

IO – February 2006

Issue # 2006-02

www.eugeneastro.org

Eugene Astronomical Society, Annual Club Dues \$25, Board Members: President: Richard Boyd- checkerkit@comcast.net, Stephen Caruana, Fred Domineack, Jacob Stranlien Sam Pitts- IO editor- sampitts@comcast.net 688-7330 Io (*EYE-oh*) is nearest to Jupiter and fastest orbiting of the four Galilean moons

EAS is a Proud Member of:



Monday- February 6th MEETING EUGENE ASTRONOMICAL SOCIETY At The Science Factory Planetarium

The meeting will begin at **7:00 PM** in the Planetarium. This month a tentative Planetarium show about Saturn or a slide show will be presented. General discussions and questions about amateur astronomy and possible future phenomena will be addressed. Come on out and have some fun visiting with others that share a passion for the night skies.

Come early and help others learn about their scopes. Those of you, who are new or not sure about your equipment, show up early and some of our members will assist you in understanding your equipment better. If you are planning on getting a scope please come out and ask questions, we're glad to assist you in making a good solid choice to maximize your viewing pleasure.

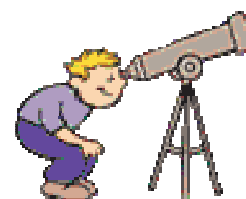
The Science Factory is at 2300 Leo Harris Parkway, behind Autzen Stadium.

Check EAS WEB site for up to the minute Information



Astronomy Day 2006

May 6th



Presented by Eugene Astronomical Society in conjunction with The Science Factory

Will be held at:

The Science Factory: 2300 Leo Harris Parkway, behind Autzen Stadium.

12:00 Noon till 6:00 PM

Outside Telescope Observing 7:00 -10:00 PM

Depending on Weather



February 4	February 12	February 21	February 27
First Quarter	Full Moon	Last Quarter	New Moon
Sunset: 5:26 PM	Sunset: 5:37 PM	Sunset: 5:50 PM	Sunset: 5:58 PM
Sunrise 7:26 AM	Sunrise 7:15 AM	Sunrise 7:02 AM	Sunrise 6:52 AM
Mercury Rise 7:54 AM	Mercury Rise 7:52 AM	Mercury Rise 7:39 AM	Mercury Rise 7:20 AM
Venus Rise 5:19 AM	Venus Rise 4:56 AM	Venus Rise 4:39 AM	Venus Rise 4:32 AM
Mars Set 2:14 AM	Mars Set 1:53 AM	Mars Set 1:41 AM	Mars Set 1:33 AM
Jupiter Rise 1:38 AM	Jupiter Rise 12:48 AM	Jupiter Rise 12:15 AM	Jupiter Rise 11:49 PM
Saturn Rise 4:55 PM	Saturn Rise 3:54 PM	Saturn Rise 3:15 PM	Saturn Rise 2:50 PM
Uranus Set 7:47 PM	Uranus Set 6:56 PM	Uranus Set 6:23 PM	Uranus Set 6:01 PM
Neptune Rise 7:32 AM	Neptune Rise 7:02 AM	Neptune Rise 6:27 PM	Neptune Rise 6:04 AM
Pluto Rise 3:58 AM	Pluto	Pluto Rise 2:52 AM	Pluto

All times are for Eugene, Oregon Latitude 44° 3' 8" Longitude 123° 5' 8" for listed Date

Events

2	Saturn 0.6° from Beehive cluster at 0h UT. Mag. -0.2.
5	Moon near Mars at 21h UT (evening sky). Mag. +0.3.
6	1971 Alan Sheppard became the first man to play golf on the moon, teeing off
10	Moon near Pollux at 15h UT (evening sky).
11	Moon near Saturn at 17h UT (evening sky). Mag. -0.2.
13	Full Moon at 4:44 UT. The full Moon in February is called "Snow Moon" or "Wolf Moon".
14	Venus brightest at 8h UT (morning sky). Mag. -4.6. (Valentines Day)
15	Galileo Born 1564 First human to look at the heavens with a telescope, the moon was his first object
18	Mars 2.3° from the Pleiades at 2h UT (evening sky). Mag. +0.6.
18	Astronomical Society of the Pacific was born in 1889
20	Moon near Jupiter at 5h UT (morning sky). Mag. -2.1. Jupiter approaches Nu Librae , Next 10 days- (Mag. 5.2), Only 3.3' apart on 1 March.
24	Mercury at greatest elongation 18° E. of Sun (evening sky) at 5h UT. Mag. -0.4, low in west.
24	First Pulsar Discovered in 1968 by Susan J. Bell
25	Moon near Venus at 1h UT (morning sky). Mag -4.6.

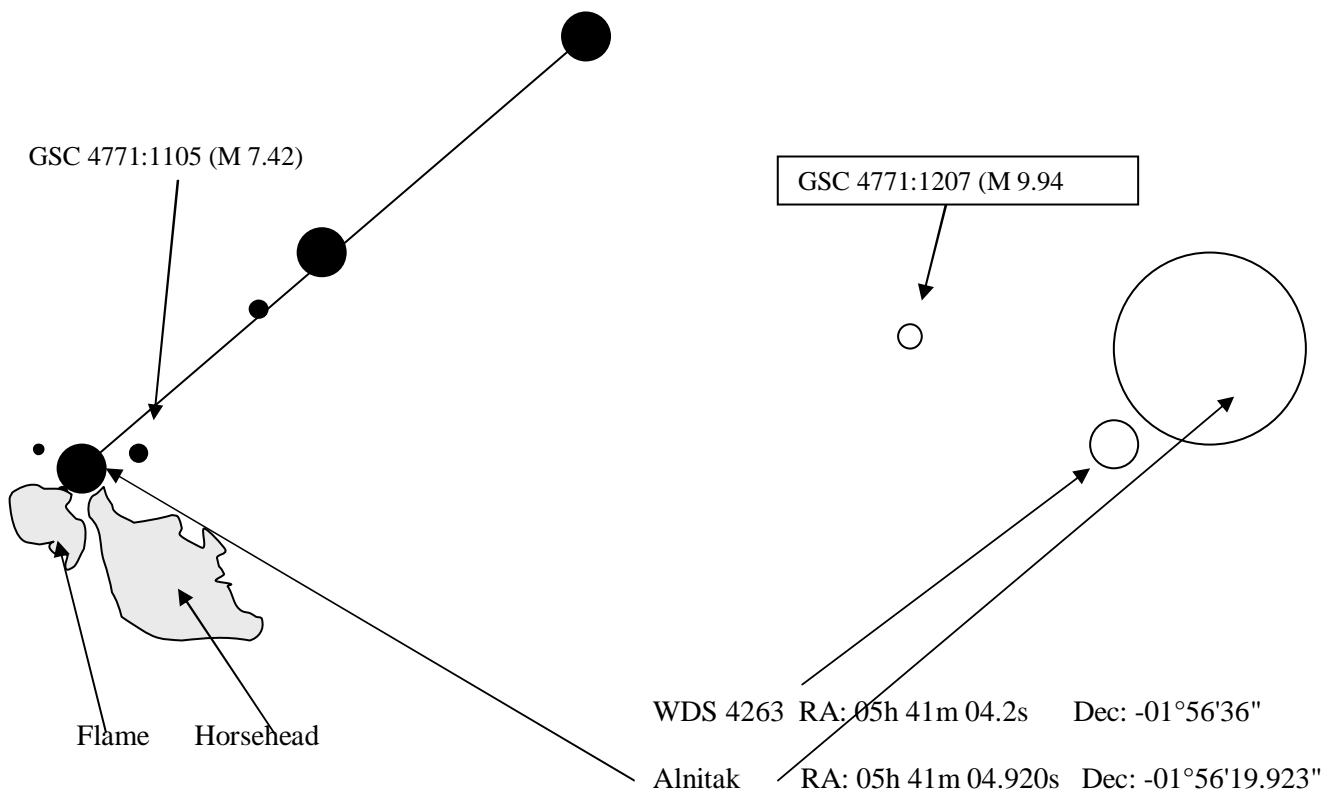
All times Universal Time (UT), U.S. Pacific Coast Standard Time = UT - 8 hours.

February is an excellent time to look for and photograph Zodiacal Light which is reflection of sunlight of the meteoric dust in the plane of the solar system. Best time is twilight approx 1-2 hours after sunset looking along the ecliptic to the West.

Orion

When you look at Betelgeuse remember that it is slightly fainter than Regulus. Betelgeuse is a type M2 Red Giant star only 430 light years away. It is so large that if it replaced our own sun, its surface would be near the orbit of Mars, (300,000,000 miles in diameter)

How good is the seeing, here is a good double to split in Orion's Belt. The Eastern most star near the Flame & Horsehead Nebula-ALNITAK (Mag. 1.7) and its companion WDS 4253 (Mag 2.0). They are approximately 2-3 arc seconds apart an 800 lights from earth (20" angular separation). Nearby GSC 4771:1207 (Mag 9.94) is approximately an arc minute away (1'16" angular separation)



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<http://www.stargazing.net/david/ITS/>

Snowstorm on Pluto

by Dr. Tony Phillips



This artist's rendering shows how Pluto and two of its possible three moons might look from the surface of the third moon. Credit: NASA/ESA and G. Bacon (STSci)

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There's a nip in the air. Outside it's beginning to snow, the first fall of winter. A few delicate flakes tumble from the sky, innocently enough, but this is no mere flurry.

Soon the air is choked with snow, falling so fast and hard it seems to pull the sky down with it. Indeed, that's what happens. Weeks later when the storm finally ends the entire atmosphere is gone. Every molecule of air on your planet has frozen and fallen to the ground.

That was a snowstorm—on Pluto.

Once every year on Pluto (1 Pluto-year = 248 Earth-years), around the beginning of winter, it gets so cold that the atmosphere freezes. Air on Pluto is made mainly of nitrogen with a smattering of methane and other compounds. When the temperature dips to about 32 K (-240 C), these molecules crystallize and the atmosphere comes down.

"The collapse can happen quite suddenly," says Alan Stern of the Southwest Research Institute. "Snow begins to fall, the surface reflects more sunlight, forcing quicker cooling, accelerating the snowfall. It can all be over in a few weeks or months."

Researchers believe this will happen sometime during the next 10 to 20 years. Pluto is receding from the warmth of the Sun, carried outward by its 25% elliptical orbit. Winter is coming.

So is New Horizons. Stern is lead scientist for the robotic probe, which left Earth in January bound for Pluto. In 2015 New Horizons will become the first spacecraft to visit that distant planet. The question is, will it arrive before the snowstorm?

"We hope so," says Stern. The spacecraft is bristling with instruments designed to study Pluto's atmosphere and surface. "But we can't study the atmosphere if it's not there." Furthermore, a layer of snow on the ground ("probably a few centimeters deep," estimates Stern) could hide the underlying surface from New Horizon's remote sensors.

Stern isn't too concerned: "Pluto's atmosphere was discovered in 1988 when astronomers watched the planet pass in front of a distant star—a stellar occultation." The star, instead of vanishing abruptly at Pluto's solid edge, faded slowly. Pluto was "fuzzy;" it had air. "Similar occultations observed since then (most recently in 2002) reveal no sign of [impending] collapse," says Stern. On the contrary, the atmosphere appears to be expanding, puffed up by lingering heat from Pluto's waning summer.

Nevertheless, it's a good thing New Horizons is fast, hurtling toward Pluto at 30,000 mph. Winter. New Horizons. Only one can be first. The race is on....



Open Cluster Observing Club

(NEW)

Open Cluster Club Chair:

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Open clusters are of tremendous importance to the science of astronomy, if not to astrophysics and cosmology generally. Star clusters serve as the "laboratories" of astronomy, with stars now all at nearly the same distance and all created at essentially the same time. Each cluster thus is a running experiment, where we can observe the effects of composition, age, and environment. We are hobbled by seeing only a snapshot in time of each cluster, but taken collectively we can understand their evolution, and that of their included stars. These clusters are also important tracers of the Milky Way and other parent galaxies. They help us to understand their current structure and derive theories of the creation and evolution of galaxies. Just as importantly, starting from just the Hyades and the Pleiades, and then going to more distance clusters, open clusters serve to define the distance scale of the Milky Way, and from there all other galaxies and the entire universe.

However, there is far more to the study of star clusters than that. Anyone who has looked at a cluster through a telescope or binoculars has realized that these are objects of immense beauty and symmetry.

Whether a cluster like the Pleiades seen with delicate beauty with the unaided eye or in a small telescope or binoculars, or a cluster like NGC 7789 whose thousands of stars are seen with overpowering wonder in a large telescope, open clusters can only bring awe and amazement to the viewer.

These sights are available to all. Whether a large or small telescope is used, whether one observes with only binoculars or the unaided eye, or whether one observes from a dark sky location or a light-polluted city, these clusters are there waiting on any clear night for us to take a look.

Performing this program and receiving the certificate and award pin, signifies that you too, have undertaken the task of studying these wonderful and diverse star systems and hopefully, have a new understanding and appreciation for these deep sky objects.

Rules and Regulations

The Open Cluster Observing Program is open to any Astronomical League member in good standing, either through an affiliated club or through a Member-at-Large membership. The nature of this program is not just observation of the selected open clusters, but the ability to classify them based on the Trumpler classification system. Therefore, GO-TO and other computer controlled telescopes are permitted along with manual (star hopping, finderscopes, etc.) observing techniques. In order to complete the requirements for the club, the observer is required to observe all 125 (one-hundred and twenty-five) of the selected objects.

Other than observation, the observer will be required to classify all of the open clusters observed in this program under the Trumpler classification system. Examples of some of the official Trumpler classifications are given in the observing manual. By classifying all of the open clusters, the observer will be developing a better understanding of their differences and appearances.

The observer is also required to make a sketch of any 25 (twenty-five) clusters they observe. The sketch does not have to be a work of art, but it does need to accurately depict the cluster. Since open clusters are made of stars, a drawing of small dots in a pattern of the cluster is all that is needed. Only 25 objects need to be sketched.

Because the goal of this program is to have the observer see the differences in the clusters, it is highly recommended that the same telescope and similar power be used for all of the clusters. By doing this, it will ensure that the differences that are seen are cluster differences and not power differences.

For each object, the observer is required to record the location, date & time, seeing, transparency, aperture, power, a brief description of the observed object, the Trumpler classification, and a sketch for any 25 clusters from the list of 125. This format follows that of most Astronomical League observing programs. If the format that you use is more detailed, just make sure that the basic requirements, described above, are recorded.

Once you have met the above requirements, send in your observing logs, along with your name (as you wish it to appear on your certificate), address, Astronomical League affiliation (club name or member-at-large), email address and phone number to the administrator of this club, shown at the top of this web page. It is also permissible to have your clubs' Astronomical League Awards representative send in your logs, along with all the personal information ask for above, to the administrator as well. Remember to make copies of your observations to send it. Keep the originals for your own records.