

Eugene Astronomical Society



IO - November 2019

Eugene Astronomical Society
Annual Club Dues \$25
President: Andrew Edelen 618-457-3331
Secretary: Jerry Olton 541-343-4758
Additional Board members:
Oggie Golub, Jim Murray, Ken Martin.

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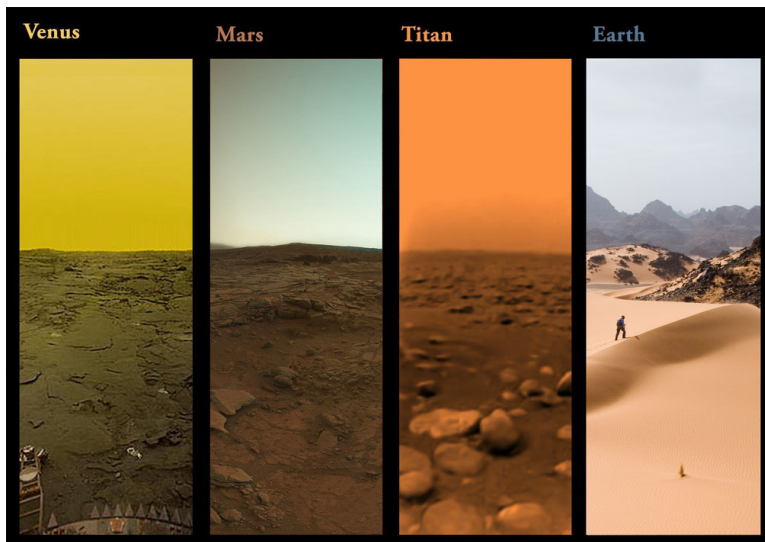
EAS is a proud member of
The Astronomical League



Next Meeting Thursday, November 21st, 7:00 p.m.

The Sky's the Limit! Planetary Climatology by Al LePage

Our knowledge of planetary atmospheres grows and the associated new field of “Comparative Planetary Climatology” continues to develop. What we’re learning gives us the big picture perspective on climate not only on certain planets in our solar system but also potentially on similar exoplanets throughout the entire universe!



We'll start with “A Brief History of . . .” and then piece together Clouds and Hazes, the Sun and Atmospheric Dynamics, Planetary Geology, plus some basic foundations and our old friend the Greenhouse Effect to make sense of the puzzle of planetary climates, past, present and future. Finally, we'll consider two questions:

“What does all this tell us about planetary habitability?” and . . .

“What does all this mean for planet Earth?”

Join Al LePage for an energetic multimedia presentation exploring the climates of Venus, Earth, Mars and Titan!

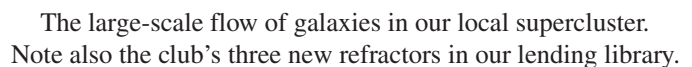
Dues are Past Due!

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.

EAS meetings are traditionally times when we learn about astronomy and share our experiences and knowledge of astronomy and the night sky. If you have something of astronomical interest to share with the group, please bring it along for show and tell.

Club meetings are held at the Eugene Science Center planetarium, 2300 Leo Harris Parkway in Eugene (behind Autzen Stadium). Meetings start at 7:00 sharp. Come early to visit and get a seat.

Jerry also showed off the club's three recent refractor donations: a Vixen 80 ED, a Meade 102 ED, and a Meade 127 ED. The "ED" stands for extra-low dispersion, which makes these refractors "apochromatic," which means that they display little if any color fringing around bright objects. The largest scope sits on a motorized CG-4 mount that the club bought for it. The 102 fits on a manual mount that was donated to the club from another source, and the 80 fits on an equatorial mount that Jerry converted over to altitude-azimuth. All three scopes are now in our lending library, and the 80 and the 127 were spoken for immediately. The 102 is still available as of this writing, so if you want to try out a high-end refractor, now's your chance.



The large-scale flow of galaxies in our local supercluster.
Note also the club's three new refractors in our lending library.

Mercury Transit November 11th

On the morning of November 11th, the planet Mercury will transit the face of the Sun. The event starts before sunrise from our longitude, but it lasts until 10:04 AM, so we get 3 hours and 2 minutes to watch just over half the transit.

The Sun will rise in the east southeast at 114° azimuth, which puts it behind the trees and the distant hillside from the College Hill Reservoir, but we've decided to host our transit viewing party there nonetheless. It's where the public expects to find us, and we figure the Sun should clear the hill and be visible above the trees by 7:30-ish, by which time it'll be high enough in the sky to steady out a little and make tiny Mercury a little more visible.

Mercury is too small to see by naked eye, so solar shades won't help you here. You need a solar filtered telescope. If you have it, bring it to the College Hill Reservoir and help put on the star party. If you don't, come look through someone else's.

If you miss this transit, you'll either have to travel to other parts of the world or wait until 2049 to see another one from Oregon, so make an effort to come see this one!

In the event of fog in the valley, go for elevation. Mt. Baldy Lane off Dillard Road is a likely spot, or Kelly Butte in Springfield, but you may have to drive for even higher ground. At 3400 feet, Eagle's Ridge would be a promising place.

Wherever you go, good luck!



The Mercury transit of 2016, with bonus airplane transit.
Photo © by Bill Basham.

Next First Quarter Friday: November 1st

Our October 4th star party was clouded out, but our October 5th backup date was clear. Unfortunately that was also the night of a Ducks football game, so despite having half a dozen telescopes on the reservoir we had very few guests until fairly late in the evening.

Elvis put in an appearance, though: the Lunar Guitarist was in perfect form that night.

Our next star party will be November 1st. 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 2020. Star parties start at dusk or 6:00, whichever is later. (6:15 in November.)

November 1 (28% lit)
January 31 (41% lit)
April 3 (79% lit)
June 26 (37% lit)
September 25 (71% lit)
December 18 (23% lit)

December 6 (76% lit)
February 28 (25% lit)
May 1 (65% lit)
July 24 (24% lit)
October 23 (56% lit)

January 3 (59% lit)
March (none)
May 29 (50% lit)
August 28 (84% lit)
November 20 (39% lit)

Analemma Project Completes First Year

During our Solar SUN-days in Alton Baker Park, at precisely 1:00 daylight savings time (noon real time), we have been marking the position of the shadow of a 10-foot pole. Mike Smith and Jerry Olton have been making marks on other dates as their availability and the weather allow. Over time, as the Sun rises and falls in the sky due to the Earth's axial tilt and as it drifts to the left and right due to the eccentricity of the Earth's orbit, that shadow has been marking out a figure-8 pattern called an *analemma*. This last Sunday, October 27th, we completed a year's worth of marks.

Of course we missed a bunch during that year due to cloudy weather. We missed the winter solstice, that all-important turning point at the far end of the photo below, and we missed all of February, most of March, and all of April, but you can still see the rough shape of the figure-8 that it makes on the sidewalk.

Note the one mark that's out of line with the others. (It's the second one past the seam in the sidewalk, the one that stands a couple inches too far to the right.) That was our very first mark, made with a fishing pole rather than the 10-foot pipe we later adopted for consistency. The fishing pole must have flexed in the breeze, so next Sunday we'll re-mark that point and erase the old one. We'll double-check our other points for accuracy as time goes on, and this winter and spring we'll do our best to fill in the missing marks.

The analemma is over 20 feet long and about 4 feet wide at its widest point (if we had points in the winter). When we get it filled in — which will hopefully happen in 2020! — we plan to ask the park service for permission to make our marks permanent with brass pegs set in the concrete.

Eugene is 12 minutes to the west of the Pacific time zone boundary, so our analemma doesn't point straight north-south. So Mike Smith suggested we make a second analemma at 1:12 Pacific Daylight Time. We began that analemma this summer, using the other side of the informational signpost to attach our 10-foot pole to and using a different colored Sharpie to mark the points. With luck, we should have two complete analemmas to choose from by next summer, one of them aimed perfectly north-south.

Come join us in creating this neat visual representation of the Earth's orbit and axial tilt. Solar SUN-days happen any clear Sunday when we can field a solar-filtered telescope or two, and run from noon to 2:00 in Alton Baker park next to the scale model Sun.



Bob Andersen, Jerome Aneskievich, and Jerry Olton use masking tape flags to make the analemma stand out in the photograph at right. Both photos © by Amy Baker.



The Purple Planet Eater

The EAS has another refurbished telescope in our lending library. This one is a 4.5" f/8 Bushnell scope donated last year by Jeff Phillips, on a Dobsonian mount just recently finished by Jerry Olton.

The scope has a spherical primary mirror, but at f/8 that's still within the quarter-wave accuracy limit considered acceptable for good optics. The scope comes with 26mm, 13mm, and 6.3mm plössl eyepieces and a red-dot finder, which makes it a fine planetary scope as well as a good lunar, star cluster, and bright nebula scope.

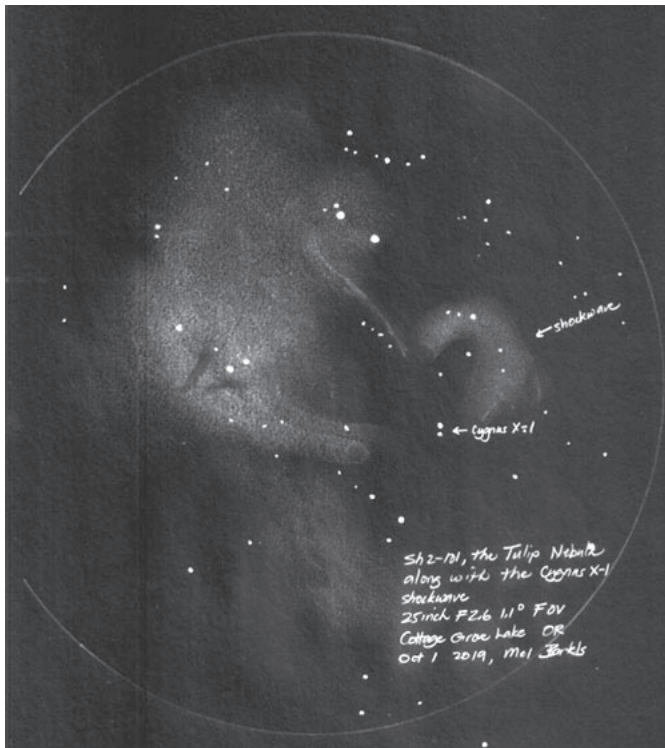
This is the third 4.5" scope in our lending library, so Jerry decided to make it stand out a little with a purple paint job. The color is officially called "Pansy Patch," but Jerry just calls it Purple, which makes this scope the "Purple Planet Eater."

Not surprisingly, this scope is already out on loan. Contact Jerry and put your name on the waiting list if you're interested in borrowing it next.

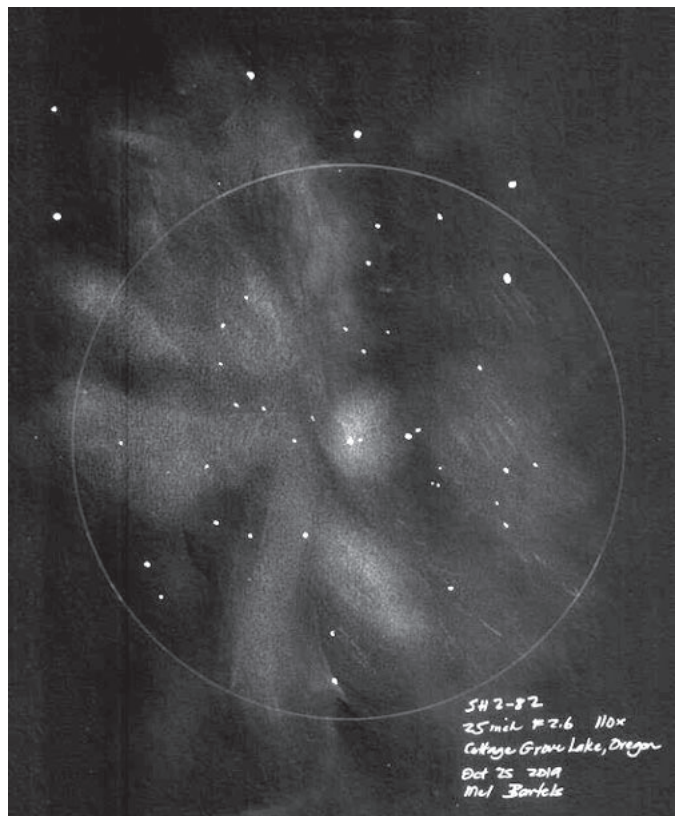


The Purple Planet Eater. Photo © by Jerry Olton.

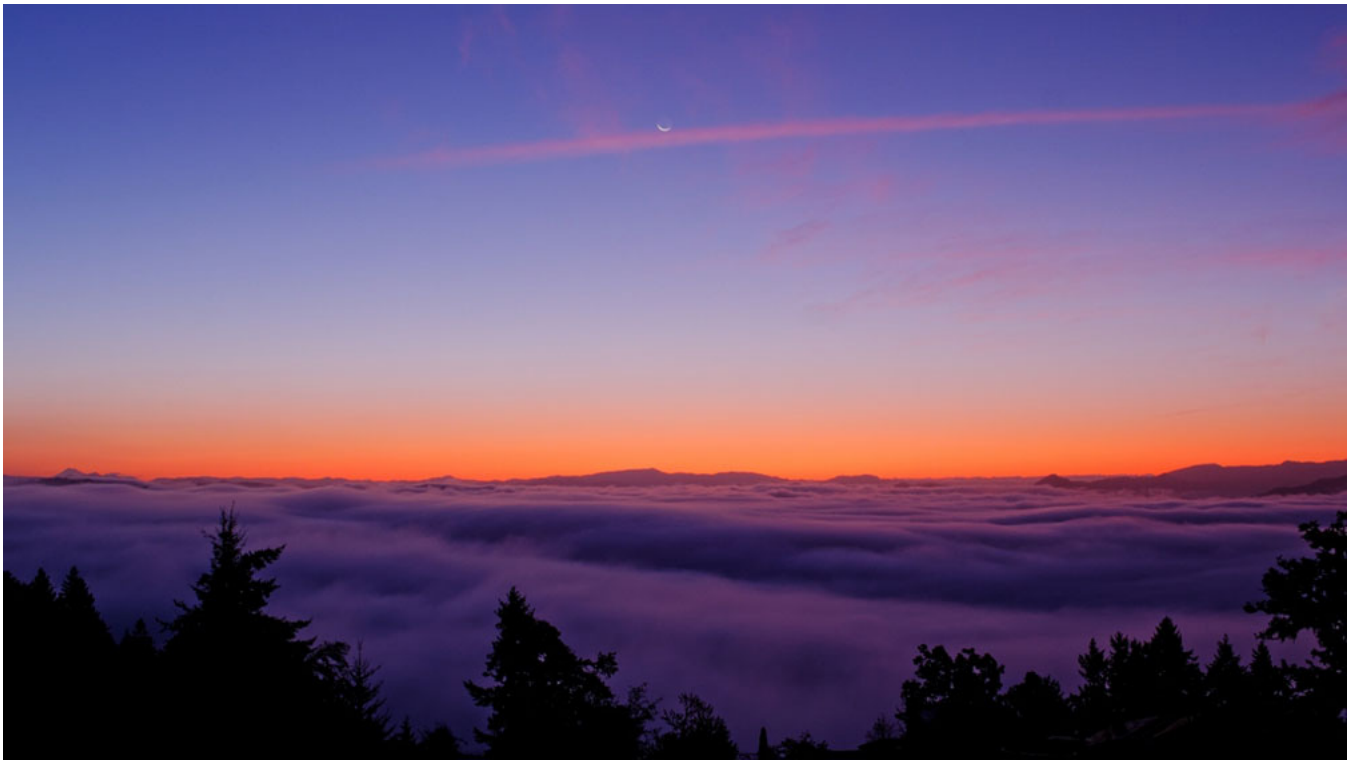
Gallery



The Cygnus X-1 Shockwave. Sketch © by Mel Bartels.



Sharpless 2-82 in Sagitta. Sketch © by Mel Bartels.



Moon at dawn over the fogged-in valley, October 26. Photo © by Alan Gillespie.



Waning crescent Moon at dawn on October 24th and 25th. Photos © by Alan Gillespie.



Waning crescent Moon on October 26th and full Moon of October 14th. Photos © by Alan Gillespie.



M31, the Andromeda Galaxy. Photo © by Karmin Peterson.



The Heart Nebula, IC 1805 in Cassiopeia. Photo © by Karmin Peterson.

The Pleiades, M45 in Taurus. Note the nebulosity around the bright stars to the right, but not the bright one (Atlas) on the left. That's how you know if you're really seeing true nebulosity or just moisture in the air: if Atlas is clear while the others have fuzz around them, then you're seeing the real thing. Photo © by Karmin Peterson.

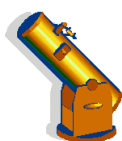




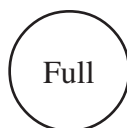
The Elephant Trunk Nebula, IC 1396 in Cepheus, with Hershel's Garnet Star at upper left. Photo © by Karmin Peterson.



M33 in Triangulum, with many NGC objects visible within it. Photo © by James Pelley.



Observing in November



Nov 4, 2:23 AM	Nov 12, 5:34 AM	Nov 19, 1:11 PM	Nov 26, 7:06 AM
Mercury lost in Sun	Mercury lost in Sun	Mercury Rise: 5:49 AM	Mercury Rise: 5:33 AM
Venus Set: 5:59 PM	Venus Set: 6:00 PM	Venus Set: 6:05 PM	Venus Set: 6:13 PM
Mars Rise: 5:00 AM	Mars Rise: 4:56 AM	Mars Rise: 4:52 AM	Mars Rise: 4:49 AM
Jupiter Set: 7:17 PM	Jupiter Set: 6:52 PM	Jupiter Set: 6:31 PM	Jupiter Set: 6:09 PM
Saturn Set: 8:54 PM	Saturn Set: 8:25 PM	Saturn Set: 8:01 PM	Saturn Set: 7:36 PM
Uranus Set: 6:20 AM	Uranus Set: 5:47 AM	Uranus Set: 5:18 AM	Uranus Set: 4:49 AM
Neptune Set: 2:07 AM	Neptune Set: 1:35 AM	Neptune Set: 1:08 AM	Neptune Set: 00:40 AM
Pluto Set: 9:16 PM	Pluto Set: 8:46 PM	Pluto Set: 8:19 PM	Pluto Set: 7:52 PM

All times Pacific Daylight Time (March 10 - Nov. 2, 2019 = UT -7 hours) or Pacific Standard Time (November 3, 2019 - March 8, 2020 = UT -8 hours)

Date	Moon Rise	Moon Set	Twilight Begin	Sun Rise	Sun Set	Twilight End
11/1/2019	12:48	21:51	06:11	07:49	18:03	19:40
11/2/2019	13:39	22:48	06:12	07:50	18:01	19:39
11/3/2019	13:21	22:48	05:13	06:51	17:00	18:38
11/4/2019	13:57	23:48	05:15	06:53	16:59	18:37
11/5/2019	14:27		05:16	06:54	16:57	18:36
11/6/2019	14:54	00:49	05:17	06:55	16:56	18:35
11/7/2019	15:18	01:50	05:18	06:57	16:55	18:34
11/8/2019	15:40	02:50	05:19	06:58	16:54	18:33
11/9/2019	16:03	03:51	05:20	06:59	16:52	18:32
11/10/2019	16:26	04:52	05:21	07:01	16:51	18:31
11/11/2019	16:51	05:55	05:23	07:02	16:50	18:30
11/12/2019	17:20	06:59	05:24	07:03	16:49	18:29
11/13/2019	17:54	08:05	05:25	07:05	16:48	18:28
11/14/2019	18:35	09:10	05:26	07:06	16:47	18:27
11/15/2019	19:23	10:14	05:27	07:07	16:46	18:26
11/16/2019	20:20	11:12	05:28	07:09	16:45	18:26
11/17/2019	21:25	12:03	05:29	07:10	16:44	18:25
11/18/2019	22:35	12:48	05:30	07:11	16:43	18:24
11/19/2019	23:49	13:25	05:32	07:13	16:43	18:24
11/20/2019		13:58	05:33	07:14	16:42	18:23
11/21/2019	01:03	14:28	05:34	07:15	16:41	18:22
11/22/2019	02:17	14:56	05:35	07:16	16:40	18:22
11/23/2019	03:32	15:24	05:36	07:18	16:40	18:21
11/24/2019	04:48	15:53	05:37	07:19	16:39	18:21
11/25/2019	06:03	16:26	05:38	07:20	16:38	18:20
11/26/2019	07:17	17:03	05:39	07:21	16:38	18:20
11/27/2019	08:28	17:47	05:40	07:22	16:37	18:20
11/28/2019	09:32	18:37	05:41	07:24	16:37	18:19
11/29/2019	10:29	19:33	05:42	07:25	16:36	18:19
11/30/2019	11:16	20:33	05:43	07:26	16:36	18:19

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

Items of Interest This Month

Good month to see asteroid Vesta. It moves from western Taurus into Cetus this month, and reaches opposition on November 12th. At magnitude 6.5 it's easy to spot even in binoculars.

Good month to look for Neptune's moon, Triton, and Uranus's moons, Oberon, Titania, and Ariel. They're pretty dim, but with a 12" scope or larger they can be seen.

11/1 First Quarter Friday star party.

11/3 Daylight savings time ends.

11/11 Transit of Mercury at Sunrise. Don't Miss this event!

11/17 Peak of Leonid meteor shower.

11/23 & 11/24 Venus and Jupiter about 1° apart.

