

Cheyenne Astronomical Society Oct 17 7 pm

Cheyenne Botanic Garden

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

Chamberlin Observatory Open House, dusk to 10 pm

Oct 4, Nov 8, Dec 6 303 871 5172

Hosting Colorado Space Day Oct 4 starting 9:30 am

<http://www.angelfire.com/space/fr15/>

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

Longmont Astronomical Society Oct 16 7 pm FRCC,

2121 Miller Rd. See new web page design at:

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

International Year of Astronomy 2009, by Dr. Andrea Schweitzer

Andrea had the pleasure of accepting the role national project manager for IYA 2009. The 400th anniversary of Galileo's telescope observations led Franco Pacini to promote of this program to help citizens rediscover the sky. Sponsors include the International Astronomical Union, NASA, and it is endorsed by UNESCO and the United Nations. One hundred twenty countries are participating to date. The program aims to engage everyone personally to experience the wonder and discovery in science. This will bring an appreciation for the impact of science in our daily lives. The US goals are to offer an engaging astronomy experience to every person in the country, nurture existing partnerships, and build new connections to sustain public interest in science. Funding is limited, so outreach will rely on grassroots support Major program themes are:

Arts and Entertainment

Research Experiences for Students, Teachers, and Citizen-Scientists

The Universe for Classrooms & Families

Cultural Astronomy

Dark Skies are a Universal Resource

Looking Through a Telescope

New Media: Sharing the Universe through New Technology

Science Centers, Observatory Visitor Centers & Planetaria

Telescope Kits and Optics

A look through a telescope will rely on star parties and sidewalk astronomy. Dark Skies will promote star counting activities and connections with National Parks. It will

Next Meeting: October 2 7:30 pm

**In Search of Darkness - National Park Service
Research on Light Pollution
by Chad Moore**

Club Business 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/2008_Brochure.pdf

NCAS Programs

Nov 6 Joe Hinton, Art Hoag Northern Colo Rocketry

Dec 4 TBA, Elections

Public Starwatch at Discovery Science Center, South Lot

Oct 10 7:00 pm

Nov 7 6:30 pm

Dec 5 6:30 pm

Bobcat Ridge Starwatch (near Masonville)

A great night was had by all on the final night of the program. Thanks so much to our volunteers from D Price!

Rocky Mountain National Park Starwatching

Program Director Jeff_Maugans sends his sincere thanks to NCAS for our support in 2008. He thinks this is a model for other parks to emulate, and would like to add nights next summer.

coordinate with Night Sky Network activities. Amateur astro clubs may participate at no charge, and receive a NASA teleconference every month or two. Topics would be the LCROSS mission or Cassini mission updates. The general public tends to be unaware of the views available in a telescope, and unaware of the beauty of the sky which is hidden by poor lighting fixtures. Chad Moore is member of a working group on impact of lighting. Citizen scientists are to contribute observations on selected projects. One candidate is monitoring Epsilon Aurigae, the most bizarre eclipsing binary. It is now studied by Dr. Robert Stencel at the University of Denver. Web-based projects like the Galaxy Zoo are most readily accessible. Participants will get guidance on quality observations and participate in current science. The Telescope/Optics theme includes the Galileoscope, an inexpensive telescope kit for viewing lunar craters, Jupiter's moons, phases of Venus, and Saturn's rings. If support can be granted, 1.5 million would be made, and the cost of the scope would be \$10 to \$15. It can be opened to show the components. Remote telescope activities will involve NOAO, OSA, and SPIE. JPL will promote Saturn observing through next year's ring plane crossing. Sharing the Universe Through New Technology will aim for 365 days of astronomy. Second Life will have an Astronomy Island we can visit with an avatar. 100 Hours of Astronomy will run April 2 to 5 2009. The Europeans are presenting the Portal to the Universe, an all-in-one website. Microsoft's Worldwide Telescope is another resource with many of the best images. The Universe for Classrooms and Families themes is awaiting funding. It covers professional development for teachers. There is an IYA Galileo Club card and activities booklet. About 1 million dollars is needed. "From Earth to Universe" is an image resource. See: www.fromearthtotheuniverse.org One hundred of the best astro images have been selected and captioned and are available for any group registered to download and print locally. They are intended for display in large public spaces. A prototype outdoor display in Liverpool, England, has been enjoyed for several years. Denver International Airport is interested in hosting. Local astro clubs are invited to support with their participation in events. They may use the IYA 2009 logo for promotion on websites and materials. Globe at Night will run March 16 to 28, and uses star counting in select regions, or a sky quality meter, to assess sky quality. Earth Hour asks for shutdown of non-essential lighting on a spring evening. The Great Worldwide Star Count is planned for Oct 20 to Nov 3 2008, and Oct 9 to 23 2009. Andrea ran the ESA movie "From Earth to the Universe," and the trailer for a PBS program, "400 Years of the Telescope," to run this spring. IYA will promote an opening event in January 2009. NASA will go public shortly with a calendar with monthly scheduled objects. A 48 page annual newspaper insert is to be produced in Hilo, Hawaii. Its articles may be used by participating groups. Andrea solicited input regarding low-cost practical promotional items, such as info cards, simple flashlights, and magnets. Andrea asked if the club would be interested in a promotional image for a kiosk including the IYA logo, about \$160 for a 3 foot by 6 foot size.

Dr. Andrea Schweitzer attended Pomona College and was at JPL for the Voyager missions. Her graduate work at UW at Madison included testing the HST WFPC II. She is a consultant for NASA, SWRI, and Boeing. She is a founding board member of the Little Thompson Observatory.

General resources, includes links to Powerpoint talks and IYA 2009 trailer:

www.astronomy2009.us
www.astronomy2009.org
www.400years.org
<http://nightsky.jpl.nasa.gov>
www.sidewalkastronomers.us

Monthly targets:

<http://astronomy2009.nasa.gov/news.htm>

IYA shirts, mugs, stickers

www.cafepress.com/astronomy2009
www.zazzle.com/aasiya

Sky Quality:

www.globe.gov/GaN/
www.windows.ucar.edu/citizen_science/starcount

Epsilon Aurigae

http://astronomy2009.us/citizen_science/epsilon-aurigae

NCAS Club Business, Sept 4 2008

President Nate Perkins called the meeting to order. The meeting calendar was announced, with Chad Moore to discuss light pollution studies in the National Park System. Volunteer opportunities include the DSC, Bobcat Ridge, and Crow Valley sites in September. Eaton High School will invite students for their starwatch on Oct 7. The Okie-Tex Star Party offers extreme darkness and comforts of food and lodging, the last week of the month. White Sands NM hosts their event Sept 26-7. Treasurer Bob Michael reports the treasury at \$342.79. Astronomy Magazine offers their calendar at \$6.50 with subscription renewal, and the monthly magazine is \$34 for 1 year, \$60 for two.

HST Top 10 Images per Michael Hanlon, Daily Mail Forwarded by Gerry Reynolds

M104 the Sombrero Galaxy
 Mz3 The Ant Nebula
 NGC 2392, the Eskimo Nebula
 NGC 6543, the Cat's Eye Nebula
 The Hourglass Nebula
 The Cone Nebula
 Swan Nebula closeup
 Nova Mon with light echoes in dust
 NGC 2207 and IC 2163 merging galaxies
 Trifid Nebula closeup

Michael Shull, mshull@spitzer.colorado.edu
Jim Scott,
Sept. 17, 2008

First Church of Good Science Rap Video, aka the LHC Video, from Bob Michael

If the LHC didn't destroy the worldCERN's rap video may just:

<http://www.youtube.com/watch?v=8wwozHsmVQI>

Be sure to watch this in a place where you can laugh loudly.

Evan

SpaceX First Successful Private Launch, from Ray Warren

!!THEY DID IT!! This afternoon, SpaceX succeeded in launching the first privately built rocket to orbit. Find out all about it at:

<http://www.spacex.com/>

This is BIG. This is the start of a whole NEW space race.

China just launched 3 astronauts into orbit. SpaceX has plans to launch 7 astronauts within the next couple of years. The heavy lifting Falcon 9, that will do the job is scheduled for the first launch early in 2009. It has already been full-up test fired multiple times. One of its first jobs, after the test phase is to carry unmanned payload to the ISS in the Dragon capsule. But the Dragon capsule is also rated to carry 7 astronauts. The Falcon 1, which successfully reached orbit today is the test vehicle for the components of the Falcon 9.

Another customer is Bigelow space hotels. It is very possible that SpaceX will eclipse the Russians in the space tourism business when they shuttle the paying customers to Bigelow's inflatable space hotels (two prototypes have been in orbit for several years now - <http://www.bigelowaerospace.com/>).

SpaceX CEO, Elon Musk (of PayPal fame), has visions of going on to Mars. Surely, this will include a stop at the Moon. So one might ask: Who will make it BACK to the Moon FIRST - NASA, China or SpaceX?

Further, who else will enter the "low cost" to orbit market? Will Burt Rutan and Virgin Galactic (<http://www.scaled.com/>) make enough from sub orbital SpaceShipTwo passengers to fund orbital flight?

NOW, THE SPACE AGE HAS **REALLY** BEGUN.

\$70 MILLION CU-BOULDER INSTRUMENT SET FOR INSERTION ON NASA'S HUBBLE SPACE TELESCOPE

James.green@colorado.edu

Astronomers will use a \$70 million instrument designed by the University of Colorado at Boulder now set for installation on the Hubble Space Telescope in mid-October to probe the "fossil record" of gases in the early universe for clues to the formation and evolution of galaxies, stars and planets.

The telephone-booth-sized instrument known as the Cosmic Origins Spectrograph, or COS, should help scientists better understand the "cosmic web" of material believed to permeate the universe, said CU-Boulder Professor James Green, COS science team leader. COS will gather information from ultraviolet light emanating from distant objects, allowing scientists to look back in time and space and reconstruct the physical condition and evolution of the early universe, said Green.

"Light traveling from quasars billions of light-years away is altered as it passes through the material between galaxies, allowing us to see fingerprints of different gases," said Green of CU-Boulder's Center for Astrophysics and Space Astronomy. "By choosing hundreds of targets in Many directions, we can build up a picture of the way matter is organized in the universe on the grandest of scales."

While matter is thought to have been distributed uniformly throughout space just after the Big Bang, gravity has collapsed the universe into its present structures, said Green. "The Cosmic Origins Spectrograph is 10 times more sensitive than any instrument of its kind, which opens up a whole new vista of scientific opportunities for Hubble," he said. "That's why we are so excited to get it into orbit."

The spectrograph will break light into its individual components – similar to the way raindrops break sunlight into the colors of the rainbow -- revealing information about the temperature, density, velocity, distance and chemical composition of galaxies, stars and gas clouds. COS will be able to peer back in time to 10 billion years ago when the first galaxies and chemical elements were forming, Green said.

The COS team will use distant quasars as "lighthouses" to track light as it passes through the cosmic web, believed to be made up of long, narrow filaments of galaxies and intergalactic gas separated by enormous voids. Astrophysicists have theorized that a single cosmic web filament may stretch for hundreds of millions of light-years, an eye-popping length considering a single light-year is about 5.9 trillion miles.

"The gases in between the galaxies contain the fossil record of the first stars and galaxies," said CU-Boulder Professor Michael Shull, a co-investigator for COS and a professor in CU-Boulder's astrophysical and planetary sciences department

along with Green. "Light passing through this material in the cosmic web illuminates fingerprints of elements like carbon, oxygen, silicon and iron, the building blocks of life that were made billions of years ago inside young, hot stars."

COS was built primarily by CU-Boulder's industrial partner, Ball Aerospace & Technology Corp. of Boulder. Other participating co-investigators on COS are from Ball Aerospace, the Southwest Research Institute in Boulder, the University of Wisconsin-Madison, the University of California, Berkeley, NASA's Goddard Space Flight Center in Greenbelt, Md., and the Space Telescope Science Institute in Baltimore, Green said.

"I think of the cosmic web as the backbone of the universe," said Shull. "To really understand it, we need to look at hundreds of different targets, which will allow us to take a CAT scan of the universe. And with the Cosmic Origins Spectrograph, we can make observations 10 times faster than before."

COS also will be used to detect young hot stars shrouded in the thick dust clouds they formed in, providing new information on star birth, said CASA Senior Research Associate Cynthia Froning, deputy principal investigator for COS. Scientists also will point COS at gas surrounding the outer planets of the solar system to glean new clues about planetary evolution, Froning said.

Green and his COS science team, which is made up of 14 CU-Boulder scientists and engineers and 10 scientists from other institutions, have been allotted 552 orbits of observing time on Hubble. CU-Boulder's CASA is in the process of hiring several dozen postdoctoral researchers, graduate students and undergraduates to work on the project in the coming years, Green said.

HST Repair Mission Delayed by Science Data Formatter Failure

See:

<http://www.space.com/missionlaunches/080929-hubble-glitch.html>

Crow Valley Star Party Sept 20

Thanks to the following folks for coming out to support the U.S. Forest Service/Greeley Visitor Bureau star party last evening at Crow Valley:

Randy Cunningham from AstroSystems

Stan Jarrett from BASS

Larry Bloom, Mike Fellows, Glen Frank, Ken O'Toole, Andrew Plank, Vern Raben, and John Warren from LAS

Jon Caldwell, Greg Halac, and Tom Teters from NCAS

Unfortunately there were only a few sucker holes now and then. Even so, some of 90 people from Greeley who attended the event got some brief glimpses of M13, M57, M27 and Jupiter. A fun event with campfire, marshmallows, coffee, hot chocolate, a guitar player, and Q&A with astronomy prof. Dr. Dietz from UNC Greeley.

Several weeks ago Gary talked to the Forest Service about the possibility of setting aside an area at Crow Valley for us astronomy enthusiasts. I'm pleased to report that they are very supportive of the idea. We'll be discussing this within LAS and try to come to a decision as to whether this is something we want to pursue. At this point there are no details as to what we might propose, how much it will cost, or how much work will be involved. If there is consensus with LAS to proceed, I'm sure we'll be contacting other clubs in the area for your input and support.

Vern

Astronomy Videos Available, from Greg Halac

I have the following "Teaching Company" videos to lend/give to NCAS members:

Give away - 1st to ask can have them:

Understanding the Universe: An Introduction to Astronomy
15 VHS Tapes, 40 lectures

Donated to NCAS "library" - available for loan:

Understanding the Universe: An Introduction to Astronomy
10 DVDs, 40 lectures

Understanding the Universe: What's New in Astronomy 2003
4 DVDs, 16 Lectures

Please contact me if you're interested ...

Regards,
Greg Halac
Vp at ncastro dot org

Orionid Meteors Morning of October 21-22

Best Looks

Moon By Venus 10/1. by Jupiter 10/7,
by Saturn 10/24, 25

Mercury In E predawn last 2 weeks

Venus In SW in evening. By Antares 10/26

Jupiter In SW in evening

Saturn Low in E predawn

Uranus In Aquarius, middle of night

Neptune In Capricornus, evening

International Space Station Passes for Loveland – Fort Collins

October 2008

Date	Mag	Starts			Max. <u>altitude</u>			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
1 Oct	0.1	20:04:32	10	NNW	20:06:12	14	NNE	20:06:23	14	NNE
2 Oct	0.5	18:56:10	10	N	18:56:45	10	N	18:57:21	10	NNE
2 Oct	0.0	20:30:22	10	NNW	20:31:38	19	NNW	20:31:38	19	NNW
3 Oct	0.0	19:21:48	10	NNW	19:23:33	15	NNE	19:25:18	10	NE
3 Oct	0.9	20:56:23	10	NW	20:56:54	14	NW	20:56:54	14	NW
4 Oct	-1.0	19:47:34	10	NW	19:50:09	27	NNE	19:50:38	26	NE
5 Oct	-1.8	20:13:35	10	NW	20:16:00	56	NW	20:16:00	56	NW
6 Oct	-1.2	19:04:43	10	NW	19:07:21	29	NNE	19:09:52	11	E
6 Oct	0.4	20:40:06	10	WNW	20:41:28	20	W	20:41:28	20	W
7 Oct	-2.4	19:30:42	10	NW	19:33:38	88	WSW	19:35:27	21	SE
8 Oct	-0.1	19:57:16	10	W	19:59:40	23	SW	20:01:10	16	S
9 Oct	-2.2	18:47:45	10	NW	18:50:41	77	SW	18:53:35	10	SE
10 Oct	0.3	19:14:21	10	W	19:16:38	20	SW	19:18:53	10	S
12 Oct	0.7	18:31:23	10	W	18:33:30	18	SW	18:35:36	10	S
21 Oct	0.9	06:30:32	10	S	06:32:19	15	SE	06:34:06	10	E
22 Oct	-1.4	06:55:05	10	SW	06:57:57	52	SE	07:00:49	10	ENE
23 Oct	0.5	05:46:45	10	S	05:48:44	17	SE	05:50:43	10	E
24 Oct	-1.8	06:12:07	16	SW	06:14:20	60	SE	06:17:14	10	ENE
25 Oct	0.8	05:06:08	15	ESE	05:06:08	15	ESE	05:07:11	10	E
25 Oct	-1.7	06:37:43	13	W	06:40:11	39	NNW	06:42:56	10	NE
26 Oct	-0.9	05:31:31	39	ENE	05:31:31	39	ENE	05:33:32	10	ENE
26 Oct	-0.5	07:04:01	10	WNW	07:06:10	18	NNW	07:08:19	10	NNE
27 Oct	-1.4	05:56:44	35	NNW	05:56:44	35	NNW	05:59:10	10	NE
28 Oct	-0.4	06:21:47	16	NW	06:22:25	17	NNW	06:24:29	10	NNE
29 Oct	1.0	05:15:10	11	NE	05:15:10	11	NE	05:15:18	10	NE
29 Oct	0.2	06:47:30	10	NNW	06:48:34	11	N	06:49:37	10	N
30 Oct	0.5	05:40:02	12	NNE	05:40:02	12	NNE	05:40:34	10	NNE
31 Oct	0.3	06:04:49	11	N	06:04:49	11	N	06:05:39	10	N

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