

Skyscraper vol. 52 no. 10 October 2025

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

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AstroEve

at Seagrave Memorial Observatory Friday, October 3

Social hour at 6:00pm, Presentation at 7:00pm, Observing at 8:30pm, weather permitting

Tony Costanzo: The Influence of Music on Astronomy

Nicholas Wagner: Is the Moon made of Parmesan or Brie? How tides tell us what's inside the Moon

Anthony Englert: A Trip to Cerro Tololo

Michelle Vick: The Mysterious Histories of Hot Jupiters

AstroAssembly

at Seagrave Memorial Observatory Saturday, October 4

See schedule on page 3



Observing Events:

Open Nights at Seagrave Observatory*

October 11, 7-9 PM October 18, 7-9 PM October 25, 7-9 PM

Off-site Public Observing**

Chase Farm, Lincoln Thursday, October 2, 7:00 - 9:00 PM

Moonrise on the Seekonk, Blackstone Park, Providence RI Sunday, October 5, 5:30 - 7:00 PM PoC: Francine Jackson/Jim Hendrickson

Full Harvest Moonrise Walk, Mount Hope Farm, Bristol RI Monday, October 6, 4:30 PM PoC: Michael Corvese

River Bend Farm, Uxbridge MA Friday, October 24, 6:30 - 8:00 PM PoC: Francine Jackson/Jim Hendrickson

*Members are encouraged to attend

**Volunteers with telescopes, binoculars, or just a love of the night sky, are always welcome

President's Message

by Linda Bergemann

Greetings! It is October, and time for our annual AstroAssembly on October 3 and 4. Many of us are working to put the final touches on arrangements. Tents will be erected on Thursday and food orders placed. The weather forecast looks good. It's a go! I hope to see you there.

We are watching the approach of two comets, C/2025 A6 (Lemmon) and C/2025 R2 (SWAN), and the possibility of a rare

"double comet" viewing later this month. We may open the observatory if they become visible in binoculars or even naked eye. We will let you know.

That's it for now. See you at AstroAssembly!

Until next time, Linda 401-322-9946 lbergemann@aol.com



Matthew Guthrie of Storrs, CT

Jason Wilding & Kendra Moreno of Cranston





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 **October 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.

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AstroAssembly 2025 Friday & Saturday, October 3 & 4

Seagrave Memorial Observatory, 47 Peeptoad Road, North Scituate, Rhode Island

AstroAssembly is the annual convention and fundraising event for Skyscrapers, Inc., owners and operators of Seagrave Memorial Observatory, located in North Scituate, RI. The first "Amateur Astronomical Convention of the Skyscrapers" was held on August 2 & 3, 1952. Through the years, we have welcomed many notable speakers, including well-known astronomers, astrophysicists, scientists, even astronauts. This annual event brings together amateurs from all over the New England area to reconnect with old friends, learn something new, and just have an enjoyable day.

The festivities will begin with AstroAssembly Eve **on Friday night** for those in the area; registration for AstroAssembly is not necessary to attend.

There will not be a Saturday evening banquet and speaker as in years past. We will instead break at 5 PM for light dinner and socializing, as well as distribution of awards and prizes. The program will conclude with our evening speaker at 6:30 PM.

All day Saturday at Seagrave Observatory

Swap Table (please bring your own table), Solar Viewing, Astro-Imaging Contest, Homemade Telescopes (bring yours!).

9:00 AM **Registration Open**

Morning coffee and pastries provided. Registration includes evening pizza and snacks. Members: \$25 Non-members: \$30

Skyscrapers Memorial 10:30 AM

A celebration of the lives and contributions of members Tina and Dave Huestis. We will also invite those present to share their special memories.

11:00 AM **Solar Observing Forum**

Come observe the Sun! Check out the varied equipment our members use to capture solar images. If you have something unique to share, bring it along and set up in our courtyard.

Astro-Imaging Contest: Noon to 4:00 PM

See our website for more information.

12:00 PM Deli Lunch

Choice of Grinder (Italian Deluxe, Turkey or Roast Beef), Spinach Pie or Salad (Garden, Garden w/ Grilled Chicken). \$15 per person. Pre-order and payment with registration required.

1:15 PM A. J. Mastrangelo, NBC 10 WJAR Meteorologist

Meteorology & Astronomy - How Each "Sky Science" Relies on the Other

2:30 PM Mark Munkacsy, Skyscrapers, Inc. & AAVSO

Protocols for Observing Variable Stars with Smart *Telescopes*

3:45 PM Dr. Raymond Simons, Providence College

The Formation of Galaxies over Cosmic Time

Socializing & Light Dinner 5:00 PM

Pizza, snacks, soda, water and coffee included with basic registration.

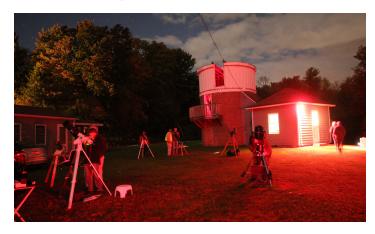
6:00 PM Raffle and Astro-Imaging Awards

6:30 PM Rick Lynch, Skyscrapers, Inc.

The Life and Times of William Tyler Olcott

8:00 PM **Observing at Seagrave Memorial** Observatory

The observatory's telescopes will be available for observing (weather permitting), or set up your own telescope on the grounds.



Book Review

Still as Bright: An Illuminating History of the Moon from Antiquity to Tomorrow

by Cristopher Cokinos, New York: Pegasus Books, 2024, ISBN 9781639365692, hardbound, \$35.00 US

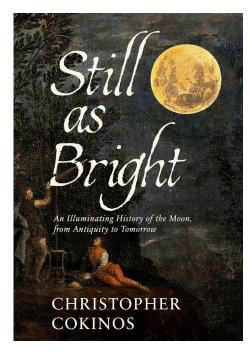
Reviewed by Francine Jackson

Sometimes a book is written that the author seems to be so disjointed, jumping from one topic to another so fast that the reader has trouble keeping up with the idea of the book. At first, *Still As Bright* seems to begin like that, but, if the reader continues, the topics do tend to level off. The author begins with his nightly observations of the Moon from his backyard as a kid, and how its magic stayed with him as an adult – at least for a bit. From there, he goes into a description of the Moon's motion, and the many ways it seems to have been observed through the millennia.

The author then veers 180 degrees, trying for we're not sure why he's attempting to heat a cauldron filled with potions and (gasp!) dead frogs. This brings up another historic epic.

Interspersed into each chapter is a part of his life, all of which does – at least indirectly – that relates to the Moon, from hopping a fence to view lunar-themed statues interspersed in a historic yard, to remembering his childhood memories glued to the TV as Armstrong and Aldrin take their first footprints amidst the regolith. And, of course, the author brings up the almost reputation destroying newspaper articles concerning John Herschel.

All this may sound like a vast rigmarole of lunar fact, history and fantasy, but, somehow, it works. The author's writing may at first seem to be a rambling of someone who just writes what's on his mind at the time he's in front of his computer, but, if you are willing to stick it out, you may find yourself enjoying the final product.



Skylights: October 2025

by Jim Hendrickson

October brings some of the most pronounced seasonal changes to our nighttime skygazing. The sounds and smells of summer have passed on, But, with the distinct scent of autumn leaves and the absence of the frogs, katydids, and all but perhaps few enough crickets to count, the still nights of autumn are getting longer, cooler, and quieter

In the west, we see Arcturus, the brilliant star that foretells the coming of spring, and has been a presence in our evening sky since, is now low in the sky, soon to trade places to the morning sky.

As we continue to anticipate the oncein-80-year outburst of the Blaze Star, T Coronae Borealis, we have less time to observe the star during October, as it is getting lower in the northwest after sunset, sets during the mid-to-late evening, and doesn't rise before the onset of morning twilight until about a week into November.

Looking towards the south, we find our gaze turning away from the glow of the Milky Way, and towards the dimmer con-

stellations of autumn. While Capricornus, Aquarius, Cetus, and Pisces are relatively devoid of bright stars, one notable exception is Pisces Austrinus, which gives us the lone first magnitude star, Fomalhaut, a class A3 main sequence star that lies just 25 light years away. Lying 59° east-southeast from the next-nearest first magnitude star, Altair, Fomalhaut is the most isolated of the first magnitude stars in our sky from our latitude of about 42° north.

This year, Fomalhaut is part of a distinct but temporary "autumn triangle" asterism along with Diphda (beta Ceti) and Saturn.

Moving north from Fomalhaut, we find the Great Square of Pegasus, the symbolic asterism of autumn, moving high overhead as the evening hours advance. To its east lies Andromeda with its showpiece spiral galaxy M31, which from under a reasonably dark sky, is the most distant object that can be seen with the unaided eye, the combined light of its trillion stars being 2.5 million years old by the time it reaches us.

The prominent Summer Triangle, a

fixture of our evening sky for much of the year, remains high overhead, but it has now crossed the meridian and occupies the western part of the sky, where it will reside until it falls out of view in January.

Although the central bulge of the Milky Way and its bright clusters and nebulae are moving out of view, a large stretch of our home galaxy can still be seen overhead and to the northeast, spilling out of the constellations Cygnus, Lacerta, Cepheus, Cassiopeia, Perseus, and Auriga. A pair of binoculars on a moonless night provides a rewarding adventure.

Late night observers will take note that the winter constellations, including the mighty Orion, become visible around midnight in October. If you enjoy exploring this part of the sky, but aren't quite ready for the cold winter nights, October mornings present a good opportunity.

Finally, the pre-dawn sky shows us the return of the spring constellations, as Leo, Hydra, and Ursa Major can now be seen in the east.

Events in October

Eve	ents i	n October
01	20:00	Moon 0.8° ESE of Pluto
02	11:00	Ceres Opposition
		(mag: 7.6, dist: 1.961 au)
05	04:00	Earth at 1.0 au
05	19:00	Moon 2.2° NNW of Saturn
06	01:00	Moon 1.8° NNW of Neptune
06	20:00	Vesta 5.7° NNE of Antares
06	23:48	Full Harvest Moon
07	03:00	Jupiter Occults NGC 2420
09	23:36	Moon occults M45
10	01:00	Moon 4.5° NNW of Uranus
11	22:00	Moon 4.8° E of Elnath
12	05:00	Moon most northerly declination (+28° 16′ 08.7″) in Auriga
13	14:13	■ Last Quarter Moon
14	00:00	Moon 4.5° NE of Jupiter
14	00:00	Moon 4.4° SE of Pollux
15	01:00	Moon 3.3° E of M44
15	16:00	Jupiter Minimum Illuminated Fraction (99.07%)
17	01:43	Jupiter Quadrature (90° W)
17	07:00	Last day with 11 hours of daylight (11:00:01)
17	18:00	Last 6:00pm sunset
18	02:00	Eris Opposition (mag: 18.6, dist: 94.565 au)
19	05:00	Moon 4.1° WSW of Venus
19	14:00	C/2025 R2 closest to Earth (0.261 a
20	00:00	Jupiter Outside of Winter Hexagon
20	20:00	C/2025 Lemmon closest to Earth (0.596 au)
21	08:25	O New Moon (Lunation 1272)
26	16:00	Moon most southerly declination (-29° 15′ 00.3") in Sagittarius
26	23:00	Sun Declination ½ to Solstice (-12° 43′ 09″)
27	19:39	Moon occults tau Sgr (mag: 3.3; in: 19:39; out: 20:44)
29	05:00	3I/ATLAS perihelion (1.356 au)
29	12:21	First Quarter Moon
29	18:00	Mercury Greatest Elongation (23.9° E)
30	00:00	Uranus 4.3° SSE of M45
30	20:00	Moon occults Deneb Algedi (delta
		Cap; mag: 2.8v; in: 21:09; out: 21:59
31	04:00	Sun in Libra (23d)
31	19:00	Juno 1.0° S of zeta Oph

Our own solar system presents some exciting events in October. Jupiter enters the evening sky, the Moon occults some bright stars, including the Pleiades, and we have some comets and meteors to watch for.

Ephemeris times are in EDT (UTC-4) for

Seagrave Observatory (41.845N, 71.590W)

Sun

At about 4:00am EDT on the 5th, Earth reaches the point of 1.0 au distance to the Sun. We will remain closer than 1.0 au from the Sun until April 4, 2026.

Although not visible to us, the Sun is at the same right ascension as Spica, in Virgo, on the 16th. The 1st magnitude star is 1.9° south of the Sun's position on this afternoon.

October 17 gives us the final sunset in the 6:00pm hour. The Sun will not set this late again until March 8. October 17 is also our last day with eleven full hours of daylight. The next one will be February 24, 2026.

The Sun is at its halfway point between equinox and solstice (declination -12° 43' 09") on the 26th. The Sun remains south of this line of declination until February 15, 2026.

After a 44.5-day trek through Virgo, the Sun enters Libra at 4:00am on the 31st, where it will spend the next 23 days.

Moon

To start the month of October, the 69.9% waxing gibbous Moon is just 0.8° east-southeast of Pluto on the 1st. This pairing would be quite an observing challenge, as the Moon is about 16 billion times brighter than Pluto. Capturing it photographically with a sensitive imaging device is a bit more feasible. If you can observe the two objects simultaneously, consider that Pluto's light took four hours 51 minutes to reach us, and that the distant dwarf planet is 13,329 times the distance from Earth as the Moon.

October 4th is International Observe the Moon Night, but this year we'll be celebrating on Sunday the 5th. Watch the 98% waxing gibbous Moon rise at 5:34pm over the Seekonk River with Skyscrapers members and friends from Blackstone Field on the East Side of Providence, adjacent to the Narragansett Boat Club on River Drive. Bring a telescope, binoculars, or a camera, and enjoy the moonrise with us. The Moon will be just 2.2° north-northwest of Saturn on this evening. A few hours later, early on the morning of the 6th, the Moon is 1.8° north-northwest of Neptune. Throughout the evening, you should be able to observe all three objects simultaneously in a small telescope with a wide field of view.

The Moon is full at 11:48pm on the 6th, marking 2025's Harvest Moon, as October's full Moon is 14.5 hours closer to the equinox than September's full Moon. The Harvest Moon is in Pisces, and rises at 5:57pm, when the Sun is still above the horizon, making this full Moon rise a very favorable one to photograph.

We have missed the last several occurrences of it, either because it happens during daylight for us, or the Moon is below the horizon, but October gives us our first nighttime view of the Moon occulting the Pleiades.

The first of the brighter members, Celaeno (16 Tauri), is occulted beginning at 11:36pm on the 9th. Electra (17 Tauri) is occulted about three minutes later. At 11:54pm, Taygeta (19 Tauri) dips behind the bright limb of the Moon, followed by Maia (20 Tauri) at 12:04am on the 10th.

Electra emerges at 12:19am, followed by Celaeno at 12:39am, Taygeta at 12:58am, and Maia at 1:08am.

The Moon reaches its most northerly declination during lunation 1271 on the 12th, at +28.27° in the non-zodiacal constellation Auriga.

Last quarter Moon, in Gemini, is at 2:13pm on the 13th.

The 3.8% crescent Moon rises with Venus, 4.1° to its east-northeast, on the 19th, creating one of the more stunning sights in the sky.

Attempt to spot a very old Moon on the 20th. The 1.0% illuminated crescent will be completely above the horizon starting at 6:14am. Using Venus as a guide, draw a line down to the horizon, and move one degree to the right.

Lunation 1272 begins with the new Moon at 8:25am on the 21st.

The Moon reaches its most southerly declination for lunation 1271 on the 26th, at -29.25° in Sagittarius.

There are two more occultions of relatively bright stars by the waxing Moon in late October.

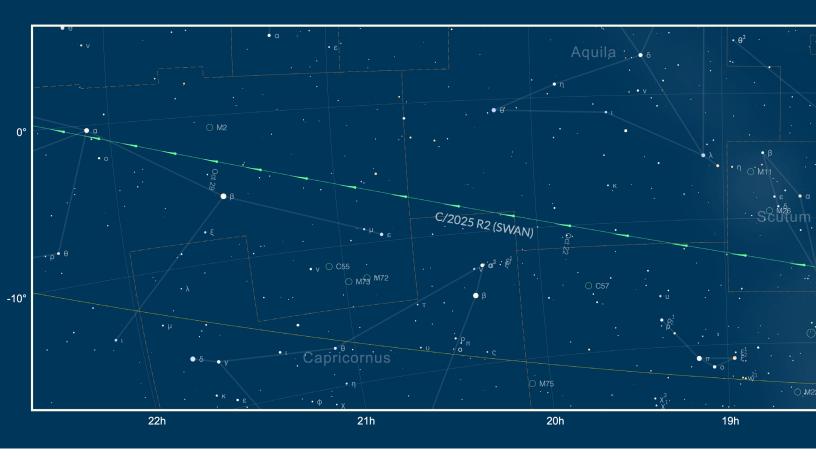
On the 27th, the 3.4% waxing crescent Moon occults magnitude 3.3 tau Sagitarii, the easternmost star in the teapot asterism of Sagittarius, beginning at 7:39pm. The star, a K class orange giant star that lies about 120 light years away, reappears at 8:44pm from the bright limb of the Moon, beyond Mare Crisium.

The first quarter Moon is at 12:21pm on the 29th, in Capricornus.

On the 30th, the 63.7% gibbous Moon occults Deneb Algedi, a magnitude 2.8 eclipsing binary star that lies at a distance of 39 light years with a period of 1.02 days, dimming by 0.2 magnitudes. The star disappears at 9:09pm and reappears 50 minutes later.

The Planets

Mercury spends October in its least favorable evening apparition of the year for northern hemisphere observers. While it reaches its maximum elongation of 23.9° east of the Sun on the 29th, it never spends more than an hour above the horizon fol-



lowing sunset, during which time it remains low over the southwestern horizon.

Due to Mercury's inclination angle keeping it south of the ecliptic, which is already at a low angle of incidence during October evenings, the planet doesn't gain considerable elevation over the horizon, but continues to appear further towards the south each evening.

If you're searching for Mercury on the 2nd, you may notice magnitude 1.0 Spica, which lies 1.7° to the south-southwest of the magnitude -0.5 planet.

The innermost planet joins the Moon and Mars, with the three appearing in a line on the 23rd. You'll be able to locate the 5.3% crescent moon first, then, with binoculars, go 3.9° to the north-northeast, or right and slightly above, to find Mercury. Then, continue along this direction another 3.0° to locate Mars.

Venus is now over 1.5 au from Earth, moving along the far side of its orbit towards superior conjunction in early January. It is visible low in the eastern sky before sunrise, rising about 2½ minutes later each morning. Its gibbous disk has shrunk to just about 11 arcseconds, but the planet still retains its brilliance at magnitude -3.9.

Venus crosses into Virgo on the 9th.

On the 19th, the super slim crescent Moon is just 4.1° southwest of Venus.

All but lost in the twilight glow in October is **Mars**. The Red Planet, now over 2.35

au away, sets about an hour after sunset throughout the month. Mars crosses from Virgo into Libra on the 4th.

On the 14th, it is 0.5° south of the wide double star Zubenelgenubi (alpha Librae).

Mercury joins Mars during the third week of the month, appearing as close as 2.0° to its south on the 19th and 20th.

Jupiter becomes an evening planet in October, rising before midnight for the first time on the 6th.

On the 7th, the giant planet passes in front of NGC 2420, an open cluster containing several hundred stars in an area smaller than ½ the apparent diameter of the Moon. None of the cluster's member stars shine brighter than 11th magnitude, so they will be all but washed out by Jupiter's glare in a small telescope, but viewing under medium-to-high magnification with a large aperture telescope should clearly reveal Jupiter moving amongst a rich star field.

The 45% waning crescent Moon joins Jupiter, 4.5° to its northeast, on the 14th. The two bright objects will rise nearly simultaneously out of the east-northeast at 11:32pm on the 13th, with the Moon in line with the twin stars Castor and Pollux.

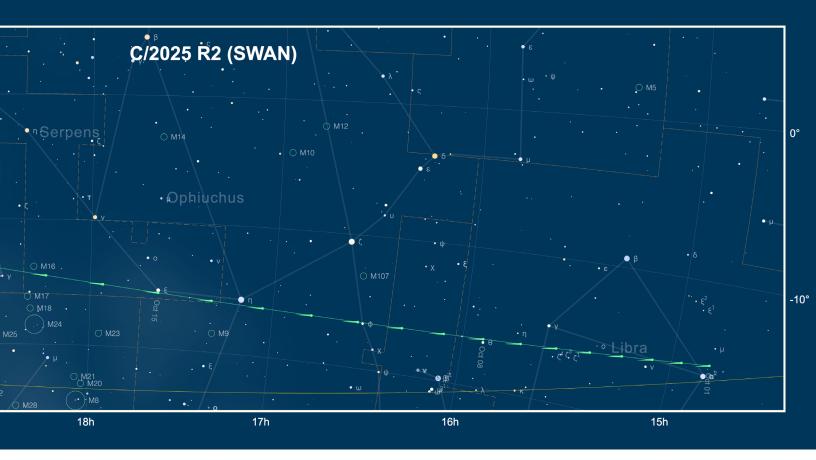
Jupiter is at minimum illuminated fraction, 99.1%, on the 15th. Given Jupiter's equatorial oblateness, detecting the subtle gibbous phase isn't all that apparent; what you may be able to see is the darkening of its eastern limb, compared with the sharp

definition of its sunlit western limb. The effect is usually more pronounced in images taken of the giant planet through larger telescopes.

Minimum illumination of Jupiter (or any outer planet) occurs when the Sun-planet-Earth angle, that is, the angular separation of the Sun and Earth as seen from the planet, is at its greatest. As seen from Jupiter, Earth and Sun are separated by just under 11.1.° This maximum separation angle also coincides, roughly, with the quadrature angle as seen from Earth. There are slight differences in the timing of these two events due to the orbits of Earth and Jupiter being inclined with respect to each other, and also them not being perfect circles, so the date of Jupiter's quadrature happens about a day and a half later, on the 17th. This is when Jupiter appears to be 90° west from the position of the Sun. Western quadrature also marks the time when an outer planet transits the local meridian at sunrise, making this the beginning of the most favorable conditions for observing Jupiter.

On the 20th, Jupiter crosses east of the line connecting Pollux and Procyon, and will therefore appear outside of the Winter Hexagon asterism for the first time since February. It won't remain outside for long, however, as the planet goes into retrograde motion and will cross back into it in early December.

Watch Io overtake Europa, just before



the pair crosses over Jupiter's western limb at 4:00am on the 4th.

Jupiter rises apparently moonless, except for Callisto, on the 5th, with Io and Ganymede transiting, and Europa occulted. Io's transit ends at 12:50am, followed by Europa coming out of occultation at 1:32am, then Ganymede comes out of transit at 2:44am.

A close pairing of Io and Europa to the west of Jupiter appears on the 8th at 3:50am, after which the moons will appear in order of their respective orbital radii from the planet. Later on the 8th and overnight into the 9th, Ganymede and Europa appear close together for several hours.

The moons appear in two tight pairs to the east (Europa and Ganymede) and west (Callisto and Io) on the 10th. Io and Europa track together on the evening of the 10th, initially joined by Ganymede, and continue to move together as they both transit Jupiter heading into twilight. The shadows of both moons transit Jupiter simultaneously from 4:40am to 6:52am on the 11th.

On the 12th-13th, Io and Ganymede have simultaneous shadow transits from 11:08pm to 1:26am. Io and Ganymede themselves transit in turn, from 12:48am to 2:44am and 3:30am to 6:48am, respectively. Soon after Io emerges, Europa emerges from occultation at 3:06am.

Another close pairing of Ganymede and Europa is visible in the morning of the 16th.
On the 18th-19th, Callisto transits the

planet, emerging at 12:42am, and catches up with Io, which goes into eclipse at 3:48am just as the pair of moons get close near Jupiter's eastern limb.

Early in the morning of the 20th, Io and Ganymede cast their shadows on Jupiter simultaneously, with Io's shadow transiting from 2:12am to 5:28am, and Ganymede's from 1:02am to 3:18am. Europa goes into eclipse at 1:18am, and Io transits Jupiter from 2:22am to 4:36am.

On the 31st and into the 1st, the moons appear in their order of orbital radius, extended to the east of the planet.

October's evening skies offer **Saturn** as the only bright planet in an optimal position for viewing. Moving retrograde through Aquarius, the ringed planet can be found in the southeastern sky after twilight fades.

On the 5th, the nearly full Moon is just 2.2° to the north-northwest of Saturn, and with a wide field telescope, you'll be able to see not just the Moon and Saturn, but also Neptune, which is 2.0° to the east of the Moon.

The last of **Titan's shadow transits** visible to us begins at 12:26am on the 6th, when the shadow of Saturn's giant moon grazes the northern limb of the planet, departing after 1:42am. As this is still relatively close to Saturn's opposition, there is also a coinciding transit of the moon itself, beginning at 9:25pm on the 5th, ending at 1:44am on

the 6th

While the next shadow transit of Titan will not occur until 2038, the moon itself continues to transit the planet's disk a few more times, and keen observers with larger instruments, exceptionally good observing conditions, and sensitive image equipment may be able to track Saturn's smaller, inner moons as they continue to cast shadows across the planet's cloudtops throughout the next several months.

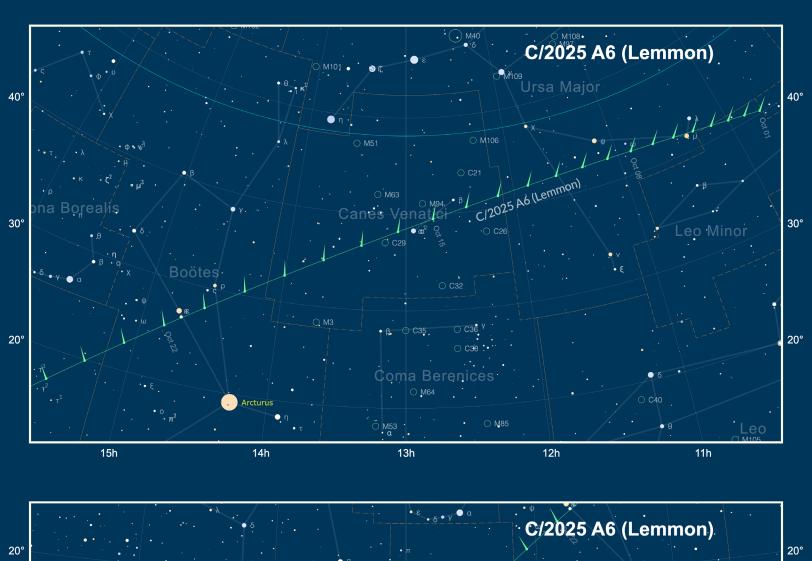
Titan enters occultation at 6:57pm on the 13th, during nautical twilight. It remains behind Saturn and in eclipse until 12:50am.

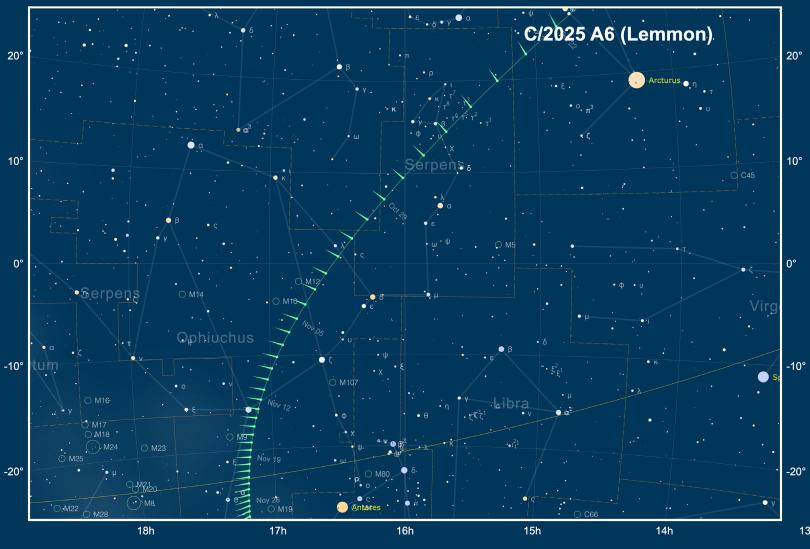
Another transit of Titan, without its shadow, takes place on the 21st, beginning at 6:45pm. The moon takes nearly six hours to cross Saturn's northern equatorial belt.

On the 29th, Titan emerges from occultation at 10:22pm while partially eclipsed. It comes out of eclipse a few minutes past midnight on the 30th.

Titan comes out of eclipse at 00:00pm on the 29th.

Uranus, moving retrograde (westward) through Taurus, remains easy to locate about 4° from the Pleiades cluster. To aid your journey to the seventh planet, locate the pair of sixth magnitude stars 13 and 14 Tauri, oriented roughly west-to-east and separated by ½°. The pair can be located by drawing a line from zeta Persei, through Alcyone (eta Tauri, the "center" star of the Pleiades), and continuing south-south-





westward. Now move east, and the first 6th magnitude object you will see is Uranus. In early October, the planet is 2.6° east of 14 Tauri, and Uranus moves 1.0° closer to the star on the 31st.

Neptune is well-positioned in Pisces, and easy to locate thanks to its proximity to Saturn.

At magnitude 7.7, Neptune is visible in the same binocular field of view as Saturn. In early October, the planetary pair is separated by 3.2°, but due to Saturn's higher rate of apparent motion in the sky, the separation increases to 4.1° to the west of the distant planet by month's end.

The nearly full Moon is close to Neptune on the 5th-6th, passing as close as 1.8° to its north-northwest just past midnight.

As Saturn drifts farther west, it may be helpful to use some closer guide stars to locate Neptune. To the east of Saturn, by about 2°, find a quadrilateral of stars, about 2.6° long by 0.9° wide, oriented roughly north-south. The stars are, clockwise from north, 29, 27, 30, and 33 Piscium, all of which are 5th magnitude, with the exception of 30 Psc, which is slightly brighter at 4th magnitude. Neptune is just under 2° north of the northern pair of stars.

At the beginning of the month, draw a line diagonally through the quadrilateral, north-northeastward from 30 through 29. Neptune will be about 1.8° along this line, and slightly east, through October 12, when it crosses the line and will be slightly west. During the last week of October, it lies close to the line extended from 33 through 29.

Minor Planets

Two of our solar system's dwarf planets are at opposition in October.

Ceres is at opposition on the 2nd, in Cetus. The asteroid belt's largest and first discovered object is just under 2 au away, and shines at a fairly bright magnitude 7.6, putting it within reach of binoculars for the remainder of the month. Around the time of its opposition, it is 2.5° west of eta Ceti, a magnitude 3.5 class K orange giant star that is 125 light years away. Ceres moves west-southwestward at a rate of about 0.2 degrees per day.

On the 3rd and 4th, Ceres passes within 0.4° of the nearly face-on spiral galaxy NGC 309. Although rather dim in our telescopes, this seemingly unremarkable 13th magnitude galaxy is quite large and luminous, its light traveling about a quarter of a billion light years to reach us.

On the 15th, Ceres passes 0.5° north of

NGC 255, an 11.8 magnitude spiral galaxy about 60 million light years distant. On the 15th and 16th, it also lies 1.0° north of the planetary nebula Caldwell 56 (NGC 246), the ghastly shell of a dead star that lies 1600 light years away and fluoresces at 8th magnitude.

By the end of October, the large asteroid will have dimmed to magnitude 7.9, and lies 4.5° southeast of magnitude 3.6 iota

At an enormous distance of 94.565 au, dwarf planet **Eris** reaches opposition on the 18th. It is located in Cetus, about 0° southwest of Piscium, and 1/4° south of the celestial equator, placing it in an ideal position for observation with imaging equipment capable of resolving its 18.6 magnitude speck.

Pluto is visible in the early evening, in Capricornus. It can be located 1.9° south-southwest of the magnitude 5.9 star 4 Capricorni, and 3.0° east-southeast of globular cluster Messier 75. At a distance of 34.950 au, Pluto shines at a dim 14.5 magnitude.

2 Pallas, although dimmed to 10th magnitude, is still well-positioned to observe, located just a few degrees from theta Aquilae. It is moving in a southeasterly path that takes it closest to the star, 2.2° to its northeast, on the 22nd.

4 Vesta spends October moving east-ward through southern Ophiuchus at a rate of nearly 0.5° per day. Although it is rather low in the southwest in the early evening, its magnitude 7.8 glow and its path near to some bright stars and deep sky objects make it worth tracking.

During the first week of October, Vesta is north of Antares, within the same binocular field of view as the red supergiant in Scorpius. On the 6th, it is 0.6° of magnitude 4.5 omega Ophiuchi. It passes by a pair of 9th magnitude globular clusters, which will only be visible to observers using larger aperture telescopes; on the 15th and 16th, it is 0.5° north of NGC 6235, and on the 21st it is 0.5° north of NGC 6287.

Asteroid **6 Hebe**, which passed its opposition in late August, remains visible with larger binoculars and small telescopes at 8th magnitude. It is stationary in early October, then resumes its prograde (eastward) movement near the border of Aquarius and Piscis Austrinus. With a lack of relatively bright stars nearby, use Fomalhaut (alpha Piscis Austrinus) as a starting point to locate it. From the 1st magnitude star, move 4.6° northwest to magnitude 4.2 epsilon Pi-

scis Austrinus, then move about the same distance and direction, yet ever so slightly south, to magnitude 5.50 49 Aquarii. Hebe is within the same binocular field of view, within 2.5° of the star throughout the month. On the 21st and 22nd, it passes within 0.2° north of the star. If you have a large telescope, you may be able to spot Hebe passing in front of NGC 7252, a pair of merging galaxies that lie 220 million light years away, on the 25th.

Comets

Discovered on September 11, 2025 in images captured with the Solar Wind Anisotropies (SWAN) instrument onboard NASA's Solar and Heliophysics Observatory (SOHO), Comet C/2025 R2 SWAN is in our evening sky throughout October, hovering around 9th magnitude before fading rapidly as it moves out of the inner solar system.

On the 2nd, it is just 1.0° from Zubenelgenubi (alpha Librae).

On the 13th, it lies 0.8° south of Sabik (eta Ophiuchi), and on the 17th, it is 1.0° south of Messier 16 in Serpens.

The comet is nearest to Earth on the 19th, at a distance of 0.261 au, during which time it is moving at a rate of 4.7° per day

Comet **C/2025 A6 Lemmon** is visible in the northern sky during October.

On the 6th and 7th, it is located close to Tania Australis (mu Ursae Majoris), the southern star of the middle pair of the Three Leaps of the Gazelle asterism. This part of the sky sets early in the evening, but is once again easy to view in the northeast after 1:00am. The comet may be visible in binoculars, at about magnitude 8.

It passes 0.2° north of Cor Caroli (alpha Canum Venaticorum) near the bright spiral galaxy Messier 94 on the 16th.

On the 18th, the comet passes close to Caldwell 29 (NGC 5005), a spiral galaxy that lies 75 million light years away in Canes Venatici.On the 19th and 20th, it is within the same binocular field, or about 6° from the globular cluster Messier 3, and may be as bright as 5th magnitude.

Comet Lemmon is closest to Earth on the 20th, at a distance of 0.596 au.

On the 21st and 22nd, it is in the vicinity of Izar (epsilon Bootis). The comet then moves into Serpens, moving southwestward at 4.0° per day, passing just over 1° south of beta Serpentis on the 26th.

Comet Lemmon is at perihelion on November 8, at a distance of 0.530 from the Sun.

Another comet of note is moving through the sky in October, although this one will remain rather dim. Comet 3I/ATLAS is worth mentioning because it is only the third known object that originated outside of the solar system. It was discovered on July 1, 2025 using the 50cm Asteroid Terrestrial-impact Last Alert System (ATLAS) telescope in Chile. The computed hyperbolic orbit of the comet shows that it is moving too fast to have originated in the Oort Cloud, and will eventually leave the solar system after it passes perihelion on October 29th.

At perihelion, its closest distance from the Sun will be 1.356 au, and it will be traveling at a Sun-relative velocity of 68.3 kilometers – that's approximately the length of Rhode Island, from north to south – in one second. At this time, it is expected to remain fairly dim, beyond the visual limit of most of our backyard telescopes, at 14.7, although our electronic eyes should be able to resolve it fairly easily.

As the comet is moving retrograde through the inner solar system (and across our celestial sphere), its position in Virgo during October makes it difficult to observe due to its proximity to the Sun, but by early November it becomes visible low in the southeastern sky before the onset of astronomical twilight. The comet appears just over 1.0° from Venus on the 31st and November 1st.

The closest 3I/Atlas gets to Earth is 1.797 au on December 19th, when it will reside near Regulus in Leo, and likely be dimmer than magnitude 15.

October Meteors

October brings a return of notable meteor activity after a several week lull following the Perseids in August.

The **Orionids**, which are remnants of history's most famous comet, Halley, are active throughout October and into early November, with peak activity on the night of October 22-23, when a favorable 1.9% crescent Moon sets during twilight. As many as 20 Orionids per hour can be seen on peak night.

Additionally, the **Taurids**, a pair of meteor streams left by 2P/Encke, are also active from mid- October into November. While they are both relatively low-rate showers that peak in early November, they are known to be slow-moving and can produce fireballs throughout the duration of their activity, so keep watching for them.

Observing Reports

Seagrave Observatory Night Saturday, September 6, 2025 Canceled due to rain.

Seagrave Observatory Night Saturday, September 13, 2025 Canceled due to cloudy skies.

River Bend Farm, Uxbridge MA Friday, September 19, 2025

Weather: Clear, 65° calm

Participants: Francine Jackson, Jim Hendrick-

son

Attendees: 12

Observed: Double-Double, Mizar & Alcor, Saturn, Neptune, the Coathanger.

Photos: https://flic.kr/s/aHBqjCvEoh

Report by Francine Jackson

It was a surprisingly clear night Friday, September 19th, and Jim Hendrickson and Francine Jackson joined the staff at River Bend Farm in Uxbridge for its monthly sky observing night. With no Moon to tempt the public, the crowd was rather low, about a dozen people, but Saturn, finally joining the evening sky, was a great hit. For many, viewing Saturn for the first time through a telescope begins their foray into sky observing.

In addition, the telescopes were pointed to Vega, Mizar, the double-double, Neptune, and the Coathanger, but Saturn was the real "star" of the evening.





Seagrave Observatory Night Saturday, September 20, 2025

Weather: Clear, 60°, calm

Participants: Matt White, Bob Janus, Jim Meltzer, Michael Kerr, Francine Jackson, Jim

Hendrickson Attendees: 30

Observed: Saturn, M11, M13, M16, M31, M57,

Alberio, M31, M57, M27, M102 Photos: https://flic.kr/s/aHBqjCvKij Report by Bob Janus & Matt White

Here is a report for the 12 inch Meade. The cool, clear, moonless night provided good conditions for viewing deep sky objects with the 12-inch Meade. It is a pleasure to operate the recently installed motorized roof roll-off. No longer is it necessary to move the roof by brute force.

Here is what was seen in the eyepiece: M11, M13, M16, M31, M57, Alberio and the "star" of the evening, Saturn -- its rings nearly edge on along with its moons Titan and Rhea, The planet never fails to evoke amazed and delighted reactions from visitors who are seeing it through a telescope for the first time.

Next door in the Patton shed Jay Baccala had set up his SeeStar. He showed visitors



fantastic astrophotos that were being generated in real time on his tablet of the objects they were viewing though the Meade 12 eyepiece. Although slightly below the Meade's field of view, NGC 7293, the Helix planetary nebula, was imaged by the SeeStar perched on the Patton observing stool.

- Bob

I showed Vega and Saturn on the Clark. With the S30 in the front courtyard, I showed M31, M57, M27, and M102. We had

about 30 guests.

– Matt

Starry Starry Nite at Chase Farm Thursday, September 25, 2025

Weather: Rain Postponed to October 2

Seagrave Observatory Night Saturday, September 27, 2025 Canceled due to mostly cloudy skies.:



September's Titan Shadow Transits Observed

by Greg Shanos

September 4

Another incredible story. It rained at 11:30pm local time on September 3rd. By 1:00am on Sept 4th, it was still completely overcast. Then by 1:30am local time the clouds began to clear, and I was able to align my GO TO scope on Polaris and Fomalhaut. I started imaging Saturn at 1:52 am local time. The weather conditions kept improving throughout the night with clear, steady seeing with only a slight haze and humidity. Then at 4:07 am the weather took a turn for the worst with a few passing cloud banks. By 4:22 am it was completely overcast and remained that way through sunrise. I was able to image approximately 90% of the transit. I only lost 37 minutes

from the beginning and 37 minutes from the end.

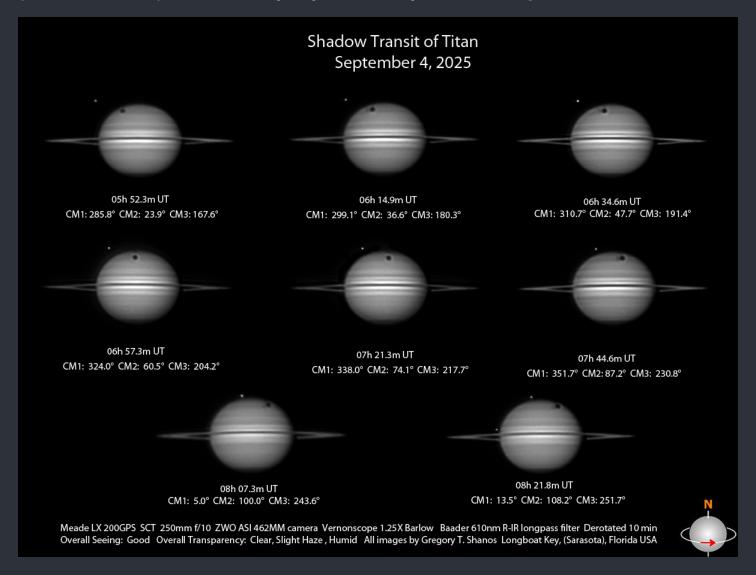
The other moon that appears in the last image is Tethys. If you look closely just above the rings, you can see a shadow transit of Tethys just about to start. Had it not clouded over, I would have continued imaging this transit once the shadow of Titan left the disk. Overall, a very successful imaging run.

I also made a GIF animation.

September 20

Clear, hazy and humid throughout the night on Sept 20th and I was therefore able to image the Shadow Transit of Titan from beginning to end. The seeing was above average for most of the evening and only average towards the end. There was not a jet stream over Florida at the time. Fortunate since this is the peak of hurricane season in Florida! One more ST of Titan to go on Oct 6th just after midnight. Hope for clear skies.

This transit was my favorite since Titan was in front of the disk of the planet just under the shadow. In addition, the event occurred one day prior to opposition, therefore the rings exhibited the Seeliger effect. I made an animation of the event. Frank Melillo of ALPO informed me of the small white oval on the southern portion of the planet. You can see the oval move across the planet in the <u>animation</u>. Thanks Frank.



Shadow Transit of Titan Sept 20, 2025

04h 46.0m UT CM1: 77.0° CM2: 19.8° CM3: 144.2° 05h 00.4m UT CM1: 85.5° CM2: 27.9° CM3: 152.3° 05h 16.1n UT CM1: 94.7° CM2: 36.7° CM3: 161.1°

05h 48.8m UT CM1: 113.9° CM2: 55.2° CM3: 179.6° 06h 21.9m UT CM1: 133.3° CM2: 73.8° CM3: 198.2°

06h 51.2m UT CM1: 150.5° CM2: 90.4° CM3: 214.7°

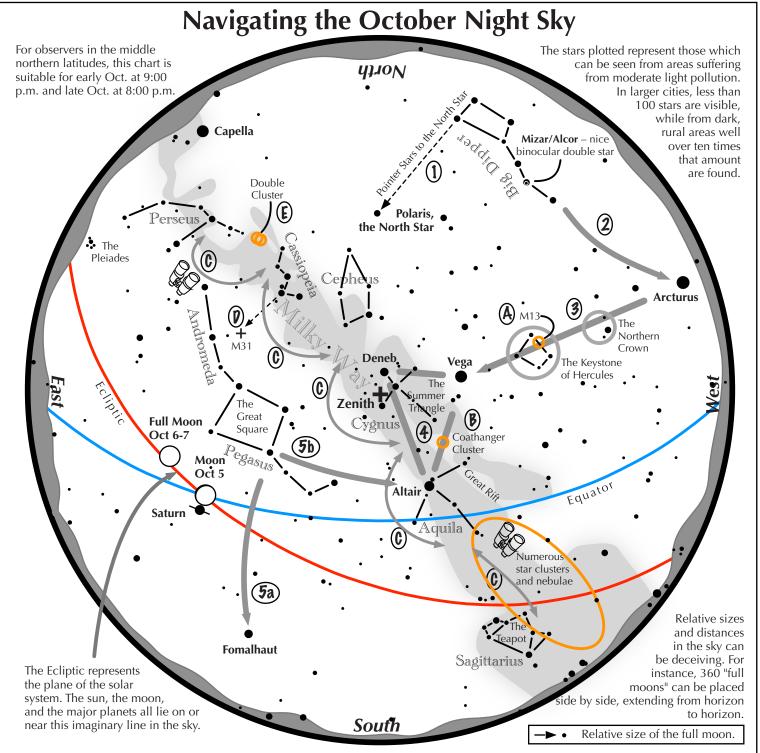
07h 16.6m UT CM1: 165.4° CM2: 104.7° CM3: 229.0° 07h 38.7m UT CM1: 178.3° CM2: 117.1° CM3: 241.4° 08h 05.2m UT CM1: 193.9° CM2: 132.1° CM3: 256.4°

Meade LX 200GPS SCT 250mm f/10 ZWO ASI 462MM camera Seeing: Above Ave Transparency: Clear, Hazy, Humid One day prior to opposition Ring Seeliger effect evident Gregory T. Shanos Longboat Key, (Sarasota), Florida USA



Astronomy on Tap at the Narragansett Brewery in Providence on Tuesday, September 9, 2025 for a presentation titled "The Accelerating Expanding Universe: Dark Matter, Dark Energy, and Einstein's Cosmological Constant" by Bharat Ratra, food, beer, and trivia (Team Skyscrapers placed 4th). Pictured are Jim Hendrickson, Bharat Ratra, Francine Jackson and Denise Turco. Also present were Jay Baccala and Savvas Koushiappas. See more at https://flic.kr/s/aHBqjCvYKZ





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

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- **2** Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
- **3** To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
- **5** High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.

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The Sun, Moon & Planets in October

This table contains the ephemeris of the objects in the Solar System for each Saturday night in September 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	4	12 40.6	-4 22.0	Vir	-26.8	1918.5	-	-	-	1.000	06:46	12:34	18:22
	11	13 06.1	-7 02.2	Vir	-26.8	1922.3	-	-	-	0.998	06:54	12:32	18:11
	18	13 32.1	-9 37.9	Vir	-26.8	1926.1	-	-	-	0.996	07:02	12:31	18:00
	25	13 58.7	-12 06.7	Vir	-26.8	1929.8	-	-	-	0.995	07:10	12:30	17:49
Moon	4	22 07.7	-14 19.0	Aqr	-12.5	1925.6	138° E	87	-	-	17:11	22:53	04:47
	11	4 39.9	26 31.7	Tau	-12.5	1967.2	126° W	80	-	-	20:15	04:25	12:41
	18	11 06.0	5 11.9	Leo	-10.2	1799.4	39° W	11	-	-	04:06	10:30	16:43
	25	16 25.9	-27 32.3	Sco	-10.1	1764.2	38° E	11	-	-	11:25	15:40	19:54
Mercury	4	13 35.3	-10 25.9	Vir	-0.3	5.0	15° E	92	0.461	1.350	08:06	13:31	18:54
	11	14 14.4	-14 51.5	Vir	-0.2	5.2	18° E	87	0.467	1.290	08:35	13:42	18:48
	18	14 52.3	-18 37.5	Lib	-0.1	5.6	21° E	81	0.459	1.208	09:00	13:52	18:44
	25	15 28.1	-21 34.6	Lib	-0.1	6.1	23° E	72	0.438	1.103	09:20	14:00	18:39
Venus	4	11 17.1	6 04.8	Leo	-3.8	11.1	23° W	92	0.718	1.519	04:47	11:12	17:35
	11	11 49.2	2 46.3	Vir	-3.8	10.9	22° W	93	0.719	1.546	05:04	11:16	17:28
	18	12 21.2	-0 37.6	Vir	-3.8	10.8	20° W	94	0.719	1.572	05:20	11:20	17:20
	25	12 53.3	-4 02.7	Vir	-3.8	10.6	18° W	95	0.719	1.595	05:37	11:25	17:12
Mars	4	14 22.0	-14 15.1	Vir	1.6	4.0	27° E	98	1.539	2.363	09:05	14:15	19:25
	11	14 40.9	-15 49.9	Lib	1.5	3.9	25° E	98	1.530	2.378	09:03	14:06	19:10
	18	15 00.2	-17 19.4	Lib	1.5	3.9	23° E	98	1.521	2.390	09:01	13:58	18:56
	25	15 20.0	-18 42.6	Lib	1.5	3.9	21° E	99	1.512	2.401	08:59	13:51	18:42
1 Ceres	4	0 59.3	-10 04.2	Cet	7.6	0.6	165° E	100	2.930	1.953	19:22	00:48	06:13
	11	0 53.3	-10 29.2	Cet	7.6	0.6	162° E	100	2.927	1.960	18:51	00:14	05:38
	18	0 47.5	-10 46.2	Cet	7.7	0.6	157° E	100	2.923	1.981	18:18	23:41	05:04
	25	0 42.2	-10 54.1	Cet	7.8	0.6	150° E	99	2.920	2.015	17:46	23:08	04:31
Jupiter	4	7 38.6	21 32.0	Gem	-2.0	37.2	78° W	99	5.179	5.290	00:06	07:31	14:56
	11	7 41.7	21 25.4	Gem	-2.0	38.0	84° W	99	5.182	5.184	23:42	07:07	14:31
	18	7 44.3	21 19.9	Gem	-2.1	38.8	91° W	99	5.185	5.076	23:17	06:42	14:06
	25	7 46.3	21 15.8	Gem	-2.1	39.6	97° W	99	5.187	4.968	22:52	06:16	13:40
Saturn	4	23 54.9	-3 17.1	Aqr	0.7	19.3	166° E	100	9.546	8.571	17:54	23:44	05:34
	11	23 53.1	-3 28.8	Aqr	0.7	19.2	159° E	100	9.544	8.605	17:25	23:15	05:04
	18	23 51.4	-3 39.3	Aqr	8.0	19.1	152° E	100	9.542	8.653	16:57	22:46	04:34
	25	23 49.8	-3 48.5	Aqr	0.8	19.	144° E	100	9.540	8.715	16:28	22:17	04:05
Uranus	4	3 56.2	20 10.9	Tau	5.6	3.7	130° W	100	19.506	18.849	20:30	03:49	11:08
	11	3 55.5	20 08.8	Tau	5.6	3.8	137° W	100	19.505	18.763	20:02	03:21	10:40
	18	3 54.7	20 06.3	Tau	5.6	3.8	144° W	100	19.503	18.687	19:30	02:48	10:07
	25	3 53.7	20 03.4	Tau	5.6	3.8	151° W	100	19.502	18.624	19:01	02:20	09:38
Neptune	4	0 03.9	-1 04.4	Psc	7.8	2.4	169° E	100	29.887	28.903	17:55	23:53	05:51
	11	0 03.2	-1 08.9	Psc	7.8	2.4	162° E	100	29.887	28.934	17:27	23:25	05:23
	18	0 02.6	-1 13.0	Psc	7.8	2.4	155° E	100	29.887	28.979	16:59	22:57	04:55
	25	0 02.0	-1 16.9	Psc	7.8	2.4	148° E	100	29.887	29.038	16:31	22:29	04:26
Pluto	4	20 18.1	-23 32.2	Cap	14.5	0.2	110° E	100	35.361	35.001	15:37	20:08	00:39
	11	20 18.0	-23 32.4	Cap	14.5	0.2	103° E	100	35.366	35.121	15:10	19:41	00:12
	18	20 18.0	-23 32.2	Cap	14.5	0.2	96° E	100	35.370	35.244	14:42	19:13	23:44
	25	20 18.1	-23 31.7	Cap	14.5	0.2	90° E	100	35.375	35.369	14:15	18:46	23:17

Astrophoto Gallery

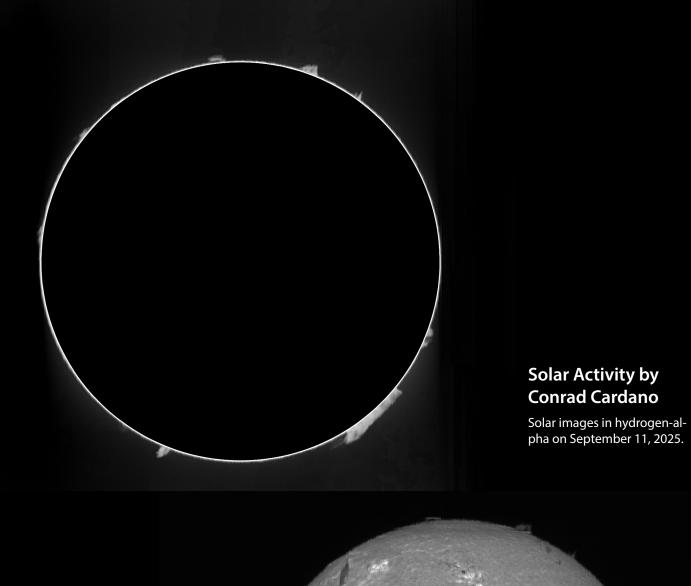


Caldwell 19 & 23 by Jeff Padell

September 2nd, I put out the Seestar S50 for the night. I did C19 from 8:30pm to 12 and then C23 from 12-4 and then C19 again from 4-5 (once it passed my tree)

Being able to start it imaging and then go to bed is great!





Directions to Seagrave Memorial Observatory

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.





47 Peeptoad Road North Scituate, Rhode Island 02857