

IO - November 2009

Issue 2009-11
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.

www.eugeneastro.org

EAS is a proud member of:

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



Next Meeting: Thursday, November 19th

**Held Over from Last Month:
Comparing the Brightness of Stars**

Magnitudes: the Concept, History, and Applications to Astrophysics.

by Rick Kang

We got a last-minute chance to have Dr. David Atkinson come talk to us about planetary probes at our October meeting (see a recap of that on p.2), so Rick's talk on Magnitudes has been held over until November 19th. At that meeting Rick Kang will discuss the concept of comparing values of objects, the history of the stellar magnitude system developed to compare brightness of stars, and then touch on some of the major astrophysical applications of apparent and absolute magnitudes. Rick will also explore the associated idea of luminosity used to measure stellar and galactic distances plus determine other physical characteristics of distant objects. He will also briefly discuss monitoring variable stars, a popular project where amateur astronomers can contribute astrophysical data very useful to the professional community.

After Rick's talk, Jacob Strandlein will present the astronomy news for the month. And as always, we encourage the sharing of astronomy-related questions, news, or projects with other members of the club.

Next First Quarter Friday: November 27th

Our next First Quarter Friday star party will be October 23rd. These star parties are laid-back opportunities to do some observing and promote astronomy at the same time. Mark your calendar and bring your scope to the College Hill Reservoir (24th and Lawrence in Eugene) and share the view with whoever shows up. Here are the dates for First Quarter Fridays through December of 2009.

November 27, 2009

December 25, 2009 (Yes, Christmas night!)

October Meeting Report

Our October 22nd meeting was a surprise opportunity to have Dr. David Atkinson of the University of Idaho give us a talk on the probes NASA has sent and will be sending in the future to the outer planets. Atkinson delivered a fascinating talk filled with personal anecdotes about helping design the Galileo and Huygens probes that explored Jupiter's and Titan's atmospheres. He also spoke about the knuckle-biting experience of waiting for data from light-hours away, knowing the probes were already dead long before Earthbound observers even started receiving data from them.

Atkinson discussed the difficulty of making a probe work when its myriad parts are built by different teams and managed by others yet. For instance, on the Huygens probe a crucial command to turn on an oscillator was omitted from the instruction sequence, resulting in the near failure of the entire wind-velocity measurement package. If listeners on Earth hadn't been able to receive the probe's faint signal directly, all that data would have been lost, but luckily they were able to piece together enough readings to map the winds at different altitudes as the probe descended to Titan's surface.

The history of space probes has always been a history of overcoming last-minute problems, and Atkinson gave us a wonderful view into the lives of the people who design, build, and run these probes.

Also at the October meeting, we re-elected Sam Pitts, Tony Danudarand, and Jacob Strandlien to the board of directors, and added new board member John Loper. (Jerry Olton's term doesn't expire until next year.) Sam Pitts will remain president for another year, and Jerry Olton will remain club secretary.

October Star Party Report

We held a small star party in Cottage Grove on the night of October 6th to accompany Jerry Olton's talk on Galileo at the Cottage Grove Library. We mostly showed people Jupiter and its moons through various telescopes so they could get an appreciation of the improvements since Galileo's time.

Our First Quarter Friday on October 23rd was rained out.

The Eugene Astronomical Society meets at EWEB 500 E. 4th Avenue in Eugene.

Our next meeting will be on Thursday, November 19th, at 7:00 in the north building's Community Room. This is the first room in the semicircular building to the north of the fountain at EWEB's main campus on the east end of 4th Avenue.

Meeting dates for 2009: (All meetings are at 7:00 in the Community Room.)

November 19

December 17

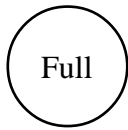


Thank You Castle Storage

For nearly two years now, Castle Storage has generously provided EAS a place 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 storage units.



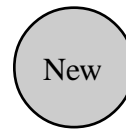
Observing in November



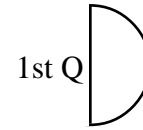
Full



Last Q



New



1st Q

November 2	November 9	November 16	November 24
Mercury Rise: 6:42 AM	Mercury Set: 4:57 PM	Mercury Set: 4:58 PM	Mercury Set: 5:06 PM
Venus Rise: 5:19 AM	Venus Rise: 5:37 AM	Venus Rise: 5:56 AM	Venus Rise: 6:18 AM
Mars Rise: 10:41 PM	Mars Rise: 10:28 PM	Mars Rise: 10:13 PM	Mars Rise: 9:54 PM
Jupiter Set: 11:41 PM	Jupiter Set: 11:17 PM	Jupiter Set: 10:53 PM	Jupiter Set: 10:27 PM
Saturn Rise: 3:20 AM	Saturn Rise: 2:56 AM	Saturn Rise: 2:32 AM	Saturn Rise: 2:04 AM
Uranus Set: 2:50 AM	Uranus Set: 2:22 AM	Uranus Set: 1:54 AM	Uranus Set: 1:22 AM
Neptune Set: 00:17 AM	Neptune Set: 11:46 PM	Neptune Set: 11:19 PM	Neptune Set: 10:48 PM
Pluto Set: 8:17 PM	Pluto Set: 7:50 PM	Pluto Set: 7:24 PM	Pluto Set: 6:53 PM

All times: Pacific Standard Time (Nov 1, 2009-March 14, 2010) = UT -8 hours or U.S. Pacific Daylight Time (March 14-November 7, 2010) = UT -7 hours.

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
11/1/2009	16:06	05:44	06:49	17:02	05:12	18:40
11/2/2009	16:38	06:57	06:51	17:01	05:13	18:39
11/3/2009	17:17	08:11	06:52	16:59	05:14	18:37
11/4/2009	18:07	09:22	06:53	16:58	05:15	18:36
11/5/2009	19:09	10:28	06:55	16:57	05:16	18:35
11/6/2009	20:20	11:23	06:56	16:56	05:17	18:34
11/7/2009	21:35	12:08	06:57	16:54	05:19	18:33
11/8/2009	22:52	12:43	06:59	16:53	05:20	18:32
11/9/2009		13:13	07:00	16:52	05:21	18:31
11/10/2009	00:08	13:38	07:01	16:51	05:22	18:30
11/11/2009	01:22	14:02	07:03	16:50	05:23	18:29
11/12/2009	02:35	14:25	07:04	16:49	05:24	18:28
11/13/2009	03:47	14:49	07:05	16:48	05:25	18:28
11/14/2009	04:59	15:15	07:07	16:47	05:26	18:27
11/15/2009	06:11	15:46	07:08	16:46	05:28	18:26
11/16/2009	07:20	16:23	07:09	16:45	05:29	18:25
11/17/2009	08:26	17:07	07:11	16:44	05:30	18:25
11/18/2009	09:24	17:58	07:12	16:43	05:31	18:24
11/19/2009	10:13	18:55	07:13	16:42	05:32	18:23
11/20/2009	10:54	19:57	07:14	16:41	05:33	18:23
11/21/2009	11:27	21:00	07:16	16:41	05:34	18:22
11/22/2009	11:54	22:02	07:17	16:40	05:35	18:22
11/23/2009	12:18	23:05	07:18	16:39	05:36	18:21
11/24/2009	12:39		07:19	16:39	05:37	18:21
11/25/2009	12:59	00:07	07:21	16:38	05:38	18:20
11/26/2009	13:19	01:10	07:22	16:38	05:39	18:20
11/27/2009	13:40	02:15	07:23	16:37	05:40	18:20
11/28/2009	14:04	03:22	07:24	16:37	05:41	18:19
11/29/2009	14:33	04:33	07:25	16:36	05:42	18:19
11/30/2009	15:09	05:47	07:26	16:36	05:43	18:19

All times are for Eugene, Oregon, Latitude 44° 3' Longitude 123° 06' for listed date

Other Items of Interest This Month

10/30 - 11/2 Mars in Beehive Cluster

11/1 Daylight savings time ends. We're now
Universal Time - 8 hours.

11/1 - 11/3 Jupiter 1/3 degree N. of Iota
Capricorni

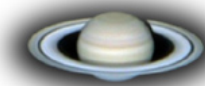
11/3 Moon near Pleiades

11/12 6:04-6:08 PM Europa occults Io

11/16 - Peak of Leonid meteors into 10/17 a.m.

11/19 8:19-8:23 PM Europa occults Io again

11/27 First Quarter Friday Star Party



For Current Occultation Information

Visit Derek C. Breit's web site

"BREIT IDEAS Observatory"

[http://www.poyntsource.com/New/Regions/
EAS.htm](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.

Observing Highlight: NGC 188

After October's cloudy weather, pretty much anything beyond our own atmosphere would constitute an observing highlight for November. So here's something both visually rewarding and also interesting to read about while we wait for a hole in the cloud deck big enough to poke a telescope through.

NGC 188 is an open cluster in the constellation Cepheus and has the distinction of being both the northernmost open cluster in our sky and one of the oldest open clusters in our Milky Way Galaxy. The best estimates place its age at five billion years, as compared with only four million years for the nearby Double Cluster in Perseus. Most open clusters drift apart after a few million years because of the gravitational interaction of our galaxy, but NGC 188's distance is estimated at 5,000 light years toward galactic north, which puts it slightly above the Milky Way's disc and further from the center of the galaxy than the Sun. It seems likely that NGC 188 has survived so long because it rarely passes through the high-density regions of the galactic plane and thus experiences much less gravitational perturbation than most open clusters.

Located only 4° from Polaris, NGC 188 consists of about 130 stars ranging from 12th to 17th magnitude. Together, they merge into an 8th-magnitude glow spanning some 15 arc-minutes. The cluster's low surface brightness makes it a difficult find even in 4-inch instruments, but with a 6-inch telescope NGC 188 appears as a soft glow, speckled with tiny, often elusive, individual stars. Through a 10-inch or larger aperture the view is spectacular, and the whole field is scattered with diamond dust.

Most open star clusters are quite young on a cosmic age scale and typically contain hundreds of stars, many of which are bright, young, and blue. As a cluster ages, these short-lived suns are the first to exhaust their primary nuclear fuel of hydrogen, and their surfaces begin to cool. This is why older clusters such as NGC 188 are nearly devoid of blue giant stars.

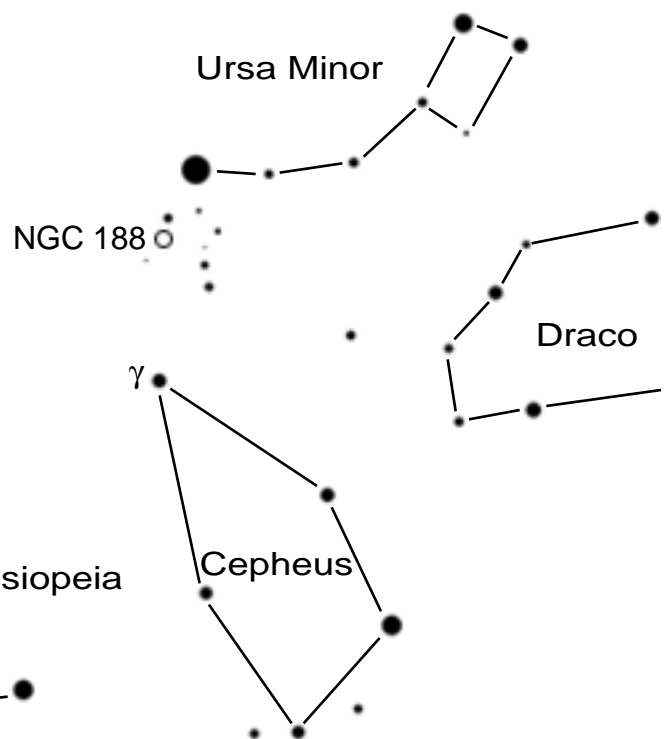
To find NGC 188, start at Gamma Cephei, the tip of the Cepheus "house," and go 2/3 of the way toward Polaris. Shift just a smidgen to the left and you're there.

For go-toers, the R.A. is 00:48:26 and the Dec is +85:15:18.

NGC 188 is also known as Caldwell 1 in Sir Patrick Moore's list that he created to rival the Messier list, so if you check this one out you're on your way to getting your Caldwell certificate from the Astronomical League.



NGC 188



Galileo Visits Cottage Grove Library



On October 6th Jerry Oltion gave his talk on “The Life and Times of Galileo” to an audience of 20-25 people at the Cottage Grove Library, and this time he did it in costume.

“When you step out in front of an audience wearing tights and billowy pants, you’ve got two choices,” says Jerry. “You can either get embarrassed or act as flamboyant as your clothing.” Jerry chose flamboyant. The audience was appreciative (and amused), and the talk went very well.

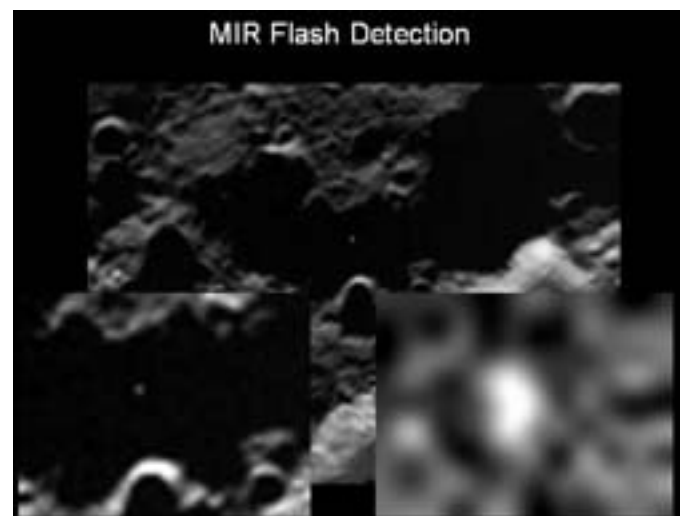
Jerry displayed his replica of Galileo’s telescope and discussed the plusses and minuses of its design. After the talk, the audience went outside to where several EAS members had set up telescopes for a small-scale star party, offering people the chance to view Jupiter and a few other objects through the Galileo scope and various other scopes of more modern design. The comparison gave them an appreciation for Galileo’s accomplishments and the advances in telescope design over the last 400 years.

Jerry’s talk was part of the “Visions of the Universe” program that Cottage Grove Library is putting on through December 11th. Jerry will be giving one more talk there (“A Tour of the Solar System”) on November 3rd at 6:00. He will not dress as Saturn.

LCROSS Impact Party Report

Several EAS members met on the College Hill Reservoir at 4:30 in the morning on October 9th to watch the LCROSS probe crash into the south pole of the Moon. With scopes ranging from 8 to 16 inches, Bob Moser, Jerry & Kathy Oltion, Jim Jackson, and Jacob Strandlein watched while Paul Swadener called out the time. When the crucial moment came, they saw...nothing. The impact turned out to be so faint that even NASA’s follow-up probe, flying only 4 minutes behind the impactor, only saw a tiny blip in the infrared.

Ah, well. The observers had a great time anyway, and finished out the morning with a good look into the Orion Nebula, which was high in the sky by then.



LCROSS impact as seen from following probe (NASA image)

Cloudy Nights on Eagle's Ridge



Dan Rinnan, Tony Dandurand, Jerry Oltion, and Rob Murray at Eagle's Ridge 10/11/09. Photo © 2009 by Bill Murray

On the evening of October 11th, Bill Murray, his son Rob, Tony Dandurand, Dan Rinnan, Gordon Landers, and Jerry Oltion were lured up to Eagle's Ridge by a giant sucker hole. They had just enough time to set up their scopes, including Gordon's new G-11 mount and Jerry's new 9.25" SCT, when the clouds rolled in and turned it into a night of conversation instead. After waiting for a couple of hours (and nearly running out of chocolate chip cookies thoughtfully provided by Dan's wife, Alison), they packed up — and the sky promptly cleared.

So they spent the next half hour passing around Tony's binoculars and having a grand time looking at the Andromeda

Galaxy, the Double Cluster, M33, and other good binocular targets. It turned out to be a great night after all, and it reminded everyone that binoculars can be a lot of fun. Did you know there's a huge cluster between Perseus and Cassiopeia? You'll never notice it in a telescope, but it stands out beautifully in binoculars. So does the Helix Nebula if you know where to look for it. (Hint: it's not in Pisces no matter how hard you look over there.)

On Saturday the 24th, half a dozen people tried it again, only to fall for the same trick. This time there was fog when they arrived, but it cleared long enough to lure everyone into setting up, then the lid rolled in again. Even packing up didn't clear the sky this time, but the sky did clear for about 15 minutes after everyone got home — exactly 10 minutes too late for Jerry to observe an asteroid occultation. Welcome to autumn astronomy in Oregon.



Dues are Past Due!

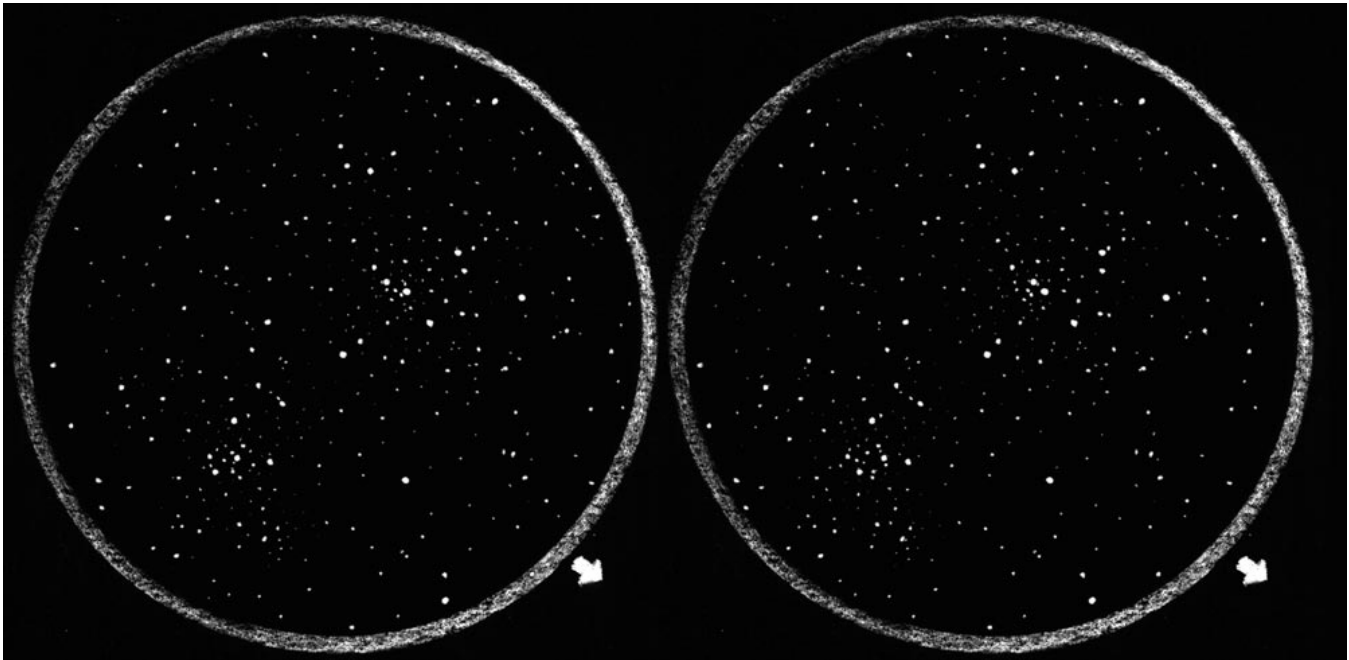
EAS membership runs from October thru September. If you haven't paid already, please mail your dues to the Eugene Astronomical Society, PO Box 7264, Eugene, OR 97401. Dues are \$25. Make your checks payable to Eugene Astronomical Society, or just EAS if your pen is low on ink.

Discounted Magazine Subscriptions

One of the benefits of EAS membership is a club discount on subscriptions to *Sky & Telescope* and *Astronomy* magazines. The clubmember rate for *Sky & Telescope* Magazine is \$32.95 for one year or \$65.95 for two years. The clubmember rate for *Astronomy* magazine is \$34 for one year or \$60 for two years. This is the rate for new subscriptions or renewals. New subscriptions have to go through the club secretary (Jerry Oltion) to qualify for the discounted rate, so contact Jerry if you want to start a new subscription. *Sky & Telescope* allows you to renew at the club rate on your own, but *Astronomy* requires renewals to go through the club secretary as well. For more information, contact Jerry at j.oltion@sff.net or 343-4758.

Aaron Sketches in 3D

Aaron Weiss has taken his sketching to the next level. Seven levels, to be precise. He made a sketch of the Double Cluster in Perseus, then scanned it into his computer and used Photoshop to duplicate the image and subtly shift the stars left and right so they stand out in three dimensions when you cross your eyes and look at the third, merged image between the original two.



The Double Cluster in 3D. Look at both images and cross your eyes. Examine the third image that forms between them.

When asked how he did it, Aaron said, “It starts with a regular hand-drawn sketch, which is scanned and manipulated digitally. Stars are separated into seven layers and shifted varying amounts towards the center to move them ‘into the distance.’ A few of the brightest stars are only shifted slightly, setting them just ‘behind’ the eyepiece circle. The dimmest stars are shifted the most, putting them far in the distance.”

“When I have time, I’m going to do this to more of my sketches. It’s really cool if done well. Nebula and non-face-on galaxies would be more difficult to shift parts in smooth gradients to make the subject itself 3D. I’m not sure it can be done, but I am certainly going to try at some point.”

Aaron says he can’t take credit for the idea. There’s a whole thread on the Cloudy Nights forum with some other excellent 3D stereo sketches: <http://www.cloudynights.com/ubbthreads/showflat.php/Cat/0/Number/3284224/page/0/view/collapsed/sb/5/o/all/fpart/1/vc/1>

Have a look! 3D sketching really makes the universe stand out in amazing detail.

Stereo 3-D Viewing Instructions

