

IO - July 2016

Eugene Astronomical Society
Annual Club Dues \$25
President: Diane Martin 541-554-8570
Secretary: Jerry Olton 541-343-4758
Additional Board members:
Jacob Strandlien, John Loper, Mel Bartels.

PO Box 7264
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, July 21st The Upcoming Eclipse: What to Expect by Mel Bartels, Jerry Olton, and Mike Smith

On August 21st, 2017, a total eclipse of the Sun will sweep through Oregon just a degree of latitude to the north of us. Our next two meetings will focus on this eclipse. This month we'll be talking about what to expect and next month about where to observe it from. If you think it's a bit early to be planning for something that's over a year away, then you absolutely need to come to these meetings. By the time a person would normally think it was time to prepare for an average event, any meaningful preparation for something of this magnitude will be way too late. As many as a million visitors are expected to arrive in Oregon for the eclipse, taxing our transportation, lodging, public service, and even food systems to the limit. Don't be one of the people stuck on I-5 the morning of the eclipse, totally gridlocked twenty miles south of the path of totality.

Mel, Jerry, and Mike have all travelled to see total eclipses, and will relate their experiences. Others in our club have witnessed eclipses as well, and will hopefully have relevant experiences to contribute. Come to the next couple of meetings and learn what to expect and how to make sure you actually see this eclipse in comfort.

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, July 21st at the Science Factory. Come a little early to visit and get a seat before the program starts.

Next First Quarter Friday: July 8th

Our June 10th star party was cancelled due to a poor forecast, then of course the sky cleared up. Fortunately we had a clear Saturday, so our backup star party went off in good form. We didn't have a whole lot of scopes or visitors, but we had enough of both to call it a party. The club's new 14.7" scope made another appearance, and every one loved the view through it.

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 2016. Star parties start at dusk or 6:00, whichever is later. (This time of year it's more like 9:00.)

July 8 (23% lit)

August 12 (72% lit)

September 9 (56% lit)

October 7 (39% lit)

November 4 (24% lit)

December 9 (79% lit)

June 16th Meeting Report

The History of Water On Mars

On June 16th Bernard Bopp gave an outstanding presentation on “The History of Water on Mars.” He spoke to a nearly full planetarium about our changing perceptions as our technology got better and better.

Early on, most people believed that Mars was not only habitable but inhabited. When nineteenth-century astronomer Giovanni Schiaparelli said he saw “canali,”

merely meaning that he saw “channels” or grooves on the sur-

face, American astronomer Percival Lowell took that idea and ran with it, imagining enormous public works projects:

canals crossing vast Martian deserts to carry water to the dark, supposedly vegetated oases. Other astron-

omers were unable to see these canals, but the idea persisted until the Mariner missions of the 1960s re-

turned photos of a dry, cratered world more like the Moon than like Earth. In the 1970s the Viking landers

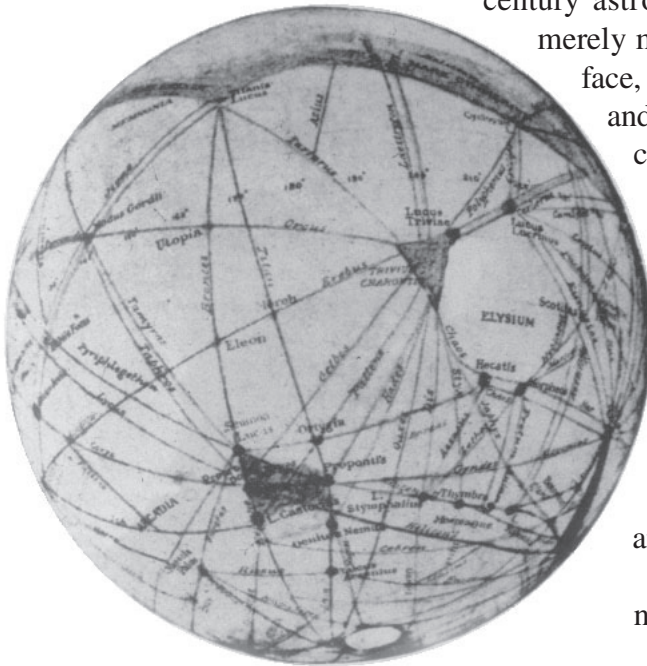
found no evidence of life, nor even of water. But pho-

tos from orbit showed polar ice caps and river chan-

nels cutting through the cratered terrain, clear evidence that water once did flow on Mars, even if it doesn’t

anymore. Later missions with rovers such as Spirit, Opportu-

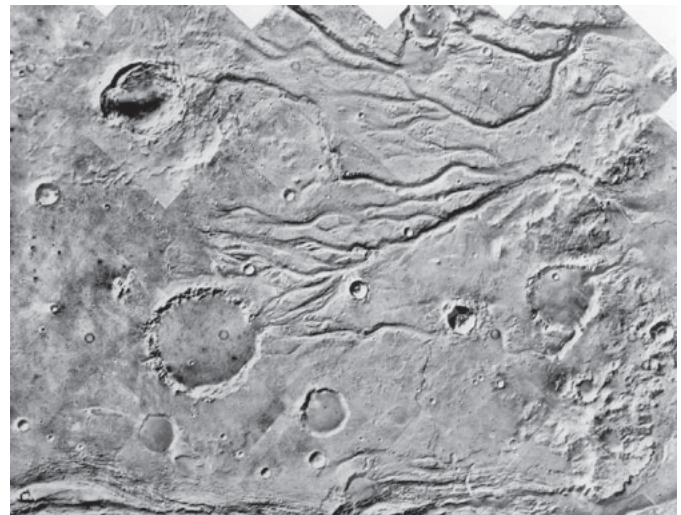
nity, and Curiosity investigated water-formed deposits



Percival Lowell’s canals

on the surface, confirming that water did indeed exist there at one time, and may still flow occasionally today. Orbiters have taken photographs of hillside features that look tantalizingly like fresh runoff. As ever in scientific endeavors, further investigation is warranted, and we’re doing just that: Curiosity is slowly climbing Mt. Sharp in Gale Crater, investigating the many water-related features on the way and learning a great deal about the role that water has played and is still playing on our neighbor planet.

Stay tuned for more information as we continue to learn more about the history of water on Mars.



Channels on Mars photographed from orbit.



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



Neil deGrasse Tyson Speaks at Hult Center

by Rick Kang

Much as I regretted missing the June 16th EAS meeting (particularly Bernie Bopp's presentation about water on Mars), I have to say that Neil deGrasse Tyson was hysterically funny with his presentation at the Hult. His topic was "An Astrophysicist Goes to the Movies." He did a critique of movies from the last two decades in terms of science/pseudoscience, addressing specific topics like gravity and time travel, discussing how they were handled/mishandled in each movie.

If you've seen/heard him live, his style is somewhat like Jay Leno, perfect timing, and a lot of conversational interaction with the audience. The audience was about 40 percent youngsters (very well behaved). Tyson skillfully presented a lot of the basic and background science of specific issues he addressed, yet usually ended up with a fairly sophisticated joke or gag at the end of each topic that drew laughs from the adults. He interspersed a series of actual commercials between several topics, a la Superbowl. The funniest commercial was one made in France touting the ability of Perrier water to quench the Sun's radiative heat.

He took questions at the end. There wasn't as much time as he'd hoped, due to a minor media glitch that delayed his presentation midway through (he handled that interruption without missing a beat). There were several questions about his job. The only major astrophysical question was what he thought about Dark Matter and Dark Energy. His answer about Dark Matter, after the regular "we just don't know yet," was that he hoped Dark Matter is just gravity leaking through from a parallel universe, rather than some exotic heavy particles in ours. I'm glad that I went, and hope that when future events of this caliber are offered to our community that sufficient advance word is put out by their producers so that our Board has the timely information to avoid conflicts with the presentation efforts of our club members.

Equatorial Platform Workshop Gets Rocking

Buoyed by the success of their telescope building workshop this spring, several EAS members have continued gathering in Jerry Olton's garage on Sunday afternoons to work on a somewhat trickier project: building equatorial platforms. The concepts involved are non-intuitive and math-heavy, but the group had a Tom Osypowski equatorial platform (the Nagler of EQ platforms) to study and learn from. Over the course of the last several weeks they puzzled out the design for platforms to fit their own individual scopes and actually started cutting plywood.

Equatorial platforms are basically sections of a cone whose axis points at the north celestial pole. When the cone is rotated, its motion matches the stars' motion, and if the platform is designed to move sideways and tilt just as the bottom of that cone does, a telescope sitting on the platform will track the stars.

This is easier said than done. The south end of the platform, being closer to the polar axis, doesn't



Jerry explains the key concepts of EQ platform design

move as far as the north end, plus the north end's bearing surfaces are shaped in a combination of two different ellipses. It's a bear to calculate, so the workshoppers built a jig, seen at right, to simulate the polar rotation so they could simply draw the correct arcs directly on the wooden bearing blocks, then cut them out and sand them to match the pencil line.

That problem solved, they've moved on to motorizing the platforms they've built, which presents another challenge. There's still much head-scratching going on, but they're confident that they'll figure it out and finish their platforms in time to use them at our Dexter star party and the Oregon Star Party.



Dark-Sky Star Party at Dexter State Park July 30th

Our eighth annual Dark Sky Star Party, sponsored by the State Park Service with scopes and expertise provided by the Eugene Astronomical Society, will be held on Saturday, July 30th at Dexter State Park, about 15 miles southeast of Eugene on Highway 58. The site is right at the lower end of Dexter Reservoir, and just across the highway from the town of Dexter itself. It has wonderful wide-open views in all directions, and sky dark enough to reveal the Milky Way.

The next page is a flyer that you can — and should! — print out and photocopy and post at work and wherever else you can think of that's appropriate. Always ask permission before posting flyers, but do get out there and post them. The farther we spread the word, the more people will come to the party, and the more people who will understand the value of dark sky.

The party will start at dusk, which should be around 9:00. Get there early to set up and learn where everything is. We'll be setting up in the grass to the east of the first parking lot.

To get there, head up Hwy 58 from Goshen. Just as you approach the town of Dexter, you'll see signs for Dexter State Park on the left (north). Park in the first parking lot you come to and set up in the grass toward the reservoir from there.

We'll be giving away a telescope again this year, so interest should be high. We need volunteers to direct parking, run the information table, help put red filter material on flashlights, and so on. We'll coordinate things via the email list, and hopefully between us all we'll anticipate everything we need and have a smooth party.

The main thing is to have lots of club members there with telescopes! Bring yours, and help show people how beautiful the deep, dark sky can be. We have the park all night if we want it, so we can stay and observe on our own after the public has gone home.



Dark Sky Star Party July 30, 2016 Dexter State Park

15 miles S.E. of Eugene on HWY 58

Come see the wonders of the
night sky far from city lights

We bring the telescopes,
You bring curiosity and enthusiasm!

Free telescope given to a lucky youngster
(Ages 8-18, no purchase necessary, must be present to win).

Starts at dusk (9:00) - Admission: FREE

Dress warmly. Please cover flashlights with red filter material
to preserve night vision. We will have filters on hand if you need one.

Sponsored by Oregon State Parks and the Eugene Astronomical Society
For more information, visit www.eugeneastro.org

June Observing Report

June was a great month for observing. EAS members got out with their telescopes several times, ending with a stretch of five out of the last seven days of the month. As usual when the sky cooperates, we got plenty of photographic and sketched evidence of it. Here are some of this month's highlights.



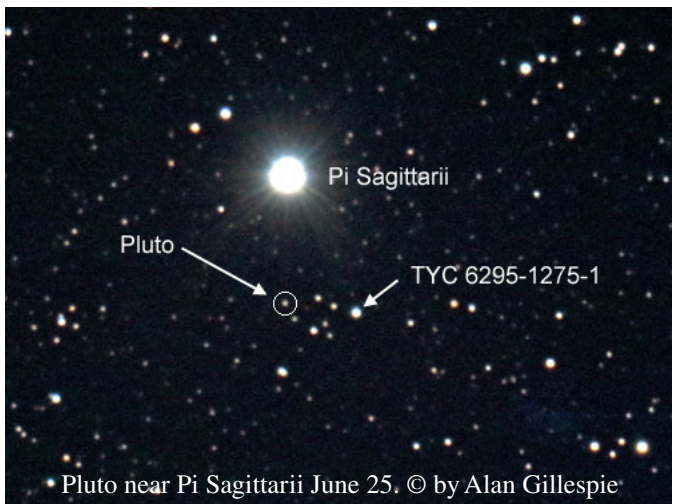
Our Eureka Ridge observing site, with club's new 14.7" scope on left. © 2016 by Kristin Polson



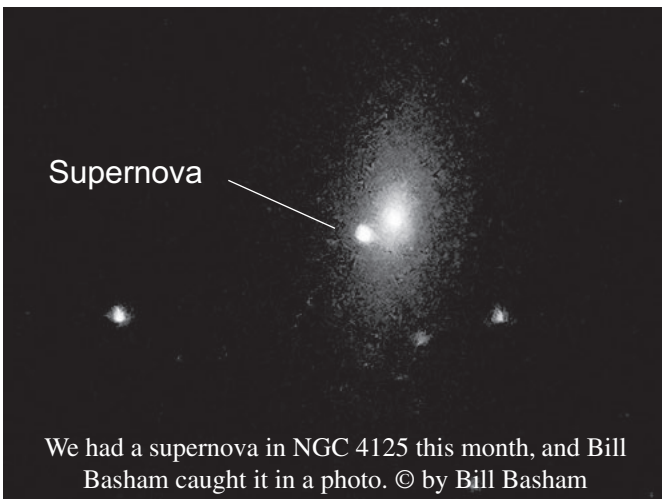
Mike Conley got this shot of the first sliver of this month's Moon on June 6th from Eagle's Ridge. © by Mike Conley



Milky Way rising June 4. © by Alan Gillespie



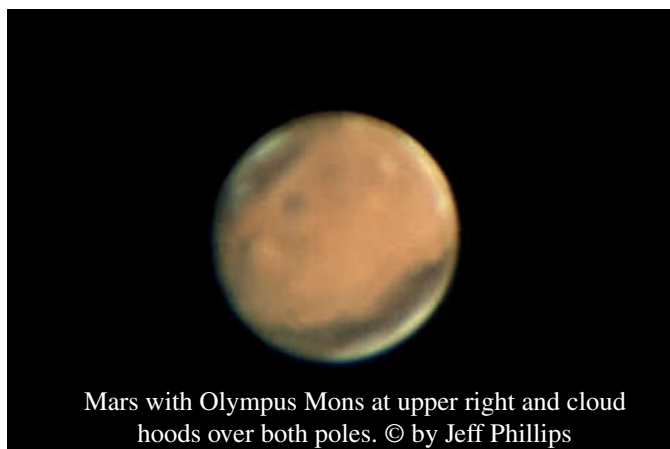
Pluto near Pi Sagittarii June 25. © by Alan Gillespie



We had a supernova in NGC 4125 this month, and Bill Basham caught it in a photo. © by Bill Basham



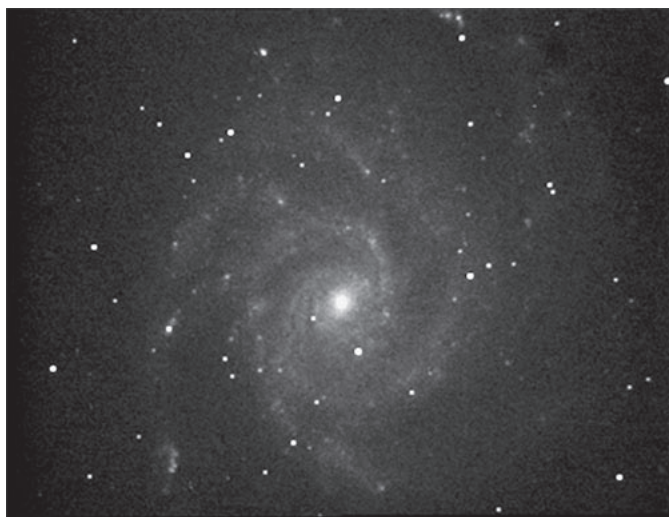
Lagoon Nebula June 5. © by Bill Basham



Mars with Olympus Mons at upper right and cloud hoods over both poles. © by Jeff Phillips



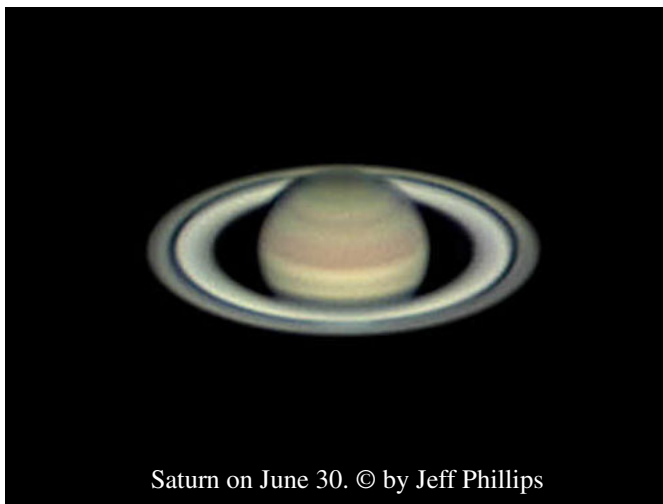
Mars with Syrtis Major centered. © by Jeff Phillips



M 101 22 x 4s sum Telescope: Evo 8 f6.3 Date: 2016.6.6 Time: 02.1

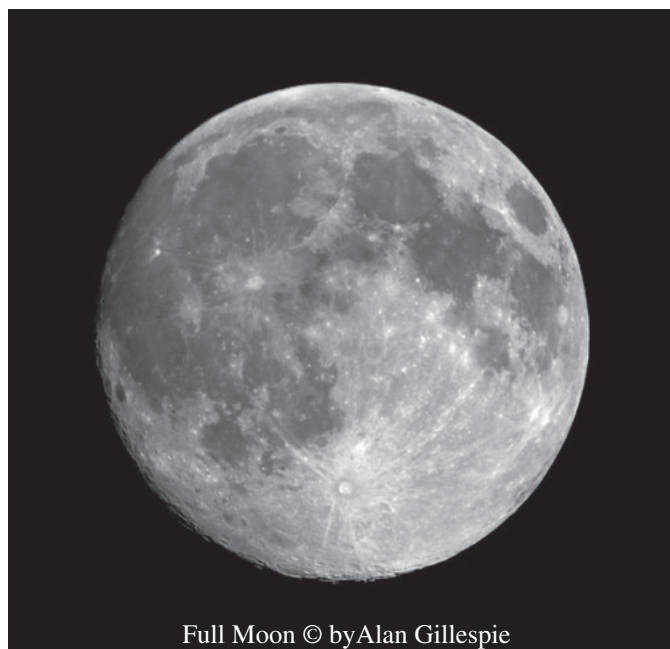
Jon Schwartz has begun observing remotely — from his kitchen with the scope outside on his back deck. Here's his view of M101 in a real-time stacked image.

© by Jon Schwartz

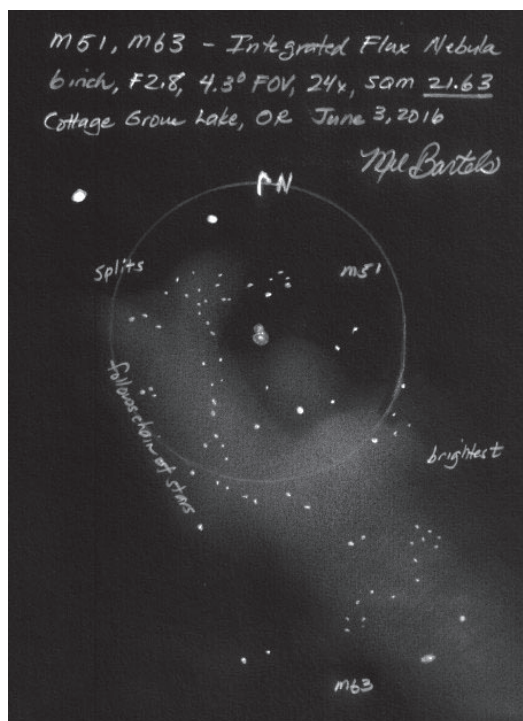


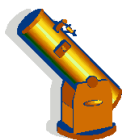
Saturn on June 30. © by Jeff Phillips

Mel Bartels continues to find Integrated Flux Nebula everywhere he looks. Here's a large section between M51 and M63. © by Mel Bartels



Full Moon © by Alan Gillespie





Observing in July

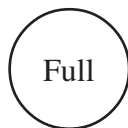


New

1st Q



Full



Last Q



July 4, 4:01 AM	July 11, 5:52 PM	July 19, 3:56 PM	July 26, 4:00 PM
Mercury lost in Sun	Mercury Set: 9:23 PM	Mercury Set: 9:39 PM	Mercury Set: 9:41 PM
Venus Set: 9:30 PM	Venus Set: 9:32 PM	Venus Set: 9:31 PM	Venus Set: 9:27 PM
Mars Set: 2:17 AM	Mars Set: 1:51 AM	Mars Set: 1:24 AM	Mars Set: 1:02 AM
Jupiter Set: 00:04 AM	Jupiter Set: 11:35 PM	Jupiter Set: 11:06 PM	Jupiter Set: 10:41 PM
Saturn Set: 3:39 AM	Saturn Set: 3:10 AM	Saturn Set: 2:37 AM	Saturn Set: 2:09 AM
Uranus Rise: 1:14 AM	Uranus Rise: 00:47 AM	Uranus Rise: 00:16 AM	Uranus Rise: 11:44 PM
Neptune Rise: 11:40 PM	Neptune Rise: 11:12 PM	Neptune Rise: 10:40 PM	Neptune Rise: 10:13 PM
Pluto Set: 6:07 AM	Pluto Set: 5:38 AM	Pluto Set: 5:06 AM	Pluto Set: 4:37 AM

All times Pacific Daylight Time (March 13 – Nov. 5, 2016 = UT -7 hours) or Pacific Standard Time (November 6, 2016 – March 12, 2017 = UT -8 hours)

Date	Moonrise	Moonset	Twilight Begin	Sunrise	Sunset	Twilight End
7/1/2016	03:25	18:06	03:10	05:34	20:59	23:22
7/2/2016	04:13	19:12	03:11	05:34	20:59	23:21
7/3/2016	05:07	20:12	03:12	05:35	20:58	23:20
7/4/2016	06:06	21:05	03:13	05:35	20:58	23:20
7/5/2016	07:09	21:50	03:15	05:36	20:58	23:19
7/6/2016	08:14	22:29	03:16	05:37	20:57	23:18
7/7/2016	09:18	23:03	03:17	05:37	20:57	23:17
7/8/2016	10:20	23:34	03:19	05:38	20:57	23:15
7/9/2016	11:21		03:20	05:39	20:56	23:14
7/10/2016	12:21	00:03	03:21	05:40	20:56	23:13
7/11/2016	13:20	00:30	03:23	05:41	20:55	23:12
7/12/2016	14:17	00:58	03:25	05:41	20:54	23:11
7/13/2016	15:15	01:27	03:26	05:42	20:54	23:09
7/14/2016	16:12	01:58	03:28	05:43	20:53	23:08
7/15/2016	17:09	02:32	03:29	05:44	20:52	23:06
7/16/2016	18:05	03:11	03:31	05:45	20:52	23:05
7/17/2016	18:58	03:55	03:33	05:46	20:51	23:03
7/18/2016	19:48	04:45	03:34	05:47	20:50	23:02
7/19/2016	20:34	05:42	03:36	05:48	20:49	23:00
7/20/2016	21:15	06:43	03:38	05:49	20:48	22:58
7/21/2016	21:53	07:48	03:40	05:50	20:48	22:57
7/22/2016	22:28	08:55	03:41	05:51	20:47	22:55
7/23/2016	23:01	10:04	03:43	05:52	20:46	22:53
7/24/2016	23:34	11:14	03:45	05:53	20:45	22:51
7/25/2016		12:24	03:47	05:54	20:44	22:50
7/26/2016	00:08	13:34	03:49	05:55	20:43	22:48
7/27/2016	00:44	14:45	03:51	05:56	20:41	22:46
7/28/2016	01:24	15:53	03:52	05:57	20:40	22:44
7/29/2016	02:08	16:59	03:54	05:58	20:39	22:42
7/30/2016	02:58	18:00	03:56	05:59	20:38	22:40
7/31/2016	03:54	18:55	03:58	06:00	20:37	22:38

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

Items of Interest This Month

Last good month for Jupiter this year

7/1 Ganymede transit 7:45 - 11:06 PM

7/2 Europa shadow transit 11:18 - Jupiter set

7/4 Earth at aphelion, 94,512,904 miles from the Sun

7/8 First Quarter Friday Star Party.

7/7 Io shadow transit 8:23 - 10:38 PM

7/11 Europa emerges from eclipse 10:44 PM

7/15 Moon, Saturn, and Antares line up in south

7/27 - 7/28 Peak of Delta Aquariid meteor shower

7/30 Dark Sky Star Party at Dexter State Park

7/30 Mercury only 1/2° from Regulus at sunset.

7/30 Io shadow transit 8:37 - Jupiter set

End of month: just barely possible to see all the planets (including Pluto) in one night

