Curiosity lands on Mars
(picture taken by the Mars Orbiter)

Longmont Astronomy Society Newsletter
August-September, 2012
From the President:
The Longmont Astronomy Society meeting will be tomorrow, Sept 20th at 8 to 9:30 pm at the Longmont Rec Center, 310 Quail Road. Meeting room is just south of the front desk.

Bill Tschumy will do a short astronomy presentation followed by an update on the Sandstone Ranch Observatory design and status by Vern Raben. We will discuss changes in the club by-laws regarding the LAS board of directors.

Scopes and volunteers are needed for the following star parties this week:

Friday Sept 21 at St Vrain State Park, just north of highway 119 or Ken Pratt Pkwy, just west of I25. Address is 3785 Weld County Rd 24 1/2.

Saturday Sept 22nd for the City of Longmont Natural Resources Division. Star party will be at the Sandstone Visitors center

Please contact Vern or Bill if you can help out.

The LAS website will be moving to another web service provider next Monday, Sept 24th. No outage is anticipated.

In the sky this month:
Meteor Showers
Next one is the Orionids  Orion (SE) on Oct. 21, 10-20 per hour predicted, parent comet is 1P/Halley

Planets
Mercury: lost in the Sun
Venus: rising before dawn, it's that bright one still in the east at sunrise
Mars: low in the southwest after sunset, close to the mountains
Jupiter: rising before dawn in the east, pretty well straight south at sunrise and high up
Saturn: low in the southwest after sunset and really behind the mountains.

Club Calendar:
20 - Longmont Rec center at 8 o'clock for this month's meeting.
21 – St Vrain State Park for a star party
22 – Sandstone Ranch for a city star party at the visitor center

Fiske Planetarium: Admission costs $3.50 for kids and seniors and $6 for adults
Fiske Planetarium was built in 1975. That same year, Bill Gates founded Microsoft, the Viking 1 mission to Mars was launched, and VHS tapes were introduced. A lot has changed since 1975, but the technology that runs our theater has remained the same.
All of that is about to change! Starting this winter, Fiske will begin a transformation into one of the most sophisticated planetariums and multimedia centers in the country. When the new immersive theater system is complete, Fiske’s dome will show the universe with unrivaled level of detail and inspiring beauty. A new star projector will show as stunning a sky as you could see high in the Rocky Mountains. Video projectors will fill the dome with 360 degrees of surround video and sound. Subjects will include astronomy, travel videos, art, music creations, and more. We plan to open Fiske to the community on Saturdays and Sundays. “Big screen” video will be in Boulder, not just Denver anymore.

Fiske will close in December of this year to begin removal of old equipment and to begin preparation for the new construction and installation. We hope to begin installation of the new equipment in Spring of 2013. With the goal of having our grand opening FALL 2013.

**Friday, September 21, 2012, 7:30pm**

*The Crowded Sky*

Since the launch of the first artificial satellite Sputnik, the number of satellites orbiting Earth has grown exponentially. Aside from the satellites themselves, we have begun to see the growing issue of orbital debris becoming a hazard to functioning satellites and even the International Space Station. Space is an environment like any other on Earth, and it is time we maintain and clean this environment for future generations.

**Saturday, September 22, 2012, 2:00pm**

*Space Storm*

Whenever the Sun hurls matter and energy at Earth, we experience a wide range of effects from aurorae to power blackouts. Come see what happens on Earth and in space due to sunspots and coronal mass ejections. This family matinee is good for kids in 3rd grade and up.

**Thursday, September 27, 2012, 7:30pm**

*CO Skies: Digital Fiske*

Enjoy a star talk about the night sky and various constellations followed by a live talk about Fiske's upcoming digital renovation.

**Internet Resources:**

**OK – computer imaging types!** Always wanted to do some imaging, but don't have the camera attached to a telescope? Use NASA's images left over from the Hubble mission! You really think someone looks at all of those pics? You should check out the winning photos, it's a pretty stiff competition....
image processing contest with the images from the Hubble? You betcha..... The 2012 winners and how to do it with the remaining few hundred thousand images for next year.

**Upcoming Space Missions:**

The NuStar mission is going strong, imaging X-ray sources in space. [http://www.nustar.caltech.edu/home](http://www.nustar.caltech.edu/home) is the website. For those of you who didn't know, the mirrors were fitted in Boulder at a friend's machine shop – same one that did the European Space Agency's Newton telescope. Apparently, this is the only machine shop in the world with the needed precision?

One of my ex-students is currently on her way to White Sands in a U-Haul holding the launch payload for the IMAGER mission. Good luck, Meredith! And read the details of the mission at [http://www.bu.edu/astronomy/files/BUDARS/posters/Danowski%20aas218min.pdf](http://www.bu.edu/astronomy/files/BUDARS/posters/Danowski%20aas218min.pdf) She also happens to be my only Astronomy major in 37 years of teaching, to my knowledge. She also worked on the Sloan Digital Sky Survey during her PhD work – some of those galaxies are hers. Check out Galaxy Zoo and help classify.

And my ex-student that works for NASA at Goddard is on the Osiris-rex mission, currently running a naming contest for the target asteroid. So fake your ID so you are UNDER 18 and enter at [http://planetary.org/get-involved/contests/osirisrex/](http://planetary.org/get-involved/contests/osirisrex/)

**Beyond the Visible**

Have you ever wondered why Hubble's successor, the James Webb Space Telescope, is designed to look for infrared light? Does Webb's mysterious mission puzzle you? Are you tired of "3-D" this and "3-D" that? Well, have we got a video for you.

Check out "Infrared: Beyond the Visible," our attempt to explain everything you'll ever need to know about infrared astronomy via the highly scientific medium of paper cutouts. It has galaxies. Planets. Redshifting. Swimming aliens. Paranoid astronomers. Watch it now, before everyone else knows more about infrared than you do.

This feature is available at: [http://webbtelescope.org/webb_telescope/science_on_the_edge/beyond_the_visible/](http://webbtelescope.org/webb_telescope/science_on_the_edge/beyond_the_visible/)

Kepler mission has found a planetary system around a binary star pair. Breaking new territory, and ruining a lot of theories. [http://science.nasa.gov/science-news/science-at-nasa/2012/12sep_weirdplanets](http://science.nasa.gov/science-news/science-at-nasa/2012/12sep_weirdplanets)

**Current Space Missions:**

Cover Photo: Curiosity is on the ground:

**August 6, 2012:** An image from the High Resolution Imaging Science Experiment (HiRISE) camera aboard NASA's Mars Reconnaissance orbiter captured the Curiosity
rover still connected to its 51-foot-wide (almost 16 meter) parachute as it descended towards its landing site at Gale Crater.

"If HiRISE took the image one second before or one second after, we probably would be looking at an empty Martian landscape," said Sarah Milkovich, HiRISE investigation scientist at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "When you consider that we have been working on this sequence since March and had to upload commands to the spacecraft about 72 hours prior to the image being taken, you begin to realize how challenging this picture was to obtain."

The image was taken while MRO was 211 miles (340 kilometers) away from the parachuting rover. Curiosity and its rocket-propelled backpack, contained within the conical-shaped back shell, had yet to be deployed. At the time, Curiosity was about two miles (three kilometers) above the Martian surface.

http://www.sdss3.org/dr9/ SDSS data release 9

The gallery of the latest images is at http://mars.jpl.nasa.gov/msl/multimedia/images/ for your viewing pleasure. More to come from this baby as it roams around the surface.

**Humor Dept:**
Just to get in the mood for the photo processing contest, this beauty!
Barnard 59 forms the mouthpiece of the Pipe Nebula and is the subject of this new image. This strange and complex dark nebula lies about 600 to 700 light-years from Earth.

The nebula is named after the American astronomer Edward Emerson Barnard who was the first to systematically record dark nebulae using long-exposure photography and one of those who recognized their dusty nature. Barnard cataloged a total of 370 dark nebulae all over the sky. A self-made man, he bought his first house with the prize money from discovering several comets. Barnard was an extraordinary observer with exceptional eyesight who made contributions in many fields of astronomy in the late 19th and early 20th century.

At first glance, your attention is most likely drawn to the center of the image where dark twisting clouds look a little like the legs of a vast spider stretched across a web of stars. However, after a few moments, you will begin to notice several finer details. Foggy, smoky shapes in the middle of the darkness are lit up by new stars that are forming. Star formation is common within regions that contain dense, molecular clouds, such as in dark nebulae. The dust and gas will clump together under the influence of gravity and more
and more material will be attracted until the star is formed. However, compared to similar regions, the Barnard 59 region is undergoing relatively little star formation and still has a great deal of dust.

If you look carefully, you may also be able to spot more than a dozen tiny blue, green, and red strips scattered across the picture. These are asteroids, chunks of rock and metal a few kilometers across that are orbiting the Sun. The majority lies in the asteroid belt between the orbits of Mars and Jupiter. Barnard 59 is about ten million times further away from Earth than these tiny objects.

And some photos from the member cameras!

Brian Kimball is looking at the Sun now...
and Gary Garzone imaged M13 for us in August

and Curiosity looked at Mt. Sharp. Methinks those be layered sedimentary rocks. (Today is “talk like a pirate day”, honest!)