

IO - February 2015

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

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Next Meeting Thursday, February 19th See More By Accurately Sketching What You See by Howard Banich

Our February 19th meeting will feature Howard Banich, renowned Portland amateur astronomer and sketcher, who will talk to us about how to enhance our observing skills through sketching what we see. Howard says, "Since 2008 I've become increasingly interested in making high resolution astronomical drawings of selected objects in order to capture every possible detail. This process sparked an ongoing investigation into the drawings made by professional astronomers before the advent of astrophotography, both for their motivations and the methods they used to create their drawings. This brought up fascinating discussions about subjectivity, biases and the reliability of human vision pushed to its limits, which apply not just to drawing at the eyepiece but to the entire experience of visual observing. My presentation highlights these topics, and will suggest a broader perspective toward observing that's informed by historical and personal experiences that may be helpful anytime you face the question 'Did I really see that?'"

Howard has been observing since he was 11 years old and has been what he considers an amateur astronomer since 1969 when he made his first telescope. Observing has always been his main interest though, and drawing what he sees is the primary way he has captured his observations. Seeing as much as he can has always motivated him, and drawing at the eyepiece has been a powerful, and greatly enjoyable, part of his observing. It's also led to increasingly larger telescopes, more expensive eyepieces, and trips to the darkest skies he can find, but he still uses paper and a simple pencil to document what he sees. He has been writing semi-regular articles about his observations for the Portland Oregon Rose City Astronomers newsletter, the *Rosette Gazette* since 1992, and in the past few years has been occasionally published in *Sky & Telescope* and *Amateur Astronomy* magazines.

Come to our meeting and learn observing and sketching techniques from an expert!

At our meetings we also encourage people to bring any new gear or projects they would like to show the rest of the club. The meeting is at 7:00 on Thursday, February 19th at the Science Factory planetarium. Come early to visit before the program starts.



Howard Banich and his 28" telescope

January 15th Meeting Report

Our January 15th meeting was our annual telescope workshop. We invited the general public to bring their telescopes for assistance in learning how to use them and for minor repairs. We had a great turnout, with several people needing help and several more with questions about astronomy in general. It was a good chance to connect with the public and let people know we exist. We got three new members as a result of this meeting, and the promise of a fourth. Welcome, new people!



EAS members help explain how to use and collimate scopes

Next First Quarter Friday: February 27th

Our January 23rd star party was fogged out, but our emergency backup star party on the 24th was successful. We had four telescopes and at least a dozen people eager for a look at the Orion Nebula, Jupiter, Comet Lovejoy, and whatever else we could show them. We had low clouds coming and going, but we were able to show people the major attractions.

Three new EAS members, Nikki, Hannah, and Chris, came around and visited with us. Welcome, all! We hope to see you at many more star parties in the months and years to come.

Our next star party is on February 27th. 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 for the rest of 2015. Star parties start at dusk or 6:00, whichever is later.

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)	

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.



A Busy Solar System This January

January is usually a slow month for astronomy. It's typically one of our cloudiest months, and the coldest, and often the snowiest. The clouds lived up to their reputation, but fortunately they parted at just the right times to let many of us see three major spectacles that the Solar System presented this month. Most nights the clouds were confined to low fog in the valley, leaving Eagle's Ridge clear and beckoning the adventurous.

Bill Murray got a great shot of Orion on our first night out. He picked up the Flame Nebula near Alnitak as well as the Orion Nebula in the sword.

Comet Lovejoy was a major attraction all month, rising up from Lepus and cruising all the way into Andromeda by month's end. It was a wonderful sight in binoculars every night, and it rose to naked-eye



Valley fog from Eagle's Ridge. Photo © by Jerry Olition



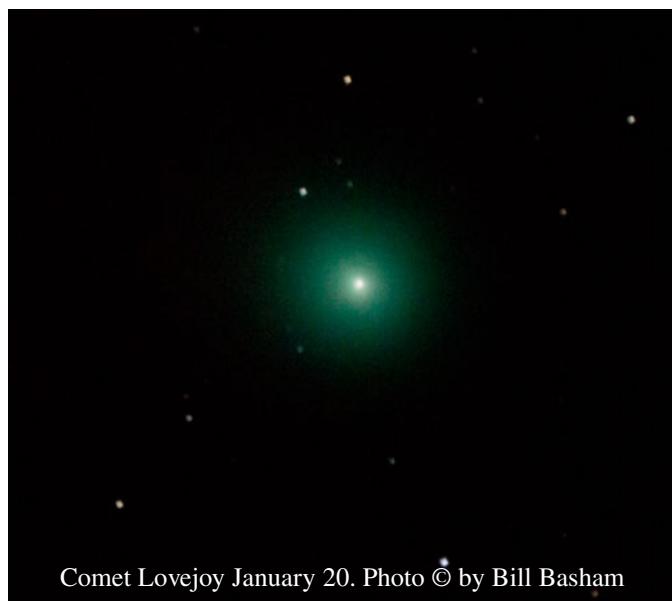
Orion's belt and sword January 13. Photo © by Bill Murray



Comet Lovejoy near Pleiades. Photo © by Alan Gillespie



Comet Lovejoy January 13. Photo © by Bill Murray



Comet Lovejoy January 20. Photo © by Bill Basham



Comet Lovejoy January 24. Photo © by Brandt Schram

visibility through the dark phase of the Moon when it was nearly overhead near the Pleiades. Several of us got photos of it over the course of the month as it brightened and climbed into better and better position. Mel Bartels sketched it, teasing out details in the tail that were difficult to see even in photographs.

We all enjoyed watching the nucleus move against the background stars. At its peak it was moving well over two degrees per day, or five arc-seconds per minute, motion easily seen in real-time when a star was nearby.

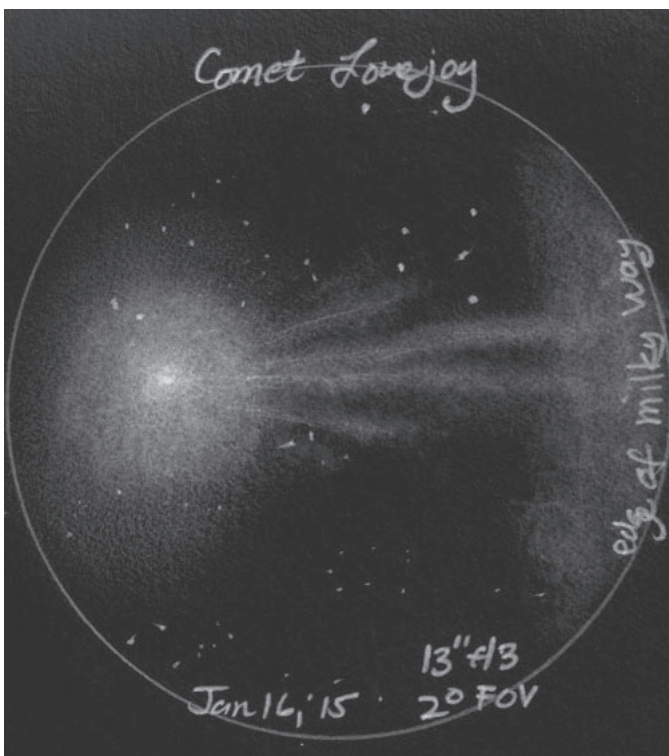
As February begins, the comet is still easily visible in binoculars or a telescope despite the waxing gibbous Moon. It should remain visible throughout the next dark phase, growing fainter as it recedes into the northern sky through Andromeda into Cassiopeia.



Jupiter December 31. Photo © by Jeff Phillips

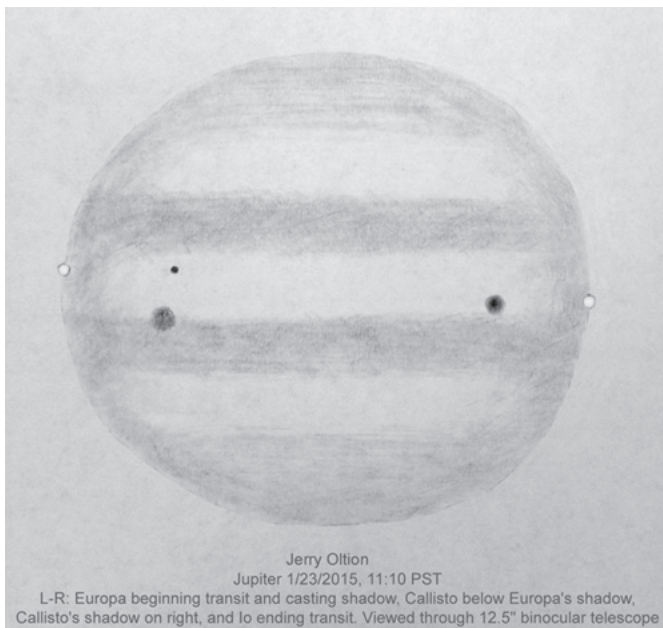
a show only seen once a decade or so, on average: a triple moon transit and a triple shadow transit. Several of us gathered at Eagle's Ridge, and others viewed it through gaps in the clouds from town or their homes throughout the valley.

The clouds made it a real nail-biter, but they relented enough for most of us to catch all the major events. First Callisto's shadow began its



Comet Lovejoy January 16. Sketch © by Mel Bartels

Jupiter put on a grand show this month as well. It's a beautiful sight any night, with its great red spot, storm bands, and its moons performing a constant dance, as Jeff Phillips proves in his photo from the last night of 2014. On January 23rd, though, it put on



Jerry Olton

Jupiter 1/23/2015, 11:10 PST

L-R: Europa beginning transit and casting shadow, Callisto below Europa's shadow, Callisto's shadow on right, and Io ending transit. Viewed through 12.5" binocular telescope

transit, then Io's shadow followed close behind. Io itself soon followed, then Io went into eclipse beneath Callisto's shadow before occulting that same shadow on Jupiter's cloud tops. Shortly after that Callisto began its transit, then Europa's shadow started its transit. Europa itself crossed over the limb just as Io left, and from there it was a reverse of the grand entrances as one after another moon and its shadow slipped away. Jerry Oltion sketched the moment when Europa began its transit and Io exited, with Callisto and its shadow making big eyes and Europa's shadow providing a beauty spot on Jupiter's forehead.

The month wasn't through with us yet, though! The solar system had one more treat in store: on January 26th Asteroid 2004 BL86, a kilometer-wide rock, slid past the Earth only three lunar distances away. That took it to 8th magnitude, easily visible in almost any telescope. It was moving fast, too: two degrees per *hour*. That's 24 times faster than Comet Lovejoy! Its motion was not only visible, it streaked the 40-second photographs that Bill Basham took of it, making a long dotted line in his videos that tore through an entire frame in just a few seconds. Once again the weather was iffy, but Eagle's Ridge proved to be above the worst of it.

The asteroid zipped just below the Beehive Cluster in Cancer, which meant there were plenty of background stars to watch its progress against. At one point it swept past a star of nearly the same brightness as the asteroid, giving viewers the impression of a double star much speeded up in its orbit.

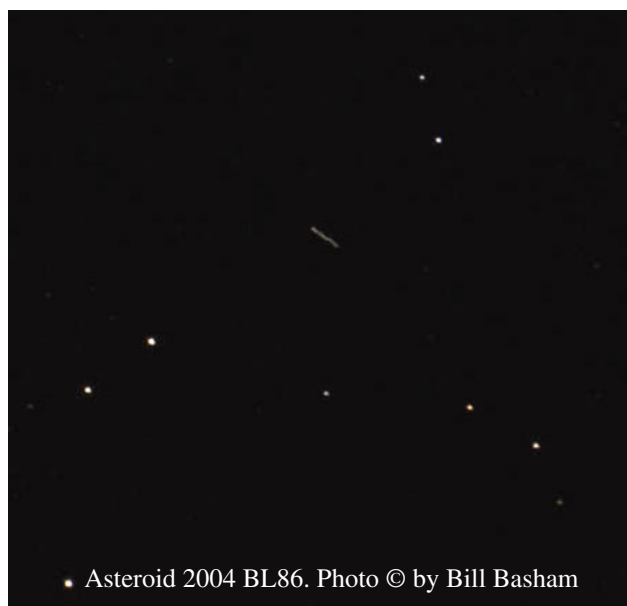
Bill Basham made two videos of the pass, one with a camera piggybacked on his telescope and one looking through the scope. Watch the video here for the wide-angle view:

<https://www.youtube.com/watch?v=6pWGXXKq6baU>
and here for the telescope view:

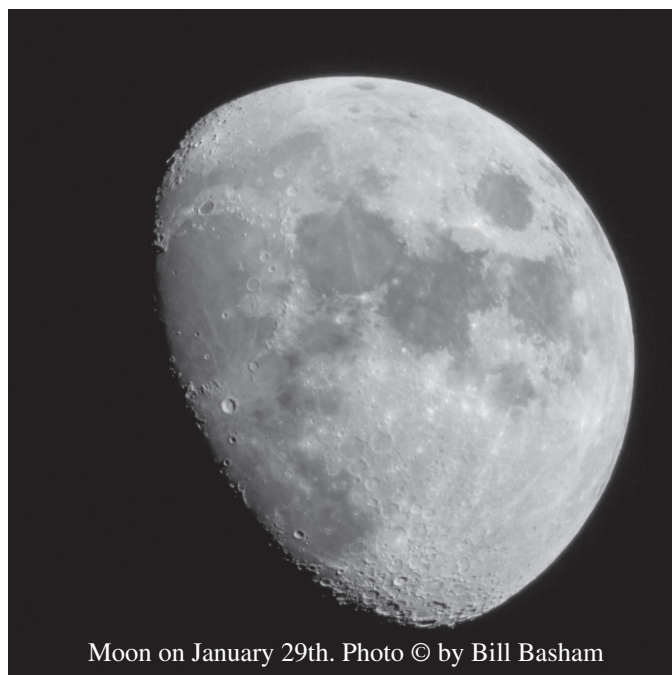
<https://www.youtube.com/watch?v=9xXIbQXtT8g>

As if a comet, a triple transit, and an asteroid weren't enough, January gave us one last treat: a night of near-perfect seeing on the 29th. Those who went out to enjoy it were finding the extra stars in the Trapezium with ease, details within Jupiter's cloud bands, and craterlets in Plato on the Moon. Bill Basham took the above crisp photo of the Moon, and Jeff Phillips took this closeup of Plato with its craterlets.

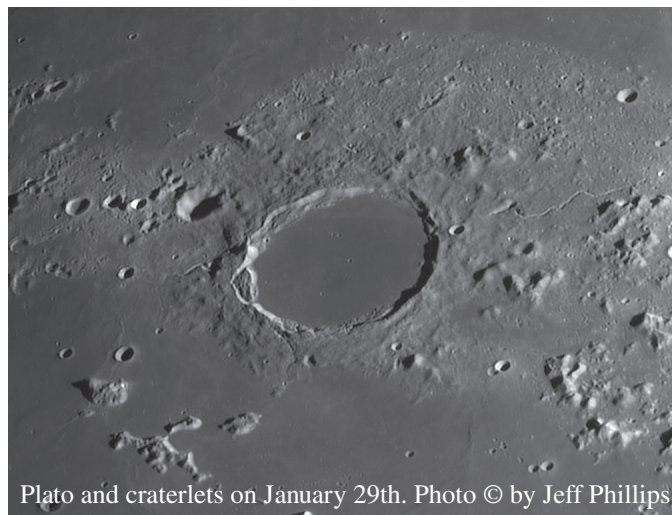
January turned out to be a great month for astronomy. Here's hoping for an equally interesting February!



Asteroid 2004 BL86. Photo © by Bill Basham



Moon on January 29th. Photo © by Bill Basham



Plato and craterlets on January 29th. Photo © by Jeff Phillips

Observing Highlight: The 37 Cluster

At the feet of Gemini, just across the border into Orion's upraised club arm, lies an interesting star cluster. It's not your typical pile of scattered salt on velvet; this one is more like the fever dream of a bookie on race day. Numbers in the sky! The number 37, to be precise, written large in sparkling stars.

This cosmic prime number has been known since at least 1654, and was cataloged as NGC 2169 (not 3737?) by William Herschel in 1784. It's 3400-3600 light-years away (not 3700?), and its brightest stars are about 7th magnitude. It's about 7 light-years across, and is still a relatively young 8 million years old.

To find it, look about halfway between the foot of Castor, the westernmost twin of Gemini, and Betelgeuse. You'll see two 4th-magnitude stars, Xi and Nu Orionis, marking the crook of Orion's elbow. From those two make a not-quite-equilateral triangle with its point aimed toward Betelgeuse, and scan that point with a wide-field eyepiece. The cluster is obvious even at 25-30x, and is at its best at 40-100x.

Go-to'ers set your controls for NGC 2169, and if you're using setting circles, go for RA 06h 09m 16s and DEC +13° 56' 39".

Keep this one on your short list for star parties. It's a crowd pleaser you can always count on.



The 37 Cluster, courtesy Wikimedia Commons

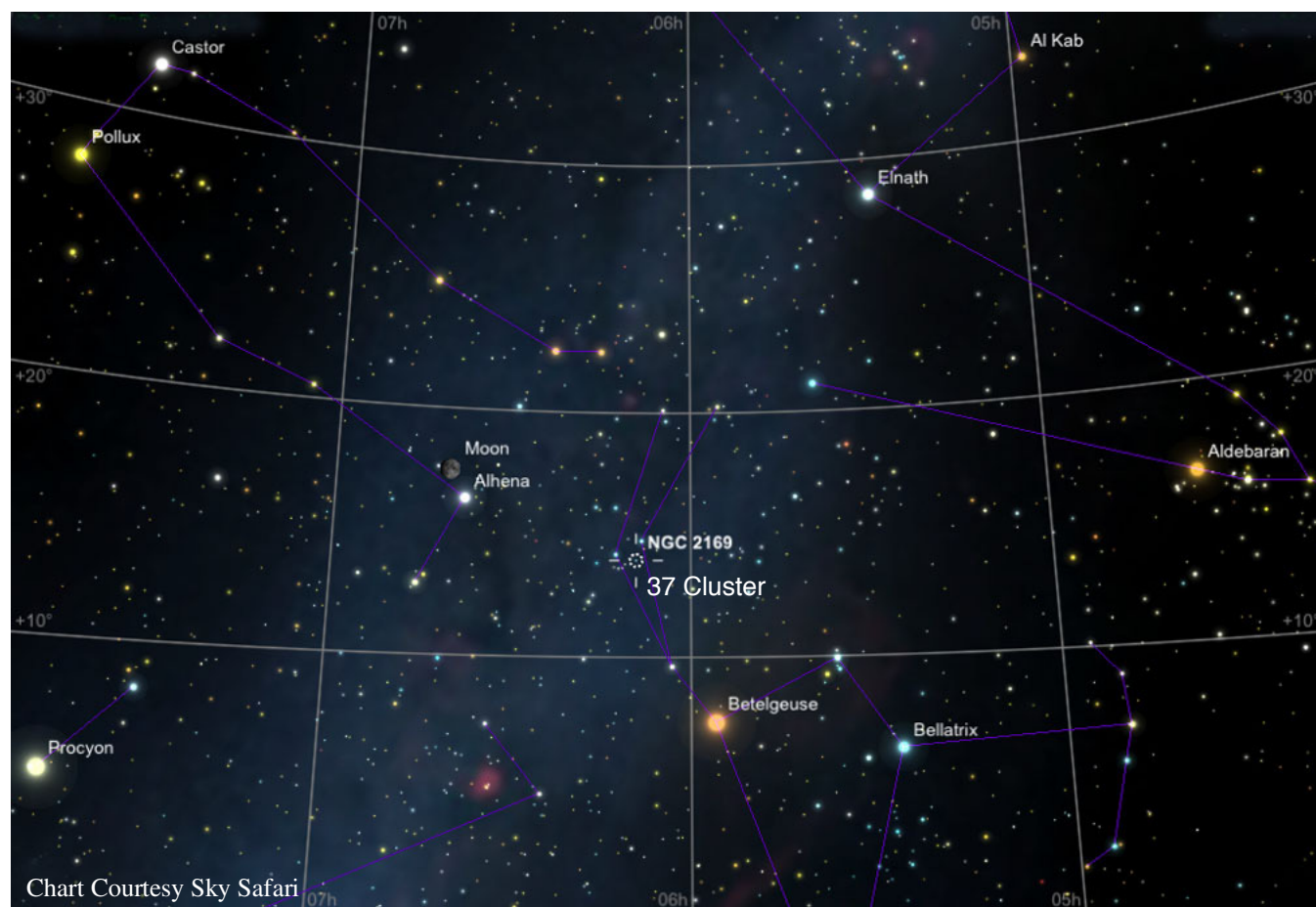
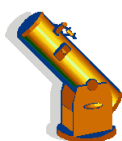
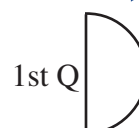


Chart Courtesy Sky Safari



Observing in February



Feb. 3, 3:09 PM	Feb. 11, 7:50 PM	Feb. 18, 3:47 PM	Feb. 25, 9:14 AM
Mercury Rise: 6:45 AM	Mercury Rise: 6:06 AM	Mercury Rise: 5:54 AM	Mercury Rise: 5:51 AM
Venus Set: 7:29 PM	Venus Set: 7:50 PM	Venus Set: 8:08 PM	Venus Set: 8:25 PM
Mars Set: 8:14 PM	Mars Set: 8:15 PM	Mars Set: 8:16 PM	Mars Set: 8:16 PM
Jupiter Rise: 5:30 PM	Jupiter Set: 7:17 AM	Jupiter Set: 6:47 AM	Jupiter Set 6:17 AM
Saturn Rise: 2:41 AM	Saturn Rise: 2:12 AM	Saturn Rise: 1:46 AM	Saturn Rise: 1:20 AM
Uranus Set: 10:28 PM	Uranus Set: 9:58 PM	Uranus Set: 9:32 PM	Uranus Set: 9:06 PM
Neptune Set: 7:15 PM	Neptune Set: 6:45 PM	Neptune Set: 6:19 PM	Neptune Lost in Sun
Pluto Rise: 5:41 AM	Pluto Rise: 5:11 AM	Pluto Rise: 4:44 AM	Pluto Rise: 4:17 AM

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
2/1/2015	15:45	05:43	07:30	17:22	05:51	19:02
2/2/2015	16:41	06:23	07:29	17:24	05:50	19:03
2/3/2015	17:39	06:58	07:28	17:25	05:49	19:04
2/4/2015	18:36	07:30	07:27	17:27	05:48	19:05
2/5/2015	19:34	08:00	07:25	17:28	05:47	19:06
2/6/2015	20:32	08:27	07:24	17:29	05:46	19:08
2/7/2015	21:29	08:55	07:23	17:31	05:45	19:09
2/8/2015	22:28	09:22	07:21	17:32	05:44	19:10
2/9/2015	23:27	09:50	07:20	17:34	05:42	19:11
2/10/2015		10:21	07:19	17:35	05:41	19:13
2/11/2015	00:26	10:56	07:17	17:36	05:40	19:14
2/12/2015	01:26	11:36	07:16	17:38	05:39	19:15
2/13/2015	02:26	12:22	07:15	17:39	05:38	19:16
2/14/2015	03:25	13:15	07:13	17:40	05:36	19:18
2/15/2015	04:20	14:17	07:12	17:42	05:35	19:19
2/16/2015	05:12	15:25	07:10	17:43	05:34	19:20
2/17/2015	05:58	16:38	07:09	17:45	05:32	19:21
2/18/2015	06:40	17:54	07:07	17:46	05:31	19:23
2/19/2015	07:19	19:11	07:06	17:47	05:29	19:24
2/20/2015	07:56	20:27	07:04	17:49	05:28	19:25
2/21/2015	08:31	21:40	07:03	17:50	05:26	19:26
2/22/2015	09:07	22:52	07:01	17:51	05:25	19:28
2/23/2015	09:45	24:00	06:59	17:53	05:23	19:29
2/24/2015	10:25		06:58	17:54	05:22	19:30
2/25/2015	11:09	01:03	06:56	17:55	05:20	19:31
2/26/2015	11:56	02:02	06:55	17:57	05:19	19:33
2/27/2015	12:47	02:54	06:53	17:58	05:17	19:34
2/28/2015	13:40	03:41	06:51	17:59	05:15	19:35

Items of Interest This Month

Venus getting higher in evening sky
 Zodiacal light visible in west after sunset during dark lunar phase.
 2/1 7:30 PM Io occults Europa
 2/1 11:54 PM Ganymede occults Europa
 2/4 12:44 AM Europa eclipses Io
 2/6 Jupiter at opposition
 2/8 7:00 PM Io shadow transit, Red Spot centered
 2/8 9:26 PM Io occults Europa
 2/9 2:34 AM Ganymede occults Europa
 2/16 Algol at minimum 8:30–10:30 PST
 2/21 Mars within 1° of Venus. Thin crescent Moon above and to the left.
 2/25 early afternoon: Moon less than half a degree above Aldebaran. Good chance to see a bright star in daylight.
 2/25 Moon just out of Hyades after sunset. Best night this month to look for lunar Elvis.
 2/26 7:31 PM Io eclipses Ganymede (1 magnitude drop in brightness – don't miss!)
 2/26 8:28 PM Callisto Eclipses Ganymede (0.6 mag drop, just an hour after above event.)
2/27 First Quarter Friday Star Party
 Europa and Ganymede near miss at 7:40 PM

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