the Skyscraper

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October 2020

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

In This Issue:

AstroAssembly 2020

Saturday, October 3, from 1pm to 6pm
A series of online presentations on the topic of astrophotography

www.theskyscrapers.org/astroassembly2020

1:15pm Welcome & Introduction
Astrophotography contest voting begins.

1:30pm **The World at Night by Babak Tafreshi**, photojournalist and science communicator for National Geographic & founder of The World at Night

2:45pm **Interpreting Astronomical Images: The Choices and Aesthetics That Go Into Making Images by Adam Block**, Department of Astronomy at the University of Arizona

4:00pm **The Process of Choosing What and How to Image by Travis Rector**, professor of astrophysics at the University of Alaska Anchorage

5:00pm Closing Remarks, Astrophoto Contest Winners, Virtual Cocktail Hour

Upcoming Presentations

Saturday, November 7
Dr. Jonathan Grindley from Center for Astrophysics: The DASCH Project – Ten Years Later

Saturday, December 5
Member Greg Shanos: A Guide to Collecting Meteorites

Saturday, January 2
Mike Wenz: A Behind The Scenes Look At The Hubble Telescope

Seagrave Observatory is closed until further notice.

Due to the outbreak of coronavirus, Seagrave Memorial Observatory will remain closed to the public until further notice.

Phases of the Moon

Full Harvest Moon
October 1 21:05

Last Quarter Moon
October 10 00:46

New Moon
October 16 19:31

First Quarter Moon
October 23 13:23

Full Hunter's Moon
October 31 14:49

President's Message

by Steve Siok

Hello everyone, welcome to October! The highlight of this month is AstroAssembly. This year our annual event is unlike any we have held before. But, we are determined to enjoy our "Skyscraper Christmas" and to add new memories.

AstroAssembly was first held in August of 1952. It rained all day for the first time in 30 years. No event was held in 1953 or 54. Although I cannot prove it, I wonder if the completion of the meeting hall in 1954 gave our members the impetus to make AstroAssembly an annual event. It provided a place to shelter in case of rain and to enjoy talks illustrated with films or slides and even old fashioned lantern slides. Stellafane was a fine mentor. Our own Charles Smiley was keynote speaker at the very first Stellafane in the 1920s.

Our predecessors were an analytical bunch. After that first deluge in 1952, it was determined that the first weekend in October was the most likely to be rain-free and temperate, based on a study of the records at the National Weather Station at Hillsgrove airport.

Astroassembly has always been an event for friendships. Old friends get to meet and catch up on each other's projects, observing, family lives and trips. It affords people the opportunity to become acquainted with new folks and to make new friendships. It is a casual day with a daytime cookout and an evening banquet. It also has its own quirks – as in the AstroBakeoff.

Well, things will be slightly different this year. We look forward to listening to our three experts and the individual perspective each brings to the topic of Astro-imaging. As we go from speaker to speaker, we will span the times zones of the United States. So sit back, relax and enjoy our program. Cook yourself a hamburger and a hot dog and pretend that you are on Peeptoad Road.

The second celebration this month is the opposition of Mars, when it is closest to the Earth. I hope that most of you have already had a chance to view it as it gets larger and surface details become more distinct, whether you are viewing and drawing your observations or imaging and stacking your photographs. Many of you may have fond memories about observing Mars. In the anteroom, there are two composite sketches of the planet drawn by amateur astronomer Mike Mattei in the 70s. Also, there was a great talk given by member Al Hall as he described his detailed sketches as Mars approached and then receded from opposition. My best Mars memory is my own trip to Seagrave during an October opposition. I arrived on Halloween night, locked the gate and all the doors, opened the dome and observed Mars at 300 power with the Alvan Clark telescope while Orson Wells "War of the Worlds" played on the radio.

So welcome to October. I hope you all experience some fine memories and observing.

Steve Siok - President, Skyscrapers Inc.

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, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com.

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

October Astronomical Potpourri

by Dave Huestis

As the title of this column suggests, the month of October will have something for the naked-eye and telescope user alike. Hopefully the heat and humidity of this past summer will be behind us, leaving cooler temperatures and transparent skies so we may comfortably and efficiently scan the skies for interesting astronomical phenomena.

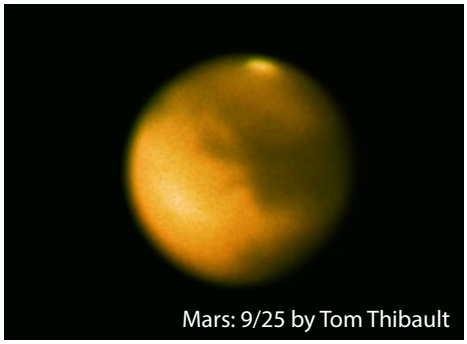
Draconid and Orionid Meteor Showers

This month the sky gods reward stargazers with two meteor showers. The first one is a minor one, the Draconids, on the evening of October 7. Currently producing ten or less yellowish slow-moving (hitting the Earth's atmosphere at only 14 miles per second) meteors per hour, it is best observed once darkness has fallen through the midnight hour when the constellation Draco is highest in the northern sky. This scenario allows you to get that much needed beauty sleep!

Look towards the north and locate Ursa Major (the Big Bear/Dipper). Draco is a sinuous pattern of stars that stretches between Ursa Major and Polaris, the pole star, which is the end star in Ursa Minor (the Little Bear/Dipper), tail/handle. While the meteors will emanate from this region of the sky, scan east and west up to zenith (directly overhead). As the night progresses, watch the northern sky rotate around Polaris. By morning twilight, Draco's head will be sitting due north about 20 degrees above the horizon. A bright waning gibbous Moon will rise locally around 9:30 p.m., so it will wash out some of the fainter meteors.

The second meteor shower of the month, the Orionis, is a major one, occurring on the night of October 20-21. The best viewing opportunity will be between midnight and dawn's early light. A waxing crescent Moon will set soon after sunset and will not interfere with observing as many meteors as possible. Just position yourself away from any light sources to maximize your shooting star count. At their peak of activity, you can perhaps observe up to about 20 or so yellow and green meteors per hour.

These meteors appear to radiate out of the sky just above Orion's head (hence the name of the shower) and not far from the bright red super giant star Betelgeuse, which marks his right shoulder. The Orionid meteors disintegrate in our atmosphere around 41.6 miles per second, and they are also noted for producing fireballs that create persistent dust trains as they blaze across the sky. While Orion is an easy star pattern to identify, at 3:00 a.m. this giant constellation will be found high in the southeast sky.



Mars: 9/25 by Tom Thibault

Close Encounter with Mars

Every 26 months the "Red Planet" Mars and Earth are closest to one another. On October 6 our planetary neighbor will be only 38.6 million miles away. That distance is just a little farther away than Mars was at its last close approach on July 31, 2018. You may remember there was much anticipation of that event, but a global Martian dust storm enshrouded the planet, preventing any telescopic observations of its surface features. This upcoming close encounter promises much better viewing opportunities.

Why? Mars experiences seasons like those on Earth. At this time of close approach there will not be a high probability of large Martian dust storms. Also, for 2020 Mars will rise much higher into our less hazy October sky than it did back in 2018. A telescope should reveal much detail on the Martian surface.

If you would like some background on the history of Mars exploration please visit this link on the Skyscrapers web site: http://www.theskyscrapers.org/mars-past-present-and-future.

Since I expect the local observatories to still be closed due to Covid-19 (with the possible exception of Frosty Drew in Charlestown - https://frostydrew.org/2020-contagion.php), I strongly encourage everyone to drag out those telescopes from the basement, attic or garage and treat yourself and your children to the best views of Mars we'll experience until 2035. One day they or your grandchildren may set foot upon this exciting landscape. Take a knowledgeable glimpse of an alien world that inspired generations of astronomers and science fiction writers alike to ponder the existence of Martian life-forms.

This brief Mars observing guide will help you to discern and appreciate the planetary detail a telescope may show you of this neighboring world. Considering how close our two worlds will be, even a small 2.4-inch refractor should show some surface features. And if seeing conditions are perfect, one should be able to "crank up" the magnification to coax additional detail out of the image. Larger aperture telescopes will reveal increasing detail.

Mars will not be difficult to locate in the sky. On the night of close approach Mars will be seen just above the eastern horizon during late evening twilight. You won't be able to mistake its distinct bright pumpkin-orange color. You should wait for the planet to climb higher into the sky and out of any horizon haze and turbulence before you begin telescopic observation of this world. By 9:00 p.m. Mars will be about 25 degrees above the horizon and awaiting your scrutiny among the stars of the constellation Pisces and will remain in this constellation through the end of 2020.

Once you focus in on Mars with a telescope, closer inspection will reveal the surface color to be more peach-like. The second detail that should catch your eye will be the South Polar Cap (SPC). It's a fairly bright white feature that can be easily seen because Mars' south pole is currently tilted towards the Earth.

As you more carefully scan the planet you should begin to notice several dark surface features. These markings are the underlying rock exposed by the shifting sands during intense planetary dust storms. The amount of detail seen will depend upon the size of your telescope and its magnification. However, atmospheric conditions above your observing location will be the definitive limiting factor.

Keep in mind you don't have to identify the features you glimpse. Just simply enjoy the view.

Good observing.

Dave Huestis is Skyscrapers Historian and has been contributing monthly columns to local newspapers for nearly 40 years. See more at http://theskyscrapers.org/dave-huestis

NASA Night Sky Notes:

Observe the Skies Near Mars

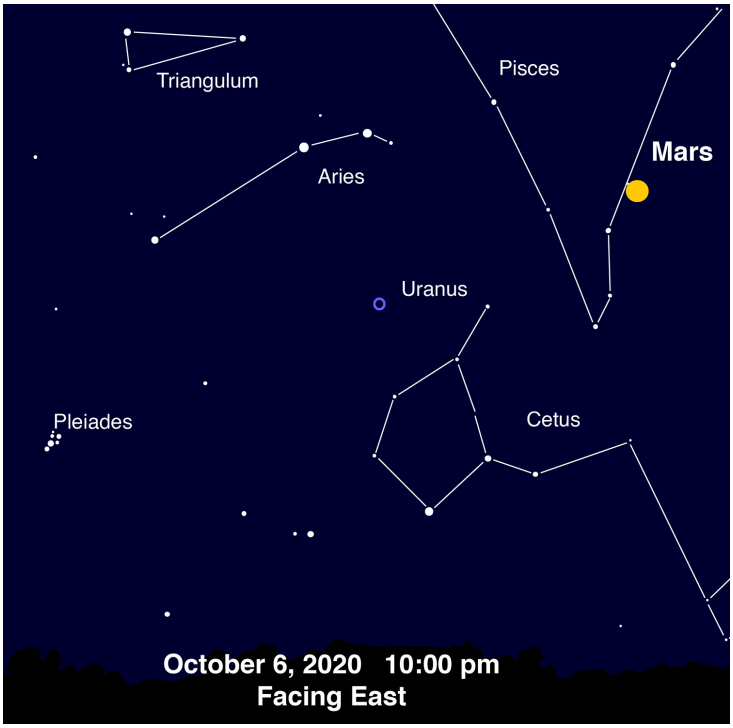
By David Prosper

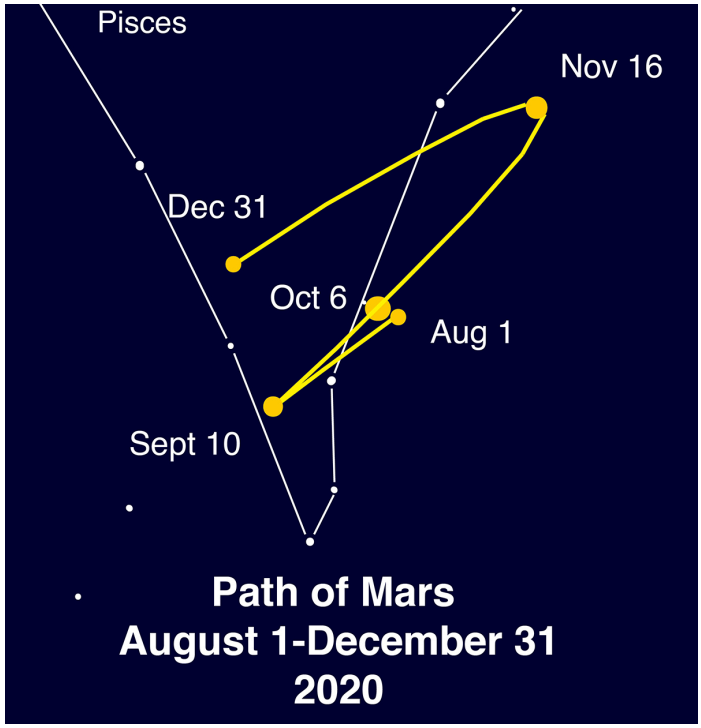
October is a banner month for Mars observers! October 6 marks the day Mars and Earth are at closest approach, a once-every-26-months event. A week later, on October 13, Mars is at opposition and up all night. Mars is very bright this month, and astronomers are eager to image and directly observe details on its disc; however, don't forget to look at the space around the planet, too! By doing so, you can observe the remarkable retrograde motion of Mars and find a few nearby objects that you may otherwise overlook.

Since ancient times, Mars stood out to observers for its dramatic behavior. Usually a noticeable but not overly bright object, its wandering path along the stars showed it to be a planet instead of a fixed star. Every couple of years, this red planet would considerably flare up in brightness, for brief times becoming the brightest planet in the sky before dimming back down. At these times, Mars would also appear to slow down its eastward motion, stop, then reverse and head westward against the stars for a few weeks, before again stopping and resuming its normal eastward movement. This change in the planet's movement is called "apparent retrograde motion." While all of the planets will appear to undergo retrograde motion when observed from Earth, Mars's retrograde appearances may be most dramatic. Mars retrograde motion in 2020 begins on September 10, and ends on November 16. You can observe its motion with your eyes, and it makes for a fun observing project! You can sketch the background stars and plot Mars as you observe it night after night, or set up a photographic series to track this motion. Does the planet move at the same rate night after night, or is it variable? As you observe its motion, note how Mars's brightness changes over time. When does Mars appear at its most brilliant?

NASA has tons of great Mars-related resources! Want to know more about apparent retrograde motion? NASA has an explainer at: bit.ly/marsretromotion. Find great observing tips in JPl's "What's Up?" videos: bit.ly/jplwhatsup. Check out detailed views with NASA's HiRISE satellite, returning stunning closeups of the Martian surface since 2006: hirise.lpl.arizona.edu. NASA's Curiosity Rover will be joined in a few months by the Perseverance Rover, launched in late July to take advantage of the close approach of Mars and Earth, a launch window that opens two years: nasa.gov/perseverance. Calculate the ideal launch window yourself with this handy guide: bit.ly/marslaunchwindow. The Night Sky Network's Exploring Our Solar System handout invites you to chart the positions of the planets in the Solar System, and NSN coordinator Jerelyn Ramirez recently contributed an update featuring Mars opposition! You can download both versions at bit.ly/exploresolarsystem. Young astronomers can find many Mars resources and activities on NASA's Space Place: bit.ly/spaceplacemars. Here's to clear skies and good seeing for Mars's best appearance until 2033!

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





(left) If you are paying this much attention to Mars, you're likely curious about the skies surrounding it! Find Mars in the constellation Pisces, with constellations Aries, Triangulum, and Cetus nearby. Aries may be the only one of these dimmer patterns readily visible from light-polluted areas. The Pleiades rises shortly after Mars. Dim Uranus is found close by, in Aries. If you are observing Mars up close, use the same eyepiece to check out Uranus's tiny blue-green disc. If you are uncertain whether you spotted Uranus, you didn't see it! Unlike stars, Uranus doesn't resolve to a point at high magnifications. (right) The path of Mars during the last five months of 2020. Notice the retrograde motion from September 10 to November 16, with prime Mars observing time found in between. October 6 is the day of closest approach of Earth and Mars, "just" 38.6 million miles apart. Images created with help from Stellarium: stellarium.org

The Sun, Moon & Planets in October

This table contains the ephemeris of the objects in the Solar System for each Saturday night in October 2020. 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	**3**	12 37.6	-4 03.4	Vir	-26.8	1918.1	-	-	-	1	06:45	12:35	18:24
	10	13 03.2	-6 44.1	Vir	-26.8	1921.9	-	-	-	1	06:53	12:33	18:12
	17	13 29.2	-9 20.4	Vir	-26.8	1925.7	-	-	-	1	07:01	12:31	18:01
	24	13 55.6	-11 50.1	Vir	-26.8	1929.5	-	-	-	0.99	07:09	12:30	17:50
	31	14 22.6	-14 11.0	Lib	-26.8	1933.2	-	-	-	0.99	07:17	12:29	17:41
Moon	**3**	1 32.4	4 06.7	Psc	-12.5	1771.6	167° W	99	-	-	19:32	02:17	09:12
	10	7 15.1	23 38.7	Gem	-11.9	1834.5	90° W	50	-	-	23:15	07:08	14:57
	17	13 42.4	-7 04.7	Vir	-6.0	2000.0	5° E	0	-	-	07:48	13:26	18:53
	24	20 38.0	-23 03.3	Cap	-12.0	1861.3	95° E	55	-	-	15:08	20:02	01:01
	31	2 04.6	7 43.3	Psc	-12.5	1778.4	172° E	100	-	-	18:01	00:58	07:06
Mercury	**3**	14 10.1	-16 16.4	Vir	0.1	7.0	26° E	58	0.44	0.97	09:05	14:07	19:08
	10	14 28.8	-18 15.2	Lib	0.4	8.0	24° E	42	0.41	0.85	09:03	13:57	18:50
	17	14 30.7	-18 04.5	Lib	1.4	9.2	17° E	20	0.37	0.73	08:34	13:29	18:24
	24	14 08.9	-14 37.0	Vir	5.7	10.1	4° E	1	0.33	0.67	07:29	12:38	17:47
	31	13 42.3	-9 44.4	Vir	2.4	9.2	11° W	10	0.31	0.73	06:18	11:45	17:13
Venus	**3**	10 09.5	11 46.3	Leo	-4.0	15.6	40° W	72	0.72	1.09	03:21	10:07	16:52
	10	10 41.2	9 08.9	Leo	-4.0	14.9	39° W	75	0.72	1.13	03:35	10:11	16:46
	17	11 12.7	6 16.6	Leo	-3.9	14.3	37° W	77	0.72	1.18	03:50	10:15	16:40
	24	11 44.1	3 13.2	Vir	-3.9	13.8	36° W	79	0.72	1.22	04:05	10:19	16:32
	31	12 15.6	0 02.3	Vir	-3.9	13.4	35° W	81	0.72	1.27	04:20	10:23	16:25
Mars	**3**	1 36.1	6 07.0	Psc	-2.5	22.5	165° W	99	1.41	0.42	19:04	01:27	07:50
	10	1 27.5	5 41.0	Psc	-2.6	22.5	174° W	100	1.41	0.42	18:29	00:51	07:13
	17	1 18.6	5 16.3	Psc	-2.5	22.1	175° E	100	1.42	0.42	17:54	00:15	06:35
	24	1 10.4	4 57.7	Psc	-2.4	21.3	167° E	99	1.43	0.44	17:20	23:39	05:58
	31	1 03.8	4 49.3	Psc	-2.1	20.2	158° E	98	1.43	0.46	16:46	23:05	04:24
1 Ceres	**3**	22 28.7	-25 10.1	PsA	8.2	0.6	137° E	99	2.97	2.16	17:58	22:21	02:44
	10	22 25.9	-24 59.2	PsA	8.3	0.6	130° E	98	2.97	2.23	17:27	21:51	02:15
	17	22 24.3	-24 39.8	Aqr	8.4	0.5	124° E	98	2.97	2.30	16:56	21:22	01:48
	24	22 23.8	-24 12.9	Aqr	8.5	0.5	117° E	98	2.97	2.38	16:26	20:54	01:22
	31	22 24.5	-23 39.4	Aqr	8.7	0.5	111° E	97	2.97	2.47	15:57	20:28	00:58
Jupiter	**3**	19 18.4	-22 39.1	Sgr	-2.2	40.2	98° E	99	5.13	4.89	14:37	19:12	23:47
	10	19 20.6	-22 35.1	Sgr	-2.1	39.3	91° E	99	5.12	5.00	14:11	18:47	23:22
	17	19 23.4	-22 29.8	Sgr	-2.1	38.5	85° E	99	5.12	5.11	13:46	18:22	22:58
	24	19 26.8	-22 23.2	Sgr	-2.1	37.7	79° E	99	5.12	5.22	13:22	17:58	22:34
	31	19 30.7	-22 15.3	Sgr	-2.0	37.0	73° E	99	5.12	5.32	12:58	17:35	22:11
Saturn	**3**	19 49.5	-21 22.6	Sgr	0.5	17.1	105° E	100	10.00	9.69	15:02	19:43	00:23
	10	19 49.8	-21 22.0	Sgr	0.5	16.9	98° E	100	10.00	9.81	14:35	19:16	23:56
	17	19 50.5	-21 20.5	Sgr	0.5	16.7	92° E	100	10.00	9.92	14:08	18:49	23:30
	24	19 51.6	-21 18.1	Sgr	0.6	16.5	85° E	100	10.00	10.04	13:42	18:23	23:03
	31	19 52.9	-21 14.8	Sgr	0.6	16.3	78° E	100	10.00	10.15	13:15	17:56	22:38
Uranus	**3**	2 30.2	14 18.0	Ari	5.7	3.7	150° W	100	19.78	18.91	19:27	02:22	09:17
	10	2 29.2	14 13.3	Ari	5.7	3.7	158° W	100	19.78	18.86	18:59	01:54	08:48
	17	2 28.2	14 08.2	Ari	5.7	3.7	165° W	100	19.78	18.82	18:31	01:25	08:19
	24	2 27.1	14 02.8	Ari	5.7	3.7	172° W	100	19.78	18.80	18:03	00:57	07:50
	31	2 25.9	13 57.4	Ari	5.7	3.8	179° W	100	19.78	18.79	17:35	00:28	06:21
Neptune	**3**	23 21.2	-5 23.2	Aqr	7.8	2.4	159° E	100	29.93	28.99	17:31	23:14	04:57
	10	23 20.6	-5 27.2	Aqr	7.8	2.4	152° E	100	29.93	29.05	17:03	22:46	04:28
	17	23 20.0	-5 30.8	Aqr	7.8	2.3	145° E	100	29.93	29.11	16:35	22:18	04:00
	24	23 19.5	-5 33.9	Aqr	7.8	2.3	137° E	100	29.93	29.19	16:08	21:50	03:32
	31	23 19.1	-5 36.6	Aqr	7.8	2.3	130° E	100	29.93	29.28	15:40	21:22	02:04
Pluto	**3**	19 37.9	-22 38.8	Sgr	14.4	0.2	102° E	100	34.13	33.91	14:56	19:31	00:06
	10	19 37.9	-22 39.1	Sgr	14.4	0.2	95° E	100	34.14	34.03	14:29	19:04	23:39
	17	19 38.1	-22 39.2	Sgr	14.4	0.2	88° E	100	34.14	34.15	14:01	18:36	23:11
	24	19 38.3	-22 39.0	Sgr	14.4	0.2	82° E	100	34.15	34.28	13:34	18:09	22:44
	31	19 38.7	-22 38.7	Sgr	14.4	0.2	75° E	100	34.15	34.40	13:07	17:42	22:17

Galaxies in Pegasus: NGC 7332/7339

by Glenn Chaple for LVAS

NGC 7332, Mag: 11.1, Size: 4.1′ x 1.1′
NGC 7339, Mag: 12.1, Size: 3.2′ X 1.0′

The deep sky aficionado who has spent time exploring galaxies in the constellation Pegasus is familiar with NGC 7331 and the nearby galaxy group Stephan's Quintet. For more Pegasus galaxies, look eleven degrees due south for the interesting edge-on galactic pair NGC 7332 and NGC 7339. Both were discovered by William Herschel on September 19, 1784 and entered in his Catalogue of Nebulae and Clusters of Stars as Class II (Faint Nebulae) objects.

Far be it for me to question Sir William's judgement, but I would humbly opine that NGC 7332 should have been catalogued as a Class I (Bright Nebulae) object. I had no trouble capturing the elongated form of this 11th magnitude edge-on lenticular galaxy with a 4.5-inch reflecting telescope and magnification of 100X. NGC 7339 wasn't as accommodating. A magnitude fainter than NGC 7332 (and certainly deserving its Class II status), this edge-on spiral required a bigger scope (a 10-inch reflector), ample time to dark-adapt my eyes, and averted vision.

Image by Mario Motta (ATMoB), taken with ASI6200 camera though the 32 inch scope. 1 hour Lum, and 45 min each RGB.

ATM of BOSTON

OBSERVING LOG

NAME: Glenn Chaple

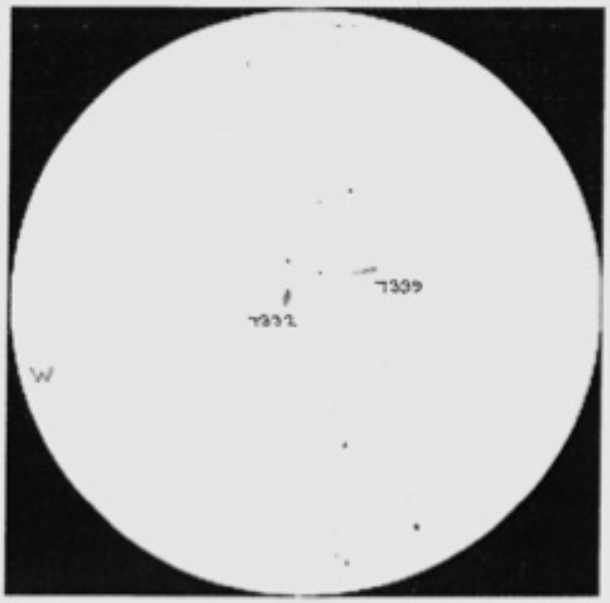
DATE (M/D/Y) 9/11/2020 TIME: 10:30 pm EDT

OBSERVING SITE: Townsend MA

SKY CONDITIONS: Seeing (Antoniadi Scale) ____ Limiting Magnitude 5.2

OBJECT: NGC 7332 / NGC 7339 TYPE: Lenticular Gal / Spiral Gal CONSTELLATION: Peg

SKETCH (note direction of west)



NOTES:

NGC 7332 - easily seen with low power. Stellar nucleus at 139 x. Elongated roughly N-S.

NGC 7339 - very faint at 139 x. Elongated E-W

OBSERVING EQUIPMENT

Binoculars ____X____

Telescope: 10-inch f/5 reflector Eyepiece: 9mm Nagler

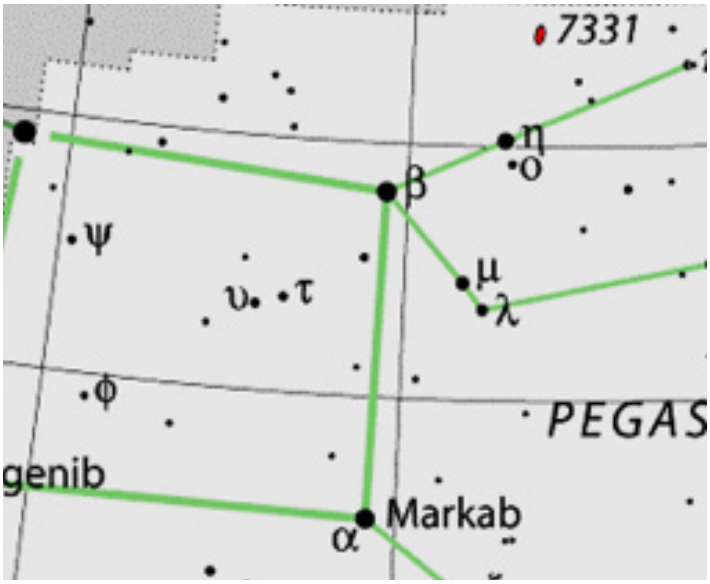
Mag: 139 X Field Diam: 0.6 ° Filter (if any): ____

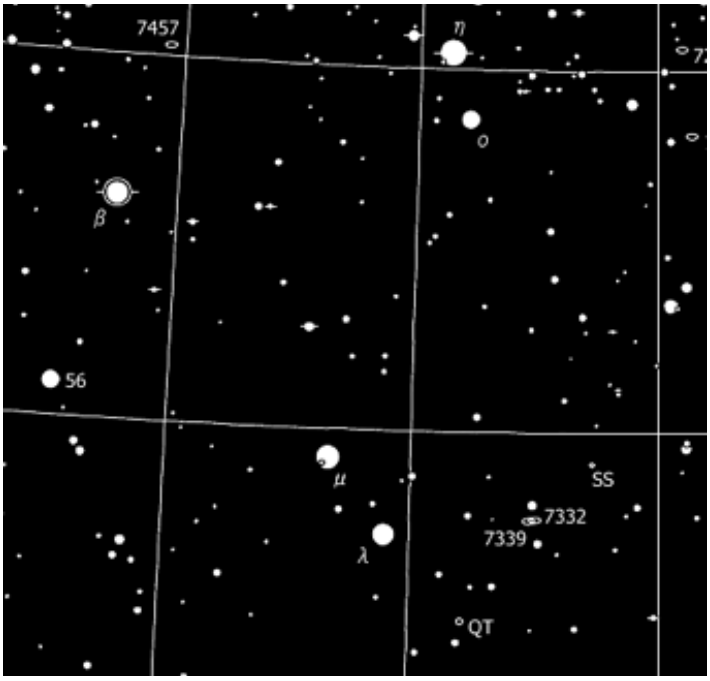
NGC 7332/7339, as seen with 10-inch f/5 reflector at 139X. Sketch by Glenn Chaple (ATMoB)

To find these galaxies with GoTo technology, use the coordinates for NGC 7332 (RA 22h 37.4m, dec. +23° 47.9′). If you're a star-hopper, train your finderscope on the wide pair mu (μ) and lambda (λ) Pegasi (magnitudes 3.5 and 3.9, respectively). After centering lambda in a low-power eyepiece field, nudge your scope 2 degrees westward until a pair of 7th magnitude stars less than a degree apart and oriented N-S enters the field. Center the northernmost of the two in the eyepiece field and switch to a higher magnification. NGC 7332 should immediately be visible. NGC 7339, located 5 arc-minutes east of NGC 7332 will appear as a faint E-W-oriented streak.

NGC 7332 and NGC 7339 appear to form a gravitationally bound system. They lie some 67 million light years from earth.

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge or access past reports, log on to rogerivester.com/category/observers-challenge-reports.





Finder Chart for NGC 7332/7339. Above: www.constellation-guide.com; right: Taki's 8.5 Magnitude Star Atlas (takitoshimi.starfree.jp)

Full Moons of October

by Jim Hendrickson

Perhaps the most well-known Full Moon nickname, even well before Full Moon names became popular in the age of the internet, is the **Harvest Moon.** For generations, stories have been told, songs have been sung, and festivals have been held, to mark the annual occasion. The Harvest Moon, which usually occurs in September, is said to have aided farmers in the North American harvest due to the prevalence of its light in the early evening as the Sun sets earlier this time of year. Additionally, when the Moon is full near the autumnal equinox, the nearly Full Moon rises farther north on subsequent nights in mid-northern latitudes, thereby shortening the time between subsequent risings of the Moon, and offering its bright light to the farmers relatively early on nights following the Full Moon.

However, we didn't observe a Harvest Moon in September, because the Harvest Moon is defined as the Full Moon closest to the autumnal equinox, whether it falls before or after. In 2020, that date is October 1st. Because September didn't host a Harvest Moon in 2020, we instead observed a Full Corn Moon, which is the more traditional name for September's Full Moon, as it coincides with the North American corn harvest season.

October Harvest Moons are fairly infrequent, with the next one occurring in 2028. Perhaps the phrase "once in a Blue Moon," used to denote the rarity of something, should be changed to "once in an October Harvest Moon," as Blue Moons occur approximately every three years.

While on the topic of Blue Moons, the most common way we define a **Blue Moon** is the occurrence of a second Full Moon in a single calendar month. One caveat to note, however, is that the "official" times given for lunar phases are in Coordinated Universal Time (UTC), which for us is four hours ahead of Eastern Daylight Time, or five hours ahead of Eastern Standard Time. This means that a Full Moon may appear during the last evening of a month for us, but actually occurs in the following month UTC. In October 2020, however, this is not the case, with the second Full Moon occurring at 14:49 UTC (10:49am EDT) on Halloween, the 31st, putting it comfortably within the month of October.

It is worth noting that a Halloween Full Moon will always be a Blue Moon, since subtracting the approximately 29.5 day lunar cycle from the beginning of the 31st day of October will place the previous Full Moon at the beginning of the month.

Finally, and not to be overlooked, the second Full Moon of October is also known by its traditional name, the **Hunter's Moon**. With the Hunter's Moon rising farther north than the Full Moons of the past several months, it shines higher and longer through the night, and is said to have aided hunters through recently harvested, barren fields, and thinning deciduous foliage to collect meat for their winter stores.

Whether your plans include harvesting, hunting, or participating in something spooky, here's wishing your clear skies to enjoy the beauty of October's Full Moons.

Jim Hendrickson is newsletter and web editor and has been a member for 20 years. See more at http://theskyscrapers.org/jim-hendrickson

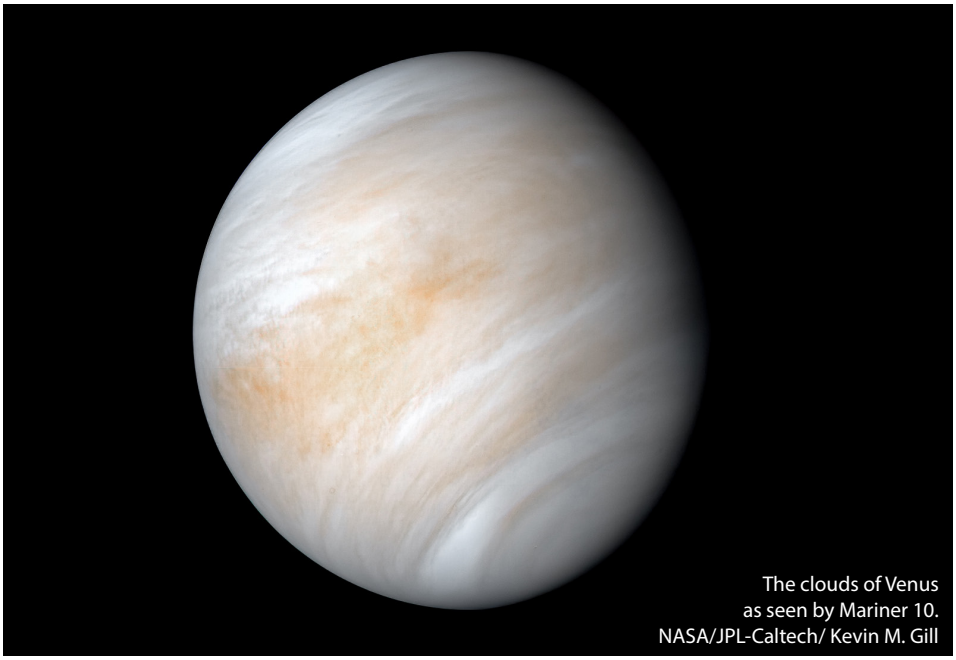
Phosphine in the Atmosphere of Venus

by Francine Jackson

For pretty much all our lives, one of the major terms to describe our brilliant, beautiful neighbor planet Venus has been. . . Hades. Although the only planet worshiped as a female god, and, for a while believed to be two separate celestial objects, Venus has been an enigma for a very long time. Because of the very thick atmosphere, conjecture ran rampant, especially in Hollywood, with spaceships galore landing there, including the Three Stooges, with all sorts of life forms awaiting.

Until – the atmosphere was determined to be almost exclusively carbon dioxide, giving the venusian surface a constant temperature of 900 degrees Fahrenheit, plus a smidgen of sulfuric acid thrown in, to give the surface that mustardy color seen by Soviet landing craft. Throw in the 90 times denser atmosphere, and Venus was relegated to the "nice to look at from afar" class.

Radar results from the successful Magellan mission in the late '80s and early 1990s gave us the perspective of a desolate surface, with no possible way for any kind of life to exist there: Until possibly now, with astronomers announcing the presence of phosphine in Venus's upper atmosphere. And, what is phosphine? Dictionary definition: a colorless, flammable, very toxic explosive gas, occurring naturally from the breakdown of organic matter.



The clouds of Venus as seen by Mariner 10. NASA/JPL-Caltech/ Kevin M. Gill

In 1967, Carl Sagan wrote of the possibility that life might exist in the planet's clouds, that it actually could have evolved to live in its sulfuric acid layer. This resulted in much conjecture and many papers on the subject, with, in the back of several scientists' minds, the possibility, though very remote, that a form of life could exist. And, now, although of course the discovery of this gas in our neighbor world doesn't call for a change in our immediate thinking about our beautiful celestial beacon, but it should call for more thought, and possibly more excursions – but unmanned, of course – there. After all, we are already looking at Venus as the greatest runaway greenhouse example we have; we may as well also think of it as a probable home to some type of mysterious, and possibly new, life forms.

Francine Jackson is a NASA Solar System Ambassador, writes the weekly newsletter for Ladd Observatory See more at http://theskyscrapers.org/francine-jackson

Francine Jackson published in Griffith Observer

Congratulations go out to Skyscrapers member and Ladd Observatory Staff Astronomer Francine Jackson for her most recent article published in the October 2020 issue of the Griffith Observer magazine! Francine has had nearly 20 of her articles published in the Griffith Observer and this month, just in time for Halloween, is about Rhode Island author H.P. Lovecraft and Ladd Observatory. Before writing horror fiction, Lovecraft was a prolific amateur astronomer who wrote numerous astronomical journals and spent much of his time at Ladd Observatory.

Congratulations, Francine!

September Reports

Minutes-Skyscrapers Executive Committee Meeting via Zoom
Tuesday Sept 8, 2020 at 7PM

Meeting called to order by Steve Siok at 7:02PM

Present: Steve Siok, Kathy Siok, Linda Bergemann, Steve Hubbard, Sue Hubbard, Francine Jackson, Jim Crawford, Bob Janus, Bob Horton, Jim Hendrickson, Jeff Padell, Laura Landon, Ian Dell'Antonio, Tracy Prell Total 14

This meeting was dedicated to discussions about the upcoming AstroAssembly.

1. Astrophoto Contest: Jim Hendrickson will coordinate the contest and details will ben posted on our website. The deadline for entries is October 2, noon Eastern time. A survey monkey form will be developed for voting, which will open at 1PM and end before the last talk. The photos will be visible on the website during the day of our event. There will be 4 photo categories: Remote telescopes, Planetary, Landscape, Deep Sky. One entry per category will be accepted from individuals registered for AstroAssembly. Prizes or certificates will be given to winners in each category.

2. Registration: Linda Bergemann is the registrar. Once you have registered, she will send you the program link and other information. The deadline to register for AstroAssembly will be October 2, noon. All agreed that walk-ins will be accepted.

3. Advertising: Linda Bergemann will send out an email to previous attendees, local clubs, NSN, and Facebook. Kathy Siok will reach out to Sky and Tel and Astronomy magazines.

4. Other Details: Laura Landon will be the Zoom host. There was discussion about the last hour (5-6PM) and how to allow people to connect. A further discussion will be held at our rehearsal on Tuesday, September 15th. Logistics will be clarified.

5. Facebook Group: Linda Bergemann has suggested that we have a private Facebook Group for those seriously interested in astronomy. This group will be by invitation only with Linda as the Moderator. All agreed to allow Linda create this new group.

6. Next Executive Committee Meeting will be held during mid-October with date TBA.

Reminder: Practice Astro Assembly Zoom Session on Tuesday Sept 15 at 7PM. The link will be sent to all executive committee members.

Adjourned: 7:53 PM.

Respectfully submitted,

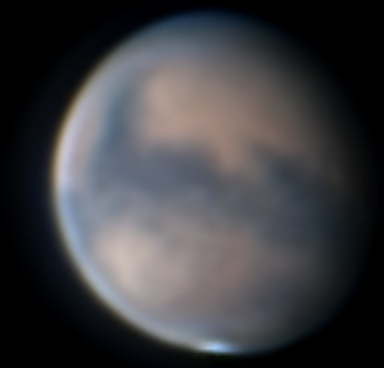
Sue Hubbard, Secretary

Monthly Presentation Videos on YouTube

With our monthly meetings going virtual this year, we have begun to record and publish, with permission, our monthly Zoom presentations on the Skyscrapers YouTube channel. Go to the URL below to view recent presentations.

https://www.youtube.com/channel/UCEZ5UnO-Sly0DXsSrUAxONg

From Greg Shanos: Great to reconnect with Skyscrapers after all these years. Attached is an image of Mars from September 1. Greg submitted several images of Mars to ALPO and the Astronomical League for the Mars Observers Award.



Mars by Steve Hubbard on September 24, 2am. Seeing was maybe 6/10. Solis Lacus the "Eye of Mars" is near the center. 14inch F8 Meade SCT, ZWO ASI174MC imager, processed with Autostackert and Astra Image.

October 2020 Volume 7

STARRY SCOOP

Editor: Kaitlynn Goulette

WHAT'S UP

October starts off with a full moon. All full moons have special nicknames according to their month or season. These names have their roots in folklore and differ between the Northern and Southern Hemispheres. This month's full moon is called the Harvest Moon. We have a second full moon at the end of October, which is somewhat rare. When this occurs, the second full moon is popularly called a monthly Blue Moon, which is the source of the phrase, "once in a Blue Moon".

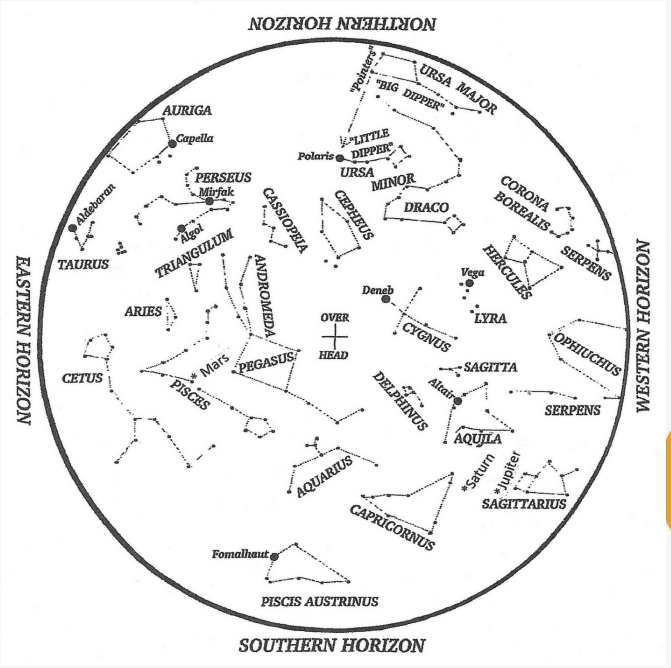
Mars is at opposition this month. An opposition occurs when the earth is directly between the sun and the planet. This is approximately when the planet is closest to the Earth and when it shines brightest. Mercury begins the month at its greatest eastern elongation from the sun. This puts it at its highest point above the horizon in the evening twilight, but it is still a difficult target to see.

Jupiter and Saturn still dominate our southern sky at nightfall and continue to drift closer together, leading up to a great conjunction in the near future. Venus is the "morning star" for the entire month and on the 13th and 14th will be joined by the waning crescent moon to give us a dazzling show.

October will feature three meteor showers. Peaking on the 7th, the Draconids produce up to ten meteors an hour. This meteor shower is best observed in the early evening sky, unlike most other meteor showers, which are best viewed during the early morning hours. Another minor shower called the Southern Taurids can be seen from a dark place after midnight on the 29th and 30th. This meteor shower is special because it produces a higher-than-average number of bright fireballs. Between those two meteor showers we have the Orionids which brings about 20 meteors per hour. This shower peaks on the 21st and 22nd and is best viewed during the predawn hours. Lower rates of meteors will be seen from two weeks before to two weeks after its peak. The Orionids are caused by the earth traveling through the debris-trail of the famous Halley's Comet.

OCTOBER'S SKY

1: Full Moon
1: Mercury at Greatest Eastern Elongation
7: Draconids Meteor Shower Peak
13: Mars at Opposition
16: New Moon
21-22: Orionids Meteor Shower Peak
29-30: Southern Taurids Meteor Shower Peak
31: Full Moon, Blue Moon



Credit: Roger B. Culver

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

OBSERVATIONS

I recently had the pleasure of stargazing with my grandfather under the clear skies of Otis, MA. We were able to see the Milky Way span the entire sky. Using my green laser, I pointed out the constellations to my grandfather as we observed every corner of the heavens. We viewed Jupiter and Saturn through my MEADE 130mm tabletop Dobsonian telescope. It was my grandfather's first time observing these planets and we discussed their details as we took turns looking through the eyepiece at each planet. It was an evening that I will never forget!

I've also been working on my RASC observing program, focusing mainly in the Sagittarius region. On one particular night, I began observing in the area of the galactic center and viewed many deep sky objects. The night started with M8, the Lagoon Nebula. Then, I slid over to M22 and examined this beautiful globular cluster. Next I moved up to the open cluster M25 and admired the little asterism within it that resembles a "sickle." I admired the beautiful Sagittarius Star Cloud as I worked my way to M17, the Swan Nebula. Even in my suburban skies, the nebulous swan definitively shows itself! This trek wasn't complete without observing M16, the Eagle Nebula/Star Queen Cluster, which is one of my favorite deep sky objects.

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. Clear skies!

OBJECT OF THE MONTH

This month's featured object is M31, the Andromeda Galaxy. Located at a distance of 2.5 million light-years or 57 million trillion kilometers, this is the most distant object that can be seen with the unaided eye. It is hard to believe that less than 100 years ago, astronomers thought that this galaxy was a gas cloud within our own galaxy (which is only 100,000 light years across).

From dark skies with your unaided eye, M31 will appear as a dim fuzzy patch that is bigger than a full moon. Suburban skies will only reveal its brighter nucleus as a "fuzzy star." Binoculars or a telescope will enhance your view. M31 is located within the constellation Andromeda and the map below can help you find it. Good luck!

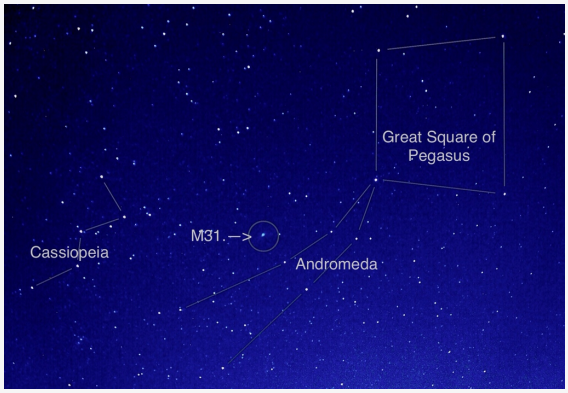
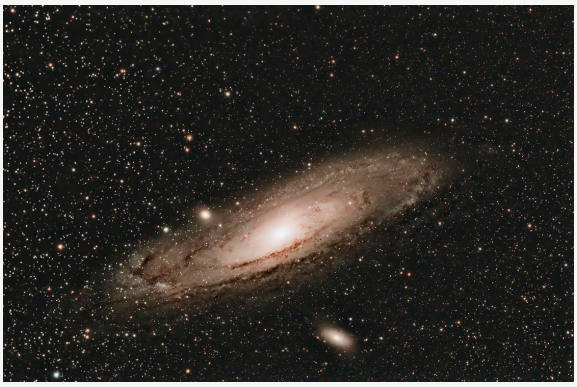


Photo by Kaitlynn Goulette



Andromeda Galaxy
Photo by Ashfield Astrophotography

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.

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