IO - February 2023

Eugene Astronomical Society, PO Box 591, Lowell, OR 97452
www.eugeneastro.org
Annual Club Dues $25
President: Andrew Edelen 618-457-3331
Secretary: Randy Beiderwell 541-342-4686
Additional Board members:
Dan Beacham, Ken Martin, Robert Asumendi.
EAS is a proud member of The Astronomical League

Thank You, Bruce!

A huge THANK YOU to Bruce Sackett, who has edited the *Io* for the last two and a half years. He took the reins when Jerry Oltion stepped down, gave it a new look, and kept it coming every month like clockwork during the thick of the Covid pandemic. Jerry has rested up and is now ready to take it on again, so now Bruce can take a breather. Many thanks, Bruce, for stepping up when help was needed and providing this essential record of the club's activities.

And thanks to the people who provided content for Bruce during those years. Please keep it coming! The newsletter doesn't write itself, and the more contributors we get, the more it represents our club.

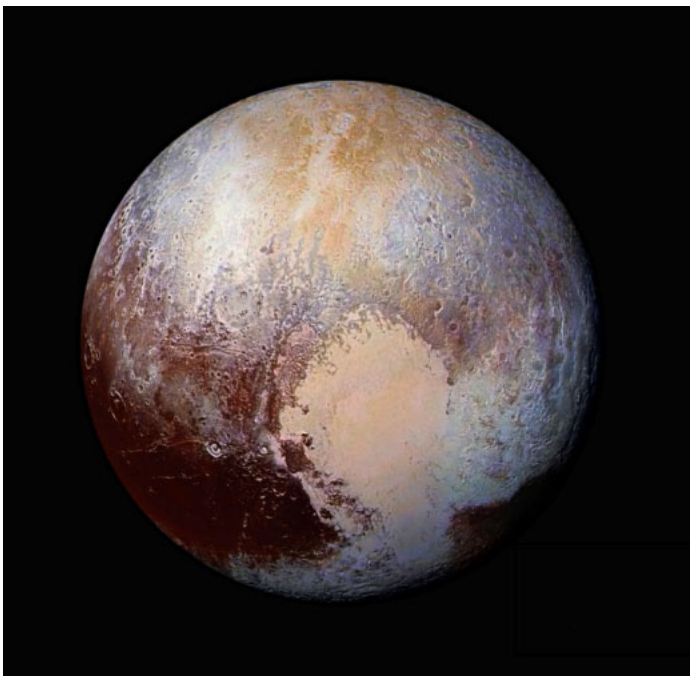
Next Meeting Thursday, February 16th, 7:00 p.m.

The Dwarf Planet Pluto – An Astonishing World

by Bernie Bopp

Discovered in 1930, Pluto was long considered the most distant planet in the solar system, orbiting over 3 billion miles from Earth, with a period of nearly 250 years. In 2006, the International Astronomical Union downgraded Pluto's status from "planet" to "dwarf planet" — a change met with some public outcry! Planet or dwarf planet, Pluto is a remarkable world. For the first 85 years since its discovery, astronomers knew its orbit, size, and mass — almost nothing more. All this changed dramatically in July 2015, when the *New Horizons* spacecraft (launched in 2006) flew past Pluto and its five satellites. Pluto was revealed to be geologically active, with smooth frozen nitrogen plains, ice mountains, and flowing nitrogen-ice glaciers.

This talk will span over 85 years of our knowledge of this dwarf planet, emphasizing the New Horizons data that reveal the truly extraordinary world of Pluto!



Pluto as seen by *New Horizons* in 2015. Photo courtesy NASA.

Next First Quarter Friday: February 24th

Our January 27th star party was clouded out, and our Saturday backup was also a no-go. Alas, not uncommon for a winter star party.

Our next star party will be February 24th. 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 2023. Star parties start at dusk or 6:00, whichever is later.

January 27 (Moon 45% lit)	February 24 (28% lit)	March 31 (50% lit)
April 28 (62% lit)	May 26 (45% lit)	June 23 (30% lit)
July 28 (82% lit)	August 25 (68% lit)	September 22 (53% lit)
October 20 (38% lit)	November 17 (24% lit)	December 22 (84% lit)

Dark Sky Star Party at Dexter State Park: July 15

Comet C/2022 E3 ZTF Observing Party Report

Sunday night, January 29th, proved clear, so a few EAS members organized an impromptu comet-watching party at the College Hill Reservoir. Bill Murray and Jerry Oltion took telescopes and offered views of the fuzzy green(ish) blob to the dozen or so people who came to look. The first-quarter Moon and Eugene's heavy light pollution wiped out the tail, but we could still see the coma and the nucleus pretty well. There were a couple of background stars that provided some context, but the view didn't live up to the media hype that's been blowing more gas than the comet itself for the past several weeks.

Fortunately the Orion Nebula was high in the south, and that performed as reliably as always. Even with the Moon in the sky, it elicited many "Ooohs and Aaaahs" not only from visitors but from the people running the telescopes. And of course the Moon itself always pleases. The crater trio of Ptolemaeus, Alphonsus, and Arzachel were well lit near the terminator, and several craters showed dark shadow wells with highlighted peaks.

It all goes to show that there's no such thing as a disappointing night with a telescope as long as the old reliable favorites are visible. The comet made a nice lure, and the rest of the universe delivered. We eventually froze out, packed up, and went home, but we went home happy.

Remember Calendars!

Remember that club members can purchase *Astronomy* magazine's Deep Space Mysteries calendars at a 50% discount. Go to https://myscienceshop.com/product/calendar/68204. On checkout enter the code CAL50 to receive the 50% discount. ($6.50 this year, with free shipping)

Dues are Past Due!

EAS membership runs from October thru September. If you haven't renewed already, please mail your dues to the Eugene Astronomical Society, PO Box 591, Lowell, OR 97452. 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. Note that joining the email list does not make you a member of the club. You must fill out an application and pay your dues in order to be a member in good standing.

Solar Sunday Finally Returns!

On January 29th, for the first time in what seems like forever (but was actually last October 8th) the sky cleared up enough to have a Solar Sunday star party. The temperature hovered around freezing, as did most of the attendees, but we had a blast even so. The Sun had some amazing prominences, a couple of good sunspots, and a nice filament. We had a few dozen people stop by, including several new club members.

Solar Sundays are "whenever" events: They happen whenever the sky is clear on a Sunday and someone from the club wants to take a solar-safe telescope to Alton Baker park. Keep an eye on the email list for yea or nay updates on any given Sunday. Thanks, Amy, for taking photos!

(Photos below © by Amy Baker.)

January Meeting Report

What's Up: Comet E3

by Karen McFarlane

Open Clusters

by Robert Asumendi

Our January 19th meeting was well attended and lively. President Andy Edelen couldn't make it, so Jerry Oltion opened the meeting with a welcome to new attendees (at least half a dozen of them, including members of the new astronomy club at Sheldon High) and several announcements:

• This year's star party schedule cards are printed and available for distribution. Jerry put a stack of them on the desk and encouraged everyone to take some to give out. The stack was much diminished by the end of the night, which is a good thing. We ordered 1000 of them, so don't be bashful about giving them out. Jerry will continue to bring them to meetings and star parties, so you can replenish your supply throughout the year. (And remember there was also a template for printing them yourself in last month's Io.)

• Our February First Quarter Friday will be on February 24th.

• Our annual dark-sky star party at Dexter State Park will be July 15th.

• New member Rob Nance brought silk-screened Moon stickers and buttons to distribute for free (or for a contribution to our donation jar if people were so inclined). Some items glowed in the dark, and all were really cool. The image of the Moon that Rob used was by our own Alan Gillespie, which makes them doubly cool. Many thanks, Rob, for your thoughtfulness!

Alan Gillespie's Moon photo that Rob Nance used for his stickers and buttons. © 2023 by Alan Gillespie.

• Jerry found two more EAS T-shirts with the old logo on them among the various EAS paraphernalia at his house, and Randy suggested we auction them off at the meeting. We did that, but it was a short auction. After an initial bid of $2 and a raise to $5, one of our new visitors bid $50 for the pair of them. After much cheering, the room fell silent to new bids, so the $50 bid won the shirts. Many thanks to our generous new guests, perhaps soon to be new club members.

After the announcements and auction, Karen McFarlane presented our new year's first "What's Up" presentation. The "What's Up" section of our meetings is a new thing we're trying out wherein a different club member gives a short (5-minute-ish) talk about what to look for in the upcoming month. Karen focused on Comet ZTF C/2022 E3, which is brightening in our late-night and early-morning sky throughout this month as it glides toward its nearest approach to Earth on February 2nd. The comet is heading northward from Corona Borealis through Draco and sliding past Ursa Minor (the Little Dipper) into Camelopardalis in February. Its coma glows bright green due to the dicarbon (C_2) dust being released as the Sun heats the comet's surface.

By February 2nd it will be fairly far north, 2/3 of the way from Polaris to Capella, so it'll be high in the sky and relatively easy to see in binoculars. Get out there and have a look! Comets this bright are fairly rare, so you never know when you'll get another chance this good.

Karen packed a lot of information into her five minutes, and delivered it with enthusiasm and style. Many thanks, Karen!

We need volunteers to do more "What's Up" presentations in upcoming months. Please consider doing one! The idea is to give everyone a chance to contribute to the meetings and get us all used to speaking to the group, with the hope that more of us will feel comfortable doing full-length programs as well. So please give it some thought. Previous speakers will be happy to help you out. Contact Amy, Andy, or Jerry to get on the schedule.

After Karen's "What's Up," Robert Asumendi gave the evening's main talk on the subject of Open Clusters. And once again, the talk was delightfully informative, lively, and often funny. Robert kept us on the edges of our seats with questions like "Who is interested in open clusters, anyway?" (Turns out everyone, including freaks and weirdos) and "Is the Sun part of an open cluster?" (No, but it used to be and we have even identified two of our former companions, one of which is easy to find in Hercules.)

Robert delved into the mystery of why the Pleiades are called the "Seven Sisters" in so many cultures throughout the world when only six stars are visible. It seems likely that there actually used to be seven easily identifiable stars, but one became obscured by dust or drifted close enough to a neighbor to be no longer discernible as a separate star. That would have taken a very long time, which suggests that legends about the Pleiades began as long as 100,000 years ago. (Not a typo.)

Robert presented an extensive list — illustrated, several by our own Mark Wetzel — of clusters to observe, often with a naked eyeball he called "Eyey" in the upper right corner to indicate that the cluster was visible by naked eye. He then delved into the constellations of the zodiac, urging us to reach out to astrology enthusiasts by showing them open clusters in their birth signs...but unfortunately most birth signs have no open clusters in them! The ones that do, however, provide excellent outreach tools, so keep those tools handy in your star party toolbox.

This was one of the liveliest and entertaining meetings in recent memory. This is what comes of having new speakers with different approaches to their subjects. As with our "What's Up" feature, we need more club members to step up and do full-length programs, too. Both Karen and Robert proved that with a little research and a little work, our own club members have what it takes to keep us in speakers indefinitely.

How about it? Could our next speaker be you?

Constellation of the Month

Due to circumstances beyond his control, Andy was unable to do a constellation of the month for this issue of the *Io*. Fear not; he plans to keep doing them in months to come.

Gallery

January was a cloudy month, but EAS members took advantage of the time at home to process images and took some great astrophotos on the rare clear nights. Mark Wetzel re-processed an earlier image of NGC 4565, the Needle Galaxy, and got a great shot of M81 and M82 with their companion NGC 3077 nearby. Alan Gillespie got a nice image of the waxing gibbous Moon and a good one of Comet C/2022 E3 ZTF, showing both the tail and its anti-tail that was visible on several nights in late January. Bill Murray got a great shot of the comet above the trees at our Eagle's Rest observing site, and Andy Nowlen took two stunning shots of the comet through two different sets of filters, showing how different parts of the comet's coma fluoresce in different wavelengths. Andy also caught the anti-tail, which extends off to the right in both of his images.

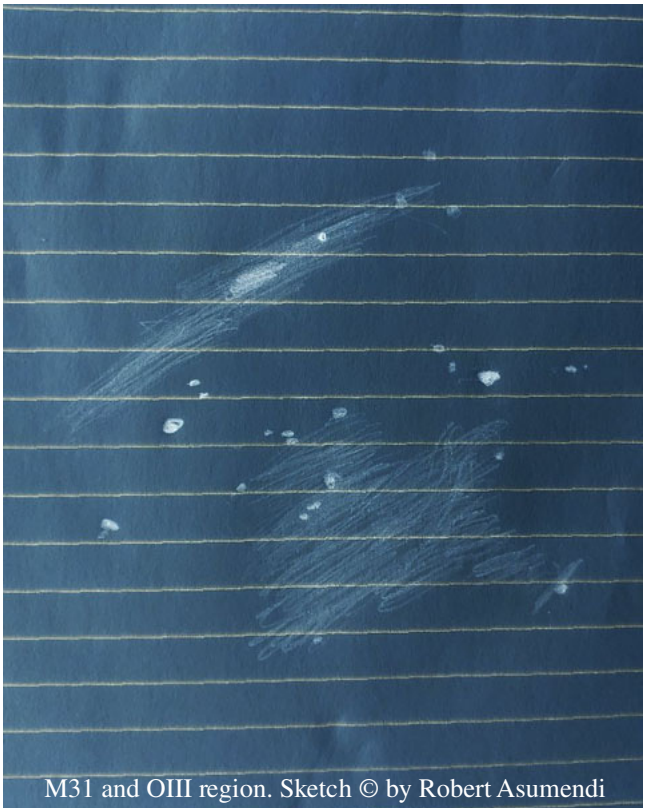
New member Colleen Emmenegger took a wonderful shot of Saturn, which is wonderful perhaps not for the image itself but for what it meant to her. Colleen writes: "I have seen some beautiful amazing things in the skies above Eugene, San Diego and Anza Borrego, but what has stuck with me the most is the first

time I saw Saturn through the scope from my back yard. Maybe because it was the first recognizable object I found while learning to use and manipulate my scope? When I saw it just hanging there in the sky I was overjoyed! I attached the image I took with my phone through the eyepiece."

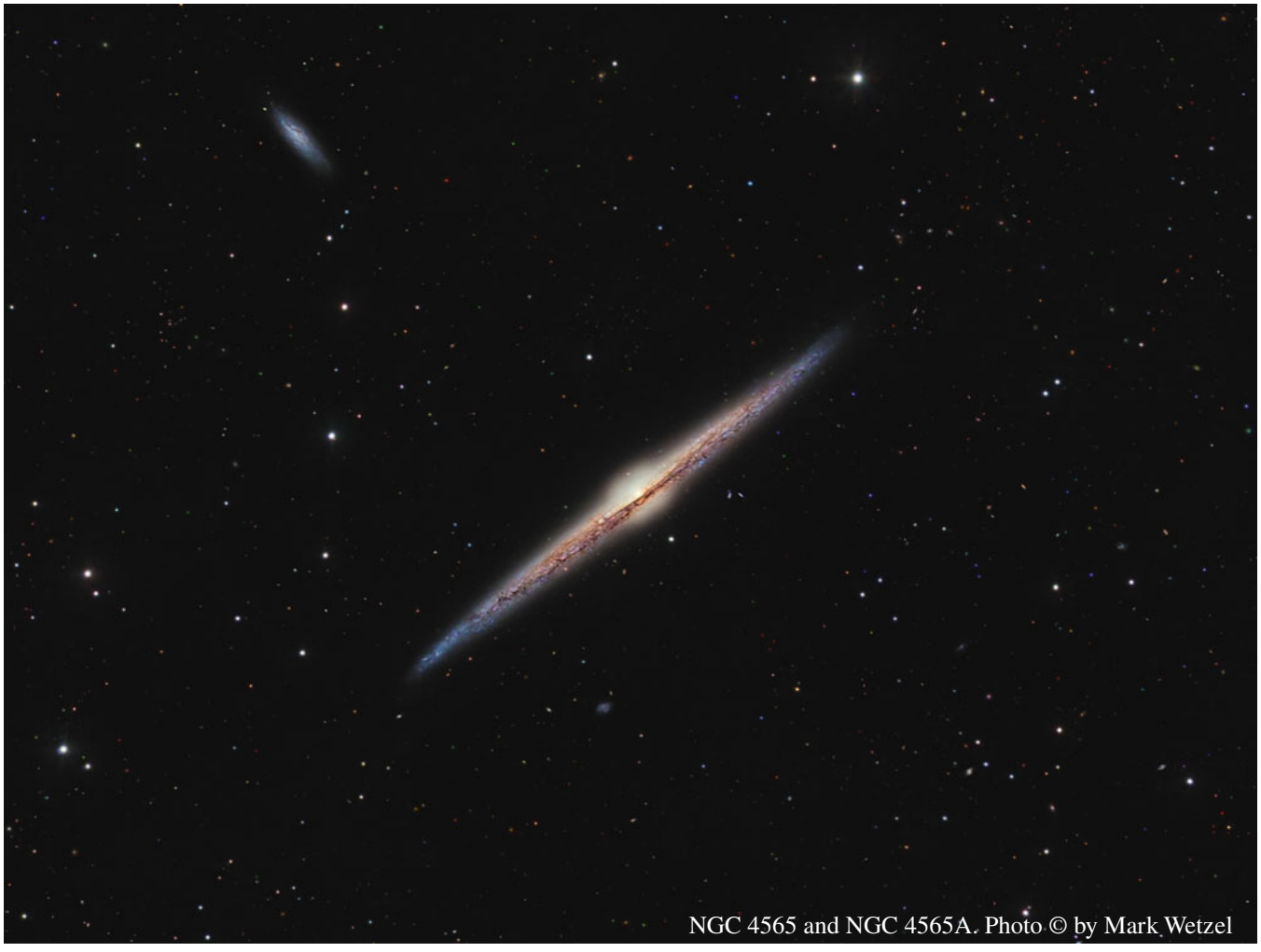
Take that as a reminder that great photographs don't require thousands of dollars of equipment nor dozens of hours processing images. Great photographs come from all sources, and are often great because they capture a moment of joy out under the stars.

Likewise sketches. At right is Robert Asumendi's sketch of the OIII region recently discovered near M31, the Andromeda galaxy. Robert writes: "The purpose of this sketch (on lined notebook paper lol) is not to be beautiful art, but to make a record of what I saw, where I saw it."

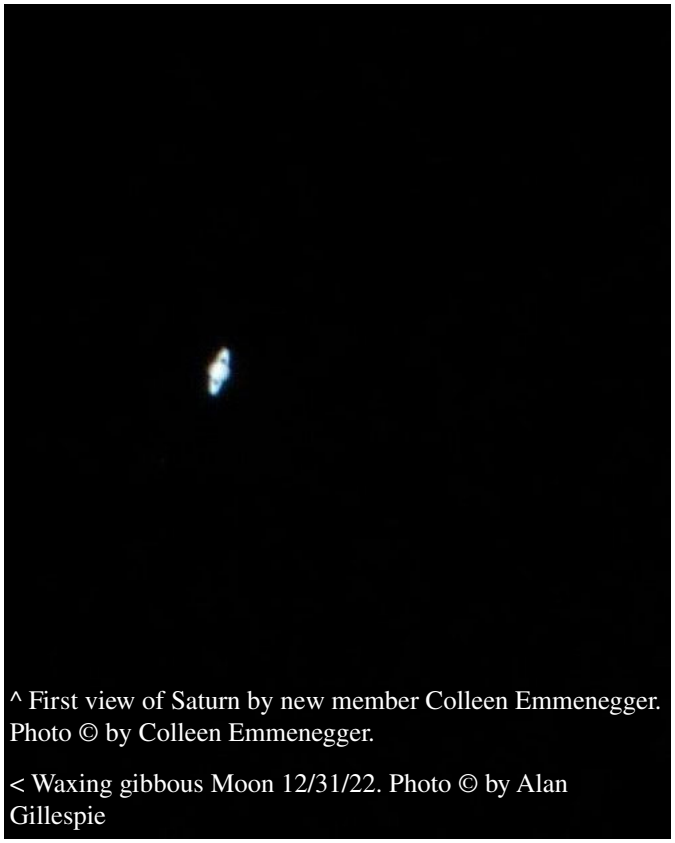
Enjoy these recordings of great times out. Zoom in up to 200% for a closer look.



M31 and OIII region. Sketch © by Robert Asumendi

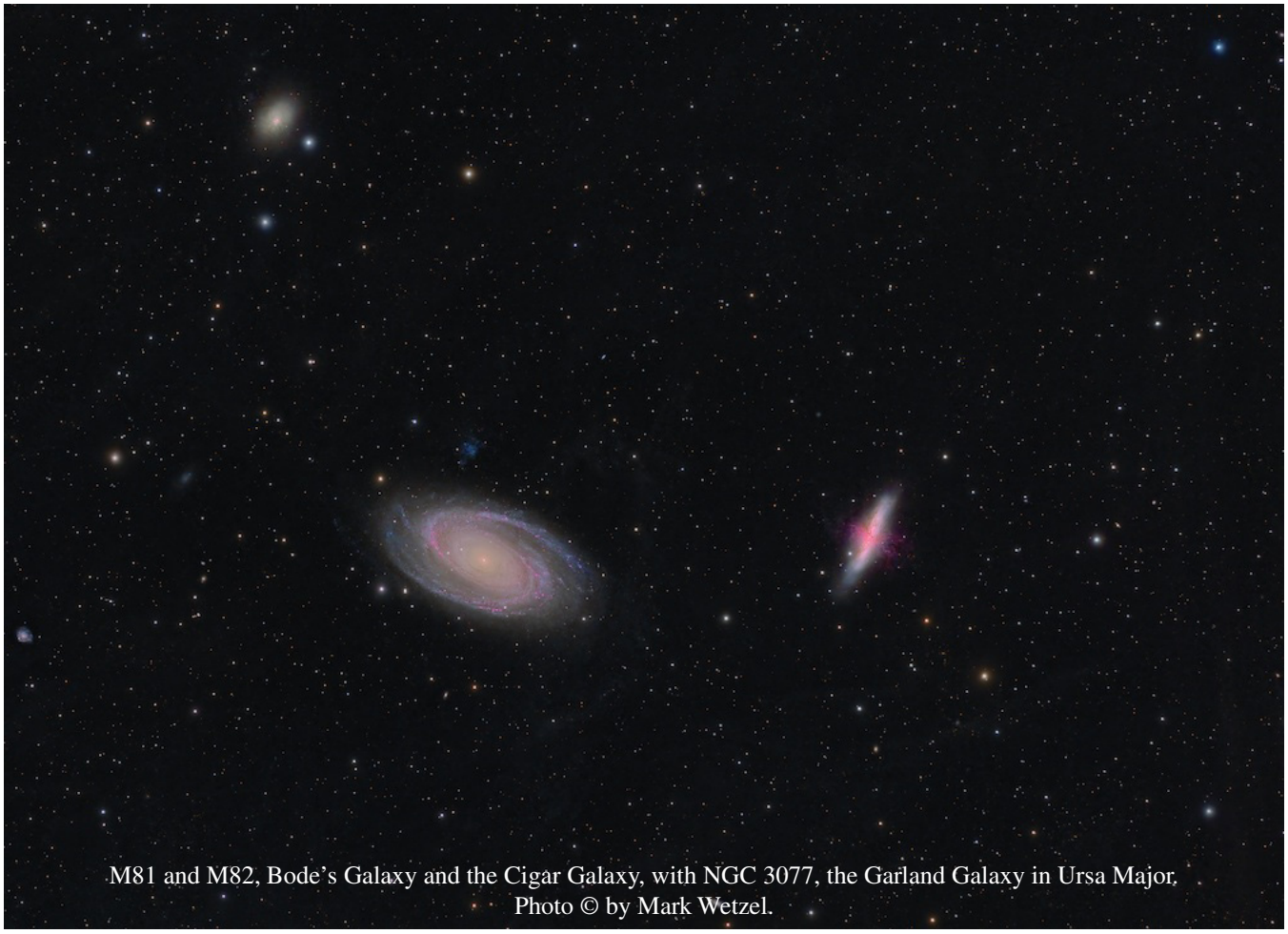


NGC 4565 and NGC 4565A. Photo © by Mark Wetzel



^ First view of Saturn by new member Colleen Emmenegger. Photo © by Colleen Emmenegger.

< Waxing gibbous Moon 12/31/22. Photo © by Alan Gillespie

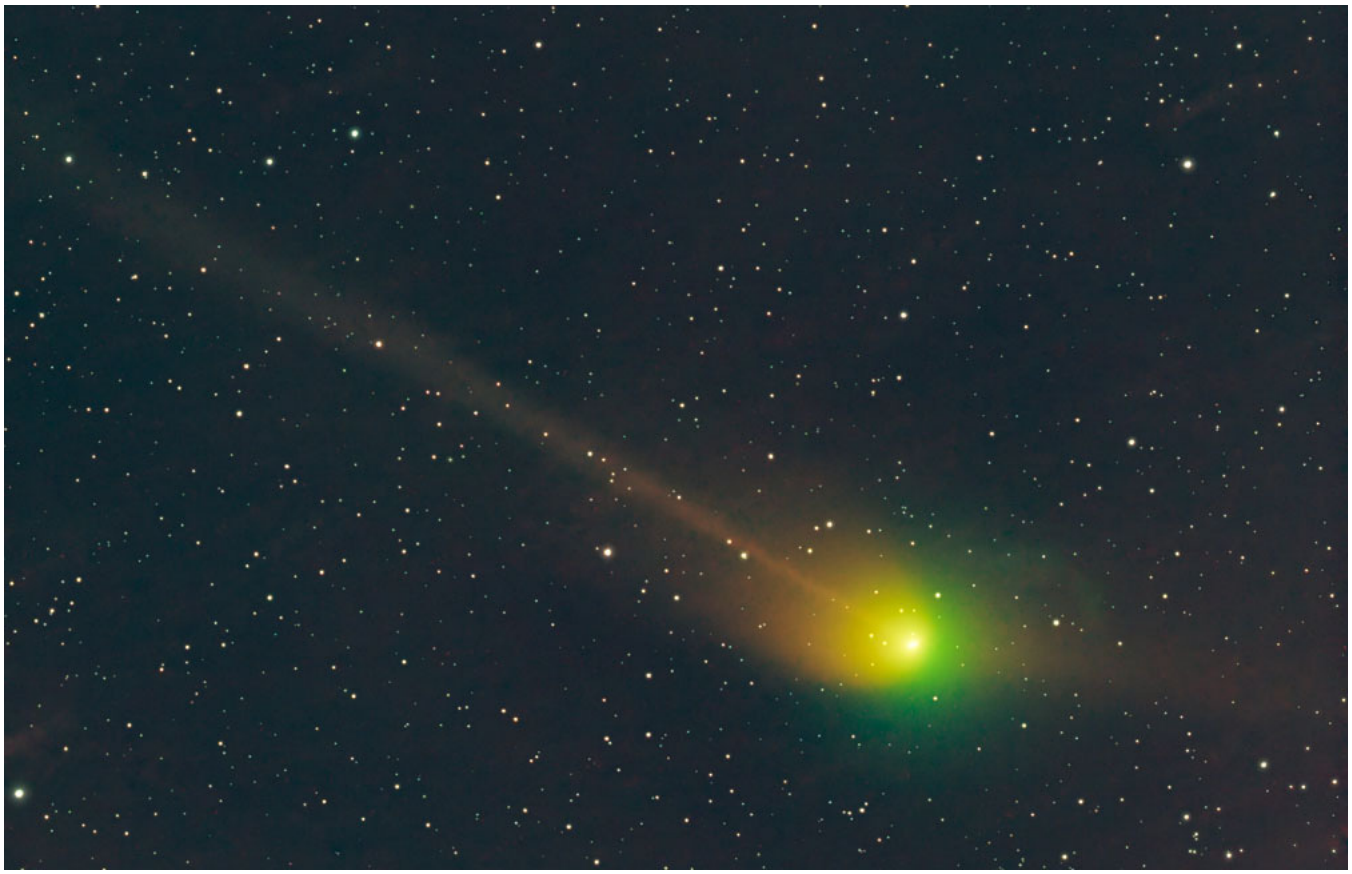


M81 and M82, Bode's Galaxy and the Cigar Galaxy, with NGC 3077, the Garland Galaxy in Ursa Major. Photo © by Mark Wetzel.

Comet C/2022 E3 ZTF on 1/24/23 gliding above the trees at our Eagle's Rest observing site. Photo © by Bill Murray.

Comet C/2022 E3 ZTF on 1/23/23 showing its tail and anti-tail. Note NGC 5907 to the right. Photo © by Alan Gillespie.

Comet C/2022 E3 ZTF on 1/24/23 through a Hydrogen-Alpha/Oxygen III filter. Photo © by Andy Nowlen



Comet C/2022 E3 ZTF on 1/24/23 through an Ultraviolet/Infrared filter. Photo © by Andy Nowlen

Observing in February 2023

Full | Last Q | New | 1st Q

Feb 5, 10:29 AM	Feb 13, 8:01 AM	Feb 19, 11:06 PM	Feb 27, 12:06 AM
Mercury Rise: 6:13 AM	Mercury Rise: 6:22 AM	Mercury Rise: 6:28 AM	Mercury Rise: 6:32 AM
Venus Set: 7:37 PM	Venus Set: 7:58 PM	Venus Set: 8:13 PM	Venus Set: 8:33 PM
Mars Set: 3:38 AM	Mars Set: 3:18 AM	Mars Set: 3:04 AM	Mars Set: 2:47 AM
Jupiter Set: 9:46 PM	Jupiter Set: 9:23 PM	Jupiter Set: 9:06 PM	Jupiter Set: 8:43 PM
Saturn Set: 6:13 PM	Saturn lost in Sun	Saturn lost in Sun	Saturn Rise: 6:39 AM
Uranus Set: 1:10 AM	Uranus Set: 00:39 AM	Uranus Set: 00:16 AM	Uranus Set: 11:42 PM
Neptune Set: 8:36 PM	Neptune Set: 8:06 PM	Neptune Set: 7:44 PM	Neptune Set: 7:14 PM
Pluto Rise: 6:48 AM	Pluto Rise: 6:17 AM	Pluto Rise: 5:54 AM	Pluto Rise: 5:24 AM

All times Pacific Standard Time (November 6, 2022 – March 11, 2023 = UT -8 hours) or Pacific Daylight Time (March 12 – Nov 4, 2023 = UT -7 hours)

Date	Moon Rise	Moon Set	Twilight Begin	Sun Rise	Sun Set	Twilight End
2/1/2023	13:28	05:09	05:51	07:30	17:23	19:02
2/2/2023	14:20	06:02	05:50	07:29	17:24	19:03
2/3/2023	15:19	06:48	05:49	07:28	17:25	19:04
2/4/2023	16:22	07:24	05:48	07:26	17:27	19:05
2/5/2023	17:26	07:54	05:47	07:25	17:28	19:06
2/6/2023	18:31	08:19	05:46	07:24	17:29	19:08
2/7/2023	19:36	08:40	05:45	07:23	17:31	19:09
2/8/2023	20:40	08:59	05:44	07:21	17:32	19:10
2/9/2023	21:44	09:17	05:42	07:20	17:34	19:11
2/10/2023	22:51	09:35	05:41	07:19	17:35	19:13
2/11/2023	23:59	09:55	05:40	07:17	17:36	19:14
2/12/2023		10:17	05:39	07:16	17:38	19:15
2/13/2023	01:12	10:44	05:37	07:15	17:39	19:16
2/14/2023	02:27	11:20	05:36	07:13	17:41	19:18
2/15/2023	03:42	12:07	05:35	07:12	17:42	19:19
2/16/2023	04:52	13:08	05:33	07:10	17:43	19:20
2/17/2023	05:51	14:22	05:32	07:09	17:45	19:21
2/18/2023	06:39	15:46	05:31	07:07	17:46	19:23
2/19/2023	07:15	17:11	05:29	07:06	17:47	19:24
2/20/2023	07:45	18:34	05:28	07:04	17:49	19:25
2/21/2023	08:09	19:54	05:26	07:03	17:50	19:26
2/22/2023	08:31	21:11	05:25	07:01	17:51	19:28
2/23/2023	08:52	22:25	05:23	06:59	17:53	19:29
2/24/2023	09:15	23:38	05:22	06:58	17:54	19:30
2/25/2023	09:39		05:20	06:56	17:55	19:31
2/26/2023	10:08	00:50	05:19	06:54	17:57	19:33
2/27/2023	10:42	01:58	05:17	06:53	17:58	19:34
2/28/2023	11:23	03:02	05:15	06:51	17:59	19:35

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

Items of Interest This Month

Comet ZTF (C/2022 E3) cruises through Camelopardalis, Auriga, and Taurus this month.

Comet ZTF (C/2020 V2) cruises through Cassioipeia & Andromeda this month.

2/10 - 2/11, Comet E3 near Mars.

2/13 Algol at minimum brightness for two hours centered at 8:00.

2/14 & 15 Venus-Neptune conjunction. Look low in West just after sunset. Neptune is 1/2° east of Venus on 14th, 1/2° west on 15th.

2/22 Thin crescent Moon 1.5° from Jupiter. Venus 7° to the west. Might be possible to see all three in daylight.

2/24 First Quarter Friday.

2/27 Mars 3/4° below Moon.

3/1 Venus & Jupiter 1/2° apart. Good chance to see both planets by day.