

The Objective View

Newsletter of the Northern Colorado Astronomical Society

March 2010

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Other Events

Chamberlin Observatory Open House, 7 to 10 pm

Mar 20, Apr 24, May 22, Jun 19 303 871 5172

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

Cheyenne Astronomical Society 7 pm Mar 19

Cheyenne Botanic Gardens Galaxies, by Marcy Curran

<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. Mar 6 and 25

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

Little Thompson Observatory, open 7 pm Feb 19, Andrea

Schweitzer, Ph.D., Dark Sky Initiatives at 7:30 pm

<http://www.starkids.org>

Longmont Astronomical Society 7 pm Mar 18 at IHOP, 2040

Ken Pratt Blvd. Dr Bill Possel, Kepler and MAVEN missions

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

February 4 Program: Video Astrophotography

by Vern Raben

Vern enjoyed the dark skies of NW Nebraska growing up. He started using telescopes at about 9 years of age. He attended a star party at Rocky Mountain National Park about 6 years ago and has been an active amateur astronomer since then. He likes the challenge of making lunar and planetary images. Simple web cameras made a leap in image quality possible for amateurs, but these devices have their own pitfalls. The imaging chip is small. Aiming and tracking is like visual astronomy with a high powered 3mm eyepiece. A zoom eyepiece is a great convenience and he uses an 8 to 24mm. Vern assembled his telescope for his talk. Accurate tracking is required and he has a Celestron Nexstar 11 on an APT wedge and Meade giant field tripod. Next is a filter wheel. He gets R, G, B, and luminance frames. He has a monochrome camera. He started with an inexpensive Toucam webcam on a \$65 adapter. Results are better with a DMK 2104 AS which gives up to 60 frames per second uncompressed. He operates the camera with IC Capture, a free download, just takes a call to activate. It works with most cameras. The camera has a USB output. He is running Windows XP, not Vista or Windows 7. He uses a 2.5x Barlow to get f/20 to f/30. On an ideal night, the chip resolution matches the seeing, about 0.1 arcsecond. He then carefully collimates his scope. The slightly out-of-focus rings tell a lot about the night's potential. They will blur together on a lousy night, but if they aren't moving, he will be shooting all night. If the doughnut looks

Next Meeting: March 4 7:30 pm

CLOUDSAT

By Dr. Matt Rogers

CSU Dept of Atmospheric Sciences

Club Business at 7:15 pm

Fort Collins Museum, 200 Mathews St

Fort Collins

<http://www.fcgov.com/museum/>

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

NCAS Programs

April 1 TBA

NCAS Public Starwatch at Fossil Creek Reservoir

Mar 19 6:30 to 10 pm

Apr 16 7 to 10 pm

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

City of Fort Collins Natural Area Program at Sunset

Bobcat Ridge: Mar 11, Apr 8, May 13

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

Dark Site Observing Dates

March 12, 13 Keota site, ask FRAC

lopsided, he tweaks the collimation knob to move the image toward the fat side. He tries 1/32 turn at a time. He checks both sides of perfect focus and the pattern should match. He then swaps in an eyepiece to find the planet. Vern showed a movie on a night of Pickering 6 to 7 seeing. The camera field shows only 40 arcseconds on the sky. He will get 90 seconds with each filter. The planets are bright enough for 30 frames per second, a file has about 3000 frames. He likes Registax 5 for processing, it is another freeware program. Starting with 300 to 500 frames will give a good image. He will actually use 50 of the best. The program has an algorithm to align and find the sharpest frames. When stacked, he looks at a brightness histogram and stretches to get bright highlights. Performing a wavelet function gives sharpening at a variety of levels. When the gray scale images are done, he imports the R, G, B, and luminance to Photoshop for final combination. He adjusts the opacity of the channels to visualize details, but does not want an extreme, manipulated look. Mars was his demonstration, and he was able to tease out more detail than a typical eyepiece view. He also has a Stellacam 2 video camera. It is sensitive enough to image galaxies to magnitude 17. He uses it for webcasts, and was online for the LCROSS mission. Vern kindly provided some DVDs with video files if members wish to try processing. Please contact me. DL

About our speaker: Vern writes: “. . . Professionally, I’ve worked as a gas station attendant, a janitor, a combat medic, a chemical engineering assistant, a draftsman, a construction inspector, a civil engineer, a controls engineer, an instrumentation engineer, an electronics engineer, a system administrator, a webmaster, and a software engineer. Software engineering would be my hobby if it weren’t my profession. For the past ten years I’ve managed my own software consulting business. I have BS’s in computer science and electronics, and MS in information systems.

Vern is President of the [Longmont Astronomical Society](#) and the webmaster for the [The Astronomical League](#).

February 4 Club Business

President Bob Michael called the meeting to order. Greg and Chad will be registering NCAS members to access the volunteer functions of the site. To view, see: <http://nightsky.jpl.nasa.gov/> Events were reviewed. The club account stands at \$752.49 + \$100 petty cash per email from Jon Caldwell. Next outreach events in 2010 were at Edmonson Elementary and Big Thompson Elementary in Loveland, and next is the public starwatch at Fossil Creek Reservoir Feb 19.

From Bob Michael: Rigel Astronomy Vacations

Rigel Astronomy Vacations is now booking for 2010 with exciting new options including workshops. This would make a great outing for your astronomy club and a very special

event for your members. In 2010, we are offering several options for astronomy groups that hopefully will be of interest to your organization.

If you are unfamiliar with our offerings, let me give you an introduction. We offer astronomy themed packages in southern New Mexico. We base out of Alamogordo which is located adjacent to White Sands Missile Test Range in the heart of America's birthplace of rocketry. We offer tours of all the major museums and facilities in the area including two major observatories (Apache Point and Sunspot), lectures on astronomy (including a lecture with Dr. Alan Hale), visits to local attractions (White Sands National Monument and Carlsbad Caverns) as well as stargazing at a 7300' elevation dark sky site. Details are on our web site (www.tedcookproductions.com). There is a downloadable full brochure near the bottom of the Rigel page that includes more information.

Our stock packages run seven days. But for groups and organizations we offer customized packages, designed just for your group's interests, budget and time frame. Also, new for 2010, we are offering short three day workshops devoted entirely to astronomy and space.

There is plenty to see and do in this unique area of the county. Natural beauty, history and culture abound. There is something for everyone, so even non-astronomers will enjoy their time here. We will work with you to tailor a package devoted entirely to your group, so members can travel with their spouses for a most memorable vacation.

If your group would rather attend a workshop, we are excited this year to offer to groups a three day workshop intended for amateur astronomers of all levels, including students. We include a tour and lectures at the New Mexico Museum of Space History, a lecture at Sunspot Solar Observatory on the latest studies and findings in the world of solar sciences, tours of Sunspot and Apache Point observatories, a lecture with Dr. Alan Hale (astronomer and co-discoverer of comet Hale-Bopp) and an evening of stargazing with Dr. Hale at a 7300' elevation dark sky site.

We believe this is a wonderful opportunity for astronomy groups just as yours to put together a fantastic group outing to an incredible place. From workshops to customized packages, there is something for everyone. Contact us for more information and to start planning a truly unforgettable group event. Vacations and workshops run in spring and fall.

Sincerely,

Ted Cook
Ted Cook Productions LLC
Rigel Astronomy Vacations New Mexico
Visit our web site at: [Ted Cook Productions](http://www.tedcookproductions.com)

From Andrea Schweitzer: Globe at Night March 3 to 16

The 5th Annual Globe at Night Campaign: 3-16 March 2010

What: The Globe at Night Campaign

When: 8pm to 10pm local time, March 3-16, 2010

Where: Everywhere

Who: You! (Everyone!)

How: See <http://www.globeatnight.org>

Why:

With half of the world's population now living in cities, many urban dwellers have never experienced the wonderment of pristinely dark skies and maybe never will. This loss, caused by light pollution, is a concern on many fronts: safety, energy conservation, cost, health and effects on wildlife, as well as our ability to view the stars. Even though light pollution is a serious and growing global concern, it is one of the easiest environmental problems you can address on local levels.

Globe at Night is an annual 2-week campaign in March that helps to address the light pollution issue locally as well as globally. This year the campaign is March 3-16, 2010. You are invited along with everyone all over the world to record the brightness of your night sky by matching its appearance toward the constellation Orion with star maps of progressively fainter stars found at

http://www.globeatnight.org/observe_magnitude.html

You then submit your measurements on-line at

<http://www.globeatnight.org/report.html>

with your date, time and location. A few weeks later, organizers release a map of light-pollution levels worldwide. Over the last four 2-week Globe at Night campaigns, volunteers from over 100 nations have contributed 35,000 measurements.

To learn the five easy steps to participate in the Globe at Night program, see the Globe at Night website at <http://www.globeatnight.org>. You can listen to our 10-minute audio podcast on light pollution and Globe at Night at <http://365daysofastronomy.org/2010/02/03/february-3rd-the-globe-at-night-campaign-our-light-or-starlight/>

For activities that have children explore what light pollution is, what its effects are on wildlife and how to prepare for participating in the Globe at Night campaign, see the new activities at

<http://www.darkskiesawareness.org/DarkSkiesRangers>

Monitoring our environment will allow us as citizen-scientists to identify and preserve the dark sky oases in cities and locate areas where light pollution is increasing. All it takes is a few minutes during the March 2010 campaign to measure sky brightness and contribute those observations on-line. Help us exceed the 15,000 observations contributed last year. Your measurements will make a world of difference.

Earth-Sun Day March 20 2010

Sun-Earth Day is comprised of a series of programs and events that occur throughout the year culminating with a celebration on or near the spring equinox. For Sun-Earth Day 2010, take a journey into the heart of the electromagnetic force and learn how magnetism, an everyday force that makes motors work, sticks notes to our refrigerators and keeps electricity flowing to our houses, plays a key role in understanding the sun and is responsible for the most violent explosions in the solar system -- magnetic storms.

Over the past 10 years, the NASA Sun-Earth Day team has sponsored and coordinated education and public outreach events to highlight NASA Heliophysics research and discoveries. The SED team's strategy involves using celestial events, such as total solar eclipses and the transit of Venus, as well as Sun-Earth Day during the March equinox, to engage K-12 schools and the public in space science activities, demonstrations and interactions with space scientists.

On March 20, 2010, join the Sun-Earth Day team for a live Sun-Earth Day webcast from the exhibit floor of the National Science Teachers Association conference in Philadelphia. For this webcast, the team will combine forces with the award winning NASA EDGE team known for their offbeat, funny and informative look behind the NASA curtain. Webcast guests will include scientists, educators and students who will demonstrate the power of magnetism and why we care about magnetic storms.

For more information and educational resources, including posters, fliers, postcards and an educator kit, visit the Sun-Earth Day Web site

at <http://sunearthday.nasa.gov/2010/about/index.php> [<http://sunearthday.nasa.gov/2010/about/index.php>].

Solar Stormwatch Project

SCIENTISTS LAUNCH SOLAR STORMWATCH TO ASK PUBLIC FOR HELP IN UNDERSTANDING THE SUN The Royal Observatory, Greenwich (ROG), in partnership with the Science and Technology Facilities Council's Rutherford Appleton Laboratory and Zooniverse are launching Solar Stormwatch, a new web project where anyone can help spot and track solar storms and be involved in the latest solar research. The Sun is much more dynamic than it appears in our sky. Intense magnetic fields churn and pummel the Sun's atmosphere and they store enormous amounts of energy that, when released, hurl billions of tons of material out into space in explosions called Coronal Mass Ejections (CMEs) -- or solar storms. Solar Stormwatch volunteers can spot these storms and track their progress across space towards the Earth. Such storms can be harmful to astronauts in orbit and have the potential to knock out communication satellites, disrupt mobile phone networks and damage power lines. With the public's help, Solar Stormwatch will allow solar scientists to better understand these potentially dangerous storms and help

to forecast their arrival time at Earth. Julia Wilkinson, a Solar Stormwatch user says, "The fact that any Solar Stormwatch volunteer could make a brand new discovery about our neighboring star is very cool indeed. All you need is a computer and an interest in finding out more about what the Sun is really like." Dr. Chris Davis, one of the STFC scientists behind Solar Stormwatch says of the project, "The more people who can take part in Solar Stormwatch, the more we will know about solar storms. Collective measurements by many people are worth much more than the subjective opinion of one person." The project uses real data from NASA's STEREO spacecraft, a pair of satellites in orbit around the Sun which give scientists a constant eye on the ever-changing solar surface. The UK has a major input in STEREO, providing the two widest-field instruments, the Heliospheric Imagers, which provide Solar Stormwatch with its data. Each imager has two cameras helping STEREO stare across the 150 million kilometers (93 million miles) from the Earth to the Sun. Solar Stormwatch is the latest chapter in a long history of solar research at the Royal Observatory, Greenwich, dating back to the 1870's, when the Observatory housed a photoheliograph, a telescope that took daily photos of the Sun to track sunspots. Visitors will be able to see this telescope again when the Altazimuth Pavilion at the Royal Observatory, Greenwich, reopens in March 2010. Notes to Editors 1. Citizen Science is a movement where scientists harness a vast network of volunteers to help analyze scientific data. This mass participation allows scientists to untangle data that it would take much longer or be impossible to analyze otherwise. In other cases the human eye and brain are much more adept at making subjective decisions than computers and so are better suited to more finely detailed observations. The Citizen Science Alliance, led by Dr. Chris Lintott, brings together an international team of scientists, software developers and educators to continue to build on previous Citizen Science success.

Solar Stormwatch is part of the Zooniverse network of projects (www.zooniverse.org). The first Zooniverse project, Galaxy Zoo, involved more than 250,000 people in classifying galaxies for a team of astronomers. 2. Solar Stormwatch is one of the flagship elements of Solar Season at the Royal Observatory, Greenwich, a series of events in early 2010 designed to put the Sun in the spotlight. Complementing Solar Stormwatch is Solar Story: Understanding the Sun, an exhibition charting humans' continuing quest to understand their nearest star. Visitors to the Peter Harrison Planetarium can also catch Secrets of the Sun, a new show revealing the Sun to be far from a docile sphere in the sky. 3. The Royal Observatory, Greenwich, is the home of Greenwich Mean Time and the Prime Meridian and one of the most important historic scientific sites in the world. Since its founding in 1675, Greenwich has been at the center of the measurement of time and space. Visitors can stand in both the eastern and western hemispheres simultaneously by placing their feet either side of the Prime Meridian line. Today the Observatory

galleries and Peter Harrison Planetarium help unravel the extraordinary phenomena of time, space and astronomy. 4. The Science and Technology Facilities Council (STFC, www.stfc.ac.uk) is one of Europe's largest multi-disciplinary research organizations. Part of Research Councils UK, STFC is funded by the government to support world-class science and technology. STFC ensures the UK retains its leading place on the world stage by delivering world-class science; accessing and hosting international facilities; developing innovative technologies; and increasing the socio-economic impact of its research through effective knowledge exchange partnerships. The Council has a broad science portfolio including Astronomy, Particle Physics, Particle Astrophysics, Nuclear Physics, Space Science, Synchrotron Radiation, Neutron Sources and High Power Lasers. In addition the Council manages and operates three internationally renowned laboratories: - The Rutherford Appleton Laboratory, Oxfordshire - The Daresbury Laboratory, Cheshire - The UK Astronomy Technology Centre, Edinburgh The Council gives researchers access to world-class facilities and funds the UK membership of international bodies such as the European Laboratory for Particle Physics (CERN), the Institute Laue Langevin (ILL), European Synchrotron Radiation Facility (ESRF), the European organization for Astronomical Research in the Southern Hemisphere (ESO) and the European Space Agency (ESA). It also contributes money for the UK telescopes overseas on La Palma, Hawaii and in Chile, and the MERLIN/VLBI National Facility, which includes the Lovell Telescope at Jodrell Bank Observatory. The Council is a partner in the UK space program, coordinated by the British National Space Centre. Science Contacts: Dr. Chris Davis Project Scientist, STEREO Heliospheric Imagers STFC Rutherford Appleton Laboratory +44 1235 446 710 chris.davis@stfc.ac.uk Dr. Marek Kukula Public Astronomer, Royal Observatory, Greenwich Please contact through the National Maritime Press Office +44 (0)20 8312 6790 / 6732 press@nmm.ac.uk Julia Wilkinson A Solar Stormwatch member who has taken up an Open University degree in astronomy on the back of participation in previous astronomy citizen science projects. +44 0797 045 2828 jules@astroshed.net

Best Looks

Moon By Saturn Mar 2; by Antares Mar 7;
By Jupiter Mar 14; by Venus Mar 16
By Pleiades Mar 20; by Mars Mar 24
Mercury Last week, low in W at dusk
Venus On horizon in W at sunset; 3 deg to Mercury Mar 31
Mars High in S late evening.
Jupiter In solar glare
Saturn In S middle of night

International Space Station Passes for Loveland – Fort Collins

March 2010

Date	Mag	Starts			Max. altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
02 Mar	-2.5	19:09:26	10	SSW	19:11:52	33	SSE	19:11:52	33	SSE
03 Mar	-2.7	19:34:17	10	WSW	19:36:48	56	WNW	19:36:48	56	WNW
04 Mar	-2.6	18:24:24	10	SSW	18:27:06	37	SE	18:29:49	10	ENE
04 Mar	-0.7	19:59:59	10	W	20:01:33	20	NW	20:01:33	20	NW
05 Mar	-2.8	18:49:16	10	WSW	18:52:07	58	NW	18:54:36	13	NE
06 Mar	-1.2	19:14:57	10	W	19:17:20	22	NNW	19:19:02	14	NNE
07 Mar	-0.5	19:41:14	10	NW	19:42:43	13	NNW	19:43:21	12	N
08 Mar	-1.1	18:29:49	10	WNW	18:32:10	22	NNW	18:34:30	10	NNE
09 Mar	-0.5	18:56:05	10	NW	18:57:31	13	NNW	18:58:56	10	NNE
11 Mar	-0.4	19:48:00	10	N	19:48:14	10	N	19:48:14	10	N
12 Mar	-0.1	20:12:08	10	NNW	20:12:12	10	NNW	20:12:12	10	NNW
13 Mar	-0.5	19:02:29	10	N	19:03:00	10	N	19:03:31	10	NNE
14 Mar	-0.9	20:26:35	10	NNW	20:28:18	14	NNE	20:28:36	14	NNE
15 Mar	-1.3	20:50:54	10	NW	20:52:33	22	N	20:52:33	22	N
16 Mar	-1.0	19:40:55	10	NNW	19:42:42	15	NNE	19:44:28	10	NE
16 Mar	-0.7	21:15:25	10	NW	21:16:30	20	NW	21:16:30	20	NW
17 Mar	-2.0	20:05:12	10	NW	20:07:46	27	NNE	20:09:01	20	ENE
17 Mar	0.4	21:40:23	10	WNW	21:40:31	11	WNW	21:40:31	11	WNW
18 Mar	-3.4	20:29:41	10	NW	20:32:33	81	NNE	20:33:04	57	ESE
19 Mar	-1.6	20:54:38	10	WNW	20:57:09	27	SW	20:57:12	27	SW
20 Mar	-3.4	19:43:50	10	NW	19:46:41	85	N	19:49:37	10	SE
21 Mar	-1.3	20:08:46	10	WNW	20:11:14	25	SW	20:13:42	10	SSE

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>