

The **ASTERISM**

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November 2006

Remembering What It's All About

By Vincent Henderson, President

I'm guessing you're pretty much like me, trying to fit thirty hours into a twenty-four hour day. There are so many things distracting us every day, pressures we have to try and deal with, it's hard enough for us to keep ourselves moving in a positive direction. So often the subtle aesthetic things in life get pushed aside so we can deal with our material distractions.

Earlier this past spring, during a rare quiet moment, I thought back to my childhood when my senses used to be so alive. Colors were so vivid, the world was new with many mysteries, and smells were leaping at me. I remember particularly loving the smells of honeysuckle as I walked to school or played outside. When was the last time I had smelled that warm familiar sent? I can't remember how many years it's been.

During the summer, I found myself driving in the country, and, to my surprise, I saw honeysuckle plants on the side of the road. I rolled down my window and took in a big whiff of the flowering aroma, instantly I was transported back to my childhood, it seemed I could remember the days of long ago, the

old wonder of the world returned. It was a good feeling getting back in touch with myself.

Now, as the days get shorter and I start to return home from work in the dark, last month my eye caught a bright image. Quickly turning my head, I caught a wonderful view of the Harvest Moon low on the horizon. Now I could have gone technical and re-

mind myself that the huge disk was just an illusion, but, instead, I sat in my car staring at the Moon like a little child, satisfied to enjoy the wonder of the view.

On another evening I caught sight of Orion rising from the east. With him were Pegasus, Andromeda,

Perseus, the Pleiades, Auriga, and others of the winter constellations. The sight of these old friends reminded me that the most rewarding season for backyard astronomy has begun. Each constellation hosts a bountiful treasure of beautiful celestial asterisms to treat the eye during visual observations.

Then last week, while on my computer, I happened to come across a breath-taking picture taken (Continued page 6: **Remembering**)



Credit: <http://www.thegardenhelper.com/honeysucklepix.html>

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General Meeting

NOVEMBER 17, 2006

**"It's Like Watching a Tree Grow in Tokyo:
Measuring Stellar Motion With the HST"**

**Dr. Carleton Pryor, Astrophysicist, Rutgers
University**

This talk will explain how instrumentation on board the Hubble Space Telescope is used to measure the motion of stars. This can be applied to the study of the kinematics of stars by using the proper motion of individual stars, measured with images taken by the Hubble Space Telescope.

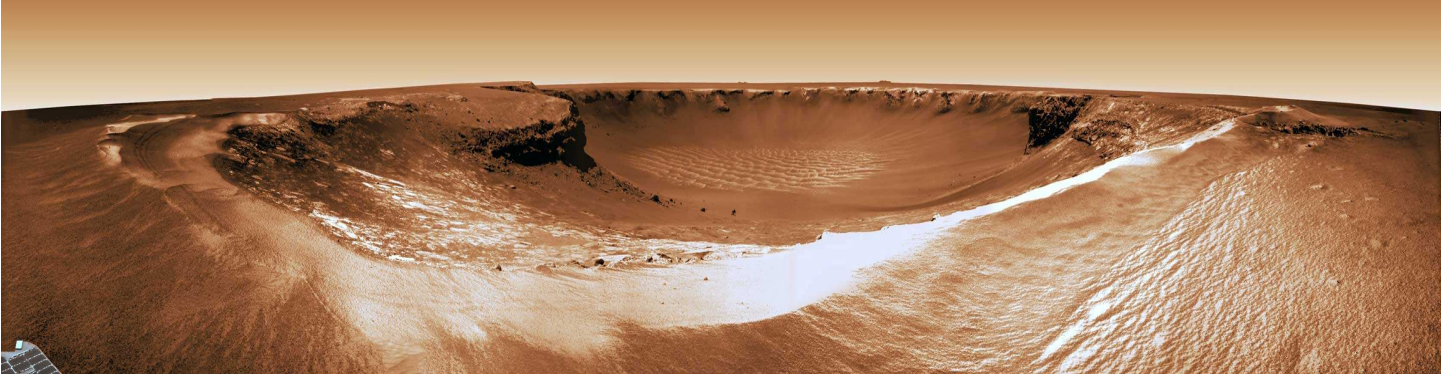
ROY SMITH THEATER

NSN Teleconference

AAI will present the next Night Sky Network teleconference at Tiernan Hall on the campus of the New Jersey Technical Institute at 9pm on November 16th. The speaker is David Koch, one of the principal scientists working on the Kepler Mission. This NASA mission will be launched in 2008 to search for habitable planets and explore the structure and diversity of planetary systems. This will be achieved by surveying a large sample of stars in our neighborhood. For more info and maps, please visit www.asterism.org click "Special Events". All are welcome.



Victoria Crater On Mars Astronomy Picture of the Day for October 2, 2006



Credit: Mars Exploration Rover Mission, Cornell, JPL, NASA

Coloring credit: B. Braun et al. includes AAI October Guest Speaker Dr. Ken Kremer

Color image appeared in *Aviation Week* 2 Oct. 2006 and Aviationnow.com Used with permission

Use "E"s Save Trees

by Ray Shapp

Here's a win-win-win for you. Save a few trees, save a few bucks for the club, and receive a superior product.

Relinquish delivery of the printed *Asterism*, and read it online. For those folks who prefer it, the regular edition will continue to be printed in black and white on paper, and AAI will continue to pay to print it, and we will continue to collate and fold it and stuff it into an envelope and affix a label, and AAI will pay the postage for the U.S. Post Office to deliver it to you. However, consider the benefits of reading the newsletter online.

The electronic version will always be uploaded to the AAI website before the U.S. Postal Service can possibly deliver the paper version to your house. A notice will be posted on the AAI website in the "Special Notice" section and an email will be sent to you via the aaigroup at Yahoo. We will not swamp your inbox with the entire newsletter, however, we will send you a brief note containing a link to the electronic issue.

When you read it online, all the graphics will be in full color. This is especially important for viewing true colors. For example, Dr. Ken Kremer, the guest speaker at our October General Meeting is a member of a team that took special pains to render Victoria Crater in true color as shown above. Take another look at the Earth/Saturn image on page 6. Planet Earth is in the printed version, but it is best seen online. Photos of people are also enhanced when viewed in color.

All the references to website addresses and email addresses are "clickable". That means you can view the cited web pages or send email merely by

double-clicking on the hyperlink or address. For this feature to work reliably I recommend you obtain version 7.0 of the free Adobe Reader or later. You can get it directly from:

<http://www.adobe.com/products/acrobat/readstep2.html>

or you can download it from the AAI website by clicking on the icon in the "Newsletter" section. An additional benefit of using the new version is that it launches more quickly and it has enhanced search capabilities.

That brings up another benefit of the electronic newsletter. You can search for every instance of a word or phrase merely by making a few clicks of your mouse. For those of us who have "well seasoned vision" (that means we need reading glasses), we can enlarge the type size to any extent desired.

You may not remember where you stored a paper copy of a newsletter, but you can always find the current or a back issue if you know where a computer is. That includes any internet-capable computer anywhere in the world. You can always print a specific article or two to take with you. Notice the new ink-saving logo on page 1. And finally, your dog will never eat your electronic newsletter.

If these ideas appeal to you, please send me an email at ray@asterism.org, and you will be one of the first to be notified when each new issue is available. Use those electrons and save our forests!

☆☆☆

I am sure that everyone has heard the big news about the outer solar system. No, not the fact that 2003 UB313 now has a real name (Eris, after the Greek goddess of strife and discord) instead of having to use the name of a fictional warrior princess of questionable lifestyle. This is about the International Astronomical Union (IAU) ruling on the definition of a planet.

DEFINITIONS: THE EARLY YEARS

Deciding what was a planet was not always so contentious. Prior to the end of the 18th century, any visible object that moved relative to the stars and was not the Sun, the Moon, or a comet was a planet. Even William Herschel's discovery of Uranus in 1781, didn't change things much. But complications similar to the recent situation would soon emerge.

ITALY BEATS GERMANY

Around that time, astronomers were impressed by a numerical oddity known as *Bode's Law*, which supposedly predicted the distances of the planets from the Sun. It seemed to hold for the known planets including Uranus. But the empty space at 2.7 AU (Astronomical Units) was puzzling. Rather than dismissing Bode's Law as a numerical coincidence (which it actually is), astronomers concluded that there was something there, and they set out to find it.

To that end, a group of astronomers in what is now Germany decided to attack the problem with typical German efficiency. Using detailed star charts, each member of the group would check their assigned area for anything that was in the sky but not on the chart. If they found something, and it moved, it could be the missing planet. It would have worked, but someone had already beat them to it.

A Sicilian astronomer, Giuseppe Piazzi, was observing on January 1, 1801 and saw a starlike object in Taurus. It moved relative to the stars and was observed for a few weeks until he fell ill. It would have been lost, but a new calculation technique from Karl Friedrich Gauss saved the day by allowing an orbit to be calculated so the object could be recovered. Named "Ceres" by Piazzi, it too was declared a planet. But troubling doubts quickly surfaced.

First, Ceres was very small. Then, astronomers soon started finding more objects in that general area. By the mid 1800s the situation seemed to be getting out of hand. That was when astronomers decided they had enough and ruled that Ceres and all of the other little objects orbiting in the same general area to be asteroids, not planets.

In 1846, using calculations from Urbain LeVerrier based on discrepancies in the orbit of Uranus, Johann Galle discovered Neptune. But Neptune was a good-sized object and was immediately classed as a planet.

THE INCREDIBLE SHRINKING PLUTO

Astronomers studying the orbit of Neptune found what appeared to be a discrepancy between its actual and predicted positions. Remembering how Neptune was predicted, it was concluded that there was another planet further out. Percival Lowell, as well as a few other astronomers, calculated likely orbits and positions for this "Planet X" and a photographic search began at Lowell Observatory in 1916.

The search dragged on for years. Then, in 1930, Clyde Tombaugh found an object on a pair of photos. Since it was found where Lowell had predicted it would be, it was assumed that this body met all the criteria of Planet X, including size and mass and was declared a planet. It was soon named Pluto by Venetia Burney, a young British girl and would inspire folks from Walt Disney to H.P. Lovecraft.

However, Pluto seemed odd. As observations improved, estimates of Pluto's size diminished. And with the discovery of Pluto's moon Charon in 1978, it was realized that Pluto was quite small indeed, smaller than Earth's Moon. Then, the errors in Neptune's orbit which prompted the search turned out to be due to imprecise mass estimates of Neptune.

Adding to the problem in recent years was the discovery of several large icy objects in the Kuiper Belt. Since these objects were similar to Pluto, but mostly smaller, some astronomers advocated demoting Pluto.

At the time, the IAU considered demoting Pluto but rejected the idea. But the issue would soon be back.

ERIS LIVES UP TO ITS NAME

When 2003 UB313 (Eris) was discovered and found to be bigger than Pluto, many deemed it to be the tenth planet. But it was the IAU that would have the final say. This was the opportunity for the IAU to settle the Pluto issue.

There were two proposals that the IAU considered. One would allow Pluto and Eris to be considered planets as well as any naturally round object in orbit around the Sun. Derisively billed as "No Iceball Left Behind", its main drawback was that it could have lead to a very large number of planets.

The competing proposal was to demote Pluto
(Continued page 5: **Skybox**)

Skybox (continued from page 4)

(because it crosses Neptune's orbit) and lump it, along with Eris and Ceres, into a new category called "dwarf planets". This was the proposal that won.

This result immediately met with wide disapproval. On the professional level, there were allegations of procedural irregularities and many scientists, including some at NASA, announced they would simply disregard the resolution. Public protest ranged from government resolutions condemning the IAU to YouTube videos.

Why all this protest? Some people believe that the planets in our solar system are only for memorization and fear any change would be hard on children. Others have issues with IAU politics in general, and a few feel that the largely European-dominated IAU just wanted to strip the United States of its sole planetary discovery.

2009: IAU ODYSSEY II

Since most amateurs (myself included) have never observed Pluto and probably never will, it seems the simplest thing to do is learn to live with the IAU proposal. At least it makes Holst's *The Planets* (a collection of seven instrumental compositions, each one honoring a different planet, the most famous piece being *Mars, The Bringer of War*) complete.

However, there is hope for Pluto advocates. The IAU meets again in 2009 in Rio de Janeiro and will likely reconsider the issue.

The only way I see to keep Pluto as a planet without getting too many others would be to set some size limit, (e.g. 2,000 kilometers or 1,200 miles), as the minimum size for a planet.

Who thought that two iceball worlds in the outer solar system could cause so much trouble here on Earth?



MEMBERSHIP DUES

Regular Membership:	\$21
Sustaining Membership:	\$31
Sponsoring Membership:	\$46
Family Membership:	\$5
<i>Sky & Telescope:</i>	\$32.95
<i>Astronomy</i> subscription:	\$34
First Time Application Fee:	\$3

Dues can be paid in person to Membership Chair or Treasurer, or by mail to: AAI P.O. Box 111, Garwood, NJ 07027-0111

DR. LEW'S SEMINARS

Some of the topics for upcoming seminars include:

- Rotation of the Milky Way
- Size of the universe
- Review of celestial coordinates
- Optics; lenses, prisms, and polarization

FRIDAYS AT SPERRY

November 24, 2006
How to Buy a Telescope Part II
Steve Clark
December 1, 2006
TBA
TBA
December 8, 2006
Solar/Terrestrial Connection via Radio Jove and Ham Beacon Monitoring Dr. Mary Lou West
December 22 & 29, 2006
Holiday Fill-In

All schedules above were accurate at time of publication. Please check www.asterism.org for latest information (click on "Club Activities")

SPECIAL THANKS

Ink-saving Logo for *Asterism*
credit: Justin Shapp

DOME DUTY SCHEDULE

Nov. 17	Team D
Nov. 24	Team E
Dec. 1	Team A
Dec. 8	Team B
Dec. 15	Team C

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Remembering (continued from page 1)

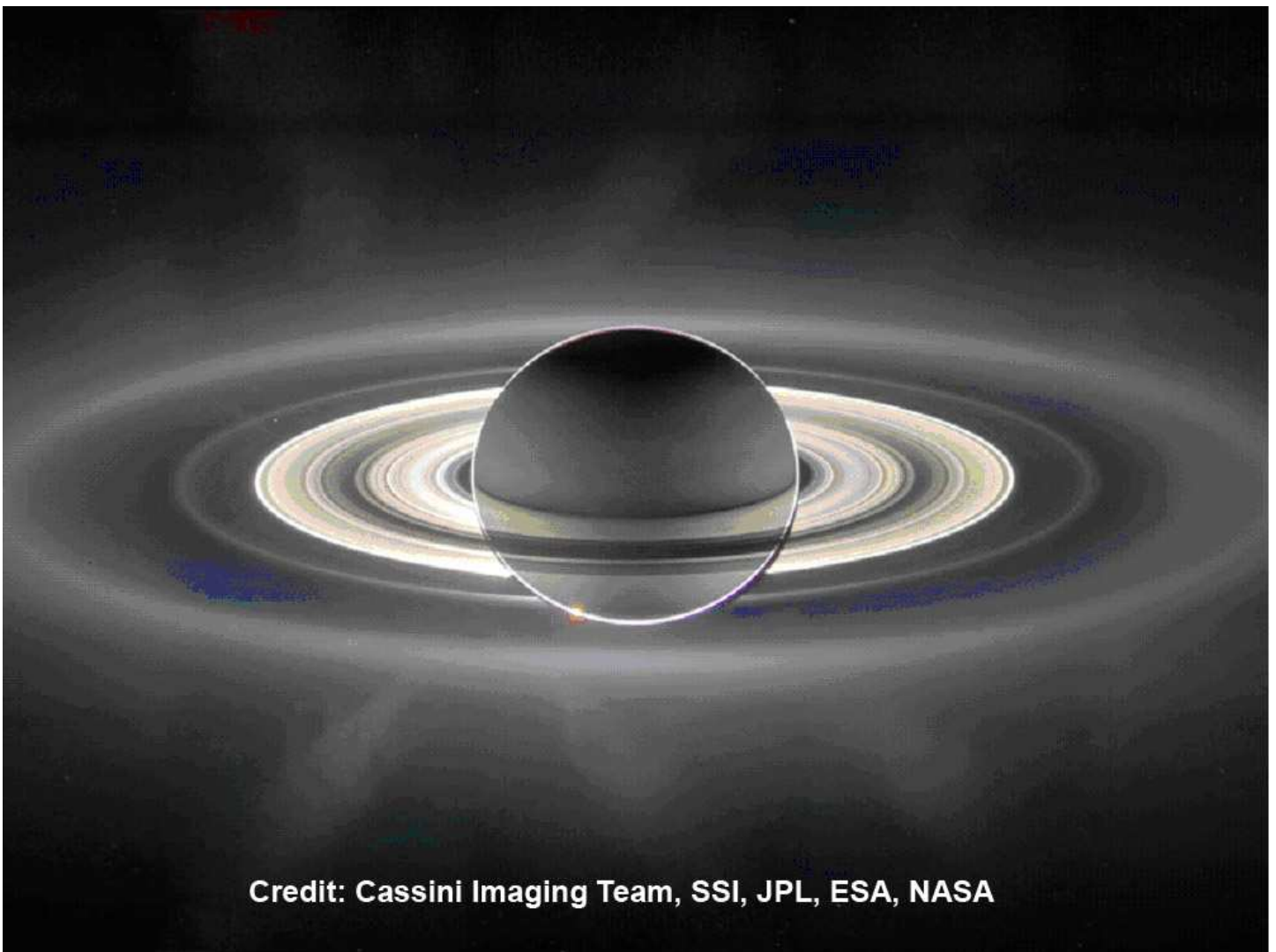
by the Cassini spacecraft as it passed behind Saturn. It's the first time this view has ever been taken. The reflective light from the bright side of the planet shines through the rings of Saturn whose sphere is also illuminated from glow bouncing off the ring system. It's an image to make you stare in wonderment. Peeking through the left side of the rings is the faint image of Earth which adds to the greatness of this picture.

I found myself feeling very much like I did in the early days when I started my hobby of astronomy. I was enjoying it just for the sake of the majesty of na-

ture. It fills me with wonder and renewed respect for the mysteries of the universe.

So even though my technical knowledge of the universe is more advanced, and I know how to use coordinates to find known celestial objects with a telescope, from now on, I'm going make sure to remember every once in a while to take a step back and just enjoy the view.

☆☆☆



(Ed note: Earth can be seen more readily in the online version. Visit www.asterism.org Click "Newsletter".)

Theater In The Sky

by Ron Ruemmler

November 2006 will be a month without planets for most folks. Except for Saturn, which rises just before midnight, all the naked eye planets are too close to the Sun to be easily observed.

Mercury is the most extreme example of this, as the tiny planet actually marches across the face of the Sun on the 8th. No one should attempt to observe this without serious equipment and major precautions. This transit last occurred on May 7, 2003, but the next one will not happen until May 9, 2016.

One day earlier, Venus passes just one degree above Mercury, if they could be seen from the Earth. In actuality, they could hardly be further apart, since Venus almost passed directly behind the Sun ten days earlier. Jupiter passes beyond the Sun this month, so we have a case where the two brightest planets pass less than a half a degree from each other, alas, hopelessly close to the Sun. Mars is back there too but, who cares?

After the middle of the month, Mercury becomes a fine morning object, rising well before the start of morning twilight. Mars and Jupiter become challenging morning objects as November ends. These three planets will have a lovely triple conjunction next month.

Finally, there may be a reason to set your alarm for early on the 19th. Now, I don't usually mention meteor showers since our light-polluted skies make most of them hopeless. Also, the November Leonids are expected to be poor for the near future and, possibly, forever. But two independent computer models are predicting a possible brief outburst on that date this month.

It seems that Comet Temple-Tuttle passed near the Sun in 1932 leaving a trail of dust and rubble. The Earth passed through this trail in 1969 producing an outburst, and is expected to do so again this month. Since the radiant will be on the eastern horizon, meteors will be moving parallel to the ground streaming from east to west directly overhead. This will be a quality over quantity event since only one or two meteors per minute are expected.

Leonids are the fastest of all meteors, so stay alert! Fortunately, they are famous for often leaving colorful trails and there will be no moonlight to interfere. The whole event should only last about thirty minutes, ending around 5 AM. You might then want to stay up and catch Mercury and the very thin crescent Moon! Or not.

NOVEMBER SKY CALENDAR

5 Sun 7:58 AM Full Moon	19 Sun 6:00 AM Very thin crescent Moon lower right of Mercury
8 Wed 2:12 PM Mercury begins to transit the disk of the Sun	20 Mon 5:17 PM New Moon
8 Wed 4:41 PM Center of transit of Mercury	21 Tue 6:00 PM Jupiter passes beyond the Sun into the morning sky.
8 Wed 4:46 PM Sunset	24 Fri 3:00 AM Mercury at maximum north latitude
8 Wed 7:08 PM Transit of Mercury ends	25 Sat 8:00 AM Mercury at maximum elongation from the Sun
12 Sun 12:46 PM Last Quarter Moon	28 Tue 1:29 AM First Quarter Moon
15 Wed 4:00 PM Venus just 0.43 degrees below Jupiter (not observable)	
19 Sun 4:45 AM Possible Leonid Meteor Outburst (see text)	

(Ed note: This issue contains two *Theater* columns by Ron Ruemmler. Future issues will carry sky information for the following month. We hope this will make Ron's hard work more useful to you.)



Theater In The Sky

by Ron Ruemmler

December 2006 ends the drought of planetary events in a truly spectacular way. During the second week of the month, Jupiter, Mercury, and Mars perform a lovely ballet centered about a triple conjunction that can easily be covered by the tip of a pinky finger at the end of an outstretched arm. This is your "handy" measure for one degree. Not since July 10, 1925 have three naked-eye planets been within a single degree of each other, and not until November 25, 2053 will it happen again!

Unfortunately this is a morning event, and a clear eastern horizon is necessary. The key is Jupiter which rises around 6 AM, about 75 minutes before the Sun. On the 5th, Mercury is six degrees to its upper right and is about half as bright. Mars is equidistant from them, directly below Mercury, and much dimmer. Mars will probably require binoculars, as will Graffias (Beta Scorpii), a small star that somehow gets caught up in all this.

The climax occurs on the 10th when Mercury is just 0.3 degrees above Jupiter, Mars is about one degree to their right and Graffias is just to the upper left of Mercury. You'll know you're looking in the right place if the Moon and Saturn are far off to the upper right.

For the following five days, everybody drifts apart with Mercury moving down toward the rising Sun and the others heading up to darker skies.

Evening planet-watchers are not left out. After an eleven-month absence, Venus returns as the brilliant "Evening Star." All during November, Venus has been setting less than thirty minutes after the Sun. As this month progresses, that interval more than doubles making the brightest planet an easier target low in the southwest. But look early! By 6 PM it's gone. The thin crescent Moon helps locate Venus around the time of the Winter Solstice.

Saturn is our only late night planet, rising around 9 PM. The Ringed Planet is losing some of its brightness as the rings are flattening out, but now both polar regions are easier to see with a telescope.

The two outermost planets are technically evening objects, setting a few hours after sunset. Uranus has an interesting conjunction with the crescent Moon on Christmas night. As soon as it's totally dark, use binoculars to find a fourth magnitude star (Lambda Aquarii) just to the right of the crescent Moon. Sixth magnitude Uranus is just below this star. From the central Atlantic Ocean, the planet would be hidden by the Moon.

DECEMBER SKY CALENDAR

4 Mon 7:24 PM Full Moon
7 Thu 4:29 PM Earliest Sunset
10 Sun 6:15 AM Jupiter-Mercury-Mars triple conjunction
12 Tue 9:32 AM Last Quarter Moon
15 Fri 6:00 AM Crescent Moon below Spica
18 Mon 6:00 AM Thin crescent Moon to right of Jupiter and Mars
19 Tue 6:00 AM Very thin crescent Moon to right of Mercury

20 Wed 9:00 AM New Moon
21 Thu 5:00 PM Very thin crescent Moon to left of Venus
21 Thu 7:25 PM Winter Solstice; shortest day
22 Fri 5:00 PM Thin crescent Moon far upper left of Venus
25 Mon 6:00 PM Uranus lower right of crescent Moon
27 Wed 9:48 AM First Quarter Moon



MEMBERS ONLY

MEMBERS ONLY

Be informed!

Get urgent notices and pertinent facts delivered to your inbox via the free service created exclusively for AAI members. Send a note to ray@asterism.org with your full name and stating that you are an AAI member. I'll send you invitations that make it easy to join our Yahoo groups.

Free Lunar Imaging using Webcam Classes at Sperry Observatory

From Ed Carlos to All:

I am scheduling the following classes for Lunar Imaging Project for Ivan Storm's students. The classes are free and are also open to AAI members. If you are interested please register for at least two days by emailing me directly at edcarlos@comcast.net. You must provide a cell phone number where I can reach you in case the class is canceled. The classes are limited to 12 people per class with at least 3-6 slots reserved for UCC students. It is a first come first serve basis. The class schedule and description are as follows

Nov 28 Tuesday 8:45PM

Nov 30 Thursday 8:45PM - will hold lecture session even if clouded out

Dec 1 Friday 8:30PM - Imaging session only no lecture

Dec 2 Saturday 8:00PM

Lunar Webcam Imaging Project

Goals

==>Take a video image (AVI) of parts the Moon.

==>Process video image into a still image by stacking video clips

==>Identify features of the Moon by referencing Moon atlas

Groups of 3 to 12 students

==>If class is more than 6, class will be broken up into two groups

====> First group will be at the telescope to image