

# Longmont Astronomical Society

## April 2006



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## The Home Planet Stellar Views

Hello Astronomers,

The Home Planet Stellar views this past month has been very good to us again. Vern Raben, Bill Travis, Bill Possel, Mike Roos, Stan Jarret, Dan LaFaive, and I ventured out to Briggsdale, Crow valley campground again for the new moon star party viewing. The campground is now open to the public again but we chanced that most campers in cold would go to bed early. It was a pretty good night, several on and off periods but we did manage to get to view many of our favorites. Saturn is still such a treat! Jupiter is back and will be getting better. We got some pretty good pictures that night too.

We have several LAS star parties coming up. The Longmont Elementary school science fair April 26th 5:30 to 8 pm. Just barely dark by then but we can stay late to show kids some views thru scopes. Hope a few people show up to help us out. These are fun events and kids and parents always get excited to see some stellar views. Saturn is till awesome early evening for them along with several others bright objects.

The North Sterling Reservoir State park star party is on again for another year, 6th maybe now? For April 26th 27th, 28th, Thursday to Sunday. I will be there hopefully on Thursday if I can get away from work. Save me a good spot if you get there before me, if winds do not blow it is an excellent place for viewing. A slice of heaven for us dark sky people, big camp sites, heated bathrooms, hot showers, whole sky views. Public is invited for viewing Saturday night. We have had lots of people in the past, from Sterling and surrounding areas for this event which they advertised it in paper and radio. LAS once again will do a lot of public outreach and still managed to get several hours of dark skies for ourselves after they all leave. I know we have had some bad luck with windy conditions in past. It is spring time and weather is very unpredictable. I will chance it again, we are not going to be negative, and we are due for some good nights. Thanks again to Bob Loomis Park ranger who is putting this on for us. Chimney view campground top of hill, Campground will be closed to regular campers to keep lights down since they have two other campgrounds around the big lake for the general public.

May 6th is astronomy day at Twin Peaks Mall again. I need volunteers to help out. This is probably our best outreach of the year, right here in our own community of Longmont. We will have Solar viewing outside if weather is good and scopes on display inside with JPL stuff again. We also are advertising for public viewing star night at Flanders after dark that same day. Hey spring has arrived and more star party nights will get done as weather is finally not freezing at night. Cold does not stop the die hards, but sure is a lot nicer in summer, next it will be the bugs instead of the cold. You have to be tuff to endure sometimes, but darn well worth it. LAS is an active bunch, we are getting more requests for star parties, astronomy teacher Clara Wente, from FRCC cancelled this month because we had too much going on already. We will do it another time.

Pete Petersen's dome and scope set up in my yard here are just about ready for some picture taking. Pete worked to get the polar alignment just right. He has been teaching me about it, never knew how much it takes to get it just right. I always thought drive correctors would do the rest with a rough alignment. We are trying to get it to track right on for picture and CCD work. Brian Kimball and Vern Raben have been treating us to some nice pictures. I always enjoy them and send them off to friends who love Astronomy.

Comet views of comet 73P Schwassmann-Wachmann 3, will be visible this coming month in the early morning hours. Vern has seen and taken pictures of fragments of its break up into several pieces now, three I think. Sky and Telescope and Astronomy magazines have charts where to look. Easy to find?? Vern and Brian will probably have some nice pictures to share next month. Take the time and use this as a challenge object to find. Dark skies will be needed. Always cool finding and tracking comets over several week period is a treat for us. Hope to see a few of you guys at Sterling, keeping it cosmic, Gary

## Calendar

Apr:            New Moon:    28<sup>th</sup> and 29<sup>th</sup> – North Sterling  
                 Meeting:        20<sup>th</sup> – Topics: StarryNight astronomy software demo by Philippe

May:	New Moon:	27 <sup>th</sup> - Pawnee
	1st qtr:	6 <sup>th</sup> – Astronomy Day at Twin Peaks Mall & Flanders that night
	Meeting:	18 <sup>th</sup> – Topics: Stardust Sample Mission video from NASA
Jun:	New Moon:	24 <sup>th</sup> - Members' choice or.....Rocky Mtn Star Stare: 22nd – 26th
	1st qtr:	3 <sup>rd</sup> – Flanders Park
	3rd qtr:	17 <sup>th</sup> – Tri-Town Party??? Michelle is this on again?
	Meeting:	15 <sup>th</sup> – Topics: Messenger Mission Update by Suzanne
Jul:	New Moon:	20 <sup>th</sup> , 21 <sup>st</sup> , and 22 <sup>nd</sup> – Fox Park Weekend under the Stars
	1st qtr:	1 <sup>st</sup> – Flanders Park – This is July 4th timeframe
	Meeting:	20 <sup>th</sup> – Topics:
Aug:	New Moon:	19 <sup>th</sup> or 26 <sup>th</sup> – Fox Park or Pawnee? And the date could go either way.
	1st qtr:	5 <sup>th</sup> – Flanders Park –
	Meeting:	17 <sup>th</sup> – Topics:
Sep:	New Moon:	23 <sup>rd</sup> – Pawnee
	1st qtr:	2 <sup>nd</sup> – Flanders Park. This is Labor Day weekend.
	Meeting:	21 <sup>st</sup> – Topics: Celestia astronomy software demo by Philippe
	1st qtr:	30 <sup>th</sup> – Flanders Park
Oct:	New Moon:	21 <sup>st</sup> - Pawnee
	1st qtr:	28 <sup>th</sup> – Flanders Park
	Meeting:	18 <sup>th</sup> – Topics:
Nov:	New Moon:	18 <sup>th</sup> - Pawnee
	1st qtr:	25 <sup>th</sup> – Flanders Park. This is Thanksgiving weekend.
	Meeting:	16 <sup>th</sup> – Swap Meet/Nominations
Dec:	New Moon:	23 <sup>rd</sup> - Pawnee
	1st qtr:	30 <sup>th</sup> – Flanders Park
	Meeting:	21 <sup>st</sup> – Topics: Elections

### **March 2006 Meeting notes**

President Gary Garzone called the meeting to order.

Secretary report: Created database for member rosters. Mark is working on reports this week.

Newsletter report: Philippe Bridenne. Great articles and reports this month! Keep sending those articles! This is your Newsletter.

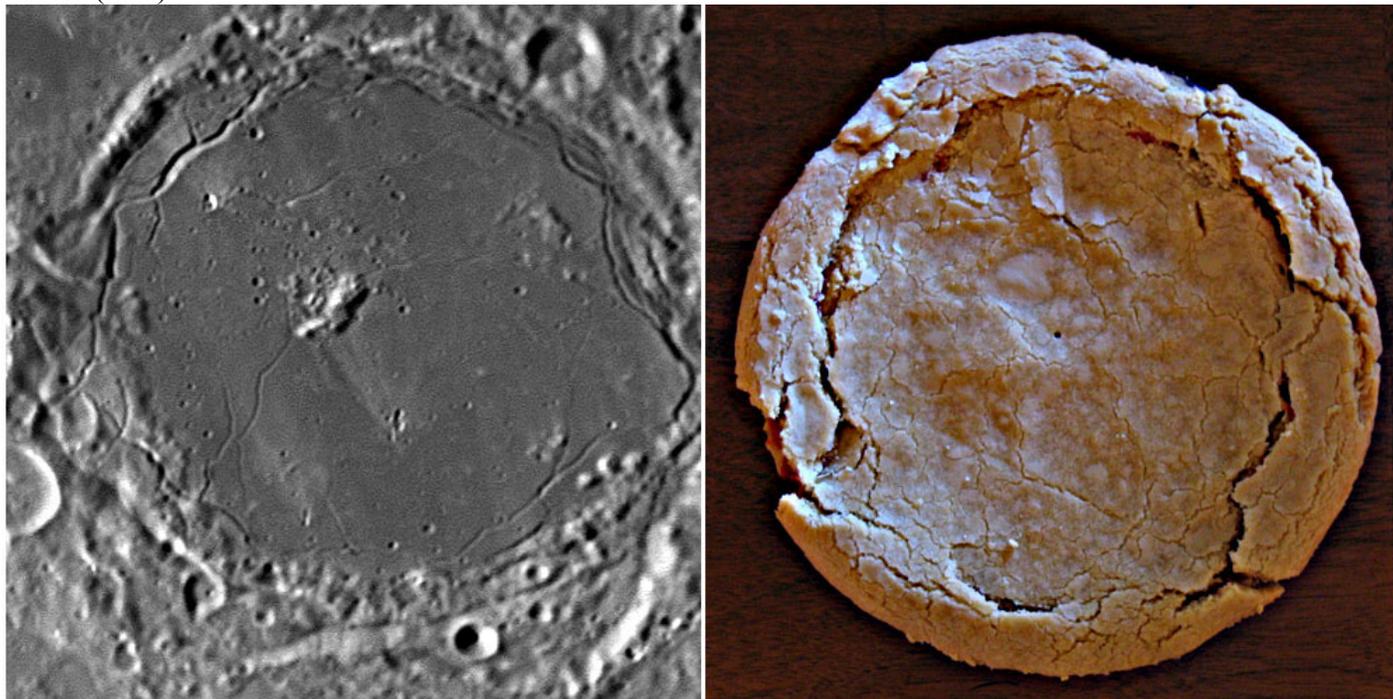
Astronomy day is set for Saturday May 6th.

Sterling Star Party is coming up at the end of April

Lunar picture of the day by Andrew Planck.

Andrew wrote: Last weekend I was in the kitchen baking a cherry pie to celebrate my mom's 94th birthday (she was born on George Washington's birthday), and when I took the pie out of the oven I was immediately struck by some similarities between the pie, the crater Pitatus, and some of your commentary in "Modern Moon" about subsidence and arcuate rilles around basins and large craters. I have been asked by my

astronomy club to do a presentation on the Moon, and I plan to show the attached photo of my mom's cherry pie to help explain that when lava comes up through cracks and fissures to cover basin floors, after it cools and forms a crust it is so heavy that the floors frequently subside and arcuate rilles appear around the perimeters. In the case of my mom's cherry pie, when the underlying pie filling (the "lava") cooled and shrank a bit, the heavy pie crust subsided and some remarkable arcuate rilles opened up. (I don't make "light and fluffy" pie crusts—it's solid butter, flour, & sugar! CAW comment: The rilles of floor-fractured craters like Pitatus probably form in association with an uplift of the crater floor by an intrusion of magma. But Pitatus undoubtedly does not taste as good. Andrew Plank, cherry pie reminded of moon crater, formed by similar process (lava).



FRCC observing was good. Crow Valley, 3 degrees by 3am! 10" club scope worked well. Forest service ranger unlocked the gate for us, closed during the winter. Cactus flats at end of the month.

ALCOR presentation by Dick Mallot: Constellation of the month: Four Legged Ones!

How many four legged constellations can you see from Colorado? Latin name or English name.

Ursa Major, Leo, Gemini, Puppis, Pegasus, Canis major, Canis minor, Scorpio, Sagittarius, Taurus, Lepis, Lupis, Centarus, Canis Venatici, Aries, Capricornus, Gemini, Draco, Monoceros, Vulpecula, Leo Monor, Lyhnx, Equuleus,

Answer, 22, more or less.

Fund Raising Chair report by Ray Warren.

BREAK -----

In the Beginning ...

Since the dawn of civilization, man was limited by his vision and imagination about his understanding of the universe. The telescope enhanced his vision and tempered his pride, as observations by Copernicus, Galileo (see image on left), and Kepler in the 16th and 17th centuries A.D. rebuffed the millennia-old conceit that the Earth is the center of the universe, spearheading the Scientific Revolution.

By the 18th century, the telescope would become the indispensable instrument for investigations of the cosmos. Bigger and better telescopes were built all over the world. Planets, stars, and nebulae which could not be seen by the naked eye were now being routinely noted and logged. Advances in spectroscopy, photography, and photometry increased telescope versatility, sensitivity, and discovery power.

By the turn of the 20th century, most astronomers believed that the observable universe consisted of one galaxy, our Milky Way Galaxy, an oasis of stars, dust, and gas in the vastness of space. However, in 1924, American astronomer Edwin Hubble used the 100-inch Hooker Telescope (see image on left) on Mount Wilson near Los Angeles, California, to observe billions of other galaxies besides our own Milky Way, almost all moving away from each other. This suggested that the universe is expanding, unleashing a Pandora's box of seminal inquiries—such as the Big Bang theory—about the possible beginning and end of the universe—issues which are still being debated to this day.

Astronomers like Edwin Hubble (before and after his time), toiled long, frigid nights inside enormous dome-shaped "observatories" pointing their telescopes skyward, yearning for the best possible snapshot of the heavens. However they faced a major obstacle that stood between them and a clear view of the universe: the Earth's atmosphere. The Earth's atmosphere is a fluidic, chaotic soup of gas and dust. It blurs visible light, causing stars to twinkle and making it difficult to see faint stars. It hinders or even totally absorbs other wavelengths of light, making observations of such wavelength ranges as infrared, ultraviolet, gamma rays and X-rays difficult or virtually impossible (it is also these properties which protect us from the harmful effect of these rays).

Observatories with the largest of telescopes in various continents have been perched upon mountain tops and away from distracting city lights, from Caucasus Mountains in Europe to the Australian outback, with varying levels of success. Adaptive optics and other image processing techniques have minimized—but not totally eliminated—the effects of the atmosphere.

#### A Telescope in Space?

In 1923, German scientist Hermann Oberth, one of the three fathers of modern rocketry (Oberth, Robert Goddard and Konstantin Tsiolkovsky), published "Die Rakete zu den Planetenraumen" ("The Rocket into Planetary Space"), which mentioned how a telescope could be propelled into Earth orbit by a rocket. In 1946, Princeton astrophysicist Lyman Spitzer (see image on left) wrote about the scientific benefits of a telescope in space, above Earth's turbulent atmosphere.

Following the launch of the Soviet satellite Sputnik in 1957, the fledgling National Aeronautics and Space Administration (NASA) successfully launched two Orbital Astronomical Observatories (OAOs) into orbit. They made a number of ultraviolet observations and provided learning experiences for the manufacture and launch of future space observatories.

#### The LST - Large Space Telescope

Meanwhile, scientific, governmental, and industrial groups planned the next step beyond the OAO program. Spitzer gathered the support of other astronomers for a "large orbital telescope" and addressed the concerns of its critics. In 1969, the National Academy of Sciences gave its approval for the Large Space Telescope (LST) project, and the hearings and feasibility studies continued.

After Armstrong's "giant leap for mankind" on the moon in 1969, funding for NASA space programs began to dwindle, putting the LST program in jeopardy. LST planners had to design the telescope under budget constraints. A number of downsizing measures were weighed and considered: decrease the size of the primary mirror, the number of scientific instruments, the diameter of the Systems Support Module and the number of spare parts created and tests performed. In 1974, the LST Science Working Group recommended the space

telescope carry a large complement of interchangeable instruments. They would have specifications to resolve at least one-tenth of an arcsecond, and have a wavelength range from ultraviolet through visible to infrared light.

### The Space Shuttle is Conceived

NASA and its industrial partners—called contractors—brought up the option of developing a vehicle that could achieve orbit and return to earth intact and be reused repeatedly; the concept of the Space Shuttle was born. The Space Shuttle could deploy the LST into space and reel it back for return to Earth. The shuttle could, and would, be used for a myriad of other operations for the space program as well.

NASA suggested that the lifetime of the space telescope be fifteen years, which implied that the instruments needed the ability to be replaced on the ground or even serviced in orbit—an ability not afforded to any satellite before or since. Scientists also had to balance the size and quantity of scientific instruments versus their cost. Too many instruments meant financial support was less likely; conversely, instruments of minimal capability would result in the loss of scientific support for the telescope. The European Space Agency (ESA) joined the project in 1975 and provided fifteen percent of the funding of the LST via contribution of the Faint Object Camera (FOC) and the solar arrays. In return, NASA guaranteed at least fifteen percent of telescope time—the amount of time astronomers use the telescope for space observations—to European astronomers. In 1977, Congress approved funding to build one of the most sophisticated satellites ever constructed.

### Who Does What?

NASA chose Marshall Space Flight Center in Huntsville, Alabama, as the lead NASA field center for the design, development, and construction of the renamed Space Telescope (ST). Marshall delegated Perkin-Elmer Corporation (now, Hughes Danbury Optical Systems) the task of developing the Optical Telescope Assembly and the Fine Guidance Sensors. Lockheed Missiles and Space Company (now, Lockheed Martin) was selected by Marshall to build the cylindrical casing and the internal support systems (the Support Systems Module) and assembling the telescope together.

NASA chose Goddard Space Flight Center in Greenbelt, Maryland, to be the lead in scientific instrument design and ground control for the space observatory. Scientists were organized into "Instrument Definition Teams" which would translate scientific aims into scientific devices and incorporate them into the space telescope housing. After an announcement was made to the astronomy community, proposals were received and judged, and five devices were selected as the initial instruments that would be aboard the Space Telescope: the Faint Object Camera, the Wide Field/Planetary Camera, the Faint Object Spectrograph, the High Resolution Spectrograph, and the High Speed Photometer.

The Johnson Space Center in Houston, Texas, and the Kennedy Space Center in Florida supplied Space Shuttle support. In all, dozens of contractors, a handful of universities, and several NASA centers, spanning 21 states and 12 other countries worldwide, made the dream of a telescope above the clouds and in space a reality.

In 1983, the Space Telescope Science Institute (STScI) was established at The Johns Hopkins University in Baltimore, Maryland. The staff of STScI evaluated proposals for telescope time and managed the resulting telescope observations. A number of delays stemming from underestimating the costs and engineering requirements of the state-of-the-art telescope caused the launch date to be moved from December 1983 to the second half of 1986. NASA reexamined interfaces, instruments, and assemblies. The building of the Optical Telescope Assembly encountered engineering challenges. Scientific instruments, like the Wide Field/Planetary Camera (WF/PC), underwent redesign, removing weight and redundancy.

### Hubble is Born

In regards to the maintenance and upgrading of the space telescope, plans were made to conduct servicing missions in orbit versus returning the telescope to Earth and refurbishing it on the ground. It was an innovative concept that would be even easier on a budget. In the midst of this spirit of renovation, the Space Telescope was renamed the Hubble Space Telescope (HST). By 1985, the telescope was assembled and ready for launch.

However, in 1986 disaster struck. The Challenger accident forced NASA to ground the Space Shuttle fleet for two years. However, these were years well spent by the HST Project. Solar panels were improved with new solar cell technology. The aft shroud was modified to make instrument replacement during servicing easier. Computers and communication systems were upgraded. The HST was subjected to further stress tests in the harsh environments of liftoff and space.

Finally, on April 24, 1990, the Space Shuttle Discovery lifted off from earth with the Hubble Space Telescope nestled securely in its bay. The following day, Hubble was released into space, ready to peer into the vast unknown of space, offering mankind a glimpse upon distant, exotic cosmic shores yet to be described.

Not since Galileo turned his telescope towards the heavens in 1610 has any event so changed our understanding of the universe as the deployment of the Hubble Space Telescope.

Hubble orbits 600 kilometers (375 miles) above Earth, working around the clock to unlock the secrets of the Universe. It uses excellent pointing precision, powerful optics, and state-of-the-art instruments to provide stunning views of the Universe that cannot be made using ground-based telescopes or other satellites.

Hubble was originally designed in the 1970s and launched in 1990. Thanks to on-orbit service calls by the Space Shuttle astronauts, Hubble continues to be a state-of-the-art space telescope.

Soon after Hubble began sending images from space, scientists discovered that the telescope's primary mirror had a flaw called spherical aberration. The outer edge of the mirror was ground too flat by a depth of 4 microns (roughly equal to one fiftieth the thickness of a human hair). The flaw resulted in images that were fuzzy because some of the light from the objects being studied was being scattered.

After this discovery, scientists and engineers developed corrective optics that functioned like eyeglasses to restore Hubble's vision. The optics of the Wide Field and Planetary Camera 2, which was already under construction when the problem was discovered, were changed to correct for spherical aberration.

The original science instruments on Hubble were fixed using the Corrective Optics Space Telescope Axial Replacement (COSTAR) apparatus, which was installed during the 1993 First Servicing Mission. By placing small and carefully designed mirrors in front of these instruments, COSTAR successfully improved their vision to their original design goals.

All the instruments installed during Servicing Missions 2, 3A and 3B have internal corrections for spherical aberration.

The COSTAR apparatus was built by Ball Aerospace.

For a spectacular animation visit the following web site: [http://hubble.nasa.gov/art/image\\_gallery/costar.rm](http://hubble.nasa.gov/art/image_gallery/costar.rm)

### **Crow Valley report from Garry Garzone**

Hey gang! Lucky seven again! Seven of us had another new moon dark sky night at Crow Valley. Several other campers were there but they were far enough away to not bother us with their lights from campfire. Large group of campers at group camping area, but that is far away from us too. I like Crow Valley

but this will be our last time there because of all the campers that can show up there. Low Temperatures were just below freezing, way warmer than last month.

It looked like a marginal night when I left late Saturday for grasslands dark sky viewing. When I got there the skies opened up some. Steady wind blowing got me nervous about high plains winds. It turned out to be Ok. Fog bank rolled in quickly around 11pm or so and then cleared again for several more hours then fog till morning. Vern and I left early morning in foggy skies for most of the way home. We had a pretty good night for several hours. I got to see lots of favorites again.

One of you guys left Thermos jug in Motor home, e mail me and I will get it back to you, if not see you next month to get it back.

Jupiter never gets real high in sky this year, but took pictures anyway. Next trip will be CFN again!

Actually Friday night was the good seeing night here, after it cleared some late Friday, I took pictures of Saturn with my 25 telescope. Later, Gary

### **Crow Valley report from Dan Lafaive**

I got out to CV at around 9:15PM and stayed until 3:00AM.

Skies were excellent!. Probably couldn't have done a Messier Marathon because of the early haze close to the horizon, but that cleared up quite well by about 11:00PM, and I was able to make out some very dim galaxies at around magnitude 12.5 in my scope. Also, I thought M51 had better contrast than I usually see. So the transparency was quite good. I got excellent views of Saturn and Jupiter. I could barely make out the GRS when it rotated into view (thanks for the transit times, Vern). Seeing was really excellent at higher altitudes. Saturn was really crisp no noticeable blurriness around 11-12PM. Jupiter was not quite as good at around 1-3AM because some clouds/haze were moving across the southern horizon.

Regarding the campground conditions and campers:

Much of the snow has melted off the campground. I don't think anyone will have problems getting their RV into the observing area. The ground is soft, but my truck didn't kick up any mud. There were three campsites occupied, well away from the observing area. Two were occupied when I arrived and one car arrived at around 1:00AM. I didn't have any significant light pollution concerns from the campsites. Especially with everyone being asleep by about 11:00. No one had any fires last night. No fog developed in the area and my thermometer got down to 16 degrees last night. It was warmer than last month, but still a bit chilly.

I'll be going again tonight and possibly tomorrow night, Monday night, and Tuesday night as well if condition's permit. Not sure how good things will be tonight, but I'll take a chance.

See you there!

### **Starry Night photo of the month competition**

Starry Night® users are invited to send their quality astronomy photographs to be considered for use in the Starry Night® monthly newsletter. Featured submissions (best of month) will receive a prize of \$25 USD. Please read the following guidelines and see the submission e-mail address below.

Format: Digital images in either JPG, GIF or TIFF format.

Size: 700 pixels wide maximum.

File size should be less than 2 MB.

Include a caption: Your full name, location where photo was taken and any interesting details regarding your photo or how you took it. Please be brief.

Important notes: Starry Night® may edit captions for clarity and brevity. Starry Night® reserve the right to not use submissions. In submitting your image or images to Imaginova, you agree to allow Imaginova to publish them in all media -- on the Web or otherwise -- now and in the future. Imaginova will credit you, of course. Most important, you'll have the satisfaction of sharing your experience with the world!

Send images, following the above guidelines, to [photo@starrynight.com](mailto:photo@starrynight.com) (by sending an image you agree to the above terms, including Imaginova's right to publish your photos).

### **The origin of the Astronomy Day**

Astronomers, both amateur and professional, love sharing their passion for astronomy with the public. Observatories hold open houses, astronomy clubs hold star parties, but most of these events happen at fairly remote sites, where it's often hard to entice the casual visitor to attend. In 1973, Doug Berger in Northern California organized the first Astronomy Day with the idea of bringing astronomy to the public, rather than expecting the public to come to it. Events were held in city parking lots, shopping malls, anywhere people gathered. The idea quickly caught on, and Astronomy Day is now celebrated around the globe.

Astronomy Day takes place on the Saturday closest to First Quarter Moon between mid April and mid-May; this year Astronomy Day is on Saturday, May 6.

Why April–May? Because from most places, it's a pleasant time of year for outdoor activities. Certainly, at the mid-northern latitude where I live, it's too cold any earlier.

Why first quarter Moon? Because the cratered surface of the Moon offers the most spectacular views. Keen amateur astronomers may enjoy hunting down faint fuzzies when the Moon is not visible, but someone who has never looked through a telescope before will have a hard time seeing even a bright fuzzy, especially from an urban light polluted location!

The planets are also popular targets, and we've got the best of the bunch, Saturn, well placed in our evening sky. Many Astronomy Day events take place during the day, when safe solar observing can be done.

As a reminder, the LAS Astronomy Day will take place May 6<sup>th</sup> at Twin Peaks Mall in Longmont & Flanders that night.

### **How I Do What I Do by Mike Hotka**

In part 4 of How I Do What I Do, I will discuss concurrence.

According to Webster's Online dictionary, con•cur•ence

Function: noun

1. the simultaneous occurrence of events or circumstances

What does this have to do with anything in astronomy?

The diversity of Astronomical League Observing Programs is such that you can work on several at the same time, hence concurrence.

Say you are working on observing the Messier objects to receive the Messier Observing Club award. Consider doing the Messier Binocular Observing Club at the same time. Either find the Messier object first in the binoculars and then the telescope or the other way around. In either event, you can log the one object for both programs with very little additional effort.

So you are working on the Messier telescopic and binocular programs during the new moon weekends. Consider working on the Lunar Observing Club program during the time that the moon is up and Messier objects disappear. The nice thing about the Lunar and Lunar II clubs is that you can do them from your driveway. The Lunar II club has some sketching involved and this is very easy to do with the porch light on. I find sketching much easier to do in white light than red light, held between my teeth.

And if you like sketching with the porch light on, try sketching in broad daylight. The Sun Spotters Observing Club deals with observing the Sun and making sketches of what you see there. I found this program very enjoyable.

Another program you can do from your driveway is the Planetary Observers Observing Club. This club deals with solar system objects and it too was a fun program to do. This club is not dependent on the moon phase, as are deep sky object clubs.

And if you have wondered about all those man-made satellites passing overhead all the time, the Earth Observing Satellite Observing Club can also be done from your driveway. And when I say driveway, I mean at your home whether that be your front or back yard.

And, if that's not enough for you to do from your yard, check out the Urban Observing Club. Even though this club sounds simple, it is not a novice club. It's hard to find reference stars in the city to help locate the places in the sky where these objects lurk. But once you have completed the Messier Observing Club, consider tackling this one. It too has its rewards from the mere fact of what CAN be seen from your back yard.

Other programs that you can do concurrently, no matter what other programs you are doing are the Meteor and Comet Observing Clubs. I don't usually sit and devote a night to meteor watching, but each August I do. That is when I watch the Perseids streak across the sky. By taking note of a few aspects of each meteor you see, you can inch your way towards this certificate.

The Comet Observing Club I treat this club the same way. When I see a comet, I take note of its characteristics, as outlined by the requirements of this club. Some day, I will have seen enough comets to get this award. To date, I have seen 9 comets, the last being Comet Pojmanski I logged a couple of weeks ago. You need 12 to get the silver certificate and 18 to get the gold certificate. This May, there are a string of 3 comets passing near the Earth. I have been told by the club coordinator that if you observe all 3 fragments, it will count as 3 separate comet observations.

Then there is the issue of object overlap. This occurs when you have a program like the Messier and Globular Cluster Observing Clubs. If you take 1 more minute when observing a globular cluster of the Messier Club and give it a concentration class, you have logged about two-thirds of the objects needed to receive the Globular Cluster Observing Club certificate once you finish the Messier Observing Club.

If you choose to do some of your Messier Club observing from your yard, you could also log these observations towards the Urban Observing Club.

So, with a little bit of preplanning, you can be working on several programs at the same time. I like working on many programs at once, for if I become bored with looking at faint galaxies (the Herschel II Program), I can switch to Open Clusters and Planetary Nebulas. It's this mix that I like.

Concurrence.

Have you noticed that the Astronomical League has a new program. The Outreach Program. For those of you that do star parties and other public outreach events, the new program give you some recognition for the volunteer work that you do. There are three levels of achievement with this new program. Again, keeping track of what you do, over time, will give you what you need to receive these certificates.

You can read about the a description of the new program and its requirements by visiting the web site <http://www.astroleague.org/al/obsclubs/outreach/outreach.html>

## **Fiske Planetarium schedule April and May 2006 Events**

### *Live Astronomer Talk*

Thursday, April 20<sup>th</sup> 7:30 pm - Colorado Skies: Galactic Evolution with Matt Benjamin

The beauty of the night time sky will be viewed from the comfort of the theater of the Fiske Planetarium, then examine how galaxies develop and mature.

### *Star Show*

Friday, April 21<sup>st</sup> 7:30 pm - Cosmic Collisions

Worlds have been colliding since the dawn of the Solar System. Take a look at the way impacts shape our Earth's neighborhood and see the aftermath of the impact of Comet Shoemaker-Levy-9 with Jupiter.

### *Laser Shows*

Friday, April 21<sup>st</sup> 9:30 pm - Laser Grateful Dead

Honoring the late genius, Jerry Garcia, this multimedia show melds some of the band's greatest hits with stunning images and lasers.

Friday, April 21<sup>st</sup> 10:45 pm - Pink Floyd: Welcome to the Machine

Gathering some of the most memorable moments of Pink Floyd's music, "Laser Floyd: Welcome to the Machine" is a tribute to one of the greatest rock bands of all time.

### *Family Matinees*

Saturday, April 22<sup>nd</sup> 2:00 pm - Stars and Lasers

Enjoy an introduction to the night sky, and then be transported to a galaxy far, far away with colorful laser lights choreographed to popular space-themed music.

Saturday, April 22<sup>nd</sup> 3:15 pm - Symphony of the Stars

Take a musical journey with laser light as classic themes to great movies are enhanced by stunning graphics and star fields.

### *Live Astronomer Talks*

Thursday, April 27<sup>th</sup> 7:00 pm - Cassini Mission Update with Dr. Joshua Colwell

Cassini is well into its four-year mission to explore Saturn, its magnificent rings and a host of icy moons. Dr. Joshua Colwell of CU's Laboratory for Atmospheric and Space Physics will guide you through the Saturn system as seen by one of our most distant robot explorers.

Thursday, April 27<sup>th</sup> 8:15 pm - Saturn Overlooked with Dr. John Weiss

Saturn itself is one of the most fascinating bodies in the solar system: it possesses aurorae, helium rain, metallic hydrogen and much more. Dr. John Weiss of the Cassini Imaging Team will discuss this amazing giant and what has been learned by the Cassini mission during its first year in orbit.

Friday, April 28<sup>th</sup> 7:00 pm - Cassini Mission Update with Dr. Joshua Colwell

Cassini is well into its four-year mission to explore Saturn, its magnificent rings and a host of icy moons. Dr. Joshua Colwell of CU's Laboratory for Atmospheric and Space Physics will guide you through the Saturn system as seen by one of our most distant robot explorers.

Friday, April 28<sup>th</sup> 8:15 pm - A New View of Titan with Dr. Nicholas Schneider

In January 2005, while NASA's Cassini spacecraft continued to map it from orbit, the European Space Agency's Huygens probe landed on Saturn's largest moon, Titan. Join Dr. Nick Schneider of CU's

Department of Astrophysical & Planetary Sciences on a tour of this newly discovered landscape of an extraordinary world.

#### *Laser Shows*

Friday, April 28<sup>th</sup> 9:30 pm - Laser OutKast -- \*NEW!\*

Gritty hip-hop from the deep South comes to Fiske Planetarium in this hot new laser show! Peace out with OutKast's soulful rap and funk!

Friday, April 28<sup>th</sup> 10:45 pm - Pink Floyd: Dark Side of the Moon

Explore Pink Floyd's epic Dark Side of the Moon in a classic laser extravaganza with special effects and stunning visuals.

#### *Fiske-SBO Astronomy Day*

Saturday, April 29<sup>th</sup> Noon – 10:00pm - FREE public events at Fiske Planetarium and Sommers-Bausch Observatory!

Enjoy FREE festivities for all ages at Fiske Planetarium & Sommers-Bausch Observatory (SBO) as we celebrate space science achievements and unveil new interactive exhibits! Giveaways, prizes, food and family fun are just part of the excitement -- Get your hands on our telescopes and see for yourself what astronomy is all about!

For more info, please visit our website at <http://fiske.colorado.edu/> or call (303) 492-5002 (automated line).

#### **Classified**

*To buy:*

*To sell:*

New, never used Celestron NexStar 8i for sale. What's included besides the scope?

Steel carrying case for scope

Set of Plossi eyepieces

Set of color filters – eyepieces and filters come packed in a sturdy steel carrying case

Battery power pack and Michael Swanson's book, "NexStar User's Guide.

All of this for \$1,800. Please contact Bob Reece at 303-229-8319 or send an email to [bobhistory@comcast.net](mailto:bobhistory@comcast.net)

I am trying to sell a Celestron Ultima 9.25. If the deal were local I would expect closer to \$1,600 or so and accept credit cards.

<http://www.astromart.com/viewad.asp?cid=233874>

Jared Workman

I got a new (800mHz) computer & wish to sell my 3rd computer. It's a 433mHz, 64meg RAM, 9 Gig HD space, 33.6K modem, and SoundBlaster sound card, with a 15" monitor, programmable keyboard & MS mouse, with Windows 98 SE for sale. \$180. No problems with it what-so-ever. Will deliver & setup within 30 miles of Ft. Collins. It would be great for a stand-alone application or a kid's computer.

Contact Tom Teters [tomt@starmon.com](mailto:tomt@starmon.com)

I have an ORION SKYVIEW 4.5" Reflector telescope with finder scope; equatorial mount tripod, with 9mm and 25mm lenses, 1.25 mm Barlow and extra filters. The telescope is in great condition, just toooo advanced for my amateur status. All for \$500!

Contact Anna Vayr at 303-776-7167 or via email at [anna.vayr@spot.colorado.edu](mailto:anna.vayr@spot.colorado.edu)

ST-8E CCD camera with carrying case, power supply, color filter wheel with upgraded filters, manual. \$3,000 o.b.o. Contact Mike Hotka, [mhotka@yahoo.com](mailto:mhotka@yahoo.com) or 303-438-0097.

*To give:*

FREE: Monitor, HP D1195A 15" CRT, will display 1024x768.

Clean, like new, works. Contact: Bob Noble [nobler@att.net](mailto:nobler@att.net)

If you have astronomy stuff to buy or to sell, send an email to your newsletter editor [philippe\\_bridenne@yahoo.com](mailto:philippe_bridenne@yahoo.com)

### **The LAS warehouse**

LAS logo T-Shirts:

Crewneck, navy blue, 8" white LAS logon on front

\$10 - S, M, L, XL

\$12 - 2XL

\$13 - 3XL

\$14 - 4XL

Light blue with the lapel logo and Dobsonian telescope.

\$1 LAS un-bumper stickers

\$5 LAS Observing Log Book

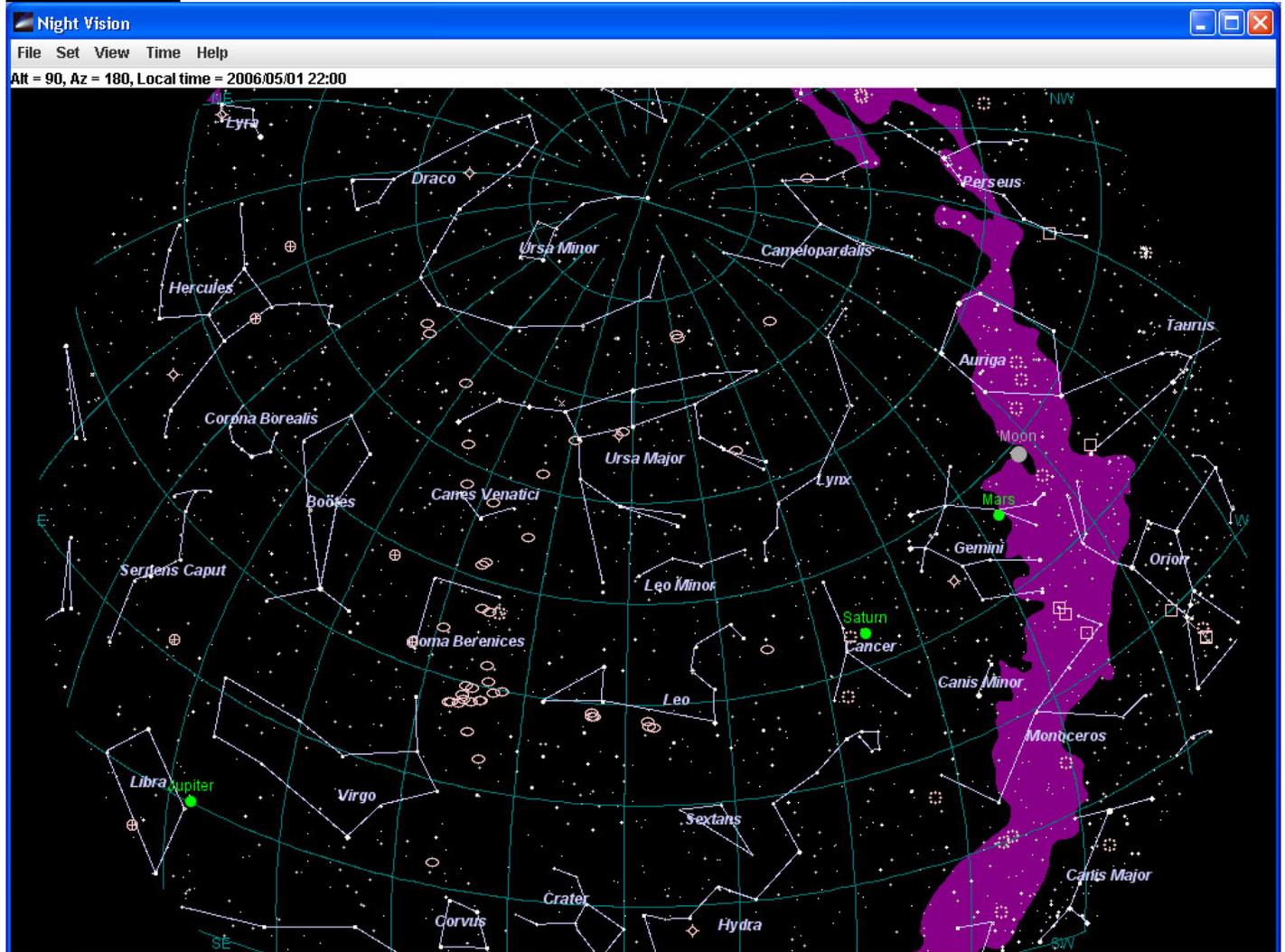
\$1 LAS Whizzy Wheel (astronomy calculator)

\$2 - 5" LAS vinyl sticker, black or white

\$5 - 4" LAS embroidered patch

\$1 - LAS Planisphere

## May Sky Map



Saturn by Brian Kimball



The skies were pretty steady about 8:00 pm this evening so I snapped of a webcam image of Saturn. This picture was taken with a 12.5" Ritchey at f18 and a Philips ToUcam. 400 out of 1200 frames were used in Registax.