

IO - July 2008

Issue 2008-07
Eugene Astronomical Society

Eugene Astronomical Society
Annual Club Dues \$25
President: Sam Pitts - 688-7330
Secretary: Jerry Oltion - 343-4758
Additional Board members:
Jacob Strandlien, Tony Dandurand,
Tommy Lightning Bolt.

www.eugeneastro.org

EAS is a proud member of:

The Astronomical League
The World's Largest Federation of Amateur Astronomers



NEXT MEETING: JULY 24TH

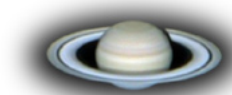
A Story of Constellations
(With Celestial Flowers)
by Larry Deckman

At our July 24th meeting, Larry Deckman will present a tour of the constellations, delving into their history, their construction, and how they relate to one another. This program will provide the context to help us figure out which constellations we're looking at when we wonder "What's that group of stars next to Ophiuchus?"

In addition to the constellations themselves, Larry will show us objects of astronomical interest within each stellar group, using some of the most spectacular photos available anywhere. This survey of celestial patterns and celestial sights covers all four seasons, and is a show not to be missed.

Time permitting, we'll also have Jacob Strandlein's astronomical news and our usual information sharing between members. We always encourage audience participation during our meetings. EAS meetings are traditionally times when we learn about astronomy and share experiences and knowledge of astronomy and the night sky. If you have something to share with the group, please do so.

Come and enjoy the wonders of the night sky with the Eugene Astronomical Society. After the meeting we can gather at The North Bank for dinner and conversation.



July Events

Remember our "First Quarter Friday" on July 11th at the College Hill Reservoir, 24th and Lawrence, starting at 9:00. First Quarter Fridays are meant to be informal, fun gatherings for EAS members and the general public. Bring a telescope and have fun observing and sharing the view with whoever shows up.

REMEMBER THAT WE NOW MEET AT EWEB

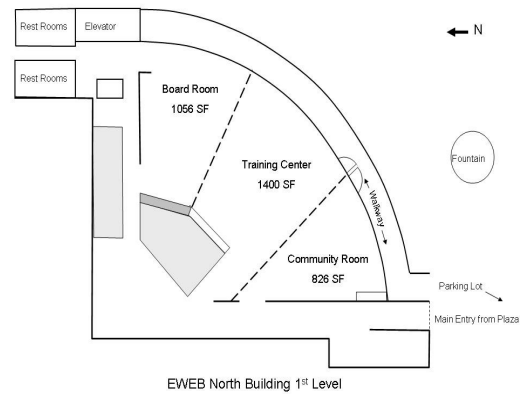
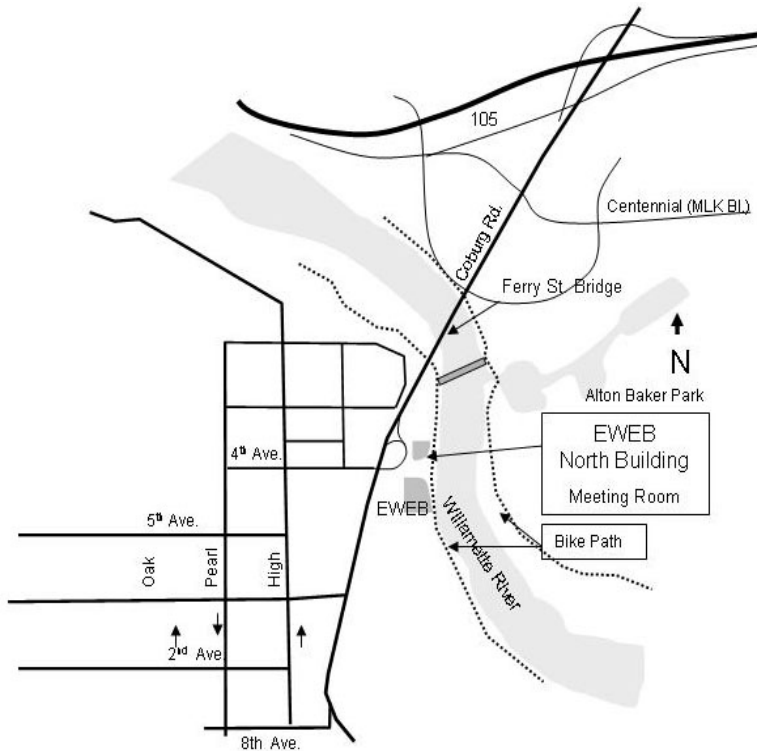
500 E. 4th Avenue in Eugene.

OUR NEXT MEETING WILL BE ON THURSDAY, JULY 24th AT 7:00 IN THE NORTH BUILDING'S COMMUNITY ROOM. This is the first of the three wedge-shaped rooms in the semicircular building to the north of the fountain at EWEB's main campus on the east end of 4th Avenue.

Meeting dates and times for the rest of the year:

- July 24 (Thursday) in Community Room
- August 28 (Thursday) in Community Room
- September 30 (**Tuesday**) in Community Room
- October 23 (Thursday) in Community Room
- November 10 (**Monday**) in Community Room
- December 18 (Thursday) in Community Room

Join the EAS mail list at <http://eugeneastro.org/mailman/listinfo/org.eugeneastro.general>



EWEB is located at 500 E. 4th Avenue. Our meetings will be in the first room in the semicircular building to the north of the fountain.

CASTLE STORAGE

Unit _____
Code _____

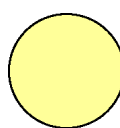
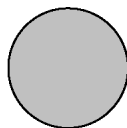
120 S. Danebo • Eugene, OR 97402 • 541.607.3800

Thank You Castle Storage

Board member Tommy Lightning Bolt was instrumental in getting a storage unit from the owners of Castle Storage for EAS to store its telescopes and equipment. EAS would like to thank Castle Storage for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. They are great people and offer secure and quality units.



Observing in July



July 3	July 9	July 18	July 25
Mercury Rise 5:04 AM	Mercury Rise 5:50 AM	Mercury Set 8:29 PM	Mercury Set 8:26 PM
Venus Set 8:43 PM	Venus Set 8:01 PM	Venus Rise 6:23 AM	Venus Rise 5:30 AM
Mars Rise 12:43 AM	Mars Rise 12:29 AM	Mars Rise 12:14 AM	Mars Rise 11:59 PM
Jupiter Set 1:26 AM	Jupiter Set 12:54 AM	Jupiter Set 12:23 AM	Jupiter Set 11:51 PM
Saturn Rise 7:15 AM	Saturn Rise 6:52 AM	Saturn Rise 6:26 AM	Saturn Rise 6:00 AM
Uranus Rise 9:50 PM	Uranus Rise 9:22 PM	Uranus Rise 8:50 PM	Uranus Rise 8:18 PM
Neptune Rise 8:44 PM	Neptune Rise 8:16 PM	Neptune Rise 7:44 PM	Neptune Rise 7:12 PM
Pluto Set 3:00 AM	Pluto Set 2:32 AM	Pluto Set 2:00 AM	Pluto Set 1:28 AM

All times: Pacific Standard Time (Nov 4, 2007-March 9, 2008) = UT-8 or U.S. Pacific Daylight Time (March 9-November 2, 2008) = UT - 7 hours.

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
7/1/2008	03:34	20:17	05:34	20:59	03:10	23:22
7/2/2008	04:41	21:14	05:34	20:59	03:11	23:21
7/3/2008	05:59	21:57	05:35	20:59	03:12	23:21
7/4/2008	07:21	22:30	05:36	20:58	03:13	23:20
7/5/2008	08:41	22:56	05:36	20:58	03:15	23:19
7/6/2008	09:57	23:18	05:37	20:58	03:16	23:18
7/7/2008	11:08	23:38	05:38	20:57	03:17	23:17
7/8/2008	12:16	23:56	05:38	20:57	03:19	23:16
7/9/2008	13:23	—	05:39	20:56	03:20	23:15
7/10/2008	14:28	00:15	05:40	20:56	03:22	23:13
7/11/2008	15:34	00:37	05:41	20:55	03:23	23:12
7/12/2008	16:39	01:02	05:41	20:54	03:25	23:11
7/13/2008	17:42	01:32	05:42	20:54	03:26	23:09
7/14/2008	18:41	02:09	05:43	20:53	03:28	23:08
7/15/2008	19:33	02:54	05:44	20:52	03:29	23:06
7/16/2008	20:16	03:49	05:45	20:52	03:31	23:05
7/17/2008	20:52	04:50	05:46	20:51	03:33	23:03
7/18/2008	21:22	05:56	05:47	20:50	03:34	23:02
7/19/2008	21:47	07:04	05:48	20:49	03:36	23:00
7/20/2008	22:08	08:13	05:49	20:48	03:38	22:58
7/21/2008	22:27	09:22	05:50	20:47	03:40	22:57
7/22/2008	22:47	10:31	05:51	20:46	03:41	22:55
7/23/2008	23:08	11:42	05:52	20:46	03:43	22:53
7/24/2008	23:31	12:55	05:53	20:45	03:45	22:51
7/25/2008	23:59	14:10	05:54	20:43	03:47	22:49
7/26/2008	—	15:29	05:55	20:42	03:49	22:48
7/27/2008	00:34	16:47	05:56	20:41	03:51	22:46
7/28/2008	01:21	18:00	05:57	20:40	03:52	22:44
7/29/2008	02:21	19:01	05:58	20:39	03:54	22:42
7/30/2008	03:33	19:49	05:59	20:38	03:56	22:40
7/31/2008	04:53	20:26	06:00	20:37	03:58	22:38

Other Items of Interest This Month

- 7/1 (late) Jupiter's moons in vertical lineup
- 7/6 Moon, Mars, Saturn, and Regulus near one another
- 7/9 Jupiter at opposition
- 7/10 Mars and Saturn within 0.7°
- 7/11 First Quarter Friday star party**
- 7/17 Moon near Jupiter
- 7/27 Peak of Delta Aquarid meteor shower

For Current Occultation Information

Visit **Derek C. Breit's** web site
"BREIT IDEAS Observatory"

<http://www.poyntsource.com/New/Regions/EAS.htm>

Go to Regional Events and click on the Eugene, Oregon section. This will take you to a current list of Lunar & asteroid events for the Eugene area. Breit continues to update and add to his site weekly if not daily. This is a site to place in your favorites list and visit often.

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

Farewell To Fellow EAS Member

Long time EAS member Alfred Mikesell, age 94, died on the morning of Wednesday, June 25th, 2008.

Mikesell was a retired professional Astronomer, working for 34 years with the United States Naval Observatory. He was the first astronomer to make telescopic observations from the stratosphere, going to 40,000 feet in a balloon to determine what portion of the atmosphere was responsible for the twinkling effect on stars. This was a cutting edge volunteer endeavor, with an extremely high risk to life attached to it. (He was lucky to survive the journey.) The findings of this flight — that turbulence at the tropopause is largely responsible for twinkling — led to the development of the adaptive optics used in modern telescopes.

Mikesell was also one of the two people responsible for finding a new site for the US Naval Observatory after light pollution became a problem at its Washington, DC facility. He and fellow USNO astronomer John Hall tested many sites, eventually settling on a hill outside of Flagstaff, Arizona, where the USNO's main observatory still resides.

Alfred and his wife, Marjorie, attended many EAS meetings and were great fun to visit with. We'll miss Alfred, and we hope that Marjorie will continue to share the night sky with us whenever she can.



Alfred Mikesell with a 5-inch Alvan Clark refractor at the U. S. Naval Observatory in 1965.

Summer Star Parties

The cloud deck finally rolled away in June, revealing the summer constellations and all their attendant wonders. The EAS has had several great outings already, starting with our First Quarter Friday on June 13th. That was once again a great success, with nearly a dozen telescopes and at least double that many people to share the view through them. The sky from the College Hill Reservoir was surprisingly good, but the star of the evening was definitely the hand-made refractor with a gravity-powered clock drive and tightly machined brass fittings. It was a true work of art, and not simply because its owner is named Art.

We also had two good evenings at Eagle's Ridge on June 26th and 27th. The dark sky provided spectacular views of our early summer favorites, including globular clusters like salt spills on velvet, galaxies galore, and nebulae stretching from Sagittarius through Cygnus. Don't let the late twilight keep you at home! The summer sky is well worth losing some sleep over, and July promises many excellent opportunities to get out with a telescope and your fellow EAS members.

Tony Dandurand Rebuilds Club Telescope

Winter is telescope building season here in the Pacific Northwest. This winter EAS member Tony Dandurand decided to make it telescope *re*-building season. He took one of our club's old, battered telescopes — a 10" Coulter solid-tube Dobsonian — and rebuilt it as a beautiful truss-tube Dob. At our June 26th meeting he unveiled the completed scope, and everyone present agreed it's a masterwork. It's full of neat innovations, including:



- A truss system that holds together so you don't have a handful of separate aluminum rods when you take the scope apart. The trusses are held together by brackets (machined by Tom Conlin) that allow the whole set to collapse down to an easily manageable package that fits nicely into a cloth bag.

- A new mirror cell that holds the mirror without stress and lets it cool through vents in the bottom.

- A 4-bolt secondary holder that makes collimation adjustments simple and intuitive.

- Large diameter apple-ply bearings that allow the rocker box to be shorter and stiffer and still let the scope balance without counterweights. (The only counterweight is a removeable weight at the top to allow balancing with large eyepieces.)

- A smooth-gliding Baltic birch rocker box that latches tight to the base so the scope can be carried in one piece.

- A matching wooden box that holds and protects the

secondary cage and eyepieces in transit, and doubles as an observing stand to raise the scope up to a comfortable viewing height.

Tony also put a new secondary mirror and a new Orion focuser on the rebuilt scope. By the time he was done, the only original parts from the Coulter were the primary mirror and one of the handles.

To round out the package for viewing, Tony provided a complete set of eyepieces and a laser collimator. At the June meeting, he put the scope into the club's lending program, and it was immediately checked out by new member John Taylor, who reports that it's a dream to use. This scope will certainly make the rounds of other members in the months and years to come. It's without a doubt the newest and brightest gem in our lending library.

Thanks, Tony, for such a beautiful telescope!



Summer Nights at Pine Mountain Observatory

Rick Kang reports from Pine Mountain:

June 13-14 finally featured clear skies, after a series of cloudy and snowy weekends to start our Visitors' Season. The new Welcome Center/Giftshop is in operation as is the new large tent where we now hold the public programs.

Speaking of which, July 19th will be the second “Howl at the Full Moon” Sci-Fi film evening. *The Thing* will be the featured movie shown. (There will be a movie shown on each of the subsequent Full Moon weekends, too.) Everyone from EAS is invited to come up to PMO on any of the Friday/Saturday evenings this summer. If you can bring a telescope and help with the public program, that's greatly appreciated. You can sign up formally on the MeetUp website, <http://astronomy.meetup.com/116/>, e-mail



Kent Fairfield for info or to sign up at tualatinkent@aol.com, or check for general info at <http://pmo-sun.uoregon.edu/~pmo/>, or just show up! Primitive (no water) Forest Service campground adjacent, no reservations, no fees.

Pine Mountain is the University of Oregon's Observatory, 8 miles up the dirt road south from Millican, 26 miles east of Bend off of Highway 20, in Central Oregon.)

Thanks!

-Rick (local info: rkang@efn.org)

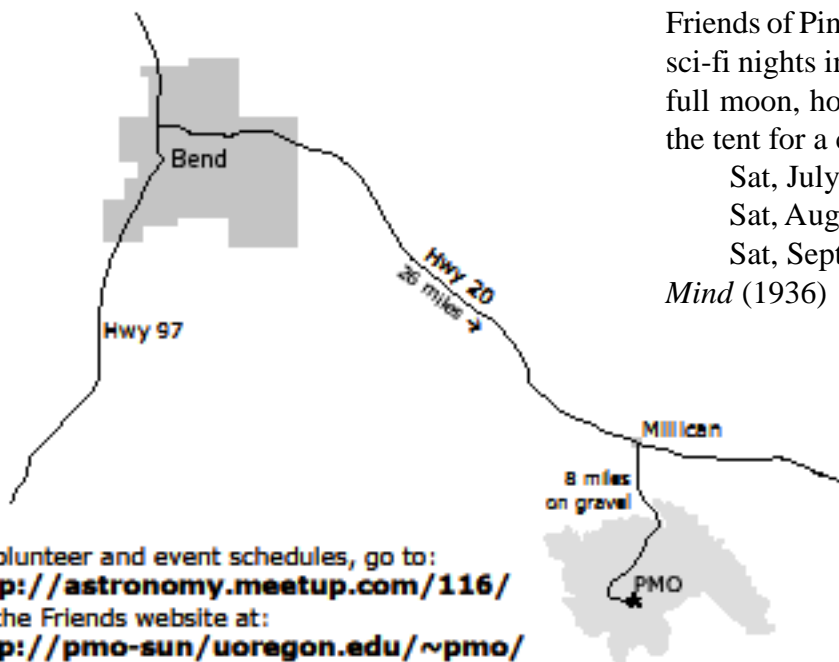
From the Pine Mountain Newsletter:

When sky viewing isn't at its best, the Friends of Pine Mountain Observatory will host sci-fi nights in the tent. Bask in the glow of the full moon, howl at it if you prefer, or come to the tent for a classic sci-fi fix:

Sat, July 19: *The Thing* (1951)

Sat, Aug. 16: *Forbidden Planet* (1956)

Sat, Sept. 13: *The Man Who Changed His Mind* (1936)



For volunteer and event schedules, go to:
<http://astronomy.meetup.com/116/>
Visit the Friends website at:
<http://pmo-sun.uoregon.edu/~pmo/>

Pluto Gets a New Designation...Again It's Now a "Plutoid"

Compiled from various news releases

Two years after stripping Pluto of its status as a major planet and relegating it to the ranks of "dwarf planets," the International Astronomical Union has once again altered the definition of Clyde Tombaugh's distant discovery. On June 11th, they released a statement defining bodies like Pluto as "plutoids."

The IAU's decision, at a meeting of its Executive Committee in Oslo, affects Pluto and other objects that often travel highly elliptical paths around the sun in the far reaches of the solar system.

Here's the official new definition:

"Plutoids are celestial bodies in orbit around the sun at a distance greater than that of Neptune that have sufficient mass for their self-gravity to overcome rigid body forces so that they assume a hydrostatic equilibrium (near-spherical) shape, and that have not cleared the neighborhood around their orbit."

In other words: small round things beyond Neptune that orbit the sun and have lots of rocky neighbors.

The two known and named plutoids are Pluto and Eris, the IAU stated. The organization expects more plutoids will be found.

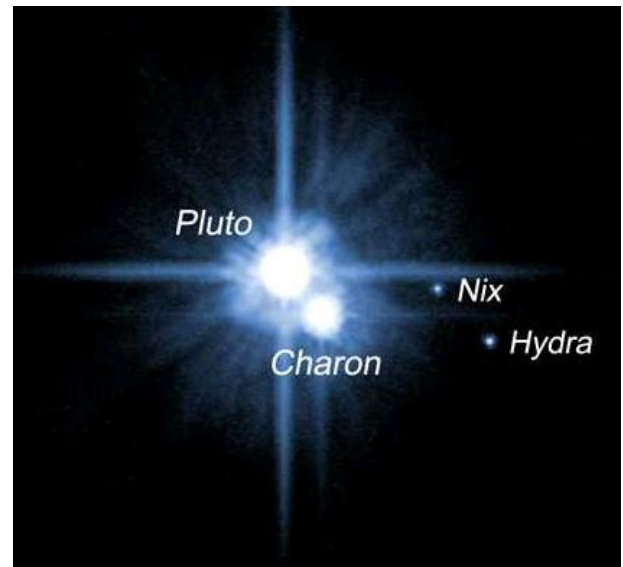
The IAU recognizes that it's adding to an ongoing controversy, but after receiving intense criticism for its "dwarf planet" decision, it felt the need to refine the definition. The IAU has been responsible for naming planetary bodies and their satellites since the early 1900s. Its decision in 2006 to demote Pluto was highly controversial, with some astronomers saying simply that they would not heed it and questioning the IAU's validity as a governing body. It remains to be seen whether astronomers will use the new term.

"My guess is that no one is going to much use this term, though perhaps I'm wrong," said Caltech astronomer Mike Brown, who has led the discovery of several objects in the outer solar system, including Eris. "But I don't think that this will be because it's controversial, just not particularly necessary."

IAU General Secretary Karel A. van der Hucht acknowledges the criticism, but says, "Given the history of the issue, we will probably never reach a complete consensus."

According to the IAU's new definition, the dwarf planet Ceres is not a plutoid, since it is located in the asteroid belt between Mars and Jupiter. Current scientific knowledge lends credence to the belief that Ceres is the only object of its kind, the IAU stated. Therefore, a separate category of Ceres-like dwarf planets will not be proposed at this time.

A meeting scheduled for Aug. 14-16 at Johns Hopkins University Applied Physics Laboratory aims to bring astronomers of varying viewpoints together to discuss the controversy. "No votes will be taken at this conference to put specific objects in or out of the family of planets," APL's Dr. Hal Weaver, a conference organizer, said in a statement in May. "But we will have advocates of the IAU definition and proponents of alternative definitions presenting their cases."



NASA Scientists Pioneer Method for Making Giant Lunar Telescopes

From Goddard Space Flight Center

Scientists working at NASA's Goddard Space Flight Center in Greenbelt, Md., have concocted an innovative recipe for giant telescope mirrors on the Moon. To make a mirror that dwarfs anything on Earth, just take a little bit of carbon, throw in some epoxy, and add lots of lunar dust.

“We could make huge telescopes on the moon relatively easily, and avoid the large expense of transporting a large mirror from Earth,” says Peter Chen of NASA Goddard and the Catholic University of America, which is located in Washington, D.C. “Since most of the materials are already there in the form of dust, you don't have to bring very much stuff with you, and that saves a ton of money.”

For years, Chen had been working with carbon-fiber composite materials to produce high-quality telescope mirrors. But Chen and his colleagues decided to try an experiment. They substituted carbon nanotubes (tiny tubular structures made of pure carbon) for the carbon-fiber composites. When they mixed small amounts of carbon nanotubes and epoxies (glue-like materials) with crushed rock that has the same composition and grain size as lunar dust, they discovered to their surprise that they had created a very strong material with the consistency of concrete. This material can be used instead of glass to make mirrors.

They next applied additional layers of epoxy and spun the material at room temperature. The result was a 12-inch-wide mirror blank with the parabolic shape of a telescope mirror. All of this was achieved with minimal effort and cost.

“After that, all we needed to do was coat the mirror blank with a small amount of aluminum, and voilà, we had a highly reflective telescope mirror,” says Rabin. “Our method could be scaled-up on the moon, using the ubiquitous lunar dust, to create giant telescope mirrors up to 50 meters in diameter.” Such an observatory would dwarf the largest optical telescope in the world right now: the 10.4-meter Gran Telescopio Canarias in the Canary Islands.

The capabilities of a 50-meter telescope on the Moon boggle the imagination, according to NASA. With a stable platform, and no atmosphere to absorb or blur starlight, the monster scope could record the spectra of extra solar terrestrial planets and detect atmospheric biomarkers such as ozone and methane. Two or more such telescopes spanning the surface of the Moon can work together to take direct images of Earth-like planets around nearby stars and look for brightness variations that come from oceans and continents. Among many other projects, it could make detailed observations of galaxies at various distances, to see how the universe evolved.

“Constructing giant telescopes provides a strong rationale for doing astronomy from the moon,” says Chen. “We could also use this on-site composite material to build habitats for the astronauts, and mirrors to collect sunlight for solar-power farms.”

Chen notes that his group achieved this breakthrough with only the support of small NASA internal seed funds. The carbon nanotubes were contributed by Dan Powell, Lead Nanotechnologist for NASA Goddard. Several amateur astronomers made key contributions by advising and making special epoxy formulations, helping with polishing experiments, and vacuum coating the 12-inch mirror.

