IO - October 2015

Issue 2015-10
Eugene Astronomical Society

Eugene Astronomical Society
Annual Club Dues $25
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Secretary: Jerry Oltion 541-343-4758
Additional Board members:
Jacob Strandlien, John Loper, Mel Bartels.

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Springfield, OR 97475
www.eugeneastro.org
EAS is a proud member of:

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

Next Meeting Thursday, October 15th
Magnification and What's Up in Autumn
by Mel Bartels and Jerry Oltion

Our October 15th meeting will feature two speakers: Mel Bartels will discuss "Telescope Magnification: the Key to Understanding Telescopes" in which he'll explain key concepts of magnification, field of view, exit pupil, and how they interrelate to give you good and bad views through a telescope. Jerry Oltion will give a talk on "What's Up in the Autumn Sky," a tour of what's visible this time of year, including a few lesser-known challenges for intermediate viewers.

We'll also be electing two board members, and Jerry will be accepting dues. He'll also have astronomy calendars for people who pre-ordered and haven't already picked them up.

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, October 15th at the Science Factory planetarium.

Dues are Due!

EAS membership runs from October thru September. If you haven't renewed already, please bring your payment to the meeting or mail your dues to the Eugene Astronomical Society, PO Box 7264, Springfield, OR 97475. Dues are still the same low $25 they've been for years. Make your checks payable to Eugene Astronomical Society, or just EAS if your pen is low on ink.

Next First Quarter Friday: October 23rd

Our September 18th First Quarter Star Party was a great success. Only half a dozen telescopes for maybe 50 guests, but the lines weren't too long and people seemed to be enjoying their time visiting in line as well as their time at the eyepiece. The sky had been washed clean by rains the previous couple of days so the transparency was pretty good. We gave people a good look at the Moon (in a 28% crescent phase this month), Saturn, the Lagoon Nebula, M13, M11 — the usual suspects. There were lots of new people who had never seen any of them before, so we got many appreciative "Oohs" and "Aahs."

Our next First Quarter Friday is on October 23rd. 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.

October 23 (84% lit) November 20 (70% lit) December 18 (55% lit)

September 17th Meeting Report

At our September 17th meeting, Bernie Bopp gave a talk on "Nebulous Nebulosities." The term "Nebula" is itself kind of a nebulous term, encompassing anything that's not well defined either in the physical or the philosophical sense. That's what astronomical nebulae were at first: a catch-all category for anything that wasn't sharply defined in the telescope view nor very well understood. Charles Messier's famous list of nebulae held over 100 fuzzy objects that only in later years revealed themselves to be six distinct types of object. Bernie went through all six types, explaining what each really was and how it fit in the overall cosmological picture.

The six types of fuzzy object that Messier found are: open clusters, globular clusters, planetary nebulae, emission/reflection nebulae, galaxies, and one supernova remnant. Each is vastly different from the others, but they're all connected through the process of stellar evolution. Bernie showed us how these poorly understood "nebulae" of the 17th and 18th centuries began to reveal their secrets in the 19th and 20th centuries and helped us build up an understanding of stellar evolution, galaxy formation, and our place in the cosmos. His talk sparked several lively discussions afterward, and people were still talking about it days later. Thank you, Bernie, for such a stimulating exploration of such a fuzzy subject!

Lunar Eclipse Party Report

Our September 27th eclipse party at the College Hill Reservoir was a howling success. Literally! Mid-eclipse, the approximately 1000 attendees began howling in unison at the Moon. It was a sound to remember. 1000 people? No kidding. Probably more than that at the peak of the party. We were shoulder to shoulder for a while there on the section of the reservior with an east view through a gap in the trees.

College Hill Reservoir at the beginning of the eclipse party, before it got crowded. Photo © by Alan Gillespie

We had over a dozen telescopes, several binoculars on tripods, and many cameras recording the event. The weather cooperated beautifully with clear skies and a nice orange sunset to the west, one of the very sunsets in the Earth-girdling ring of sunsets illuminating the eclipsed moon as it rose in the east.

The Moon was pretty dim just after sunset, but grew more visible as twilight deepened. Tony Dandurand was the first to find it, using binoculars on a tripod. The telescope view was mostly of people's backs and heads at first until the Moon rose high enough to get a better angle.

Across the street three people beat the crowds by climbing up on a

Eclipse at 7:35 while sky was still blue. Photo © by Alan Gillespie


Eclipse viewers on rooftop across the street.
Photo © by Kathy Oltion

roof. One hopes they lived there!

We heard later that there were crowds everywhere with a good east view. Skinner, Spencer, and Kelly Buttes, Mt. Pisgah, Mt. Baldy, etc. were all packed. This was a popular eclipse!

Many EAS members shared photographs on our email list in the days to follow. Here are just a few of them, plus a haiku:

one thousand people
viewing the lunar eclipse
howling in the dark
–Mel Bartels


Photo © by Alan Gillespie


Photo © by Jeff Phillips


Contrail across eclipsed Moon
Photo © by Jerry Oltion


Photo © by Bill Murray


Photo © by Jerry Oltion


Photo © by Bill Murray


Photo © by Bill Murray

Bill Basham went to Crater Lake to get a time lapse of the eclipse rising over the lake. Here's one frame showing the eclipsed Moon reflected in the water. For more of Bill's photos, go to: http://www.meetup.com/Eugene-Astronomical-Society-Meetup/photos/26444822/#442553641


Photo © by Bill Basham

EAS Receives Thanks

This summer we put on several star parties for groups other than just our regular First Quarter Fridays. Three of those groups sent us thank-you notes, which we include below for everyone to enjoy:

Janet Whitty, Recreation Programmer for Petersen Barn, wrote:

"Dear members of EAS,

"Thank you so much for bringing your telescopes and knowledge to Petersen Barn for our stargazing party! I wasn't sure if we'd get 3 or 30 people for this event and was so surprised when over 90 people showed up throughout the event to take a peek at the Moon and stars — oh, and planets, too!

"I was as amazed as the rest of them to see the craters in the Moon and the rings around Saturn. So cool! Thank you again for providing this service to the community. It's awsome!!"

Trish Loper, director of Programs for Camp Wilani, wrote:

"Dear Members of the Society:

"Campers and staff members at Camp Wilani extend a big thank you to the members of the society who brought their telescopes to the star party at camp, Wednesday, July 22, 2015. As usual the clouds were with us, however campers were excited to see night sky objects. Several campers remarked that this opportunity was their first to view objects in space. Among our older campers, discussions continued after the event was over.

"We appreciate the efforts of friend of camp Wilani, "Starman" and Jeff Phillips, Randy Beiderwell and Steve Frankel who gladly toted their scopes to camp and shared their knowledge with the campers. This event is such an excellent opportunity to link the Camp Fire Trail to the Environment activities and the astronomy education mission of the EAS.

"Looking forward to next year."

Vicky Mello bought the star party we auctioned off at the Science Factory benefit. Ken and Diane Martin, Wade Richardson, and Kathy and Jerry Oltion put on the star party for her and a dozen of her friends at Fall Creek Dam on September 11th. Vicky wrote:

"I want to thank you and all the star finders at last night's great event. We all had a wonderful time and I am amazed that we can see things so far away. It is hard to imagine the distances. You were all so kind to share your knowledge and your telescopes for a bunch of newbees to the star gazing phenomenon.

"Thanks for showing us a good place to view stars away from city lights. If a meteor shower is in our future, I sure would head out that way.

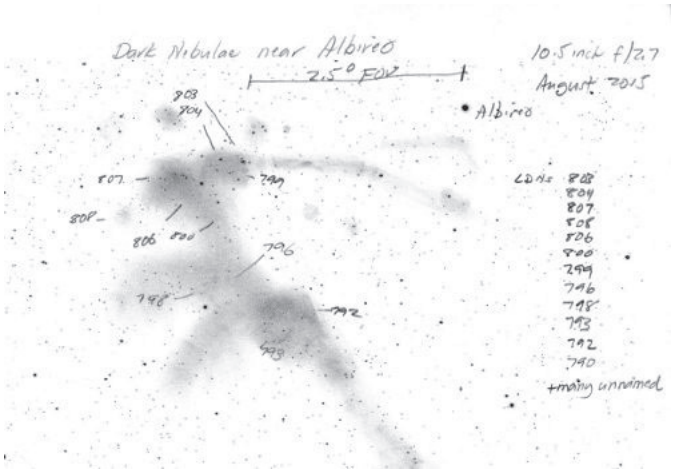
"I hope you donate another party at the Science Factory event — I would go for it again.

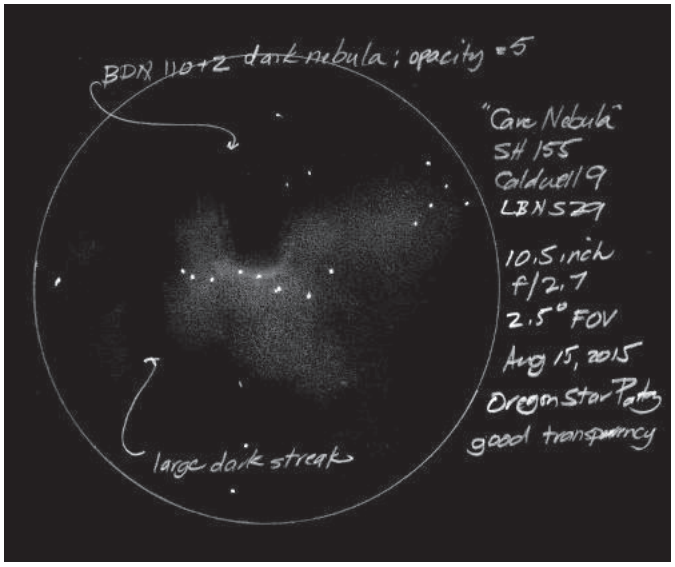
"Happy sky searching."

People looking upward at our Science Factory benefit star party

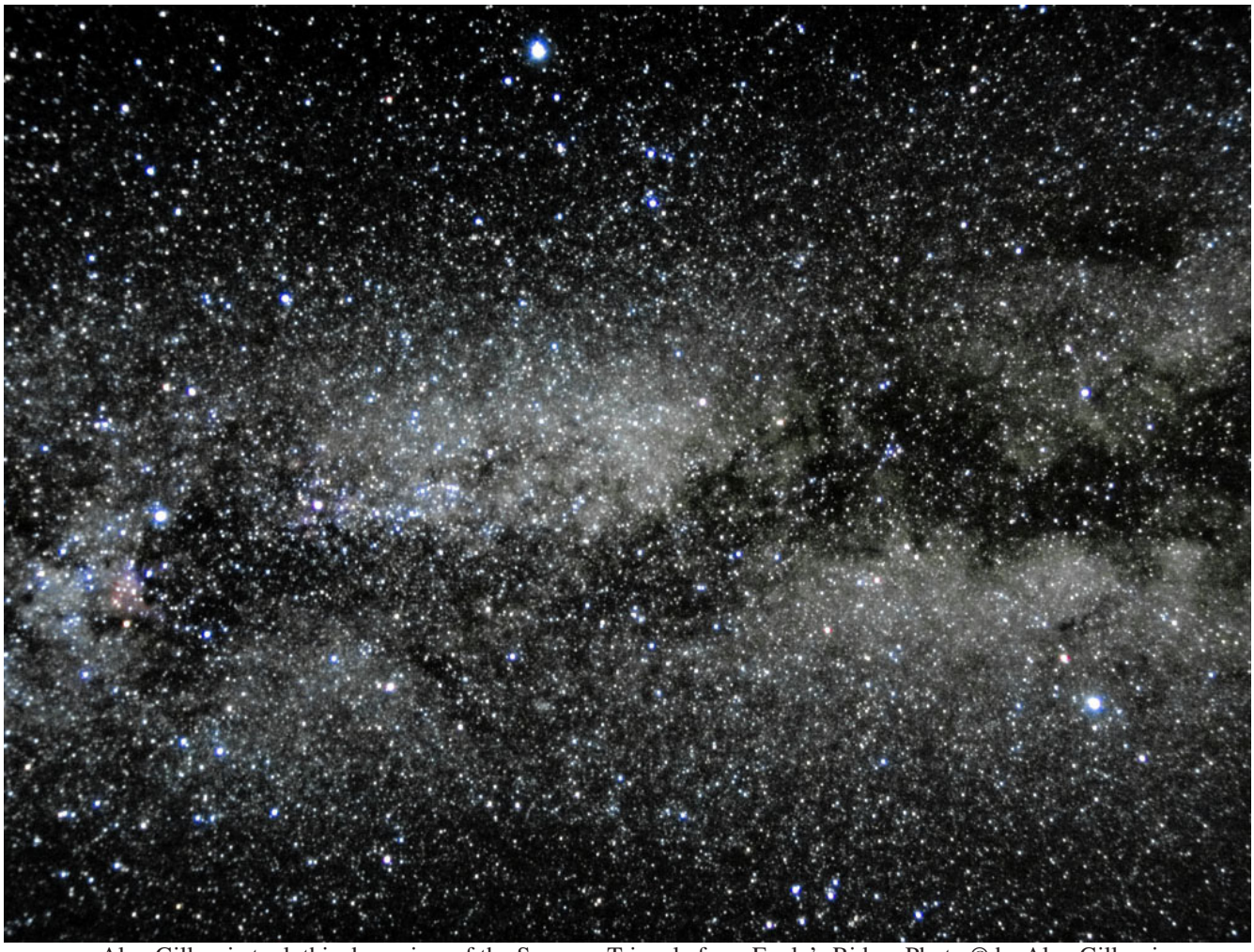
This Month's Sketches and Photos

Local amateur astronomers were busy again this month observing, sketching, and photographing the night sky. Here are a few of their images:





Mel Bartels continues to find amazing detail in his wide-field telescopes. This month he sketched these dozen dark nebula near Albireo and the more well-known but still quite difficult Cave Nebula in Cepheus. Both images © by Mel Bartels



Alan Gillespie took this deep view of the Summer Triangle from Eagle's Ridge. Photo © by Alan Gillespie

Perseid Meteor Shower, Copyright © 2015 by Russ Milton

Russ Milton of Coos Bay submitted this beautiful composite image of the Perseid Meteor Shower in mid-August. About the image, which was taken from a clearcut overlooking the Camas Valley southwest of Roseburg, he writes:

"One of my cameras I set up on a stationary tripod, making a long sequence of 15-second exposures centered on Polaris. The purpose of this arrangement was to minimize star trailing. All told in just under 4 hours that camera recorded 788 images upon which were found 45 meteors. Thirty of these were deemed bright enough to assemble into the composite that I have attached. I used an old copy of Photoshop Elements to overlay each meteor image on a base layer, rotating the image until the stars matched up. It took quite a bit of effort to accomplish it all. But the results are better than what I've done before. In the photo all meteors where traveling from right to left. From what I can tell, the green is from ionized magnesium in the meteor particle, while the red is from oxygen ions in the Earth's atmosphere. I must admit to including one bright sporadic meteor, which I rotated to look like a Perseid. I forget exactly which one it was. Polaris is at frame center with Ursa Minor extending toward the left edge."

The camera was a Sony NES-5N at ISO 1600 using a 35mm lens at f/1.8. Exposures were 15-seconds each, no tracking.

Those interested in the step-by-step process can find it detailed in the following forum thread: http://www.dpreview.com/forums/post/56441814

Thank You Storage Junction

Storage Junction has donated the use of a storage unit for us to hold our loaner telescopes when they're not in use. EAS would like to thank Storage Junction for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. Storage Junction is located at 93257 Prairie Road (at the intersection of Hwy 99 and Hwy 36, 3 miles south of Junction City) Phone: 541-998-5177

STORAGE JUNCTION

Phases, Seasons, and the Elevation of the Moon

by Jerry Oltion

Most people know that the Sun is high in the sky in summertime and low in winter. Many also know that the full Moon is high in winter and low in summer. That's easy because the full Moon is opposite the Sun in the sky. But who knows when the first quarter Moon is highest? Last quarter? It's not quite as intuitive.

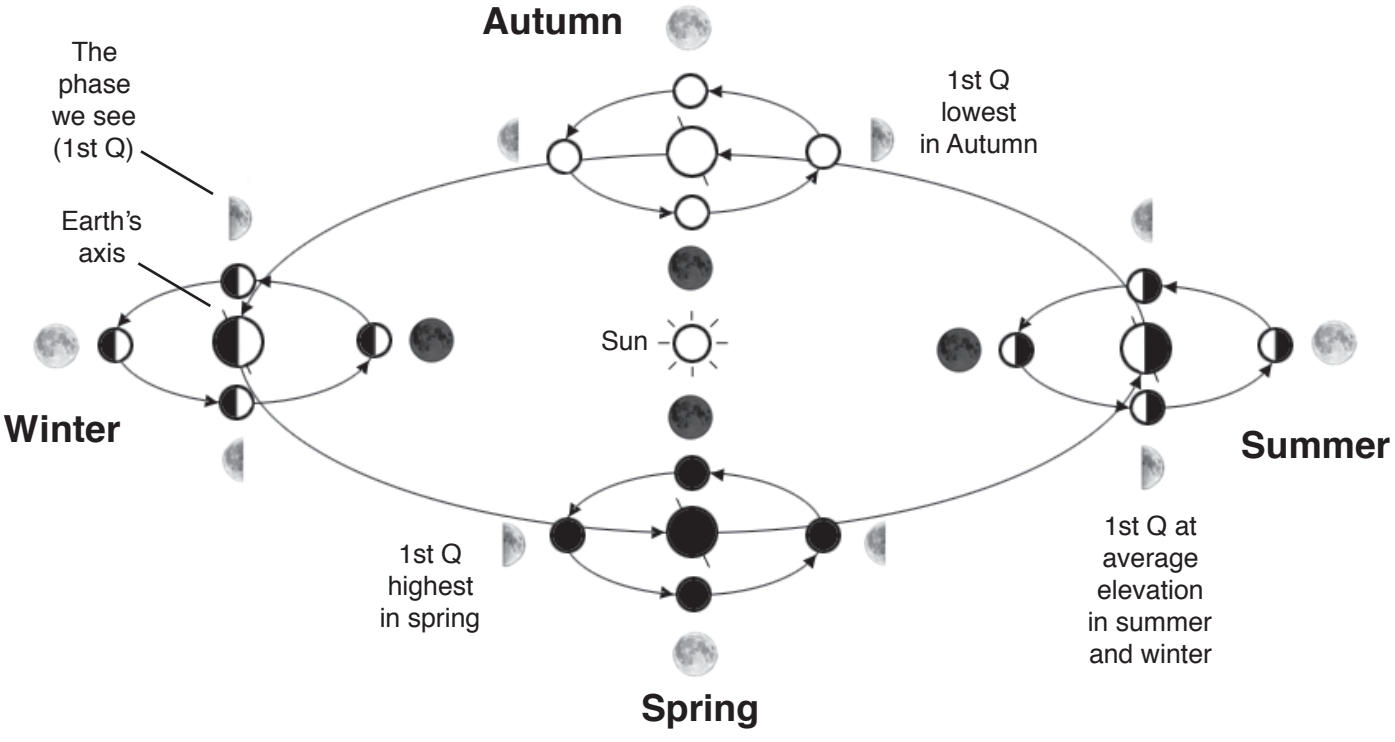
The Moon makes a circuit around the Earth once a month, roughly. It sticks fairly close to the ecliptic, the plane of the solar system, so its height in our sky is mostly determined by where the Earth's axis is pointing at the time (just as the height of the Sun is). If the Earth's north pole is pointing away from the Moon, the Moon will be low in the sky, but if it's pointing toward the Moon, the Moon will be high in the sky (for those of us in the northern hemisphere, anyway).

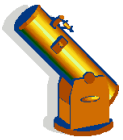
That offers a clue to figuring out the other phases. When is the first quarter highest in the sky? When the Earth's axis is pointing at it, of course. When does it do that? In the...dang. When *does* it do that?

Okay, when looked at from above the northern poles, the solar system spins counter-clockwise. The Moon goes around the Earth the same way. So each season the Earth is 90 degrees around in its orbit counter-clockwise from its previous position. In winter a full Moon would be high in the sky, so in spring a first-quarter Moon would occupy that same position, because the Earth's axis is now pointing at the first quarter position rather than at the full position.

Yeah, it's counter-intuitive. The high-in-the-sky phases lag behind, going from full to first quarter to new to last quarter as you go from winter to spring to summer to autumn. That's how you remember it so you don't have to draw it out every time. The mnemonic "Phases fall back" might be helpful.

What does this mean in practical terms? It means your best view of the first quarter will be in the spring, when the first quarter is high in the sky. Your best view of the last quarter will be in the autumn, which is now. Of course the last quarter is best observed in the wee hours just before sunrise, which explains why so few of us ever get a good look at it in any season.





Observing in October

Last Q | New | 1st Q | Full

Oct. 4, 2:06 PM	Oct. 12, 5:06 PM	Oct. 20, 1:31 PM	Oct. 27, 5:05 AM
Mercury Rise: 6:36 AM	Mercury Rise: 5:52 AM	Mercury Rise: 6:01 AM	Mercury Rise: 6:30 AM
Venus Rise: 3:30 AM	Venus Rise: 3:30 AM	Venus Rise: 3:34 AM	Venus Rise: 3:41 AM
Mars Rise: 4:09 AM	Mars Rise: 4:03 AM	Mars Rise: 3:58 AM	Mars Rise: 3:53 AM
Jupiter Rise: 4:40 AM	Jupiter Rise: 4:16 AM	Jupiter Rise: 3:53 AM	Jupiter Rise: 3:32 AM
Saturn Set: 9:04 PM	Saturn Set: 8:35 PM	Saturn Set: 8:06 PM	Saturn Set: 7:41 PM
Uranus Rise: 7:00 PM	Uranus Set: 7:27 AM	Uranus Set: 6:54 AM	Uranus Set: 6:25 AM
Neptune Set: 4:25 AM	Neptune Set: 3:53 AM	Neptune Set: 3:21 AM	Neptune Set: 2:53 AM
Pluto Set: 11:50 PM	Pluto Set: 11:19 PM	Pluto Set: 10:48 PM	Pluto Set: 10:20 PM

All times Pacific Daylight Time (March 8 – October 31, 2015 = UT -7 hours) or Pacific Standard Time (November 1, 2015 – March 12, 2016 = UT -8 hours)

Date	Moonrise	Moonset	Twilight Begin	Sunrise	Sunset	Twilight End
10/1/2015	21:41	11:25	05:34	07:10	18:53	20:30
10/2/2015	22:30	12:29	05:35	07:11	18:52	20:28
10/3/2015	23:23	13:28	05:36	07:12	18:50	20:26
10/4/2015		14:19	05:37	07:13	18:48	20:24
10/5/2015	00:18	15:03	05:39	07:15	18:46	20:22
10/6/2015	01:16	15:42	05:40	07:16	18:44	20:20
10/7/2015	02:14	16:17	05:41	07:17	18:43	20:18
10/8/2015	03:12	16:48	05:42	07:18	18:41	20:17
10/9/2015	04:09	17:16	05:44	07:19	18:39	20:15
10/10/2015	05:07	17:44	05:45	07:21	18:37	20:13
10/11/2015	06:05	18:11	05:46	07:22	18:36	20:11
10/12/2015	07:02	18:39	05:47	07:23	18:34	20:10
10/13/2015	08:00	19:09	05:48	07:24	18:32	20:08
10/14/2015	08:58	19:41	05:50	07:26	18:30	20:06
10/15/2015	09:56	20:16	05:51	07:27	18:29	20:05
10/16/2015	10:53	20:56	05:52	07:28	18:27	20:03
10/17/2015	11:48	21:41	05:53	07:29	18:25	20:01
10/18/2015	12:41	22:32	05:54	07:31	18:24	20:00
10/19/2015	13:31	23:29	05:56	07:32	18:22	19:58
10/20/2015	14:16		05:57	07:33	18:21	19:57
10/21/2015	14:59	00:32	05:58	07:34	18:19	19:55
10/22/2015	15:38	01:38	05:59	07:36	18:17	19:54
10/23/2015	16:14	02:49	06:00	07:37	18:16	19:52
10/24/2015	16:50	04:01	06:02	07:38	18:14	19:51
10/25/2015	17:26	05:16	06:03	07:40	18:13	19:49
10/26/2015	18:04	06:31	06:04	07:41	18:11	19:48
10/27/2015	18:44	07:47	06:05	07:42	18:10	19:47
10/28/2015	19:29	09:01	06:06	07:44	18:08	19:45
10/29/2015	20:17	10:10	06:07	07:45	18:07	19:44
10/30/2015	21:10	11:14	06:09	07:46	18:05	19:43
10/31/2015	22:07	12:10	06:10	07:47	18:04	19:42

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

Items of Interest This Month

Good month to find asteroid Vesta in Cetus

10/2 Morning: Moon occults Aldebaran just before dawn (disappearance 6:09, reappearance 7:17) Other Hyades stars also occulted.

10/3 Morning: Venus, Regulus, Mars, and Jupiter in a line before dawn.

10/8 Peak of Draconid meteors. Slow burners. Visible from dusk onward.

10/9 Morning: crescent Moon joins Venus, Regulus, Mars and Jupiter before dawn.

10/15 Mercury at greatest western elongation (visible before dawn).

10/17 morning: Mars and Jupiter less than 1/2° apart (visible before dawn)

10/21 Peak of Orionid meteors.

10/23 First Quarter Friday Star Party

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