



Closeup of Enceladas' surface by Cassini

**Longmont Astronomy Society Newsletter
August 2008**

From the President:

Our next meeting is on Thursday August 21st at 7 pm in the Community Room at the Front Range Community College. It will be a "workshop type" meeting discussing and demonstrating techniques to process and enhance lunar and planetary images. Bring a laptop if you can. I'll bring a couple machines but more will be needed. The Registax4 software and some sample images and videos will be available on DVD for installation on your own machine. Our initial plan was to process the images taken with scopes at the imaging clinic on August 9th but unfortunately clouds intervened. The scope imaging clinic is rescheduled for this Saturday, Aug. 23rd.

Volunteers and telescopes are needed for the Kohl Elementary school star party in Broomfield on Friday Sept. 5th. Please contact Gary or Vern if you are interested.

Saturday September 6th is the LAS picnic/potluck/star party starting around 6 pm at Hamm Nature Area, 1701 E. County Line Rd., Longmont, CO. LAS will provide burgers, hotdogs, brats, "fixings for burgers", buns, plates, plasticware, napkins, tableclothes, cups, and grills to cook it all on. Side dishes, deserts, drinks (city park -- no alcohol), etc are needed. Please contact Birch (or Vern?) to volunteer to help get stuff set up, coordinate dishes, etc.

Weekend after the next meeting, Sept 20, will be the Pawnee National Grasslands star party in cooperation with UNC and the Greeley Convention and Visitor. Scopes and volunteers will be needed. Contact Gary if you are interested.

We've received a donation of very nice Celestron CGE 8 inch F5 Newtonian "Go To" telescope, eyepieces, and some photo accessories. It is maybe 4 years old and in excellent condition. It will be available for member checkout shortly.

Report from the WUTS:

Hey Astronomers, I am still soaring high from three awesome nights of dark skies at my favorite place of them all, Fox Park. I have been many places star gazing across this big beautiful country and only a few come close to Fox Park skies. A star gazers delight seeing the Milky way that stretches to the Horizon thru the tree tops. Wow! We even did the test, can you see my shadow from only the Milky way light alone, and the myth busters confirmed you can easily do it, way cool, now we are talking dark skies..

There were many LAS members and others from our front range clubs. Vern Raben , Jon Figoski, Mike Hotka, Cheyenne Wills, Jeff Wilder and daughter , Bill Possel, Bill Travis, David Ewing and kids,, John Warren and his wife Rachel, son Jamie, Ken Otoole, Dan Lafaive, Mike Roos, Glenn Frank, Randy Cunningham, Jim Holder, whole DAS gang, Wayne Green, Dan , Mickey, Bernie, Joe Gafford, Dan Laszlo, who had 25 inch and huge refractor set up, too many names to list all you guys who always show up at these events, over 204 people signed up for registration, always a few who did not , so big crowd we had for best skies all summer.

We did lots of objects ,all the summer favorites first two nights and then about 50 or so Saturday on challenge list Mike Roos and I wrote up while it was raining Saturday night.

Skies did clear around 10 PM then clear till 3:30 am. Thursday it clouded at sunset till 11:30 PM then clear till dawn. Friday it was clear all night long no clouds at all.

NGC 253 ,huge wide Galaxy, NGC 891 very nice edge on, M31, M33, M51 spirals, M101 spiral very nice.

Persieds Meteors all three nights were a bonus for traveling so far. Friday night one meteor was so bright it lit up the whole field for brief 1/2 second, very nice, along with Space Station pass, Iridium flare, and just standing under the arch of the Milky way like it was some kind of giant rainbow I was calling it. Pot of gold was right in Tea pot. Friday we did globular clusters, some big and some not so big, we did about 20 of them.

Comet catching has been a treat for Vern and I who have logged some ever trip out for past few months, Vern has about 40 in his log by now, even pictures of them all. We found the best new one C2007 W1 Boattini, probably about 7.5 mag in my estimate, 10 arc minutes across, pretty big and bright, good one to find from yard, slight tail maybe??

We owe a special thanks to Marty and Marcy Curran and Cheyenne club for keeping WUTS a happening event. They had to pay forest service permit fee and then get liability insurance too, What is going on ?? This is the first time ever , after using place for 17 free years they found out we were having fun, now in 18th year and now want to tax us for it?? I always thought the last place on earth you can still be free is in Wyoming, guess they are catching up to rest of the new world order. Next they will charge us , by using some kind of photon meter?

Here are some pictures from event, bye, Gary

Perseid report: Got up early on August 12 for the big show, and saw 6 good grazers and some little stuff from the back yard (with the neighbor's mercury light on, but behind a tree). Following morning, got only 3 in 20 minutes or so. Used the spotting scope both mornings – the Pleiades are really good, and the Orion nebula is pretty far up. Evening looks got the moons of Jupiter, and seeing was clear enough for hints of colored bands on Jupiter. I was trying to get the moons in 10x binoculars, but no dice. 20x was working fine – you have to remember that Galileo only had 13x, but the advantage of very dark skies.... Wonder what the odds are for seeing a satellite pass through the field of view both times I was looking at the Perseids? 'Cuz that's what I saw. And one was in a retro orbit! Russian?

Maybe it's time to check out J-Track 3D again.

<http://science.nasa.gov/Realtime/JTrack/3D/JTrack3D.html> - click on any dot to get the name and orbit.

Club Picnic:

We'd like to do a picnic for friends and families for the start of school, before it gets too hot or cold, but the skies are dark enough for some astronomy. This will be a chance for the families and kids / grandkids / neighbors to see the fun we have. Families are no problem, but if you invite the whole neighborhood, you'll be expected to kick in a buck or two for the meat. Why not just get them to join, it'd be easier!

LAS PICNIC September 6, 2008 Jim Hamm City Park (County Line Rd, just north of 17th St)

Schedule: 6-6:30 Setup and Social
6:30 Cooking – Burgers / Brats / Hot dogs / Vegetarian?
7:45 Cleanup
8:30 Start of Visible Astronomy, Binocular Astronomy
Set up Telescopes

Arrangements: Club will provide meats, table wares, and fixings for the meats. We'll take a survey during the August meeting to see if there's any demand for vegetarian burgers.

What we'll need: A passing dish from every family. This picnic will feature the Longmont introduction of "Birch's Baked Beans", so if you're going to show up with some other baked bean dish, make sure it's VERY GOOD, so you're not embarrassed. These are on the spicy side.. Desserts are fine, too. If you've got a pair to choose from, like chocolate cake or macaroni salad, email birch jdbirchmeier@yahoo.com and we'll see what we're short of. Coordination: email birch with what you're bringing by September 1st, say – I'll keep track.

Additional: **Bring a folding chair** to sit on, Jim Hamm doesn't have much in the way of seating. We could probably use a couple of those pop-up canopies if you've got one.

I will send out an email reminder on/about Sept 1st with this information again, plus any dishes that folks have "signed up for". I'll also include whether there will be Boca burgers.

Cloudy? Picnic's still on, astronomy's off. Raining? Both off. We've got Jim Hamm for Sept 20th as a backup date.

In the sky this month:

Meteor Showers – nothing astonishing

Planets

"[Mercury](#), [Venus](#), [Mars](#), and [Saturn](#) are all very low in the bright western sky half an hour after sunset. Look for them with binoculars around 8:30pm low in the western sky. Find

[Jupiter](#) in the southeast after sunset -- around 10:00pm it is nearly straight south and is the brightest object visible."

Interesting Stars/Galaxies

With your telescope, look for "Messier 27, the [Dumbbell Nebula](#) -- it is in prime position this week. First locate the bright star [Altair](#) in constellation Aquila and [Alberio](#) in constellation Cygnus. About midway between them is a group of 4 stars forming the constellation Sagita, "The Arrow". Locate the star [Gamma Sagita](#) at the tip of the arrow. Note the distance from the tip to the next bright star along the shaft of the arrow. Slew north about this same distance and you should see its dim hazy hourglass or dumbbell shape."

Club Calendar:

Aug 21 – Imaging clinic at FRCC Community Room. Bring a laptop, software and images will be supplied.

Sept 13: See astronaut [Sally Ride](#) at the [Sally Ride Science Festival](#) at University of Colorado - Colorado Springs. Advance registration (\$18) is REQUIRED.

Sept 18 – monthly meeting at FRCC Community Room. Speaker will be Dr. John Spencer from the SouthWest Research Institute in Boulder, and we'll get the latest on Enceladus and/or New Horizons.

Sept 20 – Greeley Star Party at Pawnee Grasslands. Free camping for LAS assistants on Friday and Saturday night at Crow Valley.

Fiske Planetarium:

Sept 2: 7:00pm "Forum Astronomique: Quasars". Investigate these black hole powered beacons -- How do they work and what can they tell us? Bring your own thumbdrive and see your astronomical images displayed on the planetarium dome.

Sept 4 7:30 CO Skies: Autumn Skies (Justin Searles)

Sept 5 7:30 Searching for Distant Worlds

Sept 11 7:30 CO Skies: Celestial Navigation (Justin Searles)

Sept 12 7:00 Many Faces of Hubble *NEW!* *Free Admission*

Enjoy Fiske's newest starshow - "**Many Faces of Hubble**" - FREE in exchange for your comments. Parking in Lot 308 is free after 5:30pm.

Sept 13 7:30 Stars & Lasers

Sept 19 7:30 Mars Revealed

Sept 20 7:30 Space Storm

Sept 25 7:30 CO Skies: Mars Phoenix Mission Update (Matt Benjamin)

Sept 25 6:30pm Reception, 7:30pm Gallery Talk with Melanie Yazzie at Fiske for UNDER ONE SKY: Collaborative prints by Melanie Yazzie and Aboriginal, Maori, and Norfolk Island Indigenous Artists (curated by Lisa Tamiris Becker, Director, CU Art Museum). Admission and parking (Lot 308) are FREE! *CU Arts & Culture Week*

Sept 26 6:30pm Reception, 7:30pm "Aboriginal Skies" with Yidumduma Bill Harney, Paul Taylor & Dr. John Stocke. Explore the cosmology of the Wardaman People of northern Australia with a native elder and master storyteller! *CU Arts & Culture Week*

Sept 27 7:30 Moons & Lasers

Space News:

Fourth Dwarf Planet now has a name:

The [International Astronomical Union](#) (IAU), the body that [demoted Pluto](#), has now formally dubbed the object formerly known unofficially as "Easterbunny" and officially as 2005 FY9. The newest member of the [dwarf planet family](#) will be called "Makemake" — which isn't a redundancy or a child's happy gibberish. It's the name of the Polynesian creator of humanity and the god of fertility.

It's also pronounced "MAH-keh MAH-keh" and is one of the [largest known objects](#) in our outer solar system -- those objects that dwell beyond Neptune. Just a bit smaller and dimmer than Pluto, the dwarf planet is reddish. Astronomers think its surface is a layer of frozen methane.

Makemake was discovered in 2005 by a California Institute of Technology team led by Mike Brown. You may recall it has an important spot in the history of our solar system discoveries, along with Eris and 2003 EL₆₁. The discovery of that trio of objects caused the IAU to reconsider the definition of a planet, prompting them to create the new "dwarf planet" category.

Because he was the man behind the plutoid find, Mike Brown got to name the object. He explains his reasoning thus: "We consider the naming of objects in the Solar System very carefully. Makemake's surface is covered with large amounts of almost pure methane ice, which is scientifically fascinating, but really not easily relatable to terrestrial mythology. Suddenly, it dawned on me: the island of Rapa Nui. Why hadn't I thought of this before? I wasn't familiar with the mythology of the island so I had to look it up, and I found Makemake, the chief god, the creator of humanity, and the god of fertility. I am partial to fertility gods. Eris, Makemake, and 2003 EL₆₁ were all discovered as my wife was 3-6 months pregnant with our daughter. I have the distinct memory of feeling this fertile abundance pouring out of the entire Universe. Makemake was part of that."

Rapa Nui is also [Easter Island](#) -- so Brown means the name is a nod to the dwarf planet's first and unofficial "Easterbunny" name. And it's fertile origins. Makemake was "the chief god of the Tangata manu bird-man cult and was worshiped in the form of sea birds, which were his incarnation. His material symbol was a man with a bird's head," [according to the IAU's press release](#).

Visible nova up there all along – weren't you looking?....

Saxton contacted the robotic [All Sky Automated Survey](#) project and asked astronomers to check their data. They found the nova had taken place on June 5, 2007, and had been clearly visible, and that it would have been bright enough to see with the unaided eye. "Anyone who went outside that night and looked towards the constellation of Puppis would have seen it," Saxton says.

Still tracking The nova has now received the official name of V598 Puppis and has become one of the brightest for almost a decade, despite not getting spotted during its brilliant peak. As news of its existence spread, the global effort to track its fading light became intense.

DESCENDING SPACE JUNK: Almost exactly one year ago, on July 23, 2007, International Space Station astronauts threw an obsolete, refrigerator-sized ammonia reservoir overboard. The 1400-lb piece of space junk has been circling Earth ever since and now, in July 2008, its orbit has decayed so much that it has become an easy naked-eye target for backyard sky watchers. The "Early Ammonia Servicer" (EAS for short) is almost as bright as the stars of the Big Dipper and growing brighter as it descends. Today's edition of <http://spaceweather.com> displays photos of the EAS, which is expected to burn up in Earth's atmosphere in late 2008 or early 2009. Readers who wish to see the EAS with their own eyes should check the Simple Satellite Tracker for flyby times: <http://spaceweather.com/flybys>. (Wonder if heavens-above.com would do a better job?)

COLLEGE PARK, Md. -- NASA's Deep Impact spacecraft has created a video of the moon transiting (passing in front of) Earth as seen from the spacecraft's point of view 31 million miles away. Scientists are using the video to develop techniques to study alien worlds.

"Making a video of Earth from so far away helps the search for other life-bearing planets in the Universe by giving insights into how a distant, Earth-like alien world would appear to us," said University of Maryland astronomer Michael A'Hearn, principal investigator for the Deep Impact extended mission, called EPOXI.

Deep Impact made history when the mission team directed an impactor from the spacecraft into comet Tempel 1 on July 4, 2005. NASA recently extended the mission, redirecting the spacecraft for a flyby of comet Hartley 2 on Nov. 4, 2010.

EPOXI is a combination of the names for the two extended mission components: a search for alien (extrasolar) planets during the cruise to Hartley 2, called Extrasolar Planet Observations and Characterization (EPOCh), and the flyby of comet Hartley 2, called the Deep Impact eXtended Investigation (DIXI).

During a full Earth rotation, images obtained by Deep Impact at a 15-minute cadence have been combined to make a color video. During the video, the moon enters the frame (because of its orbital motion) and transits Earth, then leaves the frame. Other spacecraft have imaged Earth and the moon from space, but Deep Impact is the first to show a transit of Earth with enough detail to see large craters on the moon and oceans and continents on Earth.

http://www.nasa.gov/topics/solarsystem/features/epoxi_transit.html for the story and movies. The infrared version shows the continents better.

The Wall Street Journal for Friday, July 25 contained an article about the lack of dark skies that was interesting. The IDA experts were meeting with congressional aides in Washington on that day. Among the benefits of a dark sky: nurses in the Harvard Medical Study showed that working a night shift (3 nights/month) for 15 years increased the risk of colorectal cancer. From Chronobiology International, the incidence of breast

cancer among women living in brightly lit neighborhoods was as much as 73% higher than among women with night-time darkness. Belief is that the brighter nights cuts down on the production of melatonin. Now can we get it dark again?

OK, you had your chance dept 2: (for those who missed on the nova)

The editor clued all of you in on Galaxy Zoo way back when. A Dutch schoolteacher has discovered a mysterious and unique astronomical object through the Galaxy Zoo project, which enables members of the public to take part in astronomy research on-line.

Hanny van Arkel, a primary schoolteacher from the Netherlands, came across the image of a strange gaseous object with a hole in the center that has been described as a "cosmic ghost" while using the galaxyzoo.org web site to classify images of galaxies.

She posted about the image — which quickly became known as Hanny's "Voorwerp" after the Dutch word for "object" — on the Galaxy Zoo forum and the astronomers who run the site began to investigate. They soon realized the potential significance of what they think is a new class of astronomical object and will now use the Hubble Space Telescope to get a closer look at "Hanny's Voorwerp."

We could have had the "Raben Zit" or the "Kimball Conundrum", but no.....

Internet Resources:

The folks at Hubble have added a video podcast to their site at:

http://hubblesite.org/explore_astronomy/hubbles_universe/ Download these to your IPOD for those overcast nights. They always have a "tour of the sky" podcast for each month that comes in handy for planning purposes. As Hubble is nearing its 100,000th orbit, they are running a drawing for some of those frame – quality posters to celebrate, so you might want to get in on that action.

Pictures, we got pictures....

Check out ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) at <http://asterweb.jpl.nasa.gov/index.asp> Click on 'Gallery' for all the nice pictures.

MRS Star Party:

The fourth almost annual Mountain Research Station (MRS) Star Party and Mini-Conference will be held August 29-30. After a one year hiatus due to problems at the facility last year, the MRS Star Party is back for 2008. This is two night event is scheduled for August 29-30 at the CU Mountain Research Station near the continental divide at 9500ft. The facility is west of Boulder between Nederland and Ward. Accommodations are provided in the modern and comfortable lodge (<http://www.colorado.edu/mrs/images/lodge2.jpg>). You can come for one night or two. Friday night will be dedicated to observing adjacent to the MRS observatory which is a short walk from the lodge. A concrete pad and AC power are available for telescopes. Saturday will be a packed program of speakers and presentations in the afternoon and early evening, followed by more observing. We will be hosting talks by area researchers and our famous gAstronomical pot-luck dinner. Guest speakers include Dr. John Spencer of the Southwest Research Institute, a researcher on the moons of Jupiter and Saturn, and CU Prof. John Stocke of the Center for Astrophysics and Space Astronomy.

Attendees must be members of BASS, LAS, or another Astronomical League club (not a member yet, not a problem, second half of the year membership in BASS is prorated to only \$10 for a family/\$5 for a student). BASS and LAS members will get first crack at reservations, then the event will be opened to registration by all AL members in the Front Range. Each room can sleep up to 4 people. There is a common kitchen and a meeting area. There are 8 rooms available. Whole rooms may be booked for \$60/night. Individual bunks may be booked in a shared room for \$22/night (the bunk rate is higher than ¼ the room rate because we have to pay by the room and historically we have not ended up with even fours, we can help try get groups of 4 together as much as possible and give you the room rate). There is no camping allowed, overnight guests must stay in the lodge. Reservations must be made in advance and payment must be received by August 15th. Payment can be made at a BASS meeting, or by check made out Boulder Astronomy & Space Society or BASS and sent to the BASS mailing address:

BASS
PO Box 17203
Boulder, CO 80308

Please let us know by email as soon as possible to get your rooms or bunks reserved. There will be no other BASS meeting in August. You are welcome to come up and attend the programs for free, but spending the night requires booked accommodations by MRS policy.

Other Publications: This month's (Aug 2008) Scientific American runs through a little history of Solar Storms for our edification. There was a biggie in 1859 (aurora down to the Equator, miners in Colorado thought the sun had risen at 1 AM and got up and ate breakfast, etc. plus the usual "you could read a newspaper by the light"). Analysis of the Greenland Ice Cap shows an occurrence of about every 500 years at this level – it increases the nitrate deposits. With the peak solar activity coming around 2011/2012, we could be due. How would you get along without satellite communications? Or electrical power? The last power outage, I just adapted and cooked on the bbq – it's got a side burner.

Upcoming Space Missions: (Solar styles):

#1: The Solar Dynamics Observatory (SDO). "Get ready for jaw-dropping photos," says Guhathakurta. A camera onboard the observatory will take HDTV quality photographs of sunspots and solar flares, revealing the onset of storms in never-before-seen detail. Status: SDO is built and almost ready to go. "Right now, SDO is in a thermal vacuum chamber getting tested for the rough ride to space."

#2: Solar Probe Plus "This could be the most exciting mission of all." It is a heat-resistant spacecraft designed to plunge deep into the sun's atmosphere where it can sample solar wind and magnetic fields in situ. "No spacecraft has ever been as close to the sun as Solar Probe Plus will go, only 7 million km from the surface. That's unexplored territory, and we expect to learn a great deal about the sun's atmosphere by going there." Status: Solar Probe Plus is still in an early design phase, called "pre-phase A" at NASA Headquarters. It is expected to launch no earlier than 2015.

#3 Solar Sentinels. "We're going to surround the sun," says Guhathakurta. Three well-instrumented probes from NASA and a fourth (the Solar Orbiter) from the European Space Agency will station themselves around the sun's equator, providing the first truly global view of solar activity. "Imagine trying to figure out Earth's climate by watching only one side of the planet. Impossible! Yet that's what we've been doing with the sun." The one-sided view from Earth limits studies of solar climate and weather—a problem Solar Sentinels will remedy. Status: "We've just finished the Science and Technology Definition Team report, which lays out the whole strategy for Solar Sentinels." Launch is expected no earlier than 2015.

#4 The Radiation Belt Storm Probes. "There's no point in studying the sun if you don't understand what it does to Earth," declares Guhathakurta. This mission makes the crucial Sun-Earth connection. Wisps of the sun's atmosphere can become trapped by Earth's magnetic field, inside radiation belts, where energetic particles lie in wait for astronauts and satellites trying to leave or simply orbit the planet. The Radiation Belt Storm Probes (two of them) will explore these regions and discover how they are populated and energized by space weather. Status: The two probes are under construction at the Johns Hopkins Applied Physics Lab and slated for launch no earlier than 2011.

#5 The Ionosphere-Thermosphere Storm Probes. Two more probes will orbit Earth and study the upper reaches of Earth's atmosphere where air makes "first contact" with solar UV radiation. This is a realm of electrically charged particles that strongly affect the propagation of radio waves, influencing almost all forms of telecommunication and GPS navigation. It is also a place where the atmosphere breathes in and out in response to changes in solar UV heating. An outward breath can envelop and drag down satellites, while an inward breath decreases the drag. The Ionosphere-Thermosphere Storm Probes will monitor the response of this layer to all kinds of solar storms. Status: "This is an important mission, but not yet funded," says Guhathakurta. "Right now we have our hands full with the others."

Good Lord, 10 pages..... I gotta stop writing stuff down....