Issue 2019-12

IO - December 2019

Eugene Astronomical Society
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EAS is a proud member of
The Astronomical League

Next Meeting Thursday, December 19th, 7:00 p.m.

Annual Swap Meet

In December we traditionally hold a swap meet. This year we'll be doing it on December 19th, just in time to pick up that last stocking stuffer before Christmas.

The club received a lot of donated equipment this year, most of it destined for the "Free" table at the swap meet. Come see if you can find any treasures there.

Also, bring any equipment you're no longer using and sell it to someone who can put it to work. Anything astronomical is fair game.

This is an informal meeting, so it will be a great time to meet other club members and get to know one another. Even if you have nothing to swap and don't need any new gear, come hang out with the rest of the club and enjoy an evening of camaraderie.

Kathy Oltion will have calendars for those who ordered them, plus a few extras for people who didn't but would like one.

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.

Next First Quarter Friday: December 6th

Our November 1st star party was clear and well attended. The Moon was only 28% lit, so we were able to see quite a few fainter objects than usual. The Ring Nebula and the Andromeda Galaxy were both especially good (for in-town). We had maybe 40 guests and half a dozen telescopes; a respectable showing for a chilly November night.

Our next star party will be December 6th. 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. (6:00 in December.)

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)

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

November 21st Meeting Report

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

At our November 21st meeting, Al LePage put on a multimedia event on the subject of planetary climatology. Planetary climatology is the study of the atmospheres of planets, and it's a surprisingly old endeavor. People have been studying the Earth's climate for millennia, but speculation about the Moon, Mars, Venus, and the outer planets has been going on for several centuries. Recently, however, within the last hundred years or so, we've been able to procure actual data, which has often been surprising. For instance, learning that Venus's atmosphere is thicker than water at the surface, hot enough to melt lead, and any rain would be sulfuric acid, flew in the face of the tropical jungle people had envisioned. The first probes to Mars revealed an atmosphere so thin it was as good as a vacuum, putting to rest the notion of a Martian civilization that built canals to carry water from the poles to irrigate their crops. We do see similarities with Earth's atmosphere, though, including clouds, dust storms, and even dust devils. Very, very tenuous dust devils.

Farther afield, we discovered that Saturn's moon Titan has a thick atmosphere that resembles ours in some fundamental ways. It's mostly nitrogen, just like ours, and it has clouds that carry moisture that rains out and gathers into rivers, lakes, and seas. The biggest difference is that Titan's moisture is in the form of liquid methane and ethane.

More recently we discovered that Pluto has a dynamic surface and a layered atmosphere that almost certainly carries moisture that snows out of transient clouds. The snow on Pluto, however, appears to be nitrogen, methane, and possibly carbon monoxide.

Al's talk was lively, fun, and informative. At each stop along the way, Frank Gornto used the full-dome projector to take us to the planet or moon in question. Al also had several video links in his presentation, showing movies of Martian dust devils, simulations of Mars's oceans and lakes back when it had them, recent data from Titan, etc. And even with all that, he barely scratched the surface of the subject. Planetary climatology is a huge field that's just now beginning to boom, and Al gave us a great overview of what's happening in that field today. Thanks, Al, for a great presentation!

Al finished his talk right on the dot at 8:30, at which point the group made an exodus outdoors to see if we could see any of the Alpha Monocerid meteor shower that was predicted to peak in a brief (40 minute) storm centered around 8:50. Alas, we saw no meteors, but we had fun visiting while we waited. Since the night was clear, Andy Edelen, Jerry Oltion, and new club member Nathan Campbell made a run out to Eureka Ridge to do some observing. They had a great night out, staying long enough for Orion to rise and give them a great view of the Orion Nebula.

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.

Calendars are Here!

Our order of astronomy calendars has arrived. If you pre-ordered a calendar, come pick it up at the meeting. Calendars are $6.50 each. You can write one check for calendars and dues. Cash is happily accepted, too.

If you can't make it to the meeting, contact Jerry Oltion to arrange a pickup at his home.

Sic Transit Gloria Mercury

The morning of November 11th dawned with the entire Willamette Valley socked in with thick fog. Our planned transit party on the College Hill Reservoir was a bust, and viewing from anywhere in town looked unlikely.

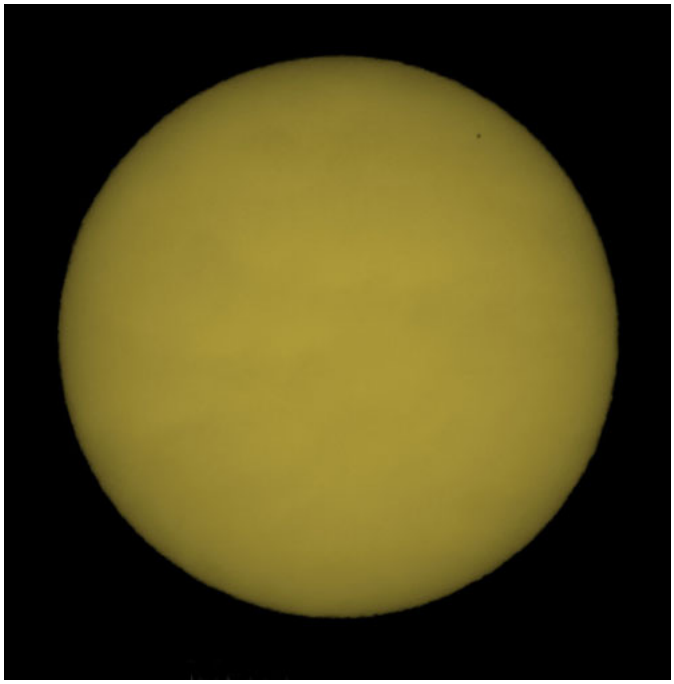
Several club members headed for high ground up Eagle's Rest Road, breaking out of the fog right at the spot we call the "amphitheater" 1.8 miles up. Bruce Hindrichs went on up to Eagle's Ridge, but

Fog in the valley just below the Amphitheater site.
Photo © by Jerry Oltion

Loren Reimers, Kathy Donde, Steve Frankel, Robert, Jade, and Savion Asumendi, Kathy Oltion, and Donna Reimers.
Photo © by Jerry Oltion

Jerry and Kathy Oltion stayed at the amphitheater and set up their H-alpha and white-light scopes there. They were soon joined by Loren and Donna Reimers, then Steve Frankel and a friend named Kathy, then Robert Asumendi and his daughter, Jade, and his son, Savion. And toward the end of the transit Bruce drove back down and joined the party. The fog lapped at our feet for the first hour or so, but we were able to see the Sun through it pretty well, and it eventually

Mercury at 8:47:04. It's that tiny dot to the upper right, about one o'clock from center. Photo © by Jerry Oltion



Mercury nearing the end of its transit.
Photo © by Jim Murray

receded and left us alone after that. Later we learned that Frank Szczepanski managed to get a glimpse through some gaps in the fog on Hwy 99, and Jim Murray also saw it from beside the Lowell covered bridge.

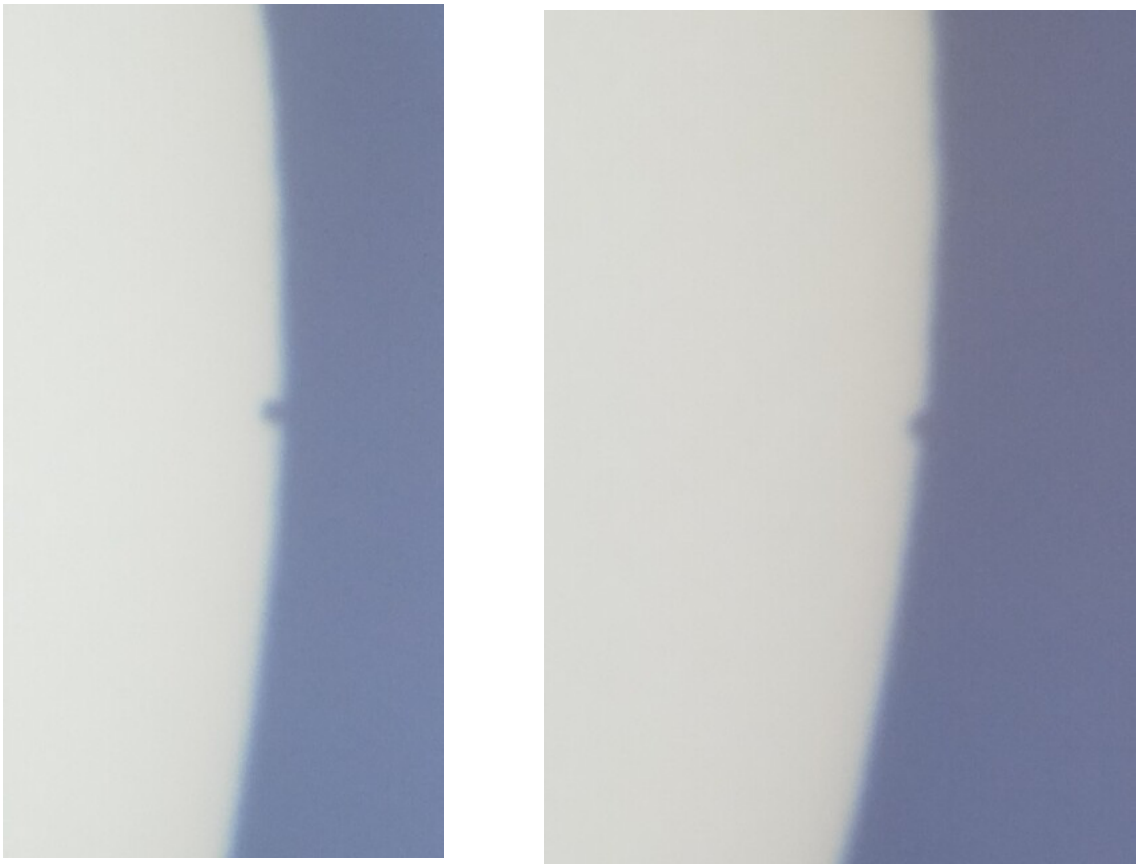
It was a glorious transit! It was already halfway over by sunrise, but as soon as the Sun cleared the clouds on the horizon (about 7:30), Mercury was right there as a coal-black dot against the Sun's glowing face, perfectly round (in the moments of steady seeing) and moving slowly across from left of center to upper right. There were no sunspots, so Mercury was the sole occupant of the Sun's entire 864,000-mile-wide disk.

Through the H-alpha scope Mercury had to compete with the granulation of the Sun's surface, but through the white light scope it was more clearly visible. With solar-filtered binoculars we could just make out a tiny speck of darkness, but with just solar shades over our eyes it was too small to see.

As the transit drew to a close we began cycling through the line at the eyepieces faster and faster, but at the end Jerry won the game of musical chairs and settled in at the white-light scope while Steve settled in at the H-alpha scope to watch the final egress. That's when they discovered something else interesting: it took 30 seconds longer to disappear in the H-alpha view. That's because that scope was showing the Sun's chromosphere as well as its photosphere, and the white-light scope wasn't. It took Mercury half a minute longer to drift the width of the chromosphere, which given the orbital speed of Mercury, translates to about 1,300 miles. NASA says the chromosphere is...1,300 miles thick. Not bad for a couple of amateurs!

Dave Kasnick caught the last moments of the transit photographically. This is very close to what we saw visually: the last little arc of our innermost planet sweeping onward in its orbit, not to repeat its performance for Oregon obesrvers for another 30 years.

So congratulations to everyone who literally went the extra mile(s) to witness the event. It was great fun to watch the solar system in action.

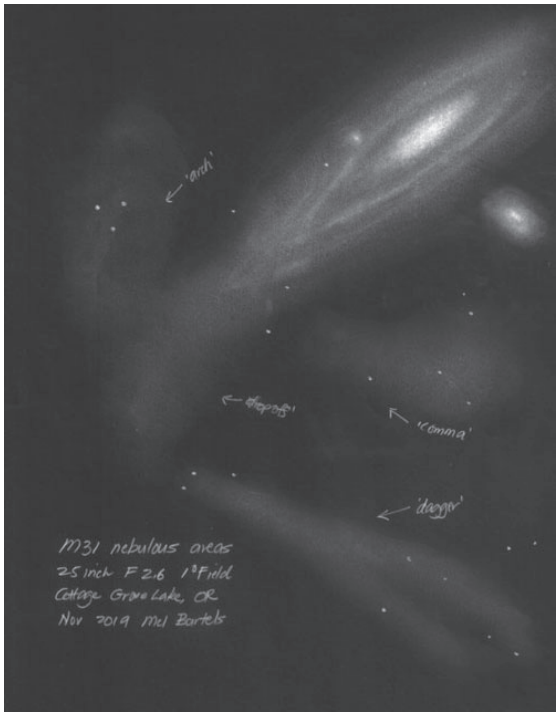


The last moments of the transit. Photos © by Dave Kasnick.

Gallery

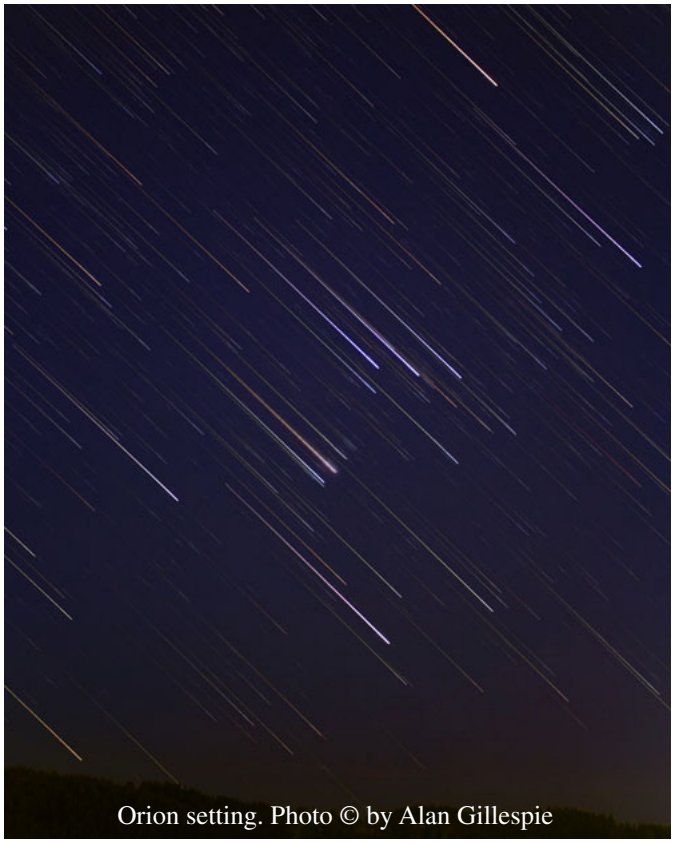
The winter nebula has started closing in overhead, but there were still enough gaps in November for people to get some decent photos and sketches. Here's what came in via the email list this month.

^ The California Nebula, Photo © by Karmin Peterson.



< IFN around the Andromeda Galaxy, sketch © by Mel Bartels.

v The Flaming Star Nebula, Photo © by Karmin Peterson.



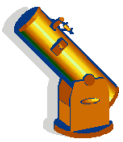
Orion setting. Photo © by Alan Gillespie

Moon with Earthlight, Kaus Borealis below left, Venus below right. Photo © by Alan Gillespie

L-R: Saturn at upper left, Nunki, Moon, Venus, and Jupiter. Photo © 11/28/19 by Jerry Oltion.

M31, the Andromeda Galaxy. Photo © by Mark Wetzel.

L-R: Saturn at upper left, Kaus Borealis near the Moon, Venus, and Jupiter just above hill. Photo © 11/28/19 by Alan Gillespie.



Observing in December

1st Q | Full | Last Q | New

Dec 3, 10:58 PM	Dec 11, 9:12 PM	Dec 18, 8:57 PM	Dec 25, 9:13 PM
Mercury Rise: 5:50 AM	Mercury Rise: 6:16 AM	Mercury Rise: 6:44 AM	Mercury lost in Sun
Venus Set: 6:25 PM	Venus Set: 6:41 PM	Venus Set: 6:58 PM	Venus Set: 7:15 PM
Mars Rise: 4:46 AM	Mars Rise: 4:42 AM	Mars Rise: 4:39 AM	Mars Rise: 4:36 AM
Jupiter Set: 5:49 PM	Jupiter Set: 5:25 PM	Jupiter Set: 5:04 PM	Jupiter lost in Sun
Saturn Set: 7:12 PM	Saturn Set: 6:45 PM	Saturn Set: 6:21 PM	Saturn Set: 5:58 PM
Uranus Set: 4:20 AM	Uranus Set: 3:48 AM	Uranus Set: 3:19 AM	Uranus Set: 2:51 AM
Neptune Set: 00:13 AM	Neptune Set: 11:38 PM	Neptune Set: 11:10 PM	Neptune Set: 10:43 PM
Pluto Set: 7:25 PM	Pluto Set: 6:55 PM	Pluto Set: 6:29 PM	Pluto Set: 6:02 PM

All times Pacific Standard Time (November 3, 2019 - March 7, 2020 = UT -8 hours) or Pacific Daylight Time (March 8 - Oct 31, 2020 = UT -7 hours)

Date	Moon Rise	Moon Set	Twilight Begin	Sun Rise	Sun Set	Twilight End
12/1/2019	11:56	21:34	05:44	07:27	16:36	18:19
12/2/2018	12:29	22:36	05:45	07:28	16:35	18:18
12/3/2019	12:57	23:37	05:46	07:29	16:35	18:18
12/4/2019	13:21		05:47	07:30	16:35	18:18
12/5/2019	13:44	00:38	05:48	07:31	16:34	18:18
12/6/2019	14:06	01:38	05:48	07:32	16:34	18:18
12/7/2019	14:29	02:39	05:49	07:33	16:34	18:18
12/8/2019	14:53	03:41	05:50	07:34	16:34	18:18
12/9/2019	15:20	04:45	05:51	07:35	16:34	18:18
12/10/2019	15:52	05:50	05:52	07:36	16:34	18:18
12/11/2019	16:30	06:57	05:53	07:37	16:34	18:19
12/12/2019	17:16	08:03	05:53	07:38	16:34	18:19
12/13/2019	18:12	09:05	05:54	07:39	16:34	18:19
12/14/2019	19:16	10:00	05:55	07:40	16:35	18:19
12/15/2019	20:26	10:48	05:55	07:40	16:35	18:19
12/16/2019	21:39	11:28	05:56	07:41	16:35	18:20
12/17/2019	22:53	12:02	05:57	07:42	16:35	18:20
12/18/2019		12:32	05:57	07:42	16:36	18:21
12/19/2019	00:06	13:00	05:58	07:43	16:36	18:21
12/20/2019	01:19	13:27	05:59	07:43	16:36	18:21
12/21/2019	02:32	13:55	05:59	07:44	16:37	18:22
12/22/2019	03:45	14:25	06:00	07:45	16:37	18:22
12/23/2019	04:58	14:59	06:00	07:45	16:38	18:23
12/24/2019	06:09	15:39	06:00	07:45	16:39	18:24
12/25/2019	07:16	16:25	06:01	07:46	16:39	18:24
12/26/2019	08:16	17:18	06:01	07:46	16:40	18:25
12/27/2019	09:08	18:17	06:02	07:46	16:41	18:25
12/28/2019	09:51	19:19	06:02	07:47	16:41	18:26
12/29/2019	10:27	20:21	06:02	07:47	16:42	18:27
12/30/2019	10:58	21:23	06:02	07:47	16:43	18:28
12/31/2019	11:24	22:24	06:03	07:47	16:44	18:28

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

Items of Interest This Month

12/4 Algol at minimum brightness for 2 hours centered around 7:18 PM.

12/6 First Quarter Friday star party.

12/10 Venus 2° from Saturn. (They slowly exchange positions relative to the Sun in the days before and after the 10th.)

12/12 Dawn: Mars within 1/4° of Zubenelgenubi (Alpha Librae).

12/13-12/14 Peak of Geminid meteor shower (mostly spoiled by nearly full Moon).

12/21 Winter solstice 8:19 PM.

12/22 Peak of Ursid meteor shower.

12/24 Alog at minimum brightness for 2 hours centered around 9:02 PM.

12/26 Annular eclipse (Only visible on other side of planet. Tune in remotely.)

12/27 Jupiter in conjunction with Sun.

12/28 Venus near crescent Moon at sunset.