Issue 2014-12

IO - December 2014

Eugene Astronomical Society
Annual Club Dues $25
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EAS is a proud member of:

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

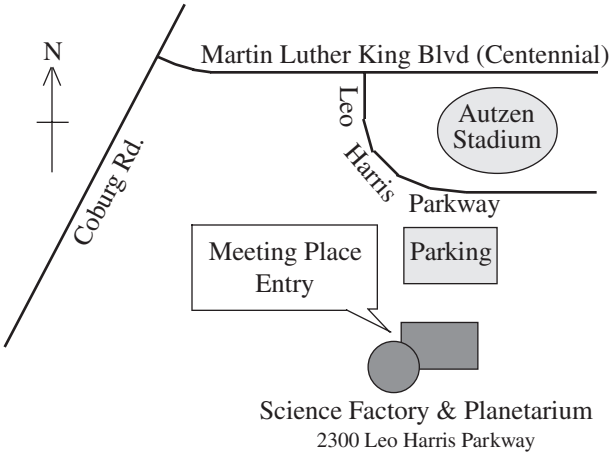
Eugene Astronomical Society
www.eugeneastro.org

Next Meeting Thursday, December 18th

Potluck Dinner and Swap Meet

Our December 18th meeting will be our annual potluck dinner and swap meet. Bring some food to share and some gear to swap and spend the evening exchanging tall tales as well as equipment with your fellow amateur astronomers. This is a great opportunity to get to know other club members and learn about the various types of telescope, eyepieces, and other accessories that help make our hobby fun and rewarding.

The meeting is at 7:00 on Thursday, December 18th at the Science Factory. We'll be meeting in the conference room behind the planetarium this time, where we'll have tables to set things on.



Next First Quarter Friday: December 26th

Our November 28th First Quarter Friday was rained out, but Saturday the 29th cleared up enough after sunset for us to hold our backup star party. Bill Basham, Frank Szczepanski, and Jerry Oltion brought scopes and got a good look at the Moon before the clouds rolled back in for half an hour or so, but then the clouds rolled away again and we had clear sky the rest of the night. It was looking like we wouldn't have any customers, but at 7:30 a family of four came around and we showed them the highlights. This was their first time looking through a telescope, so they were pretty much blown away by everything they saw. It's always fun to provide that first look, so it was definitely worth the cold and the dew to be there for them.

First Quarter Fridays 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's the schedule through 2015.

December 26 (31% lit)	January 23 (17% lit)	February 27 (74% lit)
March 27 (58% lit)	April 24 (42% lit)	May 22 (26% lit)
June 26 (75% lit)	July 24 (60% lit)	August 21 (43% lit)
September 18 (28% lit)	October 23 (84% lit)	November 20 (70% lit)
December 18 (55% lit)		

November 20th Meeting Report

Our November 20th meeting began with a great review of the many observing sites available to us thanks to the diligent search of Bruce Hindrichs, who has put in many hours and driven many miles to seek out new places to set up. Bruce gave us a slide show of the view in all directions from each site, ranging from College Hill Reservior (600 ft) to Bohemia Saddle (5000 ft). We now have at least half a dozen sites to choose from on any given night. Many thanks to Bruce for all his hard work in finding so many new sites for us!

Eureka Ridge site

The rest of the evening's program was entitled "What I Want for Christmas" and was an open discussion of astronomy gear that various members recommended. Jon Schwartz, Mel Bartels, and Jerry Oltion led the discussion, but many others joined in with suggestions of their own. From basic dobsonian scopes and basic refractors to the latest in electronic sky maps, the suggestions ranged far and wide. Warm clothing appeared on several lists. Mel and Jon modeled their offerings, and Bruce showed the ultimate in thermal shirts and wool socks. Jon's observing vest has an extra-large hood for blocking out stray light and many pockets for holding eyepieces, flashlight, even the *Pocket Sky Atlas* (another recommendation). It also doubles as an ominous faceless vestment in case of impromptu cultish rituals.

Mel models a warm hat

Jon displays his observing vest

There were many newcomers at the meeting, including one who brought a partially built telescope project for help in figuring out what type of scope it was and how to finish it. The meeting ran a bit long due to our enthusiasm in talking about new gear. We should always have such a problem!

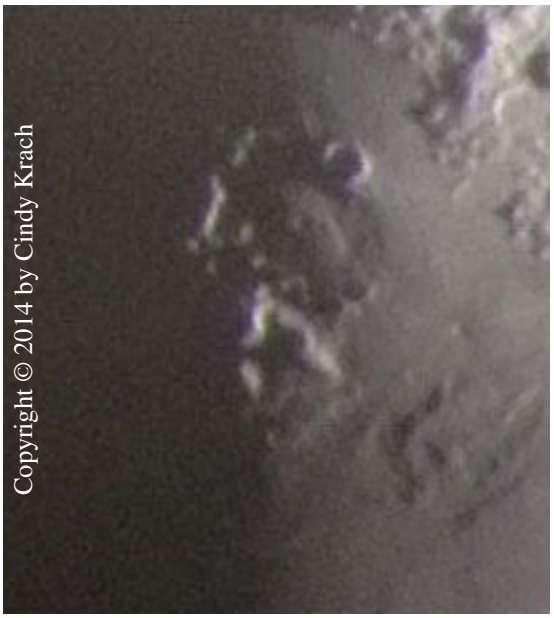
November 21st Cosmic Concert

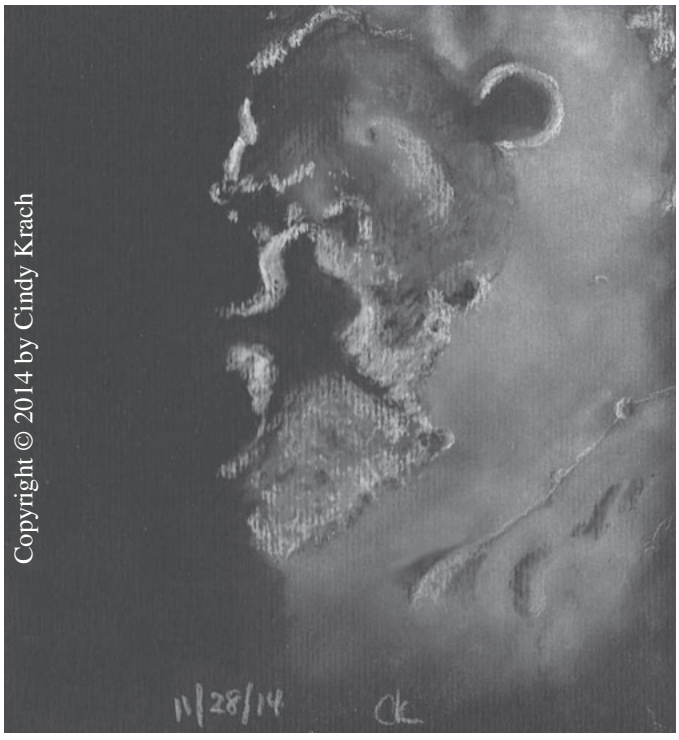
On Friday, November 21st, the Eugene chapter of the American Guild of Organists put on "Organizing the Cosmos," a pipe-organ concert of astronomy themed music with accompanying visuals and commentary by EAS's own Bernie Bopp. It was an excellent performance, featuring music from William Herschel (yes, that William Herschel) to the ever-popular Gustav Holst to Eugenian June Kirlin. Several different performers shared the musical selections, including EAS member and concert organizer Dan Rinnan. Dan also played the theremin during the "Nova" performance, adding an element of spooky, etherial wildness to the truly explosive theme. Until you've heard theremin and pipe organ combined to evoke a nova, you haven't truly lived.

Bernie's slide show was an excellent primer on basic cosmology while at the same time featuring stunningly beautiful imagery to accompany the music. The audience came away with not only a greater appreciation for the range and beauty of the pipe organ, but with an equal appreciation for the range and beauty of the universe around us. Many thanks to Dan, Bernie, and the American Guild of Organists for such a glorious evening.

Another Elvis Sighting

On Friday, November 28th, Cindy Krach, our member-in-spirit in Hawaii, had clear sky and a first quarter Moon. That's the time to look for Elvis, and Cindy caught him in mid performance right next to the Hyginus Rille where he's known to hang out. She sketched her sighting and photographed it for the skeptical. He's definitely up there strumming away every month. Great sketch, Cindy!





Telescope Lending Library

The EAS has several telescopes available for members to borrow. Check out the telescope lending page on our website to see the many scopes in our lending program, and contact Frank Szczepansky, our lending coordinator, to arrange to check out one of these excellent scopes.

Frank can be reached via email at frszcz at gmail.com or by phone at 541-556-3427.

You can also contact Jerry Oltion at j.oltion at sff.net or 541-343-4758.

Observing Hightlight: 61 Cygni

It's not often a double star merits a full page of attention. After all, half the stars in the sky are double. But 61 Cygni isn't your run-of-the-mill set of twins. 61 Cygni has a rich history, beginning with the discovery of its large proper motion. When its motion was first measured in 1792, it was the fastest star in the sky, moving at 5.28 arc-seconds per year. That's fast enough to move it the entire diameter of the Moon in 340 years. For stars, that's practically screaming along.

Why is it moving so fast? Because it's relatively close to us. In 1838 its position was measured against the background stars 6 months apart, using the Earth's orbit as a baseline to measure its parallax, and it was found to be only 11.4 light-years away. It's one of the dozen stars closest to us.

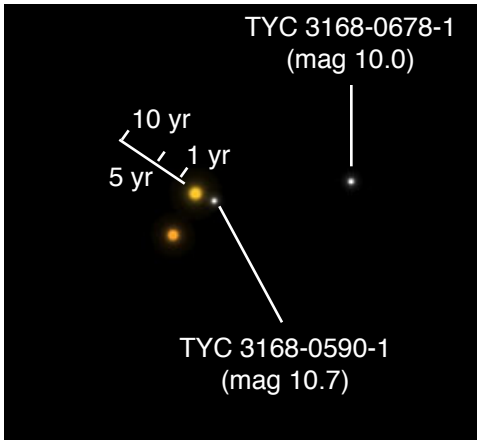
In 1830 61 Cygni was discovered to be a double star. Both components are K-type orange dwarfs, and they're distinctly colored in a telescope view. They're separated by 31.5 arc-seconds, which makes them an easy split at practically any magnification.

That alone would be reason enough to have a look at them, but there's an even better reason to check them out this season, and for several seasons to come. The pair is passing right by a 10.7 magnitude background star that provides a perfect reference point to watch their rapid motion across the sky. The northernmost component is 13.5 arc-seconds from TYC 3168-0590-1 and moving straight away from it (at right angles to the separation between the two main stars), so it should be easy to discern its motion from one year to the next. It might even be possible to see its motion between now and the time Cygnus sets for the season next February. Make a careful sketch now, and refer to it in seasons and years to come. You'll eventually see motion.

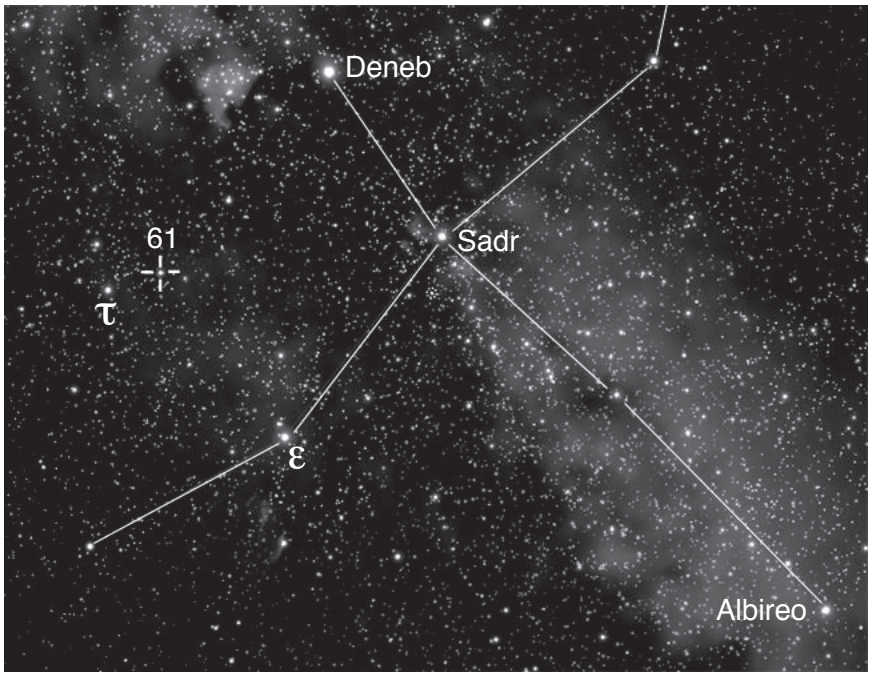
61 Cygni is relatively easy to find. Draw an imaginary parallelogram using Deneb, Sadr, and Epsilon (ε) Cygni as the other three corners. You'll probably find 3.7 magnitude Tau (τ) Cygni first. Go a little over a degree and a half (one low-power field) toward Sadr from there and you should spot the two orange components of 61 Cygni. At magnitude 5.2 it's just visible by naked eye, but it's easier in a finder scope.

To see their 10.7 magnitude neighbor, you'll need high magnification, dark sky, and good seeing.

61 Cygni has one other interesting historical claim to fame. In 1942, Kaj Strand thought he detected systematic wobbles in the orbit of the two components around one another, which led him to conclude that there was a planet of about 8 Jupiter masses orbiting about 2.4 AU from component A. This claim was unconfirmed but widely accepted until 1978, when Wulff Heintz tried to duplicate Strand's results and was unable to do so. More recent observations have shown no major planets.



61 Cygni's motion over the next 10 years



Mutual Occultations and Eclipses of the Satellites of Jupiter

Every few years the orbital plane of Jupiter's moons lines up with Earth, so we see occultations and eclipses of the moons as they move in front of one another. The British Astronomical Association's Computing Section has calculated the times for these events, which we have culled for events that are visible during nighttime from Oregon.

Occultations are not eclipses. Occultations mean one brightly lit moon will cross in front of another brightly lit moon, so we'll see them merge and move apart, but we won't see one blink out.

Eclipses are when one moon casts a shadow upon the other. Few eclipses are total; most are just partial. Some are annular when the eclipsing satellite's shadow is smaller than the eclipsed moon.

Times are given in Pacific Standard Time.

1o2 means that satellite 1 occults satellite 2. 1e2 means that satellite 1 eclipses satellite 2.

1=Io 2=Europa 3=Ganymede 4=Callisto

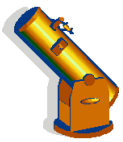
Column "Magn." gives the magnitude of the occultation or eclipse in %, that is, the fraction of the diameter of the second satellite that is occulted or eclipsed by the first satellite at maximum phase. "T" means that the satellite is totally occulted or eclipsed, while "A" means an annular occultation or eclipse. In the latter case, the first satellite or its shadow transits directly over the second, larger satellite.

Column "Dur." gives the duration of the total or annular phase, in seconds.

Date 2014		Satel.	Start h m s	End h m s	Magn.%	Dur. s	
Dec	5	4o2	23 00 36	23 50 10	37		Jupiter rises at 21:51
	16	2o1	02 36 34	03 05 30	33		
	16	2o1	07 47 34	08 16 19	A 86	42	Sunrise 07:41
	21	4e1	03 54 00	04 06 22	A61	123	89% brightness drop
	23	2e3	22 27 26	22 42 29	A33	405	34% brightness drop
	25	2e3	01 27 37	02 35 04	39		28% brightness drop
	26	2e1	21 40 59	21 44 51	1		4% brightness drop
	27	2o1	00 21 10	00 35 00	63		Jupiter rises at 20:26 on 12/26
	27	3o1	23 38 36	23 56 38	86		Jupiter rises at 20:21
	27	3o1	07 12 19	07 38 14	T	286	Sunrise 07:47
	28	3o1	21 23 36	21 33 14	65		Jupiter rises at 20:17
	31	2e3	02 48 20	03 08 55	A36	583	35% brightness drop

Thank You Castle Storage

For the last several years, 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 December

Full | Last Q | New | 1st Q

Dec. 6, 4:27 AM	Dec. 14, 4:51 AM	Dec. 21, 5:36 PM	Dec. 28, 10:31 AM
Mercury lost in Sun	Mercury Set: 4:40 PM	Mercury Set: 5:00 PM	Mercury Set: 5:27 PM
Venus Set: 5:12 PM	Venus Set: 5:23 PM	Venus Set: 5:36 PM	Venus Set: 5:51 PM
Mars Set: 8:02 PM	Mars Set: 8:03 PM	Mars Set: 8:05 PM	Mars Set: 8:07 PM
Jupiter Rise: 9:47 PM	Jupiter Rise: 9:16 PM	Jupiter Rise: 8:47 PM	Jupiter Rise: 8:17 PM
Saturn Rise: 6:06 AM	Saturn Rise: 5:39 AM	Saturn Rise: 5:15 AM	Saturn Rise: 4:51 AM
Uranus Set: 2:20 AM	Uranus Set: 1:48 AM	Uranus Set: 1:20 AM	Uranus Set: 00:53 AM
Neptune Set: 10:59 PM	Neptune Set: 10:28 PM	Neptune Set: 10:01 PM	Neptune Set: 9:35 PM
Pluto Set: 6:40 PM	Pluto Set: 6:10 PM	Pluto Set: 5:43 PM	Pluto Set: 5:17 PM

All times Pacific Daylight Time (March 8 – October 31, 2015 = UT -7 hours) or Pacific Standard Time (November 2, 2014 – March 7, 2015 = UT -8 hours)

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
12/1/2014	13:53	02:00	07:27	16:35	05:44	18:19
12/2/2014	14:27	03:09	07:28	16:35	05:45	18:18
12/3/2014	15:04	04:17	07:30	16:35	05:46	18:18
12/4/2014	15:44	05:24	07:31	16:35	05:47	18:18
12/5/2014	16:29	06:27	07:32	16:34	05:48	18:18
12/6/2014	17:17	07:26	07:33	16:34	05:49	18:18
12/7/2014	18:10	08:20	07:34	16:34	05:50	18:18
12/8/2014	19:06	09:07	07:35	16:34	05:50	18:18
12/9/2014	20:03	09:48	07:35	16:34	05:51	18:18
12/10/2014	21:00	10:24	07:36	16:34	05:52	18:18
12/11/2014	21:58	10:57	07:37	16:34	05:53	18:19
12/12/2014	22:56	11:26	07:38	16:34	05:54	18:19
12/13/2014	23:54	11:54	07:39	16:34	05:54	18:19
12/14/2014		12:21	07:40	16:35	05:55	18:19
12/15/2014	00:52	12:48	07:40	16:35	05:56	18:20
12/16/2014	01:52	13:17	07:41	16:35	05:56	18:20
12/17/2014	02:53	13:49	07:42	16:35	05:57	18:20
12/18/2014	03:55	14:25	07:42	16:36	05:58	18:21
12/19/2014	04:59	15:07	07:43	16:36	05:58	18:21
12/20/2014	06:02	15:55	07:44	16:37	05:59	18:22
12/21/2014	07:03	16:52	07:44	16:37	05:59	18:22
12/22/2014	08:00	17:56	07:45	16:38	06:00	18:23
12/23/2014	08:50	19:04	07:45	16:38	06:00	18:23
12/24/2014	09:35	20:16	07:46	16:39	06:01	18:24
12/25/2014	10:15	21:29	07:46	16:39	06:01	18:24
12/26/2014	10:51	22:41	07:46	16:40	06:01	18:25
12/27/2014	11:25	23:51	07:47	16:41	06:02	18:26
12/28/2014	11:57		07:47	16:42	06:02	18:26
12/29/2014	12:31	01:00	07:47	16:42	06:02	18:27
12/30/2014	13:06	02:08	07:47	16:43	06:03	18:28
12/31/2014	13:44	03:14	07:47	16:44	06:03	18:28

Items of Interest This Month

12/5 Moon in Hyades, near Aldebaran
12/5 Jupiter moon event, see p.5
12/13 – 12/14 Geminid meteor shower peaks tonight into early morning. (Moon rises about 12:52 AM, washing out the sky.)
12/15 Algol at minimum 7:22 PM.
12/21 Winter solstice 3:03 PM. Longest night of the year.
12/22 Thin crescent moon near Venus right after sunset. Use binoculars.
12/23 Jupiter moon event, see p.5
12/26 First Quarter Friday Star Party
12/27 Jupiter moon event, see p.5
12/28 Jupiter moon event, see p.5

For ongoing discussion of astronomical topics and impromptu planning of telescope outings, join the EAS mail list at http://eugeneastro.org/mailman/listinfo/general_eugeneastro.org

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