the Skyscraper

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AMATEUR ASTRONOMICAL SOCIETY OF RHODE ISLAND ⋆ 47 PEEPTOAD ROAD ⋆ NORTH SCITUATE, RHODE ISLAND 02857 ⋆ WWW.THESKYSCRAPERS.ORG

In This Issue:

ANNUAL MEETING

Saturday, April 5 @ 6:00pm EDT at Seagrave Memorial Observatory

In-person and on Zoom

Our meeting will feature renowned NASA Astronomy Visualization Expert, Dr. Kim Arcand, followed by a member meeting, cake & refreshments, and if the weather cooperates, observing with Seagrave's fine telescopes.

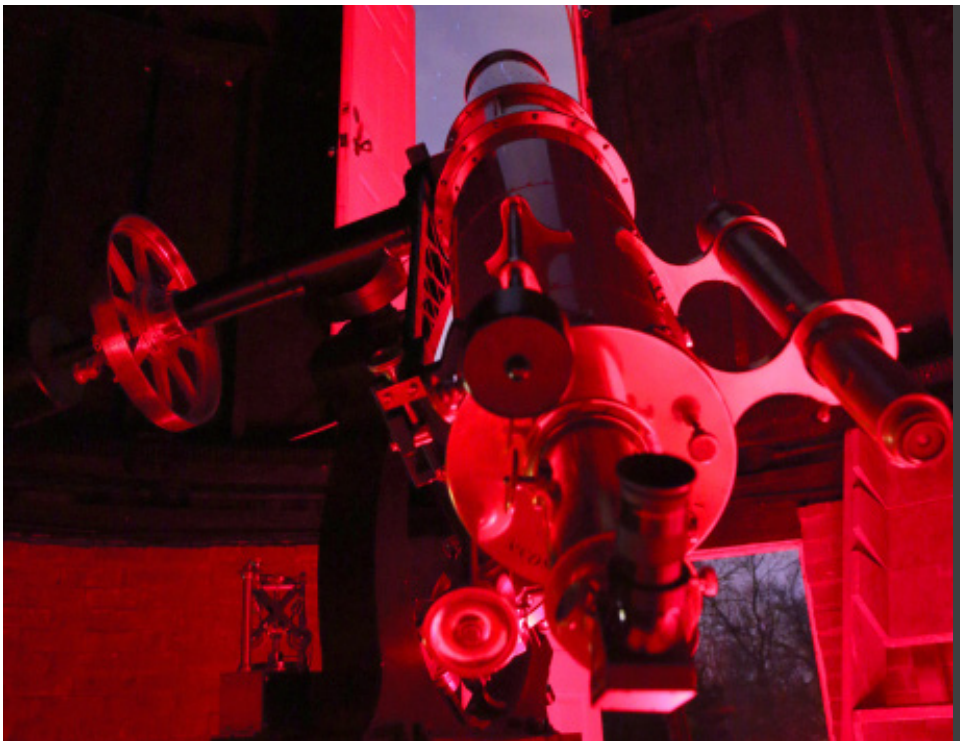
Don't miss this opportunity to participate in the organization's business meeting, catch up with members & friends after the long winter, enjoy some cake, and observe the night sky. You're also invited to bring a telescope of your own!

Dr. Kimberly Arcand presents Sensing Our Universe: Using Data to Go Beyond Sight

Like Geordi on Star Trek: TNG, scientists can now experience the Universe beyond sight through scientific translations that turn data from NASA missions like the Chandra X-ray Observatory and James Webb Space Telescope into sounds, 3D prints, and even holograms.

About Dr. Kimberly Arcand:

Dr. Kimberly Arcand is a leading expert in astronomy visualization and has been an innovator in 3D imaging, printing, and extended reality applications with astrophysics data. Kim began her career in molecular biology and public health before moving to NASA's Chandra X-ray Observatory in 1998. Her current work includes sonification of spatial data, screen-based holograms, machine learning applications for image processing, and other intersections of emerging technology and astrophysics. She has co-written eight non-fiction science books.



Observing Events:

Open Nights at Seagrave*
April 5, 8-10 PM
April 12, 8-10 PM
April 19, 8-10 PM
April 26, 8-10 PM

Off-site Public Observing*

Chase Farm, Lincoln RI
Friday, April 11, 7:45 PM

Blackstone Park, Providence RI
Saturday, April 12, 7:00 PM

River Bend Farm, Uxbridge MA
Friday, April 18, 8:00 - 9:30 PM

*Members are welcome and appreciated at all of these events

President's Message

by Linda Bergemann

April marks the beginning of Skyscrapers' fiscal year, and consequently, planning for the next year,

We have an election in progress that will conclude on Saturday, April 5th at our Annual Meeting. And, the Board has also been working on a budget that will be voted on during the meeting.

Most of our income comes from membership dues, but this must be supplemented by monies from our annual AstroAssembly event and donations to fund our activities and to maintain Seagrave Memorial Observatory. I am happy to report that, financially, we are in a good position due to hard work, generous donations and good stewardship.

This year, we propose to use some of our savings to expand our programs and to improve our facilities. I have asked the Trustees to present the Board with a proposal to motorize the roll-off roof for the 12-inch Meade, and we have included this in our proposed budget. We have also budgeted for a small tent that will be used for AstroAssembly and other events.

On the program side, we have included funds in the budget to enable donation of one Library Telescope to a local library this year. We were fortunate in the past to have been awarded telescopes by the Astronomical League which we donated to our two town libraries, North Scituate and Hope. We would like to be able to donate one telescope each year going forward. Our method for choosing future recipient libraries has yet to be determined, but will likely engage the membership.

Lastly, Dave Huestis and I had been working with the Scituate Historic Informational Signage Committee to include Seagrave Memorial Observatory on The Scituate Heritage Trail. This will entail purchase of a sign for our property consistent with those on other historical properties in the town. We expect some assistance from the town the with installation, but we expect to have to purchase the sign. We have committed to this project and have included purchase of the sign in the proposed budget for the coming year. However, I must note that our work on this project is temporarily on hold due to Dave's untimely passing and my recent surgery.

More than ever, I am excited about what the future holds for Skyscrapers. We are adding new members every month who, I hope, are bringing with them enthusiasm and new ideas. I'm always listening.

Hoping for clear skies and warm weather.

Linda
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lbergemann@aol.com

New Members

Welcome to Skyscrapers

Everett Leblanc
of Putnam, CT

Debbie & Eric Knight
of North Kingstown

Skyscrapers Presentations on YouTube

Many of our recent monthly presentations on Zoom have been recorded and published, with permission, on the Skyscrapers YouTube channel. Go to the URL below to view recent presentations.

https://www.youtube.com/c/SeagraveObservatorySkyscrapersInc

The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are held monthly, usually on the first or second Friday or Saturday of the month. Seagrave Memorial Observatory is open every Saturday night, weather permitting.

Directions
Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

Submissions
Submissions to The Skyscraper are always welcome. Please submit items for the newsletter no later than **April 15** to Jim Hendrickson at hendrickson.jim@gmail.com.

E-mail subscriptions
To receive The Skyscraper by e-mail, send e-mail with your name and address to hendrickson.jim@gmail.com.. Note that you will no longer receive the newsletter by postal mail.

Upcoming Solar & Lunar Eclipses

by Jim Hendrickson

March 2025 saw a total lunar eclipse, which was clouded out, and a partial solar eclipse, also clouded out, pass over Rhode Island. With these notable events behind us, when can we expect the next ones to occur? To start planning, here are the dates and circumstances for the next partial as well as total lunar and solar eclipses.

Next Solar Eclipse in Rhode Island

The next solar eclipse over Rhode Island is a partial eclipse on **Wednesday, August 12, 2026**. This will be seen as a total eclipse from northern Russia, the Arctic, Greenland, Iceland, and Spain.

The eclipse begins at 1:03pm, reaches maximum at 1:55pm, and ends at 2:45pm. At maximum eclipse, the Moon is covering 14.41% of the Sun's disk, and extends across 24.77% of its diameter from the north.

Next Total Solar Eclipse

The next **total solar eclipse** over Rhode Island occurs on **Monday, May 1, 2079**.

The partial eclipse is already in progress at sunrise, which occurs at 5:41am. Totality begins at 6:05am and lasts for 2 minutes 11 seconds, with mid-eclipse being at 6:06. Fourth contact is 6:59am.

The path of totality begins near Philadelphia and encompasses eastern PA, all of NJ, southern NY including NYC and Long Island, all of Southern New England, southern Vermont, southern New Hampshire, and coastal Maine. It then covers southern Brunswick, Nova Scotia, Newfoundland, central Greenland, far northern Ellesmere Island, NU, and across the Arctic Ocean.

Upcoming Lunar Eclipses in Rhode Island

On **Tuesday, March 3, 2026**, Rhode Island experiences a **total lunar eclipse at moonset**. This will be similar to the November 8, 2022 lunar eclipse, but unlike that one, when we experienced 77 minutes of totality before moonset, this one will be only 15 minutes of totality before moonset.

The penumbral eclipse begins at 3:44am, followed by the partial eclipse starting at 4:50am. Totality begins at 6:04am and moonset is at 6:19am. The conditions under which totality occurs, when the Moon is low to the horizon and deep in civil twilight (sunrise is at 6:17am), mean that the Moon will likely become completely invisible as it enters totality.

It is also notable that the Worm Moon lies within the non-zodiacal constellation Sextans from just after partial eclipse start (P1) until just before moonset. It lies almost entirely within the boundaries of Sextans at 5:48am.

There is a **partial lunar eclipse** on **Thursday night, August 27-28, 2026**. This is a 93% partial eclipse, and the entire event takes place when the Moon is above the horizon.

The Sturgeon Moon enters the penumbral phase at 9:23pm, and partial eclipse begins at 10:33pm. Maximum eclipse is at 12:12am, and the partial eclipse ends at 1:51am. The penumbral phase is complete at 3:01am.

The next **favorable total lunar eclipse** is on **Monday night, June 25-26, 2029**. This Strawberry Moon eclipse is the year's lowest full Moon in elevation and it also crosses the Milky Way in Sagittarius during totality, which will make for a spectacular photo opportunity for observers under dark skies. This is also a very deep eclipse, as the eclipse path is very close to the center of Earth's shadow, which should make it one of the darkest lunar eclipses we have seen in a long time.

The Moon rises at 8:14pm, and the penumbral phase begins 20 minutes later, at 8:34pm. Partial eclipse starts at 9:32pm, and totality starts at 10:31pm. Mid-eclipse, when it will be darkest, is at 11:22pm. Totality ends at 12:13am, followed by the end of the partial phase at 1:11am, and finally, penumbral ends at 2:09am.

A partial solar eclipse occurred on June 10, 2021. The next partial solar eclipse is on August 12, 2026.

Skylights: April 2025

by Jim Hendrickson

The skies of April bring us warmer, yet shorter nights. At no other time of year do the seasonal constellations appear to change as quickly as they do now. Early in the month, we're still greeted by the Winter Hexagon and its component constellations soon after twilight fades. We can take one last look at some of our favorite sites in Taurus, Orion, and the hunting dogs Canis Major and Canis Minor. By month's end, when twilight ends, three-quarters of an hour later into the night, the Pleiades and Orion's Belt are barely above the horizon, setting simultaneously into their seasonal hiatus.

To the east, we have our beacon of the season, Arcturus, and high in the southeast are Leo and Hydra.

Galaxy season is upon us, as the north galactic pole, located in Coma Berenices, beneath the handle of the Big Dipper, passes high overhead at midnight, giving us a clear window into the extragalactic universe that is relatively unimpeded by obscuring stars, nebulae, and dust clouds of the Milky Way.

April is also the best time of the year for an observing challenge to spot the largest and brightest globular cluster in the sky, Caldwell 80 (NGC 5139), Omega Centauri. This magnitude 3.7 cluster should be bright enough to be easily visible with binoculars, but because it culminates at barely at a single degree above the southern horizon from our latitude of 41.85°N, the light from its half-billion stars is highly extincted by about 8.5 magnitudes through 30 times as much airmass than it would be if it were shining at the zenith. As such, you'll need a large telescope, a vantage point that affords an unobstructed view to the true horizon south, and a very transparent sky, free of any haze or fog.

The Blaze Star, T Coronae Borealis, is still at its 10th magnitude quiescent state. However, astronomers at Thuringian State Observatory in Germany recently detected significant changes to the spectral emission lines of T CrB, suggesting that its accretion rate may be accelerating, possibly suggesting that the nova is imminent. T CrB, located in the Northern Crown constellation, is well-placed for observing throughout April. Although it is low in the northeast in early evenings, it quickly rises and is visible all night. When the star does go nova, it is expected to be as bright as Alphecca (alpha Coronae Borealis), 4.5° to its east.

As the days (and nights) are getting warmer, you probably wouldn't give much thought to the fact that Earth is currently moving away from the **Sun** in its orbit. At about 2:00am EDT on the 3rd, we're about halfway between perihelion and aphelion, and we cross the 1 au mark. We will remain more distant than 1 au from the Sun until October 5.

The Sun crosses declination +12° 43' 09" on the 23rd, marking the halfway point in the Sun's northerly trek between equinox and solstice. The Sun remains north of this line until August 19.

And with the Sun's northward progression, we rapidly gain additional hours of daylight in April, with the first 13-hour daylight period occurring on the 7th, followed by the first 14-hour daylight period on the 30th (for observers near latitude 41.84° north). The length of daylight will remain greater than 14 hours until August 11, and greater than 13 hours until September 3.

The equation of time is 0 on the 15th. The equation of time is the measure of the discrepancy between mean solar time and apparent solar time, an effect caused by the eccentricity of Earth's orbit.

One sidereal rotation of Earth takes 23 hours, 56 minutes and 4.1 seconds. This is, observing the stars, let's say Spica for example, the interval between successive transits of the meridian of Spica. Because Earth has moved around its orbit by approximately 1/365th of a revolution during this interval, an additional four minutes elapses before the Sun returns to the meridian on successive days. This is the mean solar time.

However, due to the elliptical orbit, and because Earth moves faster when it is closer to the Sun, and slower when it is farther away, this time difference varies. When Earth is closer to the Sun in January, it takes additional time for the Sun to return to the meridian, and when Earth is farther away, in July, less rotation is needed to make up the difference. Drawn on a graph over time, this discrepancy forms a double sinusoidal wave, which has a shorter amplitude in the spring, and a larger one in the autumn. When this graph is drawn on the axis of the declination of the Sun, it forms an asymmetric "figure-eight" pattern, with the smaller lobe to the north, and larger lobe to the south. You may have seen this graph, known as the analemma, as a composite photo of the position of the Sun over the course of a year. The meridian axis bisecting the graph is the zero reference, which the Sun appears to cross four times per year, one of them being April 15th.

After spending 37 days in Pisces, the Sun enters Aries on the 18th.

Our first sunrise before 6:00am occurs on the 19th. The Sun continues to rise earlier than 6:00am until August 21.

One of the most beautiful sights that can be seen in the evening sky is when the crescent **Moon** appears near the Pleiades cluster. Such a pairing occurs early in the eve-

Events in April

1	06:00	Mercury 5.8° SE of Venus
1	21:00	Moon 1.4° ENE of M45
2	22:00	Moon 4.9° N of Jupiter
3	14:00	Earth at 1.0 au
4	22:15	**First Quarter Moon**
5	20:00	Moon 2.6° ENE of Mars
5	21:00	Moon 4.7° SE of Pollux
6	02:21	Mercury Stationary
6	21:00	Moon 3.7° ENE of M44
7	06:17	First 13 hours of daylight
8	04:00	Moon 3.5° E of Regulus
10	06:00	Mercury 2.0° NE of Saturn
10	10:00	Mars Minimum Illuminated (89.87%)
10	10:59	Venus Stationary
12	20:22	**Full Pink Moon**
12	21:00	Moon 0.5° SSE of Spica
15		Equation of Time = 0
16	05:11	Moon occults Fang
17	00:00	Moon 3.1° ESE of Antares
17	00:00	Moon 4.2° ESE of M4
18	17:00	Sun in Aries (25.5d)
19	00:00	Saturn in Pisces
19	02:00	Moon 4.9° S of M22
19	05:58	First sunrise before 6:00am
20	21:34	Mars Quadrature (90° E)
20	21:36	**Last Quarter Moon**
21	03:00	Moon 1.4° SE of Pluto
21	15:00	Mercury Greatest Elongation (27.4° W)
22	04:00	Venus Brightest (mag. -4.8)
22	09:00	Lyrid Meteor Shower
22	21:00	Haumea Opposition (mag: 17.5, dist: 49.008 au)
23	18:00	Sun Declination ½ to Solstice (+12° 43' 09")
24	12:00	Mercury 50% Illuminated
25	05:00	Moon, Venus & Saturn withinin 4.5°
27	15:31	**New Moon** (Lunation 1265)
28	21:00	Moon 4.0° WSW of M45
29	05:00	Venus 3.7° N of Saturn
30	05:42	First 14 hours of daylight

Ephemeris times are in EDT (UTC-4) for Seagrave Observatory (41.845N, 71.590W)

ning of the 1st, when the 18.0%-illuminated crescent lies just 1.4° above the cluster.

The Moon attains its most northerly position for the month on the 3rd, and for about four hours it passes through the non-zodiacal constellation Auriga. The still crescent Moon sets at 2:09am on the 4th.

The first quarter Moon occurs at 10:14pm on the 4th, in Gemini.

The following evening, the 5th, the slightly gibbous Moon is located near the twin stars Pollux and Castor in Gemini, as well as 2.6° from Mars.

On the 6th, the Moon is 4.5° northeast of the Beehive Cluster, M44, in Cancer, and on the 7th-8th, it lies near Regulus, in Leo.

The Moon is full at 8:22pm EDT on the 12th. This is the first full Moon of the spring season, and is referred to as the Pink Moon. The Moon rises just an hour before it becomes full, and just as the Sun is setting, which makes for the most photogenic full Moon rises, as the foreground landscape will still be brightly illuminated. Keep watching the Moon as it rises and the sky undergoes the vibrant Belt of Venus phenomenon, when the edge of Earth's shadow creeps upward from the eastern horizon to overtake the remaining blue, violet, and pink hues from the fading twilight. As the sky continues to darken, you may notice a bright star just 0.5° north-northwest of the Moon, that's Spica, the brightest star in Virgo.

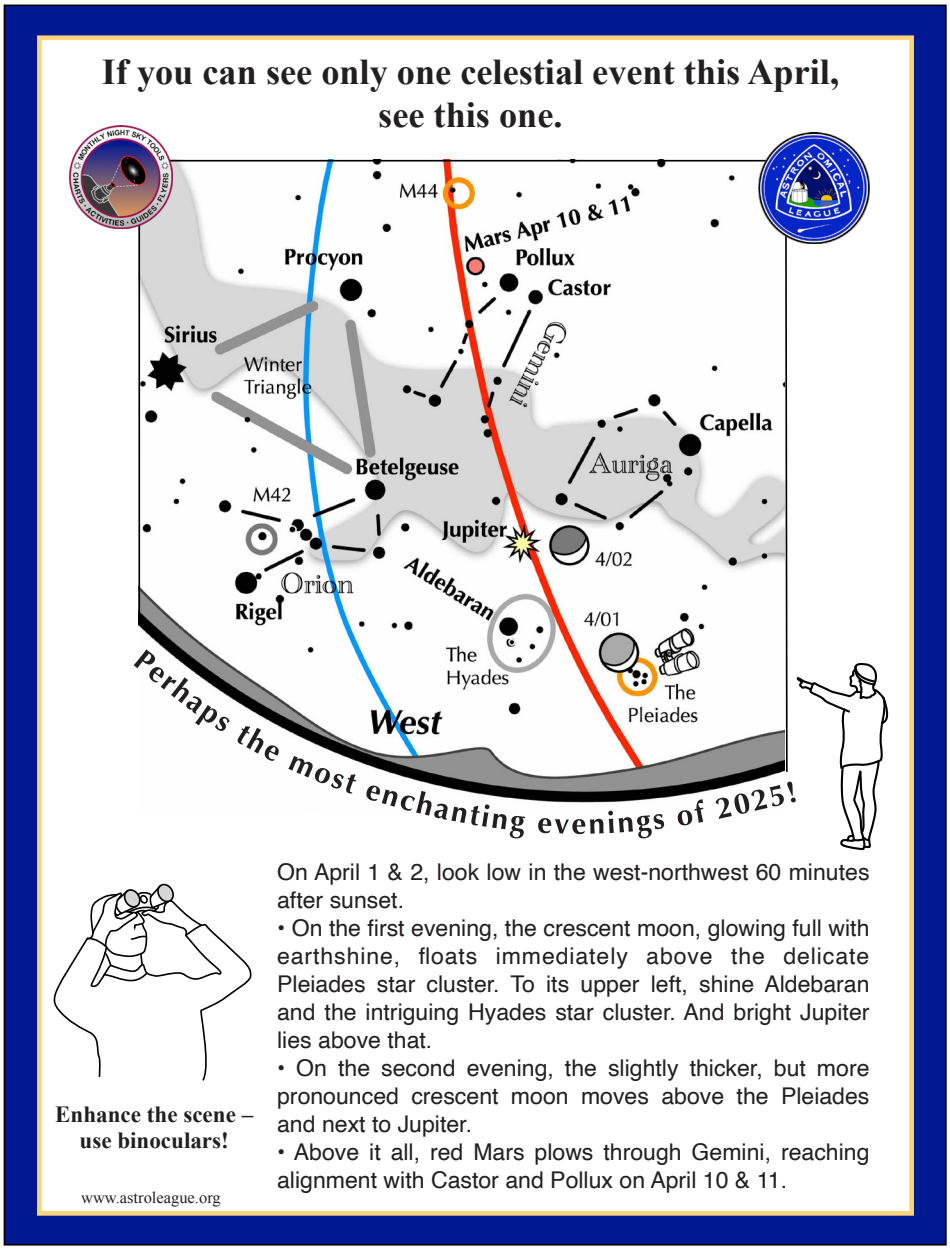
The Moon sets at 6:09am on the following morning, the 13th, just as the Sun is rising.

On the 16th, the 90% illuminated Moon occults Fang (pi Scorpii), the magnitude 2.9 star marking the southern claw of the scorpion, beginning at 5:11am and reemerging after sunrise. Later that evening, the waning gibbous Moon appears 3.1° east-southeast of Antares.

The Moon is last quarter in Sagittarius at 9:36pm on the 20th.

On the morning of the 25th, the 8.6% illuminated waning crescent Moon, Venus, and Saturn form a 4.5° triangle, making the grouping visible in the same binocular field. For an additional challenge, use a telescope to find Neptune just 0.5° south of the Moon.

The Moon is new at 3:31pm on the 27th, beginning Lunation 1265. A young crescent sighting opportunity opens 29 hours later, when the 2.2% illuminated Moon can be seen after sunset. Also on this evening, the Moon is just 4.0° west-southwest of the Pleiades. You may also find Uranus 3.9° south of the Moon.



The Moon appears 11.1° west-northwest, and 6.0° northeast of Jupiter on the 29th and 30th, respectively.

Mercury is low in the eastern sky before sunrise in early April. Through a telescope you can see Mercury going through its waxing crescent phase, though you'll need rather high magnification and a very clear horizon to see it.

Mercury is at greatest elongation in the morning sky on the 21st. Although it reaches a generous separation of 27.4° west of the Sun, this is not a very favorable viewing opportunity due to its low angle on the ecliptic during April mornings, which allows Mercury to be seen for less than an hour before sunrise.

Having passed its inferior conjunction last month, **Venus** is in the eastern sky before sunrise, where it will remain in its position as the Morning Star for the remainder of the year.

The brilliant planet is up an hour before sunrise on the 1st, putting it in a good position to observe its remarkably thin crescent.

Starting from the 15th, Venus is visible for at least 90 minutes before sunrise.

Venus is at its brightest on the 22nd, shining at magnitude -4.8 at a phase illumination of 22.1% on its 41.5 arcsecond disk.

Venus tracks just a few degrees northwest of Saturn throughout April, as the two planets slowly draw closer. The waning crescent Moon joins Venus and Saturn in a 4.5° celestial triangle that will be a fine sight in binoculars on the 25th. On the 29th, the two planets will be at their closest, 3.8°.

Although **Mars** doesn't reach its quadrature (90° elongation from the Sun) until the 20th, you'll notice it positioned close to the meridian during twilight early in the month. This coincides with its highest ele-

vation in the south, and it will continue to appear lower in the sky each evening, but we still have plenty of time to observe Mars in our evening sky..

Mars crosses the imaginary line connecting Pollux in Gemini and Procyon in Canis Minor on the evening of the 1st, subsequently "exiting" the Winter Hexagon asterism. This is a good time to take note of its eastward progression each evening.

As Mars is becoming more distant, it also continues to fade. Now at magnitude 0.5, it is of similar brightness to the nearby stars Betelgeuse and Procyon. Although Mars is now over 1 au away, its 8.2 arcsecond globe will still show surface detail in larger telescopes and during nights of favorable seeing conditions.

The waxing gibbous Moon joins Mars on the 5th, when the pair will be separated by just 2.6°.

Mars lies in line with Castor and Pollux, in Gemini, on the evening of the 10th.

When we think of planets going through phases, the inner planets Venus and Mercury are the ones that come to mind, both of which are currently displaying crescents.

The outer planets also undergo phases, but because they never come close to passing between the Sun and Earth, they show only either gibbous or full phases. The full phases occur at the point of opposition, and at all other times they appear as gibbous. The extent of the gibbous phase of the more distant planets is detectable, yet subtle. Jupiter's darkened limb can be seen through large telescopes or images, Saturn and its rings provide shadow cues pointing to its darker limb. Mars, given its proximity to Earth compared to the more distant outer planets, can display an obvious gibbous phase near its points of quadrature (90° elongation from the Sun). One of these times is occurring now, and on the 10th, Mars reaches its minimum illuminated fraction, 89.9%. This is approximately the same illumination of the Moon when it is about 3.5 days before full.

Mars reaches its point of eastern quadrature (90° from the Sun) in Cancer on the 20th. Through a telescope you will see a distinct gibbous phase, but its 7.3 arcsecond disk may not reveal much in the way of surface markings unless you observe it with a larger telescope.

The last week of April sees Mars within a binocular field of view of the Beehive Cluster, M44, in Cancer. The Red Planet closes in on the cluster by about 0.4° eastward each evening until May 4, when it lies just on the northern edge of the cluster.

By the end of the month, Mars shows a disk smaller than 7 arcseconds, making resolving surface details difficult without a large telescope and exceptionally good seeing conditions.

Jupiter is quickly losing its position of prominence in the sky during April. It still resides in Taurus, but it and its host constellation are moving lower into the western sky.

The waxing crescent Moon pairs with the giant planet on the 2nd-3rd. Around 10:00pm, they will be separated by less than 5°.

On the 10th, Jupiter will be just 1.0° from the open cluster NGC 1746, whose brightest members are 7th magnitude. The pairing should be appreciated in larger telescopes with lower magnification, wide-field eyepieces..

Jupiter crosses the line connecting Capella in Auriga to Rigel in Orion on the 24th.

Moons of Jupiter

A very close pairing of Europa and Ganymede on the east side of Jupiter can be seen early on the 1st. Just as twilight is fading, they will be within 5 arcseconds of each other.

The moons are arranged in order of orbital radius, extending to the west of the planet, early on the 3rd. Io and Europa will be occulted by Jupiter at 9:18pm and 10:24pm, respectively.

Ganymede goes into occultation at 7:50pm on the 6th, and reemerges at 10:26pm.

Europa and Io make a close pair, just 4 arcseconds, at 10:15pm on the 7th.

On the 8th-9th, to the east of Jupiter, Callisto, Europa and Ganymede form a tight grouping which transforms from a line to a small triangle. Io appears alone on the west side of the planet.

On the 11th, Io emerges from transit at 10:48pm, and its shadow exits the planet's disk 68 minutes later.

On the 12th, Io emerges from eclipse at 9:06pm, and Europa emerges from transit at 10:18pm.

The moons form two distinct pairs to the east of Jupiter on the 14th: Europa and Io as the innermost pair, and Ganymede and Callisto the outermost.

Another grouping similar to that seen on the 8th-9th is visible on the 15th.

All four moons appear in order of their orbital radius to the west of Jupiter on the 17th.

Io enters transit at 10:34pm on the 17th.

Europa enters transit at 10:28pm on the 19th, and Io emerges from Jupiter's shadow 34 minutes later.

On the 21st, Europa exits Jupiter's shadow at 10:02pm.

Ganymede exits transit at 9:28pm on the 23rd. Its shadow begins to cross Jupiter's disk at 10:36pm.

Io passes behind Jupiter at 9:48pm on the 26th. On the 27th, Io emerges from transit at 9:20pm, followed by its shadow at 10:16pm.

On the 28th, Europa goes into occultation at 8:12pm.

If you are able to locate Mercury in the morning sky in early April, you may also be able to find **Saturn**, and given the still narrow ring angle, it's worth the effort to try to find it.

The effort will require a telescope, as well as an exceptionally clear east-southeastern horizon. Once Mercury is found, move to the 4 o'clock position away from Mercury, which is moving towards Saturn each morning during the first few days of April. The distance to move decreases as the week progresses, from 4.6° on the 1st, to just 2.0° on the 10th.

On the 1st, the ring plane angle is just -0.8. The value is negative because we're now seeing the southern face. Saturn's equinox is still a month away, so the sunlit side of the rings is still the north side, meaning the rings will be rather dark, and very difficult for us to see, especially considering we're looking through bright twilight at this time.

By mid-month, Saturn rises an hour before sunrise and can be located just below Venus in the morning twilight. Venus and Saturn gradually draw closer as the month progresses. On the 16th, it is 6.1° to the southeast of Venus, and 4.5° on the 22nd.

Saturn crosses from Aquarius into Pisces on the 19th.

The waning crescent Moon, Venus and Saturn form a 4.5° triangle on the 25th, and Venus is 3.7° north of Saturn on the 27th.

By month's end, the ring plane angle will increase to -2.5°.

Uranus is in Taurus, just a few degrees southwest of the Pleiades. Early April is the last chance to get a good view of the planet before it is lost to evening twilight. In early April, it is 6.7° from the Pleiades, and by month's end, it is just 5.9° away.

Neptune is too low in the east before sunrise to observe until later in the month.

Mercury is 0.7° southeast of the distant ice giant on the 17th.

On the 30th, Venus, Saturn and Neptune form a triangle with segments 3.8°, 3.3° and 2.8°. Neptune's magnitude is 7.8, making it a challenge to observe in twilight.

The distant dwarf planet **Haumea** reaches opposition on the 22nd. At a distance of 49.001 au, light from the 1900-kilometer-wide egg-shaped world takes 6.8 hours to reach us, glowing at magnitude 17.5, which is detectable with a modest-sized telescope equipped with an astronomical imaging camera. Haumea is a fascinating object: its day is just 3.9 hours long, and it possesses a ring and two known moons. Find Haumea about 1.0° northwest of zeta Bootis.

Asteroid **4 Vesta** is well-placed for observing in April. Moving retrograde through northern Libra, it is high over the southeastern horizon by midnight, and its magnitude 6.2 brightness puts it within easy range of binoculars and small telescopes even during nights that are brightly moonlit.

In early April, Vesta can be found 3.1° north of Zubeneschamali (beta Librae). You can also look about 8° south of the large and bright globular cluster M5. Vesta is easy to locate with binoculars at magnitude 5.9 when it passes 3.7° north of delta Librae on the 20th. As the month progresses, it moves in a more west-northwesterly direction towards magnitude 4.5 16 Librae, which it passes within 0.2° south-southeast, and 0.3° southwest of on the 26th and 27th, respectively.

Asteroid **3 Juno** is following a nearly parallel track about 14° east of Vesta throughout 2025. The smaller and more distant asteroid requires a telescope to see its 10th magnitude glow.

2 Pallas swings in a northeasterly direction through Delphinus during April. Although this section of sky is low in the east-southeast just before dawn early in the month, it attains altitude and puts the magnitude 10.4 asteroid in better viewing position later in the month. On the 1st, it is 1.8° north of the globular cluster Caldwell 47 (NGC 6934), and on the 8th, it is 0.3° south-southeast of magnitude 5.2 kappa Delphini.

As the dwarf planet **Ceres** lies over 8° south of the ecliptic at this time when the angle of ecliptic is low on the horizon before sunrise, the 10th magnitude object is not in a good position to observe this month.

Pluto is in Capricornus and is just high enough in the southeast to begin observing before twilight later in the month. It is 8.1° south of beta Capricorni.

The annual **Lyrid meteor shower** is active during the third week of April, with peak activity occurring on the night of the 21st-22nd. Observers under a dark sky could experience up to 18 meteors per hour, originating from the patch of sky just west of Vega. The 36% illuminated waning crescent Moon rises at 3:19am.

The Lyrids are produced by grains left by comet C/1861 G1 Thatcher, a long-period comet that is not expected to return for another 250 years.

The **eta Aquarid meteor shower** is a long-duration meteor shower that is active for nearly a month beginning in late April, with best prospects for seeing meteors within a few days of the peak on May 3rd-4th. The shower favors southern hemisphere observers and doesn't gain much attention in the north due to the radiant being located near the water jar asterism of Aquarius near the peak activity period, and this area of sky is only above the horizon for about two hours before twilight. The waxing crescent Moon will be out of the sky during the morning hours.

The eta Aquarids are one of two significant meteor showers that originates from comet 1P/Halley, which replenishes the meteor stream every 76 years.

Determining the Date of Easter

by Francine Jackson

Happy Easter, for all who celebrate it! Once more, it is coming, and at quite a late time in the month. It seems this feast is very movable; it can come anywhere from mid March to late April.

Several centuries ago, based on a slight flaw in the calendar introduced by Julius Caesar, Easter, and the days that went with it – Ash Wednesday, Palm Sunday – were coming much too early in the year. To remedy this, Pope Gregory XIII in 1582 tweaked the calendar just enough to bring the days back to where they were supposed to be.

The celebration of Easter occurs on the first Sunday after the first Full Moon after the first day of the season of spring. This year, as spring began Thursday, March 20th, the first Full Moon after that date takes place Saturday, April 12th. But, wait! The next day, April 13th, isn't Easter, but Palm Sunday. What we have to remember is that celestial events occur based on Universal time, the time at the Greenwich Observatory. On your calendar the Moon is listed as happening at 8:22 P.M., DST. At the Greenwich Observatory, that translates to twenty minutes after midnight, April 13th. Therefore, for us, April 13th is Palm Sunday, and Easter is the following Sunday, April 20th. Next year, the Full Pink Moon will occur the first of April, and Easter will be much earlier, April 5th.

The first Full Moon of the spring season, the Pink Moon, occurs on the April 13th UTC.

April Night Sky Notes:

Catch the Waves!

by Kat Troche

The Electromagnetic Spectrum

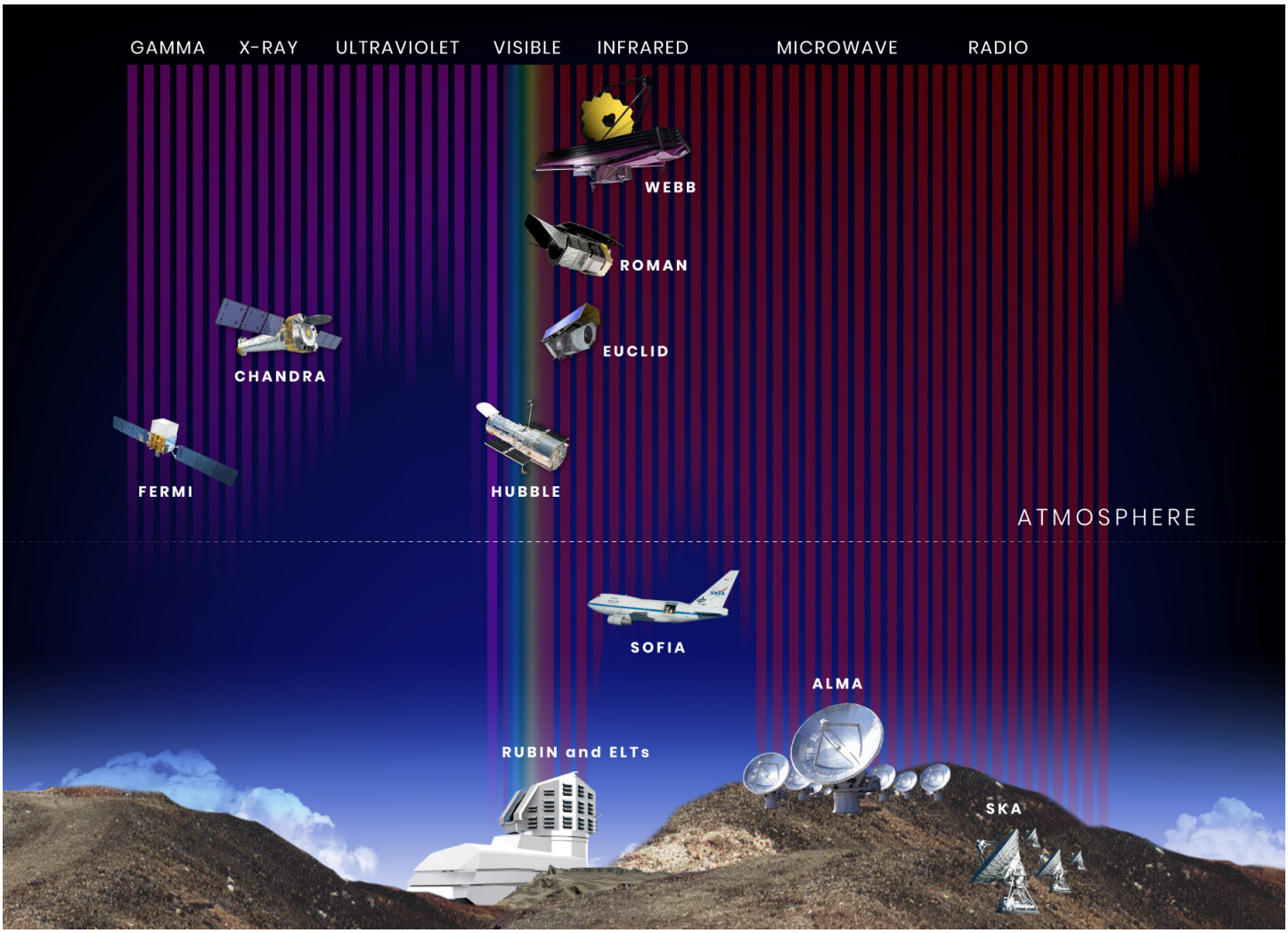
If you've ever heard the term "radio waves," used a microwave or a television remote, or had an X-ray, you have experienced a broad range of the electromagnetic spectrum! But what is the electromagnetic spectrum? According to Merriam-Webster, this spectrum is "the entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light." But what does that mean? Scientists think of the entire electromagnetic spectrum as many types of light, only some that we can see with our eyes. We can detect others with our bodies, like infrared light, which we feel as heat, and ultraviolet light, which can give us sunburns. Astronomers have created many detectors that can "see" in the full spectrum of wavelengths.

Telescope Types

While multiple types of telescopes operate across the electromagnetic spectrum, here are some of the largest, based on the wavelength they primarily work in:

• **Radio:** probably the most famous radio telescope observatory would be the Very Large Array (VLA) in Socorro County, New Mexico. This set of 25-meter radio telescopes was featured in the 1997 movie Contact. Astronomers use these telescopes to observe protoplanetary disks and black holes. Another famous set of radio telescopes would be the Atacama Large Millimeter Array (ALMA) located in the Atacama Desert in Chile. ALMA was one of eight radio observatories that helped produce the first image of supermassive black holes at the center of M87 and Sagittarius A* at the center of our galaxy. Radio telescopes have also been used to study the microwave portion of the electromagnetic spectrum.

• **Infrared:** The James Webb Space Telescope (JWST) operates in the infrared, allowing astronomers to see some of the earliest galaxies formed nearly 300 million years after the Big Bang. Infrared light allows astronomers to study galaxies and nebulae, which dense dust clouds would otherwise obscure. An excellent example is the Pillars of Creation located in the Eagle Nebula. With the side-by-side image comparison below, you can see the differences



This illustration shows the wavelength sensitivity of a number of current and future space- and ground-based observatories, along with their position relative to the ground and to Earth's atmosphere. The wavelength bands are arranged from shortest (gamma rays) to longest (radio waves). The vertical color bars show the relative penetration of each band of light through Earth's atmosphere. Credit: NASA, STScI

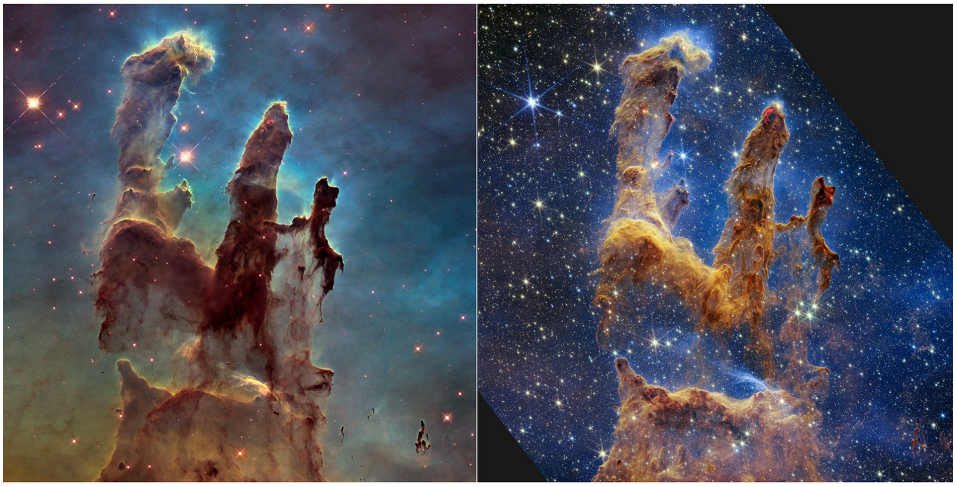
between what JWST and the Hubble Space Telescope (HST) were able to capture with their respective instruments.

- **Visible:** While it does have some near-infrared and ultraviolet capabilities, the Hubble Space Telescope (HST) has primarily operated in the visible light spectrum for the last 35 years. With over 1.6 million observations made, HST has played an integral role in how we view the universe. Review Hubble's Highlights here. https://science.nasa.gov/mission/hubble/science/science-highlights/
- **X-ray:** Chandra X-ray Observatory was designed to detect emissions from the hottest parts of our universe, like exploding stars. X-rays help us better understand the composition of deep space objects, highlighting areas unseen by visible light and infrared telescopes. This image of the Crab Nebula combines data from five different telescopes: The VLA (radio) in red; Spitzer Space Telescope (infrared) in yellow; Hubble Space Telescope (visible) in green; XMM-Newton (ultraviolet) in blue; and Chandra X-ray Observatory (X-ray) in purple. You can view the breakdown of this multiwavelength image https://chandra.harvard.edu/photo/2017/crab/.

Try This At Home

Even though we can't see these other wavelengths with our eyes, learn how to create multiwavelength images with the Cosmic Coloring Compositor activity (https://public.nrao.edu/color/) and explore how astronomers use representational color to show light that our eyes cannot see with our Clues to the Cosmos activity (https://nightsky.jpl.nasa.gov/documents/756/CluesCosmosHandouts.pdf).

This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!



NASA's Hubble Telescope captured the Pillars of Creation in 1995 and revisited them in 2014 with a sharper view. Webb's infrared image reveals more stars by penetrating dust. Hubble highlights thick dust layers, while Webb shows hydrogen atoms and emerging stars. You can find this and other parts of the Eagle Nebula in the Serpens constellation. Credit: NASA, ESA, CSA, STScI, Hubble Heritage Project (STScI, AURA)

The Crab Nebula, located in the Taurus constellation, is the result of a bright supernova explosion in the year 1054, 6,500 light-years from Earth. Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI; Infrared: NASA/JPL/Caltech; Radio: NSF/NRAO/VLA; Ultraviolet: ESA/XMM-Newton

Observer's Challenge:

NGC 2419: Globular Cluster in Lynx

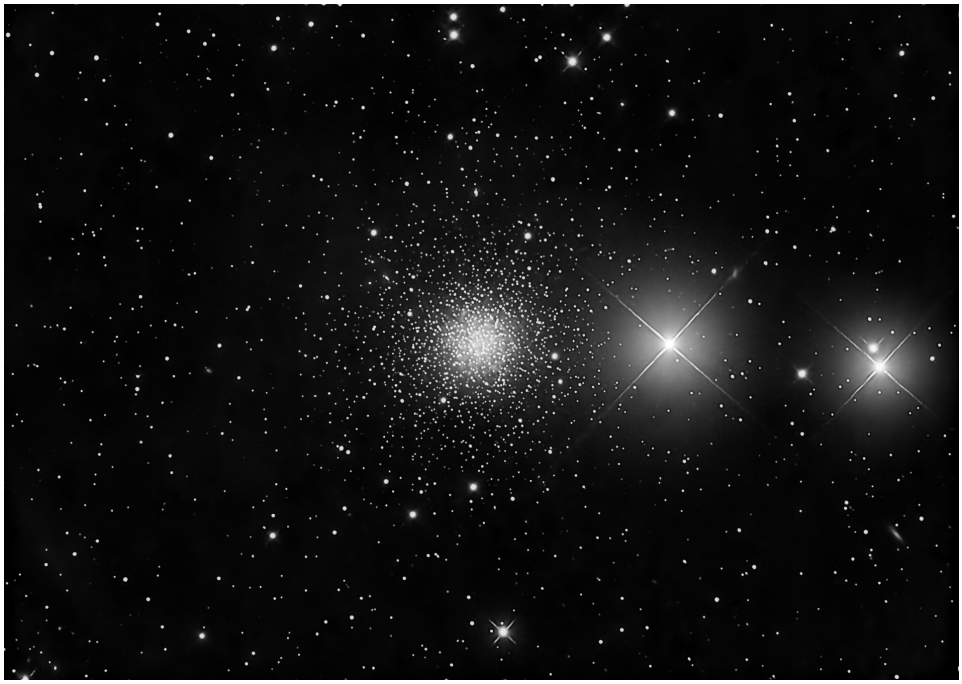
by Glenn Chaple

(Magnitude 10.3; Size 5' [photographic] 2' [visual])

Our March Observer's Challenge is the globular cluster NGC 2419 in Lynx. It was discovered by William Herschel on December 31, 1788 with an 18.7-inch reflecting telescope. Unable to resolve the cluster, he cataloged it as a Class I object (bright nebulae) and described it as "considerably bright, round, very gradually much brighter in the middle, about 3' diameter." It wasn't until the mid-19th century that William Parsons, the 3rd Earl of Rosse, resolved the cluster with his 6-foot wide reflector the "Leviathon of Parsonstown."

NGC 2419 is located at the 2000.0 coordinates RA 7h38m08s and DEC +38o52'53". Because this is an area devoid of any bright guide stars, star-hoppers will have to make a rather long 7 degree trek north of Castor (alpha [α]) Geminorum. Using a low-power wide-field eyepiece, move 2 degrees northeast of Castor to a 3 degree-long upwardly curving row of five magnitude 5 to 6 stars. A three degree move northward of the uppermost of this quintet (the star 70 Geminorum) will bring you into Lynx and the reddish magnitude 5.8 magnitude star HD61294. NGC 2419 is located about 40 arc-minutes northwest of this star, but you won't see it at first. What you will see is a pair of stars of magnitudes 7.2 and 7.9 that lie immediately to its west. The fainter and more westerly of the two is the wide double star Struve 1118, whose magnitude 8.0 primary is paired with a magnitude 10.7 companion 23.4" to its north-northeast. A line traced from Struve 1118 past the magnitude 7.2 star and extended an equal distance beyond will bring you to the location of NGC 2419. You won't see anything at low power, but boost the magnification to 75X, and you should pick out a faint roundish fuzzball. NGC 2419 can be viewed with apertures as small as 4 inches, but only from dark-sky locations. In suburban areas where the limiting magnitude is 5, you may need twice that aperture.

Is there anything special about a globular cluster so faint that it's an elusive blob in a 4-inch scope and unresolvable, even through one whose tube is the size of a standard water heater? You bet there is! NGC 2419 is one of the most distant of our galaxy's roughly150 known globulars, not only from the earth, but also from our galaxy's center. When measurements made in the 1930s indicated a distance of nearly100,000 light years, it was thought that this globular was outside the constraints of the Milky Way and earned it the nick-name the "Intergalactic Tramp" or "Intergalactic Wanderer." Modern-day measurements place its distance from earth at 275,000 light years and its distance from the galactic center at 300,000 light years – nearly twice that of the Magellanic Clouds. Nevertheless, it's gravitationally bound to the Milky Way, orbiting our galaxy once every 3 or 4 billion years. In reality, this seemingly obscure little globular cluster is a true giant. Were it at the same distance as M13, it would appear to be the same size as the full moon.

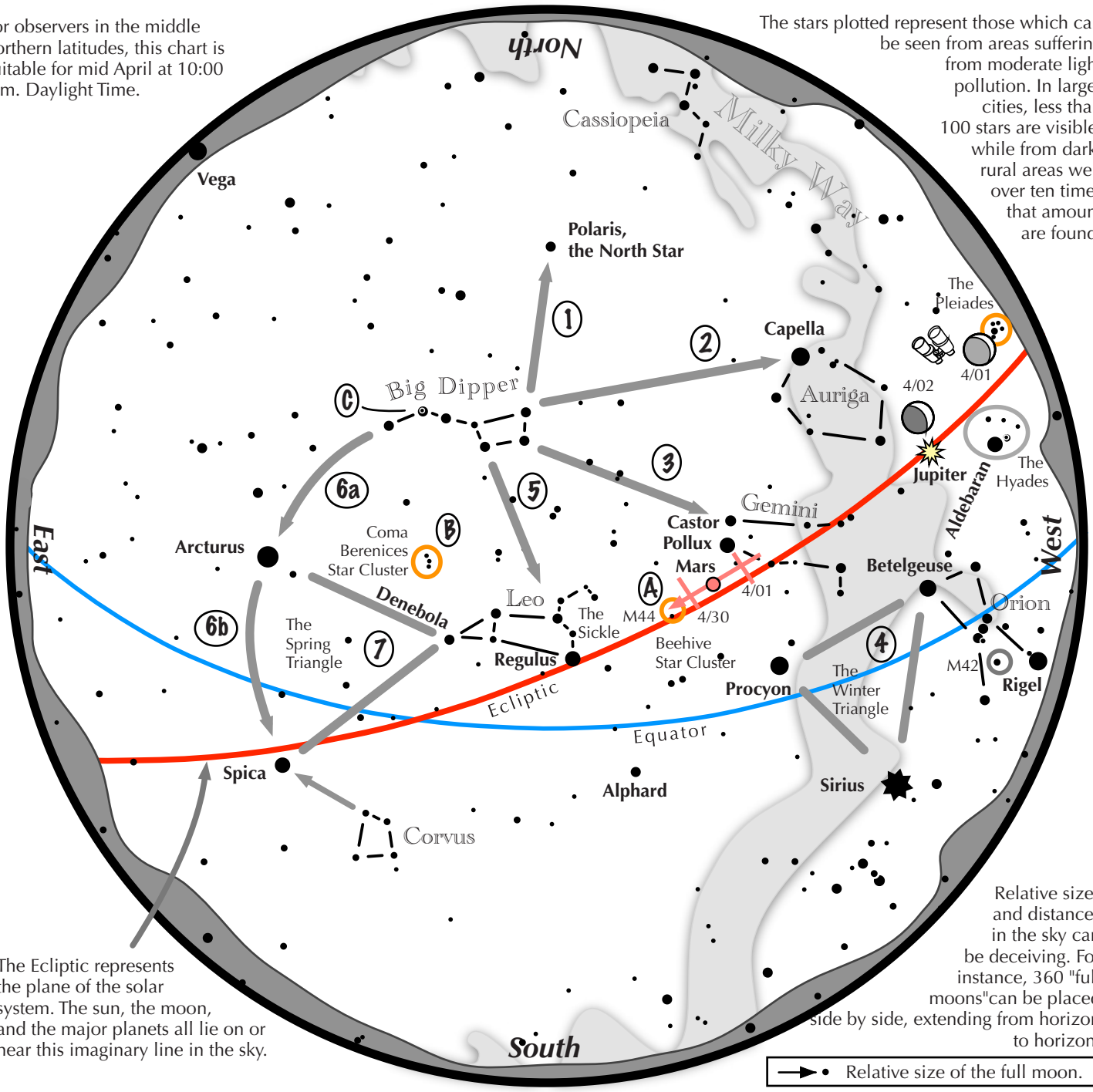


This was taken with my 32 inch scope from Gloucester with my ZWO 6200 camera, in December. about 1 hour Lum imaging in total. Processed in PixInsight. It is a "small appearing" globular, 6 arc min, because it is 300,000 LY away. In reality it is one of the Milky way's largest globulars. It has a far reaching orbit that goes further out than the Magellanic clouds, and takes about 3 billion years to orbit the milky way. Easily seen however, as it is mag 9, small but reasonably bright. Mario Motta

Navigating the April Night Sky, Northern Hemisphere

For observers in the middle northern latitudes, this chart is suitable for mid April at 10:00 p.m. Daylight Time.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons"can be placed side by side, extending from horizon to horizon.

Relative size of the full moon.

Navigating the April night sky: Simply start with what you know or with what you can easily find.

1. Extend an imaginary line north from the two stars at the tip of the Big Dipper's bowl. It passes Polaris, the North Star.
2. Draw another imaginary line west across the top two stars of the Dipper's bowl. It strikes Capella low in the northwest.
3. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
4. Look in the west-southwest for the bright Winter Triangle stars of Sirius, Procyon, and Betelgeuse.
5. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
6. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
7. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.

Binocular Highlights

A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.
B: Look nearly overhead for the loose star cluster of Coma Berenices.
C: In the Big Dipper's handle shines Mizar next to a dimmer star, Alcor.

Astronomical League
www.astroleague.org

The Sun, Moon & Planets in April

This table contains the ephemeris of the objects in the Solar System for each Saturday night in April 2025. Times in Eastern Daylight Time (UTC-4). Ephemeris times are for Seagrave Observatory (41.845N, 71.590W).

Object	Date	RA	Dec	Const	Mag	Size	Elong	Phase(%)	Dist(S)	Dist(E)	Rise	Transit	Set
Sun	**5**	0 56.9	6 05.1	Psc	-26.8	1918.6	-	-	-	1	06:21	12:48	19:16
	12	1 22.6	8 41.6	Psc	-26.8	1914.8	-	-	-	1.002	06:10	12:47	19:24
	19	1 48.5	11 11.0	Ari	-26.8	1911.1	-	-	-	1.004	05:59	12:45	19:32
	26	2 14.8	13 31.5	Ari	-26.8	1907.4	-	-	-	1.006	05:48	12:44	19:40
Moon	**5**	7 03.6	27 26.0	Gem	-11.9	1917.4	89° E	49	-	-	11:48	19:50	03:40
	12	12 42.0	-6 16.0	Vir	-12.5	1780.2	169° E	99	-	-	19:22	00:50	06:10
	19	18 24.8	-28 46.4	Sgr	-12.2	1787.3	114° W	70	-	-	01:27	05:40	09:56
	26	0 33.7	4 27.9	Psc	-9.5	1978.7	26° W	5	-	-	04:56	11:37	18:34
Mercury	**5**	23 48.5	-0 38.7	Psc	2.0	10.6	18° W	15	0.445	0.635	05:38	11:37	17:36
	12	23 53.3	-1 54.2	Psc	1.0	9.4	25° W	29	0.462	0.713	05:20	11:16	17:12
	19	0 11.1	-1 11.8	Psc	0.6	8.3	27° W	41	0.466	0.810	05:08	11:07	17:07
	26	0 38.1	1 04.7	Cet	0.3	7.4	27° W	52	0.457	0.915	05:00	11:07	17:16
Venus	**5**	23 34.8	4 17.2	Psc	-4.2	55.3	21° W	6	0.722	0.306	05:07	11:23	17:40
	12	23 32.6	2 21.4	Psc	-4.4	50.2	28° W	12	0.723	0.337	04:44	10:54	17:04
	19	23 37.4	1 12.4	Psc	-4.5	44.9	34° W	19	0.724	0.377	04:26	10:32	16:39
	26	23 48.2	0 51.9	Psc	-4.5	40.1	38° W	25	0.725	0.422	04:10	10:16	16:22
Mars	**5**	7 49.6	23 39.6	Gem	0.5	8.0	99° E	90	1.665	1.177	12:04	19:39	03:14
	12	8 00.5	23 00.2	Gem	0.7	7.5	95° E	90	1.666	1.243	11:50	19:22	02:54
	19	8 12.2	22 16.0	Cnc	0.8	7.1	91° E	90	1.666	1.309	11:38	19:07	02:35
	26	8 24.7	21 26.7	Cnc	0.9	6.8	87° E	90	1.666	1.375	11:27	18:52	02:16
1 Ceres	**5**	23 19.1	-13 07.9	Aqr	9.3	0.3	31° W	99	2.977	3.790	05:55	11:09	16:24
	12	23 29.0	-12 15.2	Aqr	9.3	0.3	35° W	99	2.977	3.740	05:34	10:51	16:10
	19	23 38.7	-11 23.9	Aqr	9.3	0.3	39° W	99	2.976	3.684	05:13	10:34	15:55
	26	23 48.2	-10 34.4	Aqr	9.3	0.3	44° W	99	2.976	3.622	04:51	10:16	15:40
Jupiter	**5**	5 02.0	22 28.2	Tau	-1.9	35.6	61° E	99	5.114	5.521	09:21	16:51	00:20
	12	5 07.0	22 35.9	Tau	-1.9	35.0	55° E	99	5.117	5.618	08:58	16:28	23:59
	19	5 12.5	22 43.4	Tau	-1.9	34.5	50° E	99	5.119	5.709	08:36	16:06	23:37
	26	5 18.2	22 50.5	Tau	-1.9	34.0	44° E	100	5.122	5.792	08:13	15:45	23:16
Saturn	**5**	23 44.6	-3 47.0	Aqr	1.2	15.7	21° W	100	9.602	10.532	05:45	11:34	17:23
	12	23 47.6	-3 28.2	Aqr	1.2	15.8	27° W	100	9.600	10.485	05:20	11:09	16:59
	19	23 50.6	-3 10.2	Aqr	1.2	15.9	33° W	100	9.598	10.428	04:54	10:45	16:36
	26	23 53.4	-2 53.1	Psc	1.2	16.0	39° W	100	9.595	10.360	04:28	10:20	16:12
Uranus	**5**	3 30.6	18 47.2	Tau	5.8	3.5	39° E	100	19.537	20.299	08:06	15:19	22:32
	12	3 32.0	18 52.3	Tau	5.8	3.5	33° E	100	19.536	20.370	07:40	14:53	22:07
	19	3 33.5	18 57.6	Tau	5.8	3.5	26° E	100	19.535	20.429	07:13	14:27	21:41
	26	3 35.1	19 03.1	Tau	5.8	3.4	20° E	100	19.534	20.476	06:47	14:01	21:16
Neptune	**5**	0 02.8	-1 04.8	Psc	8.0	2.2	15° W	100	29.892	30.855	05:54	11:52	17:50
	12	0 03.7	-0 58.8	Psc	8.0	2.2	22° W	100	29.892	30.819	05:27	11:25	17:24
	19	0 04.6	-0 53.1	Psc	8.0	2.2	29° W	100	29.891	30.770	05:00	10:59	16:58
	26	0 05.5	-0 47.8	Psc	7.9	2.2	35° W	100	29.891	30.709	04:33	10:32	16:31
Pluto	**5**	20 27.2	-22 42.6	Cap	14.5	0.2	72° W	100	35.236	35.534	03:42	08:17	12:52
	12	20 27.6	-22 42.6	Cap	14.5	0.2	79° W	100	35.241	35.424	03:15	07:50	12:24
	19	20 27.8	-22 42.9	Cap	14.5	0.2	85° W	100	35.246	35.311	02:48	07:22	11:57
	26	20 28.0	-22 43.6	Cap	14.5	0.2	92° W	100	35.250	35.197	02:21	06:55	11:30

BROWN
Department of Physics

PHYSICS FUNDAMENTALS ASTROPHOTOGRAPHY CONTEST!

PRIZES: FIRST, SECOND, THIRD PLACE AND HONORABLE MENTION PRIZES AWARDED!

Winners to be announced during the Physics Fundamentals video release on April 25, 2025!
Submission deadline is April 11, 2025.

Email submissions to: robert_horton@brown.edu.

Submissions will be judged based on a 1280 x 720 resolution and may be used in a Physics Fundamentals video.

Here is a photo of Jay Baccala with his Seestar sitting on top of the Patton observing stool. Jay took the stool seat home to devise a way to keep the seat from rotating on its stand. Photo by Bob Janus

February & March Reports

Executive Committee Meeting
Monday, February 24, 2025 at 7 PM

AGENDA

1. Welcome & Introductions

Members Present: Linda Bergemann, Kathy Siok, Steve Siok, Jim Hendrickson, Matt White, Jay Baccala,

Absent: Steve Brown, Dan Lake, Rich Doherty, Dan Fountain, Michael Corvese, Bob Horton, Francine Jackson

2. Additions to Agenda

None

4. Minutes, Comments

None. Minutes approved.

5. Open Action Items

Surplus Equipment (Trustees): Linda will post the 7" Maksutov telescope for sale. It is currently stored in the Patton building.

Conduct of overall inventory postponed until Spring.

Surplus eyepieces have all been cataloged, and most of them are 'useless.' Steve will offer them to attendees at the next meeting. Linda has two eyepieces left from the last library telescope to contribute.

Scituate Signage Project (Linda): On hold.

Develop proposal for Observatory Committee and members using equipment (Trustees)

Will be discussed by the Trustees and Observatory Committee before introduction to the membership.

6. Officer Reports

Monthly Meetings (Michael): Michael absent.

Conrad Cardano will conduct a workshop on the SeeStar telescope at 4:30 PM on March 1, followed by the meeting.

Treasurer (Kathy): Star Party donations ($400) reported this month are for events held in November.

Monies ($26) recorded as Misc Income: Sale of Items is incorrect. This was a reimbursement to Linda and should be accompanied by a matching income entry.

Overall, finances are in good shape as the end of the fiscal year approaches.

Membership Secretary (Angella): Angella absent.

Linda reported new members Joseph Blain, a senior member, and family members Elijah Nelson and Lindsay Spann.

Jim inquired about welcome kits. Linda responded that we no longer send a "package" to new members.

Trustees (Steve): We have not been open at all for the winter months. We should reconsider scheduling open nights next winter since our track record has been poor.

Steve reported that they are investigating motorizing the roof for the 12-inch. We will budget $1,500 for this effort. Steve is awaiting information from Tom Thibault on the system used for the 16-inch.

Linda asked the Trustees for other maintenance and improvement items that should be included in the budget. Steve noted that grab rails are needed at the entrance to the Patton; estimate $150.

Matt raised concern about the Clark building roof. The challenge is finding an appropriate contractor. Leakage has been minimal over the past few months. Linda will provide the name for a potential contractor. Linda asked that the Trustees give thought to adding handicapped access to the meeting hall. Must comply with applicable codes. Discussion followed.

Program Committee (Dan F.): No report; Dan absent. Observatory Committee (Steve S.): Steve reported that the observatory will be open the night of our April meeting, as well as subsequent meetings held at Seagrave. We must plan for Observatory Committee members to open the telescopes and greet guests.

Webmaster (Jim H.): Access to our new website has been restored. Membership renewal through PayPal will reside on the new, secure website.

Librarian (Francine): Francine will take over as Librarian.

Historian: Linda looking for a Historian. Must be a long-time member, familiar with the organization. Archival materials are still in possession of the Huestis family.

Members-at-Large (Dan & Jay)

Jay has the new shelf for SeeStar ready to install; just waiting for access.

6. Unfinished Business

Nominations (Bob H.): Bob absent.

Jay Baccala has accepted the nomination for Junior Trustee, a three-year term. Must elect someone to replace Jay as Member-at-Large. Bob is working on this to prepare for our March 1 meeting.

Budget: Linda reminded Officers and Committee Chairs about next year's budget requests. Input is needed in time to approve at our next EC meeting.

7. New Business

Annual Meetings: April 5 at Seagrave. Kathy will arrange for a cake.

Dues: Payable on April 1. Linda and Jim are updating PayPal. Notice will go out soon with a link. Discussion about collecting dues for the Astronomical League. Linda is considering a bulk invoice.

AstroAssembly: Linda asked Kathy to

kickoff this year's AstroAssembly soon; she will schedule a meeting. We have received a $500 donation in memory of Dave Huestis that will be used to cover the cost of evening reception.

Spring Clean-up: Discussion on the condition of the grounds.

8. Good of the Organization

Matt suggested purchasing a SeeStar or similar telescope. Trustees will discuss and make a proposal if appropriate.

Jim requested more photography for the newsletter. Matt shared his first photo taken with his new SeeStar and will send to Jim.

9. Announcements

Bob Horton is looking for volunteers to promote Skyscrapers and DarkSky at an Earth Day event in Foster on April 26.

Kathy reported that Greg Shanos' astronomy group in Florida is having speakers from Hong Kong discussing smart telescopes. Linda will forward Greg's email to our members.

10. Next Meeting: Monday, March 24 @ 7 PM via Zoom

11. Adjournment

Respectfully submitted, Linda Bergemann, President

Monthly Membership Meeting
Saturday, March 1, 2025 at 6 PM

1. Welcome & Introductions

Michael Corvese, Vice President, presiding.

2. Attendance

21 at the North Scituate Community House 7 on Zoom

3. Reports

Monthly Meetings (Michael): Our next meeting will be on April 5. It will be our Annual Meeting and we will be back at the observatory. We will begin with our speaker and follow with the business meeting. On the agenda will be the annual election and approval of a budget for the year.

Steve Siok noted that the observatory will be open for observing on April 5, beginning at 8 PM.

Nominations (Bob Horton): Due to changes in our ByLaws last year, we have only one position to fill. Jay Baccala has accepted the nomination for Trustee, a 3-year term. Jay will vacate his position as Member-at-Large (MAL), leaving one year of his term to be filled. John Kocur has accepted the nomination for MAL, to complete Jay's term.

Nominations were opened to the floor. No additional nominations were made. Rick Lynch moved to close nominations; seconded by Francine Jackson. Motion passed. Voting will again be electronic, using Election Buddy software. Notices will be sent to eligible members by mid-month. Results will be presented at the April meeting.

Budget: Officers and Committee chairs should submit budget requests to treasurer, Kathy Siok, so that she and Linda can build a budget for the coming year to be presented at the Annual Meeting.

Annual Dues: Membership dues are payable on April 1. A notice will be sent next week with a link to PayPal for renewal.

Program Committee: We are soliciting participants for the Program Committee. Contact Linda.

4. Announcements

Star Walk on the Michael Van Leesten Bridge has been postponed to March 6, 6-9 PM.

Kathy Siok announced that volunteers are needed for judging at the RI State Science and Engineering Fair on the afternoon of Saturday, March 15. The fair will be held at CCRI in Warwick. See Kathy if interested.

Francine Jackson reported that dates for star parties at River Bend and Chase Farm have been scheduled. Volunteers will be needed. Jim Hendrickson with provide dates to the Program Committee.

Bob Horton is looking for volunteers to represent Skyscrapers at the Foster Earth Day Conservation Fair on April 26, 8 AM to 1 PM. He has Dark Sky literature to distribute and will provide an H-Alpha scope for public solar observing. See Bob if you are interested.

5. Adjournment

Respectfully submitted,

Linda Bergemann, President Earth Day event in Foster on April 26.

Kathy reported that Greg Shanos' astronomy group in Florida is having speakers from Hong Kong discussing smart telescopes. Linda will forward Greg's email to our members.

10. Next Meeting: Monday, March 24 @ 7 PM via Zoom

11. Adjournment

Respectfully submitted, Linda Bergemann, President

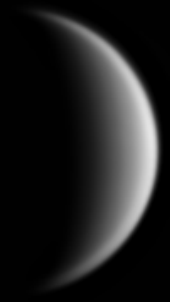
Skyscrapers Inc.	
11/1/2024 through 11/30/2024	
INFLOWS	
Donation:Donation Boxes	186.00
Donation:Misc Donation	7.50
TOTAL Donation	**193.50**
Dues:Regular	50.00
Dues:Senior	50.00
TOTAL Dues	**100.00**
Misc Income:Interest Inc	132.26
TOTAL Misc Income	
Star Party Donations	**212.00**
TOTAL INFLOWS	**637.76**
OUTFLOWS	
PayPal Fee	**2.48**
Property Insurance	**2,420.00**
Utilities:Electric	60.43
Utilities:Porta-John	145.00
TOTAL Utilities	**205.43**
TOTAL OUTFLOWS	**2,627.91**
OVERALL TOTAL	**-1,990.15**

	Balances	
	10/31/2024	11/30/20324
Bank Accounts		
Business Money Market XX5614	21,998.84	22,017.77
Business Statement Savings XX4783	250.50	250.52
CD 14 mo NEW	27,114.58	27,217.89
Coastal1 Checking-4792	3,062.24	4,081.06
PayPal	3,131.23	0.00
	55,557.39	**53,567.24**
OVERALL TOTAL		**-1,990.15**

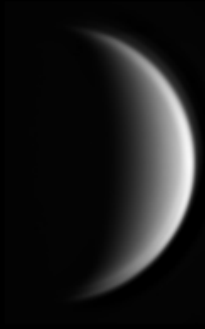
Venus in the Infrared
February 8, 2025

Gregory T. Shanos Sarasota, Florida USA
Meade LX200GPS 250mm fl 2500mm f/10
ZWO ASI 462MM monochrome camera
Prime Focus- no Barlow Protective Window Removed

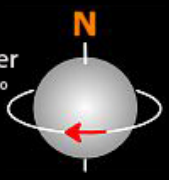
Magnitude: -4.6
Diameter: 35.8″
Phase: 32%
Altitude: 53°/ 49°
Seeing: 7/10 Good
Transp: 9/10 Clear, Humid, Daylight



22h 20.2 m UT
Antlia 850nm IR longpass filter
CMI (Surface): 284.9° CMII (Atm): 176.8°



22h 42.2 m UT
Torrent Photonics 1010nm FWHM 38mm filter
CMI (Surface): 284.9° CMII (Atm): 178.1°

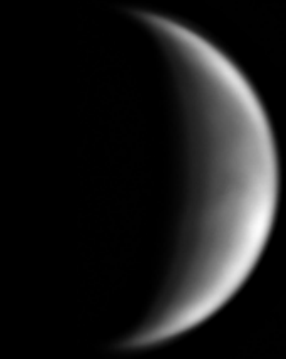


Mid-altitude clouds (dark) visible in the infrared

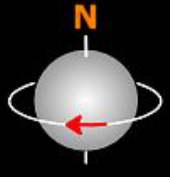
Venus in the Ultraviolet
February 08, 2025

Gregory T. Shanos Sarasota, Florida USA
Meade LX200GPS 250mm fl 2500mm f/10
ZWO ASI 178 MM monochrome camera
Prime focus- no Barlow Protective Window Removed

Magnitude: -4.6
Diameter: 35.8″
Phase: 32%
Altitude: 59°
Seeing: 7/10 Good
Transp: 9/10 Clear, Humid Daylight



21h 48.1m UT
CMI (Surface): 284.8° CMII (Atm): 174.9°
Chroma U Band Bessel (320nm-380nm)
Upper atmospheric clouds (dark) of Venus in the Ultraviolet.



Caldwell 25 by Steve Hubbard

NGC 2419, the Intergalactic Wanderer, a distant globular cluster in Lynx, taken Feb 1 with 14" F8 SCT, focal reducer and ZWO 294mc Pro, 20 mins each at 120 gain with 60 sec subs.

Caldwell 39 by Steve Hubbard

NGC 2392, the Eskimo Nebula, a planetary nebula in Gemini, taken Feb 1 with 14" F8 SCT, focal reducer and ZWO 294mc Pro, 20 mins each at 120 gain with 60 sec subs.

Total Lunar Eclipse
March 14, 2025
Totality

Gregory T. Shanos Sarasota, Florida
Seestar S50 250mm f/5 UV-IR cut filter

3:12 am local time
7h 12m UT

Total Lunar Eclipse
March 14, 2025
Moon leaves Umbra

Gregory T. Shanos Sarasota, Florida
Meade Refractor 60mm 250mm f4
ZWO ASI 462 one-shot color camera
Baader CMOS optimized UV-IR cut filter

4:41.5 am local time
8h 41.5m UT

Seagrave Observatory Open Night by Jim Hendrickson

Seagrave Observatory's first open night of 2025 was on Saturday, March 22. Bob Janus aims the Clark telescope at Jupiter while Francine Jackson waits to view.

April 2025 | 5th Anniversary Issue | Volume 61

STARRY SCOOP

Editor: Kaitlynn Goulette

WHAT'S UP

The Starry Scoop has reached its five-year anniversary! I originally launched this publication in April of 2020 and have since then enjoyed sharing my love of the night sky with others. To celebrate reaching five years, I have launched a new radio show, titled "Starry Scoop Live." To watch new episodes, find me on Facebook, Instagram, YouTube, or contact me at starryscoop@gmail.com. Thank you to all my readers and for the support I've received throughout the years.

This month, the planets captivate viewers from both the evening and morning skies. After the sun sets, Jupiter can be spotted with the unaided eye in Taurus the bull and remains a telescopic spectacle for the month's entirety. Mars is located further along the ecliptic and shines a ruddy-red color in contrast to the nearby yellow and white stars. In the early morning hours, Mercury, Saturn, and Venus can be found peeking over the treeline. Venus, nicknamed our "Morning Star," shines as the brightest star-like object in the sky. As May approaches, Mercury fades into the glow of the sun while Saturn and Venus rise earlier to become easier visual targets.

Spring is upon us and along with warmer weather comes "galaxy season." The earth faces away from the dense galactic center and offers excellent conditions for observing faraway galaxies, which can be found among the constellations Leo, Coma Berenices, and Virgo.

For thousands of years, the Lyrid meteor shower has been producing stunning visual displays for stargazers. It is labeled as one of the oldest known showers and runs annually from April 16th to the 25th. On the evening of the 22nd into the morning of the 23rd, it reaches its peak of roughly 20 shooting stars per hour. To best observe this event, find yourself in a dark location after midnight.

April 17th marks 55 years since Apollo 13 arrived home safely. On track to become the third mission to land on the moon, the crew was forced to abandon their plans after their oxygen tank exploded, threatening their life-support systems. The lunar module was repurposed as a lifeboat thanks to the combined efforts of the Apollo 13 crew and Mission Control in Houston, and the mission was deemed a "successful failure." This entire nail-biting story was dramatized in the 1995 movie, "Apollo 13."

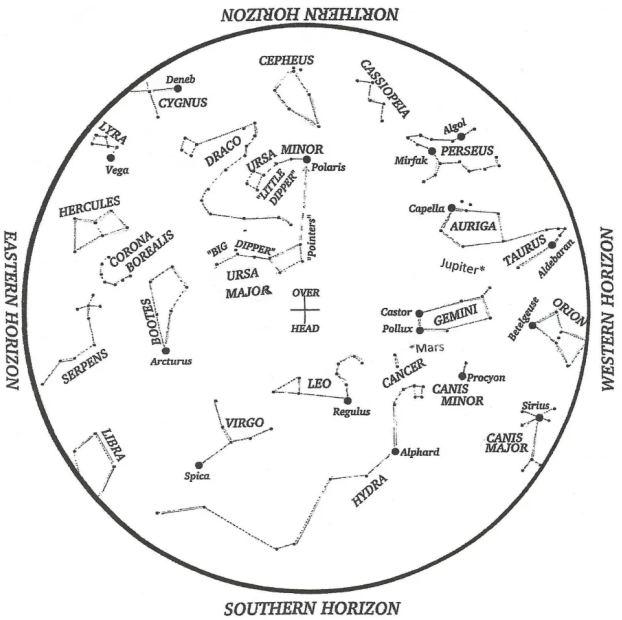
APRIL'S SKY

13: Full Moon

21: Mercury at Greatest Western Elongation

22-23: Lyrid Meteor Shower

27: New Moon



Credit: Roger B. Culver

Hold star map above your head and align with compass points.

OBSERVATIONS

I recently had the opportunity to attend an observing event held at Munger Hill Elementary School in Westfield MA alongside countless students and their families. I had a great time sharing the evening sky with people of all ages and I hope to take part in an event like this again soon.

Krystyna Goulette, President of the WMS Space and Astronomy Club and organizer of the event, took charge throughout the evening and selected eye-catching spectacles to target with our telescopes. Andy Liu, Vice President of the WHS Space and Astronomy Club, was also in attendance and provided his expertise and knowledge of the night sky to attendees. Through a variety of different telescopes, we observed Venus, Mars, Jupiter, the Orion Nebula (Messier 42), and the moon.

Throughout the evening, we discussed the phases of Venus, Jupiter and its moons, and the prominent craters along the moon's terminator. It was also a pleasant surprise to welcome Mayor Mike McCabe to the Munger Hill observing event. I gave him and several other attendees a green laser tour of the sky and discussed the famed Winter Hexagon asterism, which contains prominent constellations and celestial objects.

We were treated to both a total lunar eclipse and partial solar eclipse during the month of March, but clouds sadly hampered my view of both events. The weather in New England is always chaotic and it was disappointing to miss these events, but I remain hopeful for the next upcoming eclipse!

The purpose of the Starry Scoop is to communicate current astronomy and space events. If you want to share your observations or get digital copies of the Starry Scoop, contact starryscoop@gmail.com. The Starry Scoop is now on Facebook and Instagram. Clear skies!

OBJECT OF THE MONTH

The featured object for the month of April is Messier 64, commonly known as the Black Eye Galaxy. Located in Coma Berenices, this galaxy is popular among astronomers because of its strange internal motions and recognizable features. It contains a dark, light-absorbing band of dust that is positioned in front of the bright core of the galaxy, which is what earns it its namesake. It sits 17 million light-years away and is roughly 48,000 light-years across.

Find this galaxy in the constellation Coma Berenices. Under excellent conditions, a good pair of binoculars can resolve M64, and a telescope will bring out the fainter features. Good luck!

The Black Eye Galaxy

Photo Credit: NASA and the Hubble Heritage Team (AURA/STScI); Acknowledgment: S. Smartt (Institute of Astronomy) and D. Richstone (U. Michigan)

Attendees of the Munger Hill Elementary School Observing Event.

Photo Credit: Kaitlynn Goulette

Directions to Seagrave Memorial Observatory

www.theSkyscrapers.org

From the Providence area:
Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:
Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:
Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:
Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:
• Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
• or • Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:
Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

SKYSCRAPERS INC.

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