nightwatch
Newsletter of the Pomona Valley Amateur Astronomers

I have fallen in love with The Cosmos
and all the possibilities it does hold.
.Cometan

CHECK OUT PVAAs
YOUTUBE CHANNEL

Volume 46 Number 03 ***nightwatch*** **March 2026**

President's Message - March 2026

The big event this month is the launch of the Artemis II mission, the first manned mission to the vicinity of the Moon since the ApoThe big astronomical event this month is the total eclipse of the Worm Moon on March 3. Although viewers in southern California will be able to view the entire eclipse from beginning to end if the sky is not cloudy, totality will occur from 3:34 am to 4:03 am when most non-astronomers are asleep. Five days later, on March 8 we'll be transitioning from Daylight Savings Time (PDT) to Standard Time (PST). So don't forget to move your clocks forward one hour before you go to bed on Saturday night, March 7.

On March 16, we'll be celebrating the anniversaries of two important milestones in astronautics. The first one is the 100th anniversary of the launch of the first rocket powered by liquid propellant, consisting of liquid oxygen and gasoline. The rocket was built by Dr. Robert Goddard and he launched it on his Aunt Effie's farm in Auburn, Massachusetts, on March 16, 1926. It reached an apogee of 41 feet, traveled 184 feet and landed in a cabbage field after a 2.5 second flight. The second one was the launch of Gemini 8 carrying astronauts Neil Armstrong and Dave Scott into Earth orbit on March 16, 1966. The mission was to rendezvous and dock with an Agena Target Vehicle which had previously been launched into Earth orbit. Although the crew successfully accomplished the first docking of two spacecraft in orbit, the mission had to be aborted after a thruster on their Gemini capsule malfunctioned. They successfully splashed down in the Pacific Ocean 500 miles east of Okinawa.

On March 20, the movie *Project Hail Mary* is scheduled to be released in theaters. This is a science fiction movie based on a 2021 novel with the same title by Andy Weir which promises to be a good movie to see. I'm making this assumption based on the 2015 movie *The Martian* which was based on another Andy Weir novel, again with the same title. Coincidentally, the vernal equinox will occur on the same day which will mark the beginning of spring in the northern hemisphere.

At the March 25 board meeting we will have the nomination of candidates. Currently we need someone to be Secretary. In addition, the terms of two of the Board Members at Large expire this year, one Board Member at Large position is vacant, and we still need a volunteer to be assistant and back-up for Gary Thompson for setting up the computer for our Zoom meetings. There are plenty of opportunities, so if you'd like to run for any of these positions, please either contact me at 626-541-8679 or Ron Hoekwater at 909-445-9282.

Ken Elchert

Club Events Calendar

Feb 27	General Meeting 7:30 PM Ken Elchert - "Grote Reber, The World's First Radio Telescope "7:30 PM
Mar 3	Full Moon – Total Lunar Eclipse
Mar 8	Daylight Savings Time Begins
Mar 18	New Moon
Mar 21	Star Party – GMARS
Mar 25	Board Meeting IHOP 6:00 PM
April 1	Full Moon
April 3	General Meeting 7:30 PM
April 17	New Moon
April 18	Star Party – GMARS
April 22	Board Meeting IHOP 6:00 PM
May 1	General Meeting 7:30 PM
May 16	Star Party – GMARS
May 16	New Moon
May 20	Board Meeting IHOP 6:00 PM
May 29	General Meeting 7:30 PM
May 31	Full Moon
June 13	Star Party – GMARS
June 14	New Moon
June 17	Board Meeting IHOP 6:00 PM
June 26	General Meeting 7:30 PM
June 29	Full Moon

Upcoming Celestial Events
March 2026

events visible in southern California highlighted in yellow

In the U.S., Daylight Savings Time is in effect from the first Sunday in April to the last Sunday in October.

PST = UTC – 8 hrs
PST = PDT – 1 hr
PDT = UTC – 7 hrs
PDT = PST + 1 hr

Date	Day	LA Time	Event	Direction	Altitude (deg)	Moon Phase/ Illumination
Mar 3	Tue	12:44 am – 5:17 am	Total Lunar Eclipse	SSW to W	60.5 to 12.5	Full Moon 100%
Mar 18	Wed	6:23 pm	New Moon	-------	-------	New Moon 0%
Mar 20	Fri	7:46 am	Vernal Equinox first day of spring	-------	-------	-------
Mar 23	Mon	7:44 pm – 10:00 pm	Moon-M45 (Pleiades) close	W to WNW	35 to 8	Waning Crescent 28%
Mar 26	Thu	7:24 pm – 2:04 am	Moon-Jupiter Conjunction sep = 3.8°	S to W	78 to 7	Waxing Gibbous 64%
Mar 29	Sun	5:40 am – 6:30 am	Mercury at Highest Altitude h = 13°	E	13 to 3	Waxing Gibbous 94%
Apr 3	Fri	5:40 am – 6:30 am	Mercury at Greatest Eastern Elongation	E	12 to 3	Waning Gibbous 94%

Lunation No. 1276

Lunation No. 1277

PVAA Officers and Board

Officers

President …..... Ken Elchert ..... thespaceshuttle@aol,com
Vice President .. Open position
Secretary(acting) .....Ken Elchert 626-541-8679
Treasurer ..... Gary Thompson 909-935-5509

Board

Jim Bridgewater (2026)..... 909-599-7123
Claire Stover(2026) .....pvaanightwatch@gmail.com
Ron Hoekwater (2027)..... 909-445-9282
Howard Maculsay (2027)…….909-913-1195

Directors

Membership / Publicity....Gary Thompson .909-935-5509
Outreach ..... Jeff Schroeder 909-758-1840
Programs ..... Ron Hoekwater 909-445-9282

PVAA General Meeting 1/30/26

Ken Elchert started the meeting asking anyone if this was their first meeting. We had one new member and one that has returned after several years. Ken then announced that former PVAA board member Jay Zacks recently died. The PVAA is looking for members to volunteer to become board members.

Ken then did his normal presentation of upcoming celestial events. Most were of planets nearing stars. Following he talked about seeing the Dragon crew 11 capsule as it returned to Earth. He also noted that the return of Artemis II will closely follow the same path. This is almost the same path used in the Jules Verne novel "From the Earth to the Moon and Around the Moon."

Our main speakers were Claire Stover and David Thomas on "Aurora Viewing in CA and AK" about their experiences in Aurora viewing in Alaska and Central California. To see an Aurora, you must have dark skies, usually happen in spring and fall, and the closer you are to the North or South poles - the better.

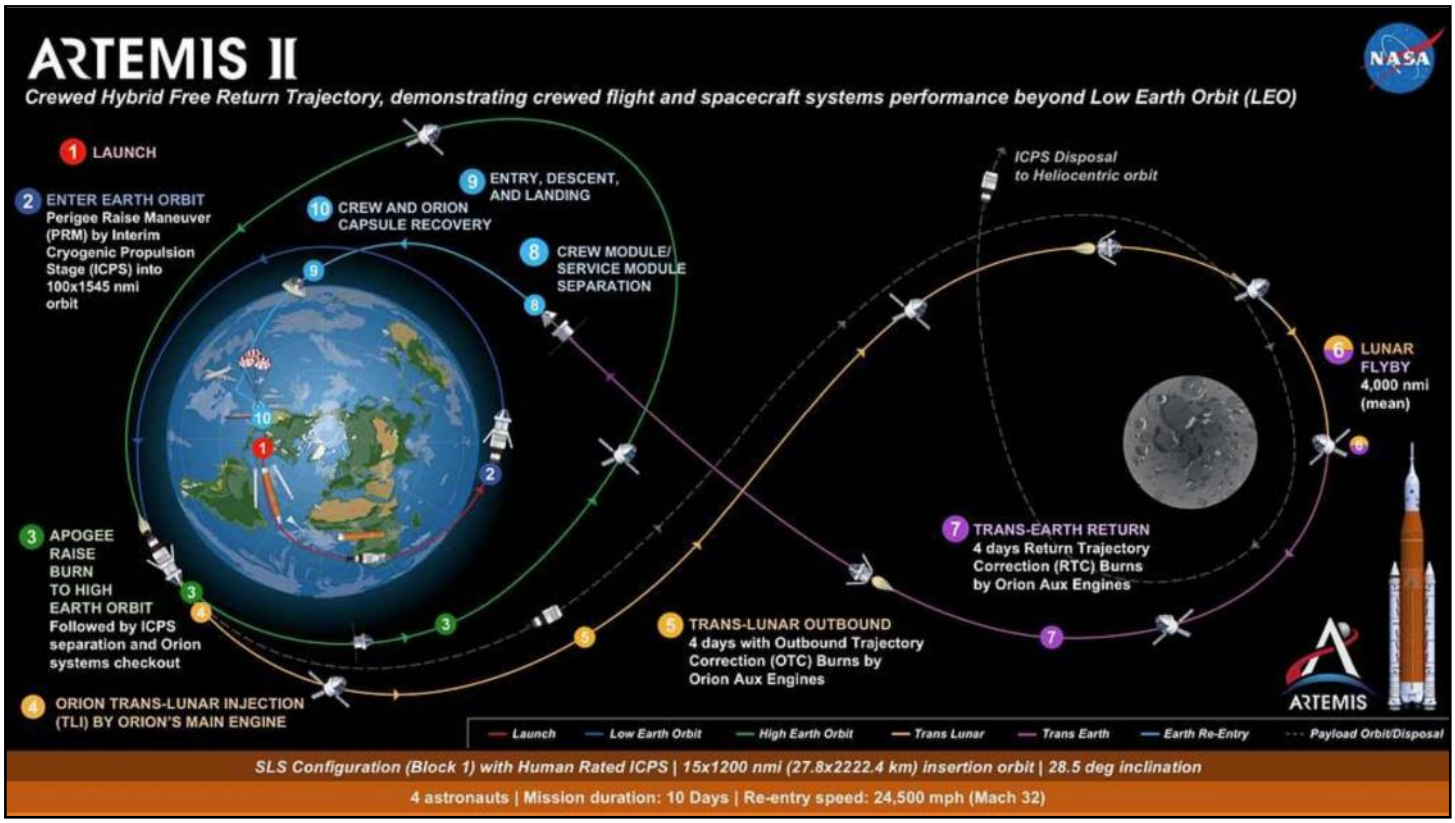
Their advice is (if you use your phone), put it in 'Night Mode' if it has one. This takes a 3-second picture. While green is the most common color, sometimes you can see red, pink, blue, and purple.

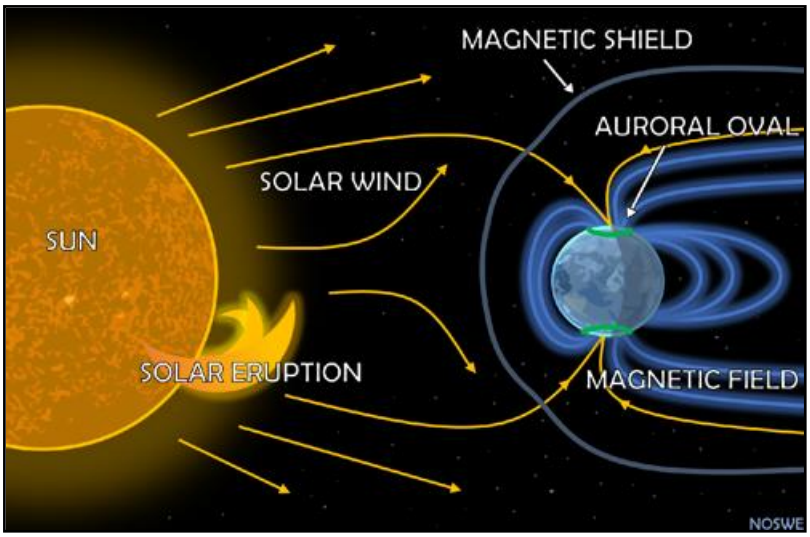
If you see an aurora, text or call your friends and let them enjoy it. Take pictures, try to 'frame it' with trees or mountains. Claire uses an app called "Space Weather," and another called "Aurora."

David drove a Chevy Bolt EV from Berkeley to Alaska. That had to be an adventure.

Gary Thompson

Marissa Elchert: SpaceX Crew Dragon capsule carrying Crew 11 from the ISS. The picture was from her home in Glendora as it flew over Los Angeles.


ARTEMIS II
Crewed Hybrid Free Return Trajectory, demonstrating crewed flight and spacecraft systems performance beyond Low Earth Orbit (LEO)
NASA
1 LAUNCH
2 ENTER EARTH ORBIT
Perigee Raise Maneuver (PRM) by Interim Cryogenic Propulsion Stage (ICPS) into 100x1545 nmi orbit
3 APOGEE RAISE BURN TO HIGH EARTH ORBIT
Followed by ICPS separation and Orion systems checkout
4 ORION TRANS-LUNAR INJECTION (TLI) BY ORION'S MAIN ENGINE
5 TRANS-LUNAR OUTBOUND
4 days with Outbound Trajectory Correction (OTC) Burns by Orion Aux Engines
6 LUNAR FLYBY
4,000 nmi (mean)
7 TRANS-EARTH RETURN
4 days Return Trajectory Correction (RTC) Burns by Orion Aux Engines
8 CREW MODULE/ SERVICE MODULE SEPARATION
9 ENTRY, DESCENT, AND LANDING
10 CREW AND ORION CAPSULE RECOVERY
ICPS Disposal to Heliocentric orbit
ARTEMIS
Launch
Low Earth Orbit
High Earth Orbit
Trans Lunar
Trans Earth
Earth Re-Entry
Payload Orbit/Disposal
SLS Configuration (Block 1) with Human Rated ICPS | 15x1200 nmi (27.8x2222.4 km) insertion orbit | 28.5 deg inclination
4 astronauts | Mission duration: 10 Days | Re-entry speed: 24,500 mph (Mach 32)


MAGNETIC SHIELD
AURORAL OVAL
SOLAR WIND
SUN
SOLAR ERUPTION
MAGNETIC FIELD
NOSWE

GMARS aurora 5/11/2024 – Credit Ron Hoekwater

11/11/25 – Knights Landing, CA by Claire Stover

11/11/25 – Knights Landing, CA by Claire Stover

January 1999 – David Thomas

It's Crab Season Again!

We had a nice stretch of weather during the full moon and I was hoping it would last until the new moon weekend, but it was not to be. Just before the weekend, forecasts were for rain on Thursday and Saturday with cloudy skies Friday. Fortunately, before the full moon, I had my new StellarVue scope out for some testing and adjustment, so I have a couple of images to share.

TARGETS

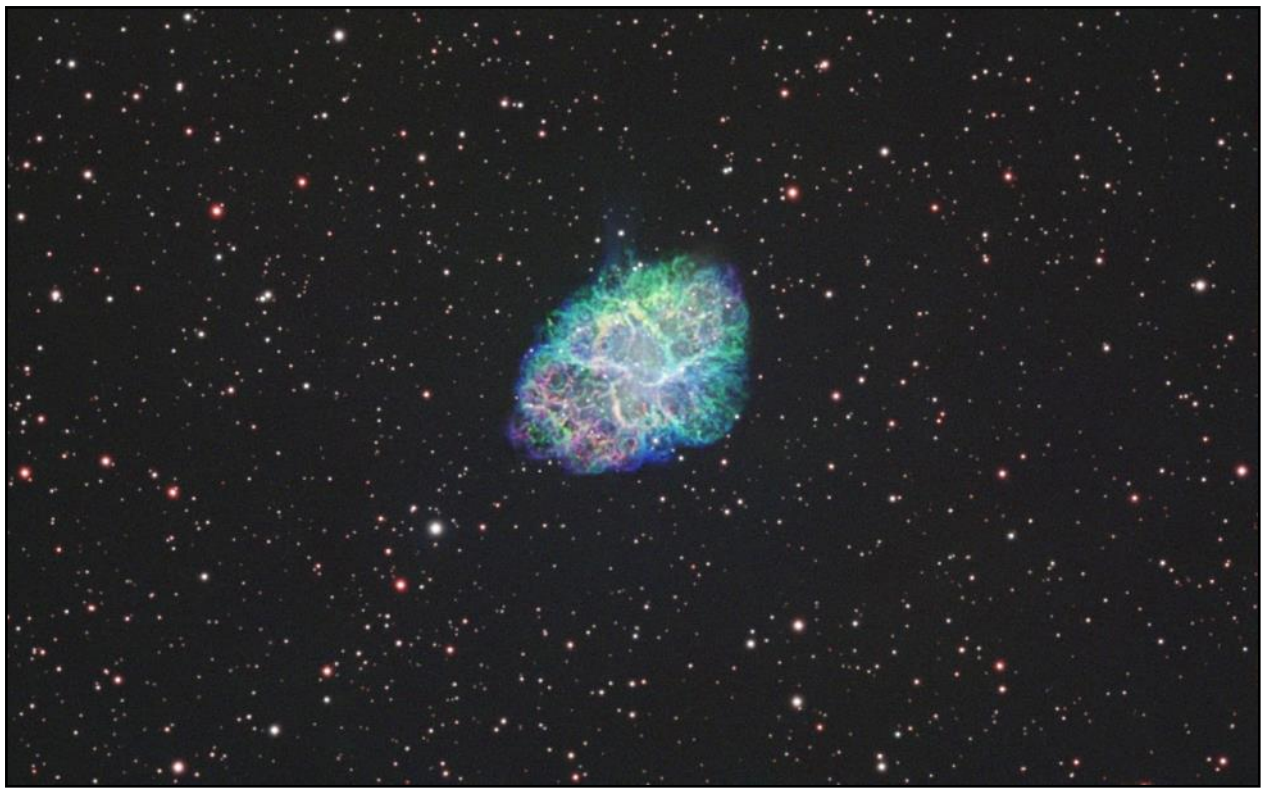
The images this month are both of the Crab Nebula. The psychedelic version is in the so-called Hubble palette, and the more natural-colored version is in the HOO palette. As a reminder, these are narrow-band images where very specific frequencies, or colors, of light are captured and mapped to red, green, and blue. For the Hubble palette, this means emissions from sulfur are mapped to red, from hydrogen are mapped to green, and oxygen are mapped to blue. For the HOO palette, hydrogen is mapped to red and oxygen is mapped to both green and blue.

The Crab Nebula, also known as M1 or NGC 1952, is a supernova remnant located in Taurus. It is believed to have been observed in 1054 AD by several cultures, including Mayan, Japanese, Arab, and Chinese. The supernova was bright enough to be seen during the day and probably for up to 2 years at night. The blast sent parts of the exploding star, estimated to be 8 to 10 times the mass of the sun, outward at about 930 miles per second, or about 0.5% the speed of light, making the nebula about 11 light years in diameter. Images taken years apart show the expansion; however, I don't see it when I compare my image of December 2020 with this one.

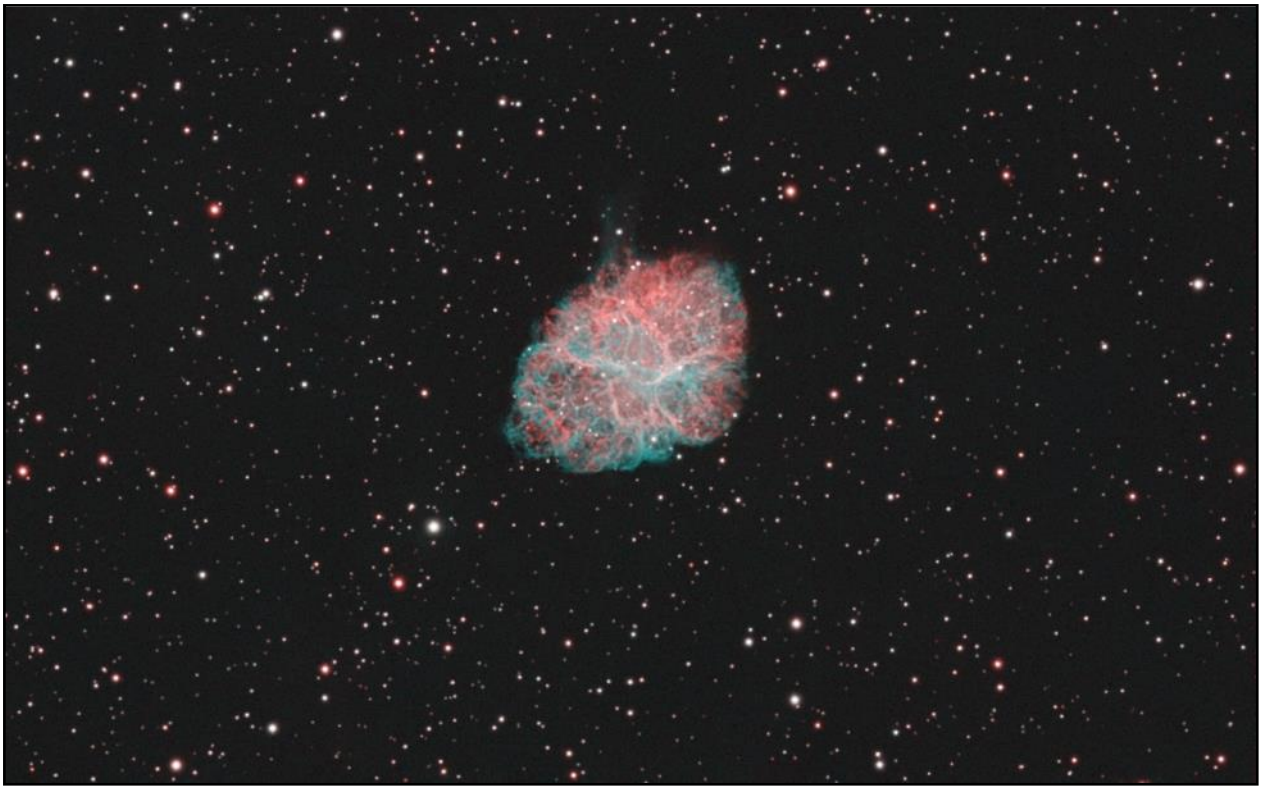
At the center of the Crab is a rapidly spinning neutron star. The pulsar spins at 30.2 hertz and is only 17 to 19 miles in diameter but has 1.4 to 1.5 times the mass of the sun. It is one of the first pulsars discovered. It lies close to the ecliptic, which means that solar system bodies can occasionally occult it. When that occurs, information about the eclipsing body can be gained by studying the change in radiation. In this manner, the atmosphere of Saturn's moon Titan and the sun's corona can be studied.

IMAGING AND PROCESSING

My purpose for taking these images was to determine if a new focusing routine, Hocus Focus, would result in improved focus and to use an aspect of the new focusing routine to assess back focus in my new SVX90T refractor telescope. Back focus, in case you're wondering, is the spacing needed between the camera's imaging chip and a field flattener or focal reducer to obtain a starfield with perfectly round stars to the corners. When set up properly, Hokus Focus is supposed to choose optimal stars for focusing. So far, I don't see much difference in the two focus routines. But Hocus Focus saves the images it uses to assess focus and includes the ability to examine the saved images to determine best focus in each corner and center. It can use the focuser position for each section to determine if the spacing is correct, or if not, how to adjust the spacing. While I thought the corners looked good, Hocus Focus suggested I needed to add more spacers. After adding spacers, I was much closer and surprisingly, the corners did look better. The images plate-solved to 562 mm focal length, indicating the scope is operating at f/6.24 instead of f/6.00.



I used all the images taken with both spacings to create these images. NINA did a good job of dealing with the different distortions introduced by changing the spacing. Subframes were all 600 second exposures through H-Alpha, O-III, and S-II Astrodon filters. The imaging camera was the ASI294MM Pro and guiding was done using the Orion Mini Guider and an ASI174MM guide camera. The light frames were calibrated with 15 dark, 15 flat, and 15 flat darks. A total of 13 hours, 20 minutes of images over 4 nights were acquired, consisting of 25 H-Alpha, 27 O-III, and 28 S-II frames. The target was only visible until shortly after midnight at my house during early February, accounting for the short exposure time.



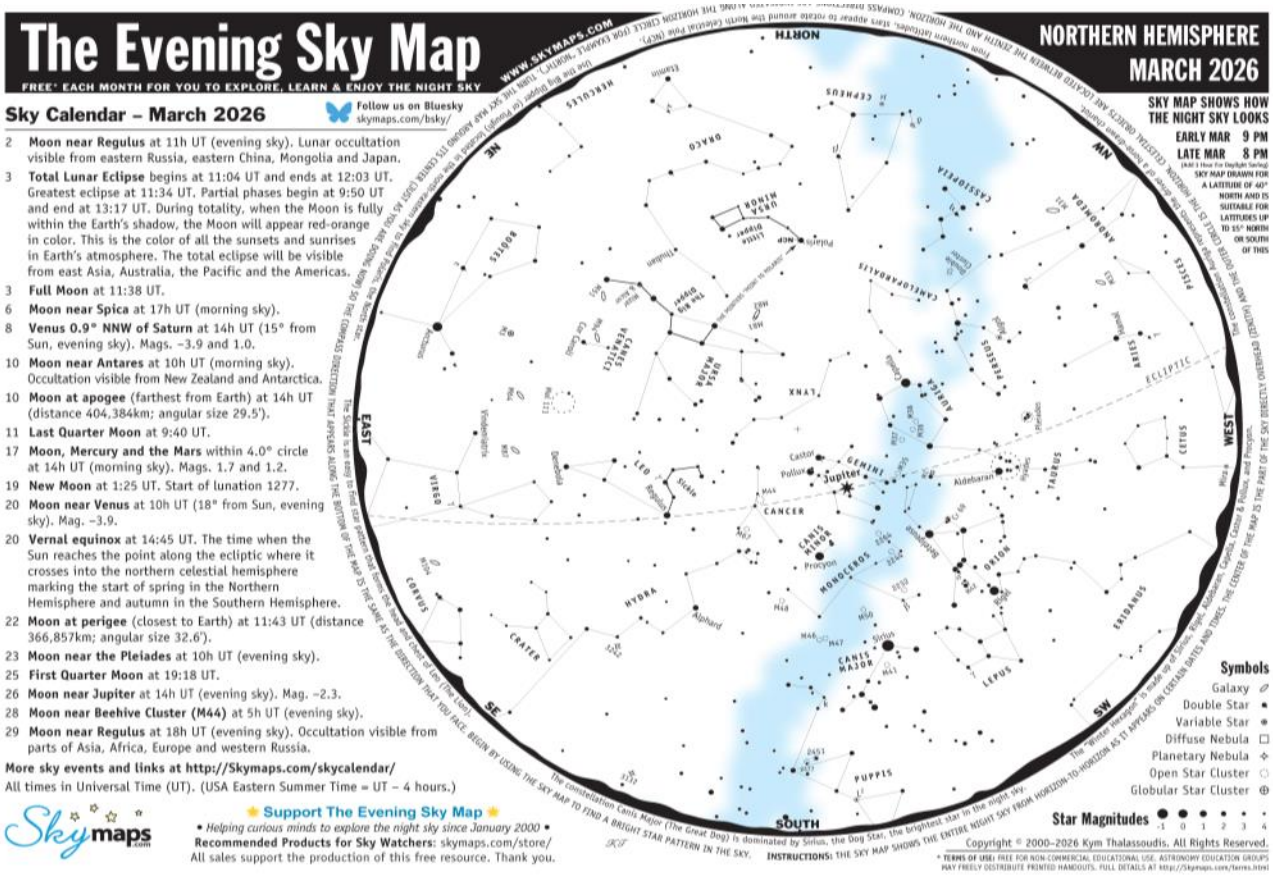
Pixinsight's *WeightedBatchPreProcessing* was used to calibrate, stack, and crop the individual frames. The final stacks were 2x drizzled for processing before being resampled to original dimensions. The first step was to synchronize the brightness of the HA and S-II stacks to the O-III stack using LinearFit to balance the colors. The appropriate stacks were loaded in the red, green, and blue channels and combined into the SHO and HOO unstretched images. Processing for each image was essentially the same. *BlurXterminator* in correct only mode was applied to tweak the star shapes if needed. A very slight gradient was removed using *MultiscaleGradientCorrection* before stars were separated from the background and nebula. The SHO stars were discarded and the HOO stars had a screen stretch applied using the *ScreenTransferFunction* and *HistogramTransformation*. The starless images were stretched using *MultiscaleAdaptiveStretch* and then the contrast and saturation were enhanced using *Curves*. The HOO stars were added to the starless images using *ImageBlend*. Final contrast was adjusted with *Curves*, the image returned to the original resolution with *Resample* and cropped to better view the nebula with *DynamicCrop*.

Looking forward to better weather in March, although it is an historically wet and cloudy month.

Wishing you all clear and dark skies,

Ron Ugolick

https://www.astrobin.com/users/ruccdu/



About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. **Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars.** They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

Tips for Observing the Night Sky

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

Astronomical Glossary

Conjunction – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

Constellation – A defined area of the sky containing a star pattern.

Diffuse Nebula – A cloud of gas illuminated by nearby stars.

Double Star – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

Ecliptic – The path of the Sun's center on the celestial sphere as seen from Earth.

Elongation – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

Galaxy – A mass of up to several billion stars held together by gravity.

Globular Star Cluster – A ball-shaped group of several thousand old stars.

Light Year (ly) – The distance a beam of light travels at 300,000 km/sec in one year.

Magnitude – The brightness of a celestial object as it appears in the sky.

Open Star Cluster – A group of tens or hundreds of relatively young stars.

Opposition – When a celestial body is opposite the Sun in the sky.

Planetary Nebula – The remnants of a shell of gas blown off by a star.

Universal Time (UT) – A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.

Variable Star – A star that changes brightness over a period of time.

CELESTIAL OBJECTS — NORTHERN HEMISPHERE MARCH 2026

Easily Seen with the Naked Eye

Capella	Aur	●	The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 ly.
Arcturus	Boo	●	Orange, giant K star. Name means "bear watcher". Dist=36.7 ly.
Sirius	CMa	●	The brightest star in the sky. Also known as the "Dog Star". Dist=8.6 ly.
Procyon	CMi	●	Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly.
δ Cephei	Cep	◉	Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion.
Castor	Gem	●	Multiple star system with 6 components, 3 stars visible in telescope. Dist=52 ly.
Pollux	Gem	●	With Castor, the twin sons of Leda in classical mythology. Dist=34 ly.
Regulus	Leo	●	Brightest star in Leo. A blue-white star with at least 1 companion. Dist=77 ly.
Rigel	Ori	●	The brightest star in Orion. Blue supergiant star with mag 7 companion. Dist=770 ly.
Betelgeuse	Ori	●	One of the largest red supergiant stars known. Diameter=300 times that of Sun. Dist=430 ly.
Algol	Per	◉	Famous eclipsing binary star. Magnitude varies between 2.1 & 3.4 over 2.867 days.
Pleiades	Tau	○	The Seven Sisters. Spectacular cluster. Many more stars visible in binoculars. Dist=399 ly.
Hyades	Tau	○	Large V-shaped star cluster. Binoculars reveal many more stars. Dist=152 ly.
Aldebaran	Tau	●	Brightest star in Taurus. It is not associated with the Hyades star cluster. Dist=66.7 ly.
Polaris	UMi	◉	The North Pole Star. A telescope reveals an unrelated mag 8 companion star. Dist=433 ly.

Easily Seen with Binoculars

M31	And	⌀	The Andromeda Galaxy. Most distant object visible to naked eye. Dist=2.5 million ly.
M38	Aur	○	Stars appear arranged in "pi" or cross shape. Dist=4,300 ly.
M36	Aur	○	About half size of M38. Located in rich Milky Way star field. Dist=4,100 ly.
M37	Aur	○	Very fine star cluster. Discovered by Messier in 1764. Dist=4,400 ly.
M44	Cnc	○	Praesepe or Beehive Cluster. Visible to the naked eye. Dist=590±20 ly.
M3	CVn	⊕	Easy to find in binoculars. Might be glimpsed with the naked eye.
M41	CMa	□	First recorded observation by Aristotle in 325 BC as "cloudy spot". Dist=2,300 ly.
Mel 111	Com	○	Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=288 ly. Age=400 million years.
M35	Gem	○	Fine open cluster located near foot of the twin Castor. Dist=2,800 ly.
M48	Hya	○	12+ stars in 7x binoculars. Triangular asterism near centre. Dist=1,990 ly.
γ Leporis	Lep	◉	Visible with binoculars. Gold & white stars. Mags 3.6 & 6.2. Dist=30 ly. Sep=96.3".
2232	Mon	□	A large scattered star cluster of 20 stars. Dist=1,300 ly.
2244	Mon	○	Surrounded by the rather faint Rosette Nebula. Dist=5,540 ly.
M50	Mon	○	Visible with binoculars. Telescope reveals individual stars. Dist=3,000 ly.
Cr 69	Ori	○	Lambda Orionis Cluster. Dist=1,630 ly.
M42	Ori	□	The Great Orion Nebula. Spectacular bright nebula. Best in telescope. Dist=1,300 light years.
Double Cluster	Per	○	Double Cluster in Perseus. NGC 869 & 884. Excellent in binoculars. Dist=7,300 ly.
M47	Pup	○	Bright star cluster. 15+ stars in 7x binoculars. Dist=1,500 ly.
M46	Pup	○	Dist=5,400 ly. Contains planetary NGC 2438 (Mag 11, d=65") - not associated.
Mizar & Alcor	UMa	●	Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.

Telescopic Objects

γ Andromedae	And	◉	Attractive double star. Bright orange star with mag 5 blue companion. Sep=9.8".
ε Boötis	Boo	◉	Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split.
M67	Cnc	○	Contains 500+ stars mag 10 & fainter. One of the oldest clusters. Dist=2,350 ly.
M94	CVn	⌀	Compact nearly face-on spiral galaxy. Dist=15 million ly.
M51	CVn	⌀	Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly.
η Cassiopeiae	Cas	◉	Yellow star mag 3.4 & orange star mag 7.5. Dist=19 ly. Orbit=480 years. Sep=12".
M64	Com	⌀	Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star".
3242	Hya	✧	Ghost of Jupiter. Bright blue disk. Mag 11 central star. Dist=2,600 ly.
γ Leonis	Leo	◉	Superb pair of golden-yellow giant stars. Mags 2.2 & 3.5. Orbit=600 years. Sep=4.4".
β Monocerotis	Mon	◉	Triple star. Mags 4.6, 5.0 & 5.4. Requires telescope to view arc-shape. Sep=7.3".
2264	Mon	○	Christmas Tree Cluster. Associated with the Cone Nebula. Dist=2,450 ly.
σ Orionis	Ori	◉	Superb multiple star. 2 mag 7 stars one side, mag 9 star on other. Struve 761 triple in field.
k Puppis	Pup	◉	Telescope easily shows two blue-white stars of almost equal brightness. Sep=9.9".
M1	Tau	□	Crab Nebula. Remnant from supernova which was visible in 1054. Dist=6,500 ly.
M81	UMa	⌀	Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope.
M82	UMa	⌀	Close to M81 but much fainter and smaller.
M87	Vir	⌀	Supergiant galaxy with supermassive black hole at its core. Dist=53.5 million ly.
γ Virginis	Vir	◉	Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.