



General Meeting of the Omaha Astronomical Society
Friday, October 6th at 7:30 PM
Durham Science Center, Room 169, UNO Campus
Program: See Page 3

Remember OAS Annual Elections held at the October meeting

Remember this month we will be holding elections. We will be voting for the following officers;

- President
- Vice-President
- Treasurer
- Program Chair
- Outreach Coordinator
- Secretary

If you have nominations for any of the offices please get them to Al Dorn or Mark Weiss as soon as possible.

OAS-PAC Banquet

Catering will be provided by Uncle Earnie's Catering. The menu will include: smoked pork, smoked beef, beans, pasta salad, lettuce salad and rolls, and a dessert.

When: Sunday, October 15th at 6:30pm. Dinner will be served at 7:30pm.

Where: Strategic Air and Space Museum, near Mahoney State Park, I-80 exit 426.

Refer to flyer sent last week.

**October Club Star Party,
October 21, 2006
OAS Club Site, Weeping Water**

OAS Group Photograph

Please remember that orders will be taken at the October 6th OAS meeting for the OAS group photograph taken on Friday the 8th of September. George Allen will be taking orders for B&W photos, and Al Dorn will be taking orders for color photos. Estimated cost will be around 3 dollars for an 8x10 photo.

OAS OUTREACH

Well once again we are reaching the end of our busy outreach season. So far the events for the Papillion-LaVista schools has gone fairly well, with only a couple of nights clouded out. The Marris Magnet School event went off with no trouble. As of Sunday 1 October 2006 we still have two events left for the Papillion-LaVista schools folks. We have a possible event for the Trinity Christian school and maybe one other, but John will let us know at the meeting.

Unfortunately our last event at Hitchcock Nature Center was a no go due to weather, hopefully better luck for then next year. As many may remember the event at Whispering Hill Winery was a success, and it looks like we will be doing a repeat event next year. So for those of you who might like to try for the Outreach Certificate, remember that there will be many chances to log events next year.

Omaha Astronomical Society is a member of the NASA Night Sky Network

Events and Stuff Section

October Meeting Presentation

Astronomy for Beginner
Observing Series.

"A Tour of the Autumn Constellations"

New Members

Gayland Holloway of Omaha
Robert Dunn of Omaha

Good October Observing Dates to Observe at the Club Site or other good dark sky location

Friday 13 October, last quarter moon
Saturday 14 October, last quarter moon
Friday 20 October, new moon
Saturday 21 October, new moon

Mahoney Public Star Parties

Done Until May 2007

All Friday evenings from Twilight On the Golf Driving Range of the Mahoney State Park Ashland, NE

Visit the club web site at:
www.OmahaAstro.com

Save the club money... and get your newsletter in full color by signing up for the email edition of the Stella. Signing up is easy... just send an e-mail to:

oas.mkw@cox.net

October Sky Calendar

6th Full Moon
8th Draconid Meteor Shower Peaks
13th Last Quarter Moon
21st Orionid Meteor Shower Peaks
22nd New Moon
29th First Quarter Moon

Recent Observing Awards

None

OAS Meeting Minutes 8 September 06

Durham Science Building, UNO, Rm. 169.

Meeting was called to order at 7:50 PM by Al Dorn. (At 7:30 we took OAS photos outside the Durham Science Center.) We welcomed two guests, Eugene and Ann, and had a total of 41 people at the meeting.

Minutes of August OAS Meeting read by Kim Moss-Allen. A motion was made to accept the minutes by Tony Schism, seconded by Howard Boehm.

Treasurer's Report given by Bill Bond. August income:\$160, Expenses \$60, Balance of \$5163.17.

Outreach John Johnson reported on upcoming events. (August use of Astropark: 3.)
Hitchcock Nature Center, Public Star Party, Sat., Sep.23rd.
Public Star Party, Mahoney State Park, Fri. Sep.15th.
Papillion/La Vista Schools Outdoor Ed. Program, Gretna 4-H Camp.
Dates for September: Wed. the 6th, Mon. the 11th, Wed. the 13th, Mon. the 18th, Wed. the 20th, Mon. the 25th.
Dates for October: Mon. the 2nd, Wed. the 4th.
Glennwood Schools, Camp Neyati, Mon. Sep. 18th and Thur. 21st.

OAS Telescope Loan Program

6 inch Dobsonian Nina and Clete Baker
6 inch Newtonian Keith Jones

8 inch SCT Rita Corell
8 inch Dobsonian Joe Alvarado
13 inch Dobsonian Chris Jewell
Binoculars, 11x80 Gary Grimes.

Motion made to close meeting by Deb Cheney, seconded by Sharon Weiss.

Program: **Eyepieces – Part 2** By John Johnson

Minutes by OAS Secretary
Kim Moss-Allen

Awards Pending.

Observing Club Star Party at Astropark, Weeping Water, NE, Sat. Sep 23rd. Also Baylen Observatory in Meade, NE is having an open house Friday, Sep.29th.

Old Business

OAS PAC Astronomy Banquet has a caterer—Uncle Ernie's famous Bar-B-Q. October 15th, 6:30 PM at the SAC Museum. BBQ meal includes pork, macaroni salad, lettuce salad, coffee and tea. Two speakers are lined up, one from the Jet Propulsion Laboratory. Price \$11. No door prizes planned. Questions? Ask any club officer or Tony at 614-4738.

Fall "Nebraska Star Party" on hold. Eric Balcom double checked the site and found the road leading to it basically impassable.

New Business

It was mentioned by a member that the Iowa Star Party is in mid-September and is about 3 hours from here.

George Allen is planning a trip to visit historic Yerkes Observatory (now housing the world's largest refractor) near Chicago. Only 440 miles from here. Anticipating private tour. For more info contact Karl at astrocamman@yahoo.com.

UNO's library is dedicating a new area in the second week of October 2006. There will be free library cards available to the public at that time. Also, they are installing a new exhibit at the library called "View Space." It's a system with a 46" monitor that shows constantly changing, updated images gathered from astronomy websites by the Space Telescope Science Institute. For more information you can visit www.stsci.edu or ask Bob Dunn, 554-3308.

Next Meeting will be October 6th, 2006, UNO Physics Building, room 169. We WILL have rooftop observing on the 6th and Saturday the 7th to coincide with the re-opening of the planetarium by doing rooftop observing for the public right after the planetarium show. Contact AI if you would like to help!

October Astronomy Quiz

1. Where is the "New Horizons" probe headed?
2. When will it get there?
3. What was launched the 23rd of July, 1999 from STS 93?
4. What is MOST?
5. What is an **AU**?
6. How far is Voyager 1 from the sun in AU's now?
7. What area of the spectrum was the second of NASA great space observatory sent to observe?
8. Who was it named after?
9. What does SWIFT look for?
10. Currently what is the estimated number of natural satellites in the solar system?
11. How many planets have rings?
12. Most meteor showers are believed to come from the earth passing through comet orbits, which shower is believed to come from something other than a comet?
13. Where do the meteors from the answer in #12 come from?
14. How far is our natural satellite the moon receding from us every year?
15. What is the most volcanic place in the solar system?
16. What is the coldest place in the solar system?

Strange Moonlight

Sept. 28, 2006: Not so long ago, before electric lights, farmers relied on moonlight to harvest autumn crops. With everything ripening at once, there was too much work to do to stop at sundown. A bright full moon—a "Harvest Moon"—allowed work to continue into the night. The moonlight was welcome, but as any farmer could tell you, it was strange stuff. How so? See for yourself. The Harvest Moon of 2006 rises on October 6th, and if you pay attention, you may notice a few puzzling things:

1. Moonlight steals color from whatever it touches. Regard a rose. In full moonlight, the flower is brightly lit and even casts a shadow, but the red is gone, replaced by shades of gray. In fact, the whole landscape is that way. It's a bit like seeing the world through an old black and white TV set. "Moon gardens" turn this 1950s-quality of moonlight to advantage. White or silver flowers that bloom at night are both fragrant and vivid beneath a full moon. Favorites include Four-O'clocks, Moonflower Vines, Angel's Trumpets—but seldom red roses.

2. If you stare at the gray landscape long enough, it turns blue. The best place to see this effect, called the "blueshift" or "Purkinje shift" after the 19th century scientist Johannes Purkinje who first described it, is in the countryside far from artificial lights. As your eyes become maximally dark adapted, the blue appears. Film producers often put a blue filter over the lens when filming night scenes to create a more natural feel, and artists add blue to paintings of night-scapes for the same reason. Yet if you look up at the full moon, it is certainly *not* blue. (Note: Fine ash from volcanoes or forest fires can turn moons blue, but that's another story.)

3. Moonlight won't let you read. Open a book beneath the full moon. At first glance, the page seems bright enough. Yet when you try to make out the words, you can't. Moreover, if you stare too long at a word it might fade away. Moonlight not only blurs your vision but also makes a little blind spot. (Another note: As with all things human, there are exceptions. Some people have extra-sensitive cones or an extra helping of rods that do allow them to read in the brightest moonlight.)

This is all very strange. Moonlight, remember, is no more exotic than sunlight reflected from the dusty surface of the moon. The only difference is intensity:

Moonlight is about 400,000 times fainter than direct sunlight.

So what do we make of it all? The answer lies in the eye of the beholder. The human retina is responsible. The retina is like an organic digital camera with two kinds of pixels: rods and cones. Cones allow us to see colors (red roses) and fine details (words in a book), but they only work in bright light. After sunset, the rods take over. Rods are marvelously sensitive (1000 times more so than cones) and are responsible for our night vision. According to some reports, rods can detect as little as a single photon of light! There's only one drawback: rods are colorblind. Roses at night thus appear gray.

If rods are so sensitive, why can't we use them to read by moonlight? The problem is, rods are almost completely absent from a central patch of retina called the fovea, which the brain uses for reading. The fovea is densely packed with cones, so we can read during the day. At night, however, the fovea becomes a blind spot. The remaining peripheral vision isn't sharp enough to make out individual letters and words.

Finally, we come to the blueshift. Consider this passage from a 2004 issue of the *Journal of Vision*: "It should be noted that the perception of blue color or any color for that matter in a purely moonlit environment is surprising, considering that the light intensity is below the detection threshold for cone cells. Therefore if the cones are not being stimulated how do we perceive the blueness?" The authors of the study went on to propose a bio-electrical explanation—that signals from rods can spill into adjacent blue-sensitive cones under conditions of full-moon illumination (see the diagram, right). This would create an illusion of blue. "Unfortunately," they point out, "direct physiological evidence to support or negate the hypothesis is not yet available." So there are still some mysteries in the moonlight. Look for them on Oct. 6th under the Harvest Moon.

Caveat Lunar: This story makes some generalizations about what people can see at night but, as with all things human, there are exceptions: Some people can read by moonlight; others have no trouble seeing the red petals of a moonlit rose. These people have "moonvision," boosted by an extra-helping of rods or unusually sensitive cones. Are you one of them?

Author: [Dr. Tony Phillips](#) | Editor: [Dr. Tony Phillips](#) |
Credit: [Science@NASA](#)

Fall Planet Guide: Saturn is Best Bet

By Joe Rao

SPACE.com Skywatching Columnist

posted: 29 September 2006

06:10 am ET

Have you ever heard of the word "combust?" As defined in my American Heritage Dictionary of the English Language, it means, "Not visible because of proximity to the Sun." And as it turns out, during the coming days and weeks, four out of the five bright naked-eye planets will indeed become combust!

This is a rather unusual situation, since there are usually at least two bright planets in view on any given night. But by the last week of October, only one out of the five bright planets will be visible. Already, Venus and Mars are out of view, hidden by the brilliant solar glare. Jupiter and Mercury, currently in the evening sky, will gradually slide into invisibility during late October.

Only Saturn will be readily visible all through the month of October in a dark sky . . . although you'll have to get up during the wee hours of the morning to get a good look at it. Here is a summary of what you can see (or not see) regarding the five brightest planets during these next several weeks:

MERCURY—begins October shining at magnitude –0.1—equal in brightness to the similarly hued star Arcturus in Bootes. Yet, it will probably require optical aid as it sinks toward the horizon after sunset. Look for it very low in the west-southwest about 30 minutes after sunset during the first half of October. You'll need a ton of luck, to actually see it, however, since this tiny, rocky world is having its worst apparition of 2006 for viewers located near and along latitude 40 degrees north. Although it attains a greatest elongation of 25-degrees on Oct. 17, its southerly location in Libra lays it low for us northerners.

Jupiter will be passing well above and to Mercury's right in the evenings that immediately follow. But by the final week of October, you can probably forget about Mercury; by then it will be so low and will have become so faint that very few viewers north of the equator will be able to see it. In stark contrast, for those living south of the equator, Mercury will put on a great evening show; appearing to stand almost straight up above the setting Sun in mid-October and remaining above the western horizon until after evening twilight has ended.

On Nov. 8-9, Mercury will arrive at inferior conjunction, crossing directly between the Earth and the Sun and resulting in a rare "transit" across the Sun's disk. For favorably placed viewers in North and South America, the Pacific Ocean, Australia, New Zealand and eastern Asia, Mercury will appear as a tiny black dot crossing the face of the Sun. It will be this planet's last transit until the year 2016. More details on how to view this unusual sight will appear on SPACE.com in the coming weeks, so be sure to stay tuned!

VENUS—is completely out of sight in October; it arrives at superior conjunction behind the Sun on Oct. 27. Venus will emerge into view as the bright Evening Star come early-to-mid December.

MARS—like Mercury and Venus is hidden deep in the Sun's glow during October. It will be in conjunction with the Sun on Oct. 23. Don't even think about looking for it in the morning sky until December.

JUPITER—sets about 100 minutes after the Sun at the start of October, but less than 45 minutes by month's end. This big world is unfortunately, too low at dusk for good telescopic observations. My guess is that Oct. 24 will be—realistically—the last evening that most people will be able to see it. Binoculars will help a lot. If somehow you do locate Jupiter, then also try for the exceedingly thin crescent Moon about 10-degrees to the left of Jupiter albeit somewhat lower, and much-dimmer Mercury, about 4-degrees below and to Jupiter's left. Keep in mind that your clinched fist, held at arm's length is roughly equivalent to 10-degrees; so the Moon and Jupiter will be separated by approximately "one-fist." Binoculars will also show Jupiter pulling well away from the star Zubenelgenubi early in the month.

SATURN—is the only bright planet that is well placed for viewing in October. At midmonth it rises soon after 2 a.m. local daylight time and is well up in the eastern sky at dawn.

Saturn creeps 2.5-degrees eastward in Leo, and will close the month 6-degrees west of the bluish first-magnitude star, Regulus. Of magnitude +0.5, Saturn is outshone only by similarly hued Procyon among all those stars located within 30-degrees of the planet. The rings continue to slowly close to our line of sight; telescopic observers will see the rings south side tilted 13.7-degrees toward us at the start of the month, but 12.7-degrees by month's end. On the morning of the 16th, Saturn will sit below and slightly to the right of a fat crescent Moon.

New Monthly Feature Astronomy Terms

Celestial sphere.

An imaginary sphere of great (or infinite) radius that is centered on the earth and is used for practical purposes in astronomical observing. Since stars (other than our own sun!) are very distant from us, they make up a background that is essentially unchanging from year to year; of course, over a period of years, the closer stars will move very slightly and factors such as precession cause a change in the appearance of the stars in our skies over many years. But we create a map grid on the celestial sphere for identifying, referring to, and locating objects in the sky; some of these map grids include equatorial coordinates (right ascension and declination).

Declination

A system for measuring the altitude of a celestial object, expressed as degrees north, or south, of the celestial equator. Angles are positive if a point is North of the celestial equator, and negative if South. It is used, in conjunction with Right Ascension, to locate celestial objects.

Right Ascension (RA)

The angular distance, measured Eastwards, from the Vernal Equinox. It is one of the ordinates used to reference objects on the celestial sphere. It is the equivalent to a longitude reference on the Earth. There are 24 hours of right ascension within 360 degrees, so one hour is equivalent to 15 degrees. Together with declination, it represents the most commonly used co-ordinate system in modern astronomy.

Altitude.

The angular distance from the observer's horizon, usually taken to be that horizon that is unobstructed by natural or artificial features (such as mountains or buildings), measured directly up from the horizon toward the zenith; positive numbers indicate values of altitude above the horizon, and negative numbers indicate below the horizon --- with negative numbers

usually being used in terms of how far below the horizon the sun is situated at a given time [for example, the boundary between civil twilight and nautical twilight is when the sun is at altitude -6 degrees].

Azimuth.

Angular distance measured clockwise around the observer's horizon in units of degrees; astronomers usually take north to be 0 degrees, east to be 90 degrees, south to be 180 degrees, and west to be 270 degrees.

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\$25.00

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- ◆ Members receive the STELLA, our monthly newsletter.
- ◆ Each member is automatically a member of the Astronomical League, the only nation-wide organization for amateur astronomers.
- ◆ Use of the observing site at Weeping Water, NE
- ◆ The opportunity to borrow one of several club-owned telescopes.
- ◆ Organized trips to local observatories, planetariums and museums.
- ◆ Significant savings on subscriptions to **Sky & Telescope** and **Astronomy** magazines.
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STELLA is a publication of The Omaha Astronomical Society.
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