



the Skyscraper

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September 2015

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

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Friday, September 4, 7:00pm at Seagrave Memorial Observatory

Skyscrapers Planning Meeting & Members Star Party

We can look forward to some fun events coming up this month and throughout the fall. Plans are in the works for Astro Assembly on Oct 2nd and 3rd, the International Observe the Moon Night on September 19th, a total lunar eclipse on September 27th, and a fall series of astronomical workshops, similar to what we enjoyed last spring.

With so many planned activities we have decided to forgo having our usual meeting with an invited speaker, and instead we ask all interested members to attend this "planning" meeting to organize ourselves for the various tasks that will be necessary to make

these events fun and successful.

So please plan on attending this meeting to share your ideas. Your input matters more than you realize!

After the meeting, weather permitting, let's plan on spending some time under the stars.

We will open the observatories for viewing, but it would be great if you would set up your own telescopes, too. If you're into astronomical imaging, maybe you could show some of us the process of how you go about setting up your equipment and getting great shots.

Coffee and refreshments will be served.

AstroAssembly

October 2 & 3

International Year of Light & Dwarf Planets
<http://www.theskyscrapers.org/astroassembly2015>

Speakers include J. Kelly Beatty, Kim Arcand, Andrew Vanderburg
Friday Evening Informal Talks and Stargazing, Saturday: full day of Astronomy, the Starlight Grille for Lunch, raffles, Astrophotography Contest, and time with friends, Saturday Evening banquet

Phases of the Moon

Last Quarter Moon
September 5 09:54

New Moon
September 13 06:41

First Quarter Moon
September 21 08:59

Full Harvest Moon
September 28 02:50



Seagrave
Memorial
Observatory
Open Nights

Saturday's at 8:00 pm
weather permitting

International Observe the Moon Night

Saturday, September 19, 6:00pm
at Seagrave Memorial Observatory



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 **September 19** 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.

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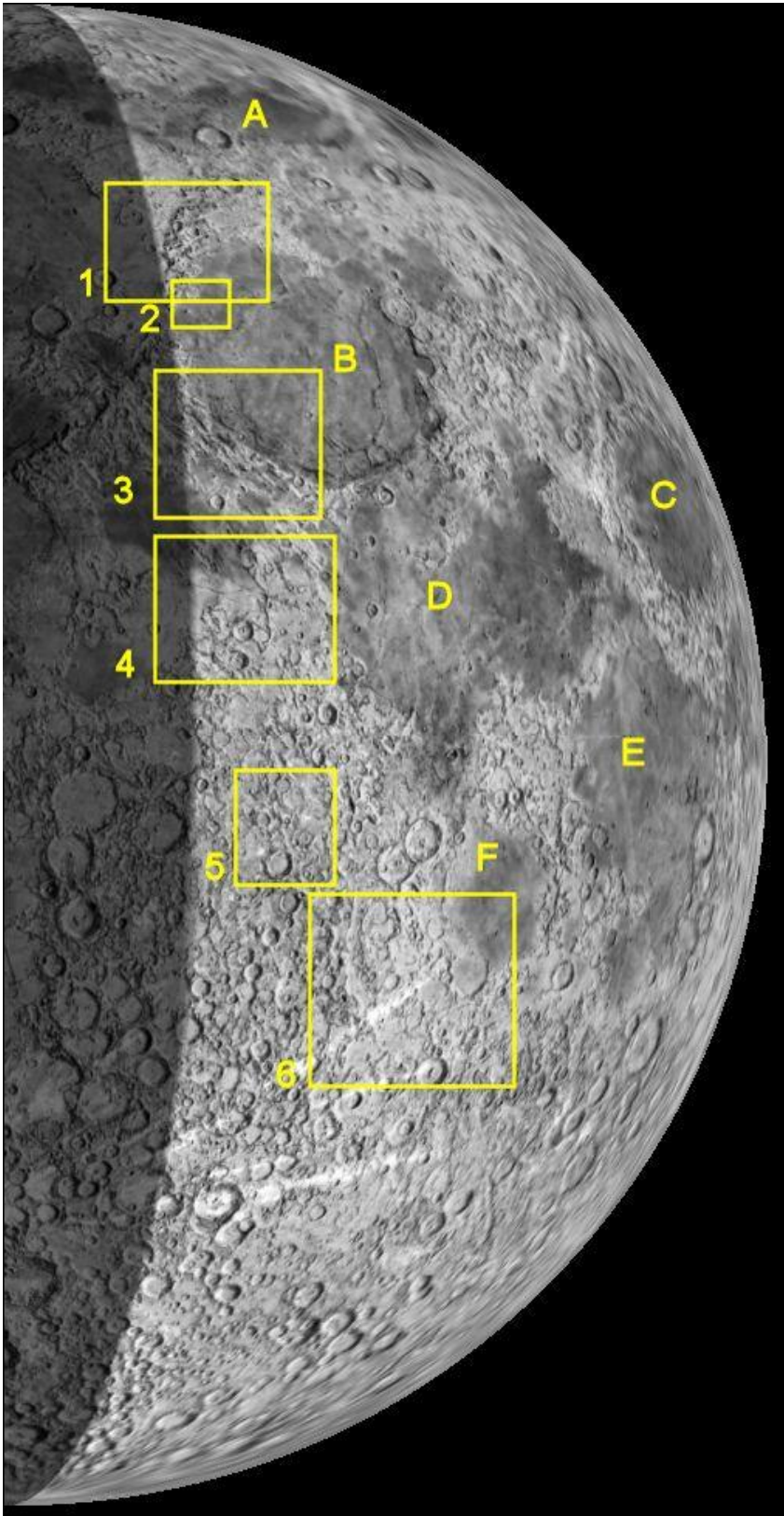
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International Observe the Moon Night, Sept 19 2015



Lunar Maria (Seas)

You can see a number of maria tonight. These are large, flat plains of solidified basaltic lava. They can be viewed in binoculars or even with the unaided eye.

- A. Mare Frigoris
- B. Mare Serenitatis
- C. Mare Crisium
- D. Mare Tranquillitatis
- E. Mare Fecunditatis
- F. Mare Nectaris

Selected Telescopic Objects

Some of the more interesting lunar landforms that have favorable lighting for viewing tonight are identified here. Details for each are on the reverse side of this map.


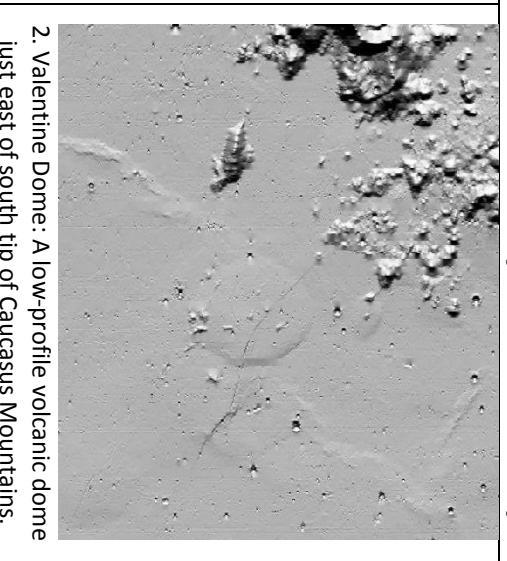
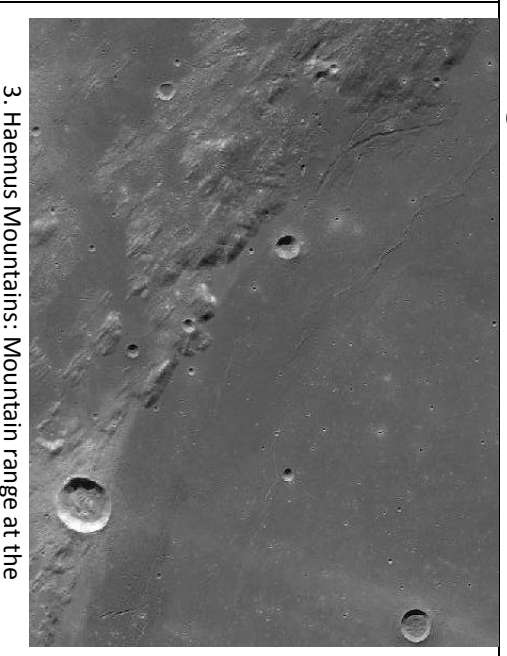
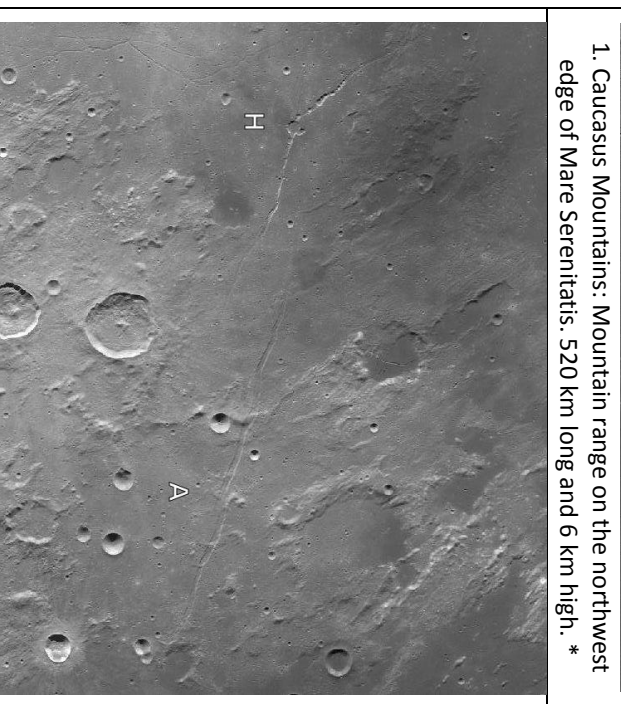
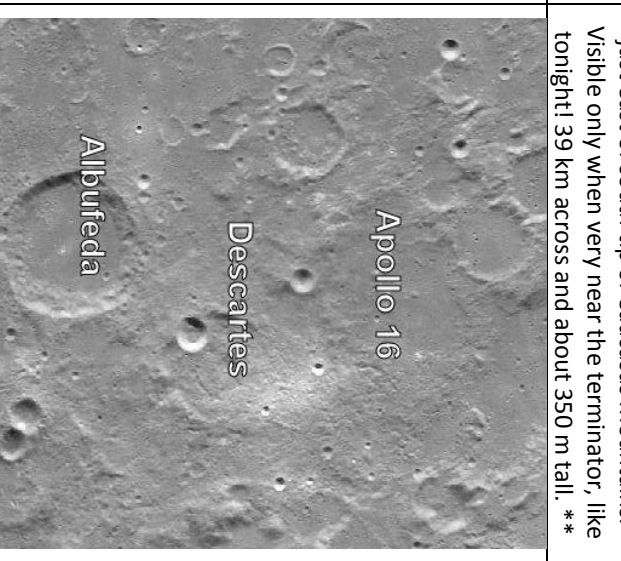
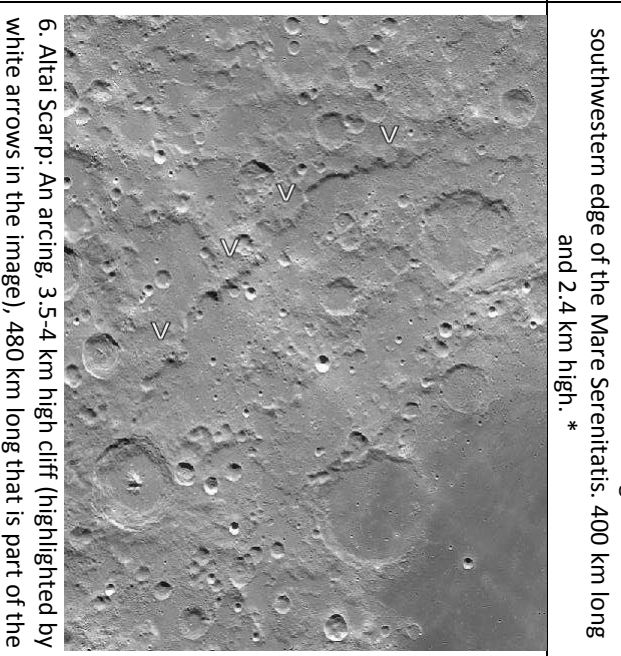
- 1. Caucasus Mountains
- 2. Valentine Dome
- 3. Haemus Mountains
- 4. Hyginus and Ariadeus Rilles
- 5. Descartes Highlands (Apollo 16)
- 6. Altai Scarp

This map is for the northern hemisphere with north up. Photos on the reverse all have north up.

The above map depicts the Moon as it will appear at approximately 10:30 PM EDT and 7:30 PM PDT on International Observe the Moon Night, September 19, 2015. Many of the most detailed views will occur along the terminator (the line between the day and night side) of the Moon.

<http://observethemoonnight.org/>

INOMN 2015 – Selected Objects for Telescopic Viewing

	<p>1. Caucasus Mountains: Mountain range on the northwest edge of Mare Serenitatis. 520 km long and 6 km high. *</p>
	<p>2. Valentine Dome: A low-profile volcanic dome just east of south tip of Caucasus Mountains. Visible only when very near the terminator, like tonight! 39 km across and about 350 m tall. **</p>
	<p>3. Haemus Mountains: Mountain range at the southwestern edge of the Mare Serenitatis. 400 km long and 2.4 km high. *</p>
	<p>4. Hyginus and Ariadeus Rilles: Formed by magma rising up through and widening cracks in the lunar crust. Hyginus (angled) to the west and Ariadeus to the east. *</p>
	<p>5. Descartes Highlands: Apollo 16 landed north of the crater Descartes. *</p>
	<p>6. Altai Scarp: An arcing, 3.5-4 km high cliff (highlighted by white arrows in the image), 480 km long that is part of the outer ring of mountains around the impact basin that contains Mare Nectaris. *</p>

* Lunar Reconnaissance Orbiter LROC Wide Angle Camera image ** Lunar Reconnaissance Orbiter Laser Altimeter map - <http://lro.gsfc.nasa.gov/>
 All 6 images on this page retrieved using NASA's Lunar Mapping and Modeling Portal - <http://lmp.nasa.gov>
 International Observe the Moon Night - <http://observethemoonnight.org/>



Occultation of Aldebaran

by Dave Huestis

As the Moon orbits the Earth once every 29.5 days, each day it moves eastward in our sky at 12.2 degrees per day. It may not be obvious to most people, but along the way the Moon's disk covers and uncovers stars as it passes in front of them. And because the Moon strays no more than five degrees north or south of the Sun's path in the sky (called the ecliptic, or plane of our solar system), the Moon may occasionally pass in front of a planet or minor planet (asteroid) as well. These events are called occultations.

There are some bright stars on or near the ecliptic that are occulted more frequently. One of those is reddish Aldebaran, the brightest star in the constellation of Taurus. And coming up **during the night of September 4-5**, a Last Quarter Moon will occult this star.

There events are interesting to observe,

as one can watch as the star slowly disappears behind the limb of the Moon. This time Aldebaran will disappear behind the Moon's bright limb (left hand side) at around 11:56 p.m. The lunar disk will continue to hide Aldebaran for about 45 minutes. Then it will reappear at approximately 12:41 a.m. along the Moon's dark limb (right hand side).

While this is an easy event to observe with just your eyes, binoculars or a telescope will definitely enhance the view. However, there is a degree of difficulty in observing this occultation. And that is the fact that the event begins with the Moon just 5.5 degrees above the eastern horizon. You'll need an unobstructed view. No trees. No houses to block your view. Anywhere along the coast affords this kind of horizon. When Aldebaran reappears the Moon will then only be about

13 degrees above the horizon. A fist held at arm's length provides a sky measurement of ten degrees, so this will give you some idea of just what to look for when choosing a location to witness this event.

Try to snap a few camera images using a telephoto lens if you do not have more sophisticated equipment. Or, simply enjoy the celestial show. You'll only have to make a small commitment of time on a Friday night to a little past midnight.

Good luck and cross your fingers for cloud-free skies.



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>

“Shine Off” Harvest Moon: Total Lunar Eclipse

by Dave Huestis

While casual stargazers with small to moderate telescopes still observe the Moon and planets, more advanced amateur astronomers today concentrate their efforts on imaging “faint fuzzies” like galaxies, clusters and nebulae. They require a dark sky to obtain their best images, so they typically avoid times when the Moon phase is large, bright and in the sky for many hours, from waxing gibbous to Full Moon and onto waning gibbous. However, I’m sure many of my associates here and across the United States will be utilizing their astrophotography skills to image a special sky event during the last week in September.

On the night of September 27, throughout all of New England and beyond, we will be treated to a total eclipse of the Harvest Moon in its entirety. The Harvest Moon is the full moon closest to the autumnal equinox, which is on September 23 at 4:21 a.m. (All times are EDT.) And the best part of it all will be that you can watch the eclipse through totality and still get to bed before midnight. So even if you are just a novice amateur astronomer, there are no excuses to miss this beautiful event.

For those of you who may be new to the world of astronomy, let me quickly review what happens during a total lunar eclipse. It occurs when the Sun, Earth and Moon are in alignment. With the Earth positioned in the middle of this celestial ballet, its shadow is projected onto the lunar surface. The duration of such an eclipse, particularly of totality, is determined by how precisely the three bodies are aligned. Follow this link <https://www.youtube.com/watch?v=INi-5UFpales> to a NASA video which will illustrate this process.

The accompanying graphic shows the path of the Moon through the Earth’s shadows and the times of specific highlights/events. Note that the Moon does not pass centrally through the Earth’s dark umbral shadow during this eclipse. Still, the event does last five hours and ten seconds from start to finish, with totality lasting one hour and twelve minutes. If the Moon were to pass through the central part of the shadow, we would experience a longer eclipse and a longer duration of totality.

The eclipse technically begins at 8:12 p.m. when the Moon slides into the Earth’s light penumbral shadow. Though this initial phase is undetectable, as the Moon slides deeper into the penumbral shadow a keen-eyed observer will see a subtle shading of the lunar surface. The Moon will be moving eastward as it encounters the shadow, so the left portion of the lunar surface will slowly begin to darken. It is just prior to the Moon entering the Earth’s umbral shadow that one will notice the moonlight looks somewhat subdued.

When the Moon first encounters the umbral shadow at 9:07 p.m., the partial phase of the eclipse begins. For one hour and four minutes the Moon will move deeper and deeper into the shadow, generally from left to right. Then at 10:11 p.m. the Moon will be completely immersed in the Earth’s umbral shadow and totality begins. Totality will last until 11:23 p.m. for a total duration of one hour and twelve minutes. Will the Moon completely disappear from the sky during totality? We’ll know by mid-totality at around 10:47 p.m.

The answer to that question all depends upon how much dust is in the Earth’s atmosphere at eclipse time. Usually the lunar landscape looks ashen during totality with subtle copper, orange or red tones scattered about. Sometimes the Moon will be bathed in red light. That’s because of sunlight passing through the Earth’s atmosphere and shining on the lunar surface. Think about this event from the Moon’s perspective. The Earth is eclipsing (passing in front of) the Sun, and sunlight is refracting through our atmosphere and shining onto the lunar surface.

Enhance your view with binoculars or a small telescope. The colors often change as totality progresses, so watch carefully. It is truly a beautiful sight to observe.

Totality ends at 11:23 p.m. when the Moon begins to leave the dark shadow and sunlight returns to its surface. For one hour and four minutes the partial phase will continue until the entire Moon is completely illuminated once again at 12:27 a.m. For a while the Moon’s light will still look somewhat subdued as the Moon will remain

within the light penumbral shadow until 1:22 a.m. when the eclipse ends. In a dark sky you may be able to detect this shadow soon after the partial phase completes. Thereafter the remaining phase will hardly be noticeable at all as the Moon begins to return to full brightness.

Please note the sky in the vicinity of the Full Moon before the eclipse begins. The Moon will be in the constellation of Pisces, the fishes. This area of sky is not a very bright star-rich region. Very few stars will be seen near the Moon. And throughout the sky only the brightest stars of the constellations will be apparent. Only as the eclipse progresses and the sky darkens will fainter stars emerge into visibility. It will be like someone using a celestial dimmer switch, gradually increasing the brightness of the stars (or if you prefer, controlling the brightness of the Moon).

I hope the weather will cooperate on the evening of September 27-28 for stargazers of every interest level to take advantage of the magnificent circumstances which produce the beauty of a total lunar eclipse. If you miss this one for any reason, we won’t experience another total lunar eclipse here in southern New England until January 21, 2019. That’s a long wait, so make every effort to catch a few glimpses of this one to satisfy your love for the beauty nature provides.

Good luck and keep your eyes to the skies.



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>

Total Lunar Eclipse of 2015 Sep 28

Ecliptic Conjunction = 02:51:38.3 TD (= 02:50:29.0 UT)

Greatest Eclipse = 02:48:16.8 TD (= 02:47:07.5 UT)

Penumbral Magnitude = 2.2296

P. Radius = 1.3027°

Gamma = -0.3296

Umbral Magnitude = 1.2764

U. Radius = 0.7707°

Axis = 0.3375°

Saros Series = 137 Member = 28 of 81

Sun at Greatest Eclipse

(Geocentric Coordinates)

R.A. = 12h17m08.9s

Dec. = -01°51'21.0"

S.D. = 00°15'57.6"

H.P. = 00°00'08.8"

Moon at Greatest Eclipse

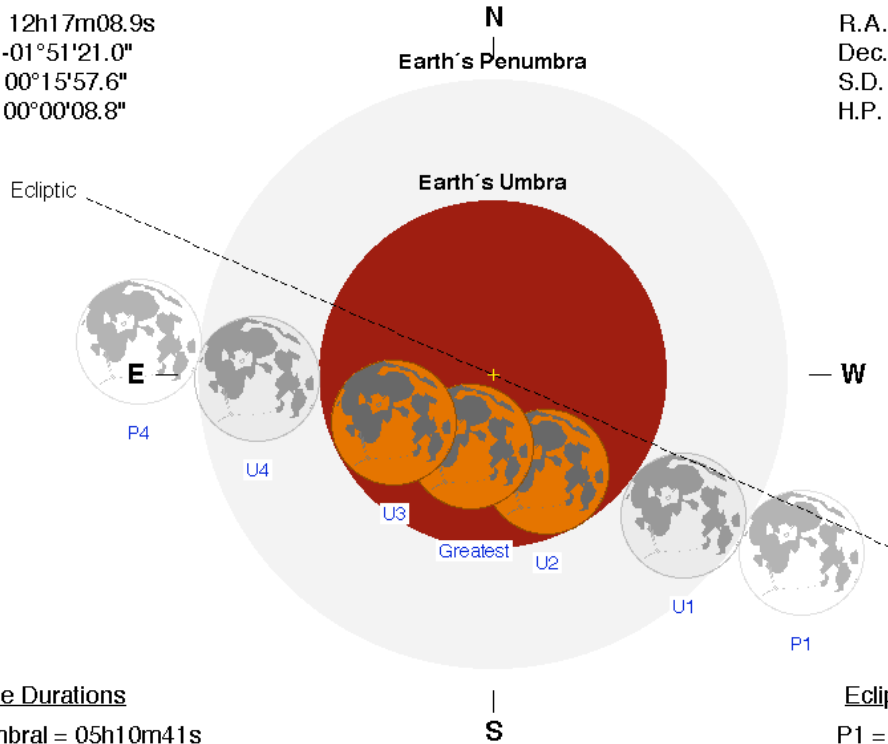
(Geocentric Coordinates)

R.A. = 00h17m33.6s

Dec. = +01°32'03.7"

S.D. = 00°16'44.5"

H.P. = 01°01'26.6"



Eclipse Durations

Penumbral = 05h10m41s

Umbral = 03h19m52s

Total = 01h11m55s

$\Delta T = 69$ s

Rule = CdT (Danjon)

Eph. = VSOP87/ELP2000-85

Eclipse Contacts

P1 = 00:11:47 UT

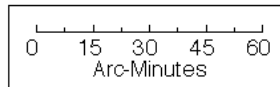
U1 = 01:07:11 UT

U2 = 02:11:10 UT

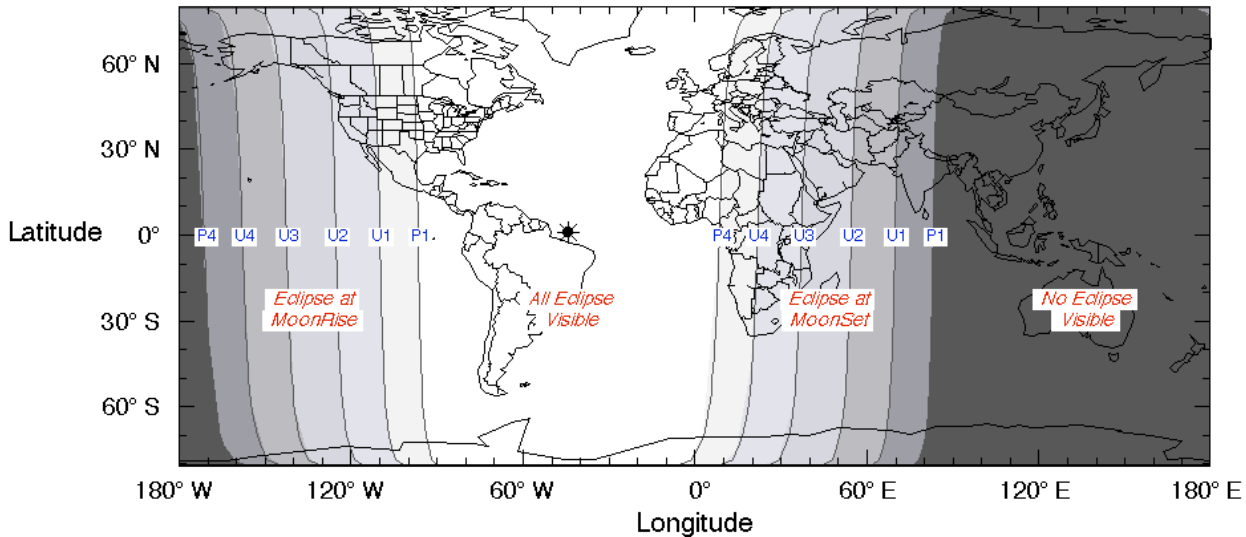
U3 = 03:23:05 UT

U4 = 04:27:03 UT

P4 = 05:22:27 UT



F. Espenak, NASA's GSFC
eclipse.gsfc.nasa.gov/eclipse.html



2009 Apr 29

Star Party Update

Burlingame State Park, Charlestown, RI: August 8

I just wanted to thank you all for being a part of the cloud party Saturday night. Hopefully, you all had so much fun you'd do another one August 29th.

This type of gathering is really what Skyscrapers was meant to be, a great way for people to get together, enjoy the night sky, and impart their enthusiasm to the public.

Thanks again.

Francine Jackson



Hi Everyone!

It was unfortunate about the high thin clouds (Cirrus Clouds), but the many campfires, bonfires, headlights from cars and those super bright flashlights surely didn't help! But I did enjoy everyone's company and peering through the telescopes and our conversations.

I loved talking to some of the kids that showed up to look through our telescopes and told them about Seagrave

Observatory and our other telescopes in North Scituate...trying to spark their interest in astronomy even more!

I sent Gina Raimondo and the RI State Parks Department some of the photos that I took at Burlingame using my Twitter account. Jim has access to all of the photos for possible inclusion into the next newsletter. I tried not to use the flash on the camera, but those photos did not turn out well because I had to keep the shutter opened longer (i.e., 1/8th sec), my occasional tremors and not having a tripod didn't help.

Ian, I wish I could go to Brown and take the full spectrum of physics courses with you! I have a rudimentary knowledge of physics but do comprehend what you say and enjoyed talking to you! I know I would make a great student because I have a penchant for math and the sciences!

Francine, I love to hear you explain and point out all of the constellations in the night sky, your life experiences and education in astronomy is second nature to you.

Jim, love talking to you about astrophotography, it's amazing what you can accomplish as far as capturing images of the night sky without spending a lot of money and they come out so beautifully!

Kent and Connie! I loved your company too! Kent your enthusiasm and excitement shows when assembling your telescopes and I learn by watching you! Connie is always there for you giving you a helping hand. You both make a wonderful couple sharing your interests and enjoyment!

Thank you so very much for all you do!

Tracy Karin Prell

All photos by Tracy Prell



Fort Hill Farms, Thompson, CT: August 29

Hi Everyone!

I enjoyed Saturday night very much and also made a new friend Lisa Stratton! I was talking to her about viewing the night sky and about Skyscrapers, Inc She loves looking at the stars and she was so amazed at what she saw through your telescopes...we really sparked her interest even more so into astronomy as well as many others that attended!

My sister and her husband will be tentatively visiting me on Sept 17 and 18th, and since the Heritage Corridor is not too far away (Blackstone Valley), I will attempt to drive and would like to bring my sister and her husband with me if that's ok. The 18th would be an ideal night us. I don't think my sister has ever looked through a telescope, but my brother-in-law looked through one years ago.

Thanks again for your love, support and friendship, it means so much to me!

Tracy Karin Prell

Thanks again to all of you for being a part of Saturday's star party. Sorry we couldn't all get in the corn maze, but Kris-

ten seemed thrilled to have us there, and perhaps we can go again for an informal observing night.

You may know Kent is having a night as part of the Heritage Corridor Saturday, September 12th, and we are a part of another Corridor night Friday, September 18th.

Although they're not sponsored by Skyscrapers, if you think you might be able to make either or both, please let Kent know about the 12th, and either me or Jim for the 18th.

Thanks again for all you do.
Francine



The Sun, Moon & Planets in September

This table contains the ephemeris of the objects in the Solar System for each Saturday night in September. Times are in Eastern Daylight Time calculated 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	10 54.1	7 00.5	Leo	-26.8	1,903.3	-	-	-	1.01	06:15	12:45	19:13
	12	11 19.3	4 22.7	Leo	-26.8	1,906.6	-	-	-	1.01	06:22	12:42	19:01
	19	11 44.4	1 41.2	Vir	-26.8	1,910.1	-	-	-	1.00	06:30	12:40	18:49
	26	12 09.5	-1 02.0	Vir	-26.8	1,913.9	-	-	-	1.00	06:37	12:37	18:37
Moon	5	4 25.2	15 55.6	Tau	-12	1,884.6	95° W	55	-	-	23:19	06:38	14:00
	12	10 21.7	6 52.4	Leo	-8	1,765.8	14° W	2	-	-	05:42	12:15	18:41
	19	15 45.8	-16 06.8	Lib	-11.1	1,810.7	63° E	27	-	-	12:18	17:25	22:31
	26	22 16.8	-8 55.4	Aqr	-12.7	2,004.6	150° E	93	-	-	17:47	23:45	05:52
Mercury	5	12 29.7	-5 55.6	Vir	0.3	7.2	27° E	54	0.46	0.93	08:39	14:20	19:57
	12	12 47.4	-8 49.6	Vir	0.5	8.1	26° E	41	0.44	0.83	08:39	14:09	19:38
	19	12 52.1	-9 53.9	Vir	1.1	9.3	20° E	24	0.41	0.73	08:18	13:44	19:10
	26	12 38.7	-8 01.0	Vir	3	10.3	10° E	6	0.37	0.66	07:28	13:02	18:36
Venus	5	8 59.1	9 37.5	Cnc	-4.4	49.5	29° W	13	0.73	0.34	04:10	10:47	17:25
	12	9 02.5	10 26.3	Cnc	-4.5	44.6	34° W	19	0.73	0.38	03:43	10:24	17:04
	19	9 12.6	10 50.8	Cnc	-4.5	40	39° W	25	0.73	0.42	03:25	10:07	16:49
	26	9 27.9	10 48.0	Leo	-4.5	36	42° W	31	0.72	0.47	03:13	09:55	16:37
Mars	5	9 20.6	16 44.4	Cnc	1.8	3.7	25° W	98	1.64	2.5	04:05	11:10	18:15
	12	9 38.1	15 22.6	Leo	1.8	3.8	27° W	98	1.64	2.47	04:01	11:00	17:59
	19	9 55.4	13 56.4	Leo	1.8	3.8	30° W	98	1.65	2.44	03:56	10:50	17:43
	26	10 12.3	12 26.5	Leo	1.8	3.9	32° W	97	1.65	2.41	03:51	10:39	17:27
1 Ceres	5	19 58.8	-31 49.7	Sgr	8.2	0.6	132° E	98	2.96	2.18	17:56	21:45	01:34
	12	19 57.4	-31 43.2	Sgr	8.4	0.5	125° E	98	2.96	2.26	17:27	21:16	01:06
	19	19 57.4	-31 31.7	Sgr	8.5	0.5	119° E	98	2.96	2.34	16:59	20:49	00:39
	26	19 58.6	-31 15.8	Sgr	8.6	0.5	112° E	97	2.96	2.43	16:31	20:23	00:15
Jupiter	5	10 29.9	10 22.7	Leo	-1.6	30.8	7° W	100	5.39	6.39	05:39	12:18	18:58
	12	10 35.6	9 49.7	Leo	-1.6	30.9	12° W	100	5.39	6.37	05:19	11:57	18:34
	19	10 41.3	9 16.8	Leo	-1.6	31	17° W	100	5.39	6.34	04:59	11:35	18:10
	26	10 46.8	8 44.2	Leo	-1.6	31.2	23° W	100	5.4	6.31	04:39	11:13	17:46
Saturn	5	15 49.6	-18 10.5	Lib	0.5	16.3	77° E	100	9.99	10.17	12:43	17:37	22:31
	12	15 51.2	-18 17.1	Lib	0.6	16.1	71° E	100	10	10.28	12:17	17:11	22:05
	19	15 53.1	-18 24.5	Lib	0.6	15.9	64° E	100	10	10.39	11:52	16:46	21:39
	26	15 55.3	-18 32.4	Lib	0.6	15.8	58° E	100	10	10.49	11:28	16:20	21:13
Uranus	5	1 14.4	7 09.1	Psc	5.7	3.7	142° W	100	19.99	19.18	20:36	03:04	09:32
	12	1 13.6	7 04.1	Psc	5.7	3.7	149° W	100	19.99	19.11	20:08	02:36	09:03
	19	1 12.7	6 58.5	Psc	5.7	3.7	156° W	100	19.98	19.06	19:36	02:03	08:30
	26	1 11.7	6 52.5	Psc	5.7	3.7	163° W	100	19.98	19.02	19:08	01:35	08:01
Neptune	5	22 41.0	-9 12.8	Aqr	7.8	2.4	176° E	100	29.96	28.96	18:58	00:27	05:56
	12	22 40.3	-9 17.1	Aqr	7.8	2.4	169° E	100	29.96	28.97	18:30	23:59	05:27
	19	22 39.6	-9 21.2	Aqr	7.8	2.4	162° E	100	29.96	29	18:02	23:30	04:59
	26	22 38.9	-9 25.2	Aqr	7.8	2.4	155° E	100	29.96	29.05	17:34	23:02	04:30
Pluto	5	18 56.0	-20 56.8	Sgr	14.2	0.3	121° E	100	32.94	32.41	16:00	20:43	01:25
	12	18 55.8	-20 58.1	Sgr	14.2	0.3	114° E	100	32.95	32.52	15:33	20:15	00:57
	19	18 55.7	-20 59.4	Sgr	14.2	0.3	107° E	100	32.95	32.64	15:05	19:47	00:30
	26	18 55.6	-21 00.5	Sgr	14.2	0.3	100° E	100	32.95	32.76	14:38	19:20	00:02

Prime Time for Observing Neptune

by Jim Hendrickson

Our evening sky is becoming devoid of bright planets. Venus and Jupiter put on a good show during the first half of 2015, and have now become morning twilight objects. Saturn, riding low in the southwestern sky, is near the end of favorable viewing for the season. While it may appear to the unaided eye that late evening skies leave the solar system behind us (or under us, however you look at it), our two ice giants are now in prime viewing position.

First up is Neptune. The outermost planet of our solar system shines at a fairly dim 7.8 magnitude, significantly below naked-eye visibility. Don't fret, however, as Neptune has something to offer for nearly

any size optics you have available.

Starting with binoculars or a small telescope, you can track Neptune's motion among the stars of Aquarius from week to night, or as a greater challenge, night to night. You'll probably want to use at least a 50mm binocular and find a spot to observe away from lights and when Neptune is not competing with bright Moonlight.

If you're using a medium-sized telescope (6-10 inches aperture), try to resolve Neptune's globe by visually inspecting the planet using a high-power eyepiece on a night of good seeing. If you can resolve its tiny ball, think about how you're looking at an object that is nearly four times the diameter

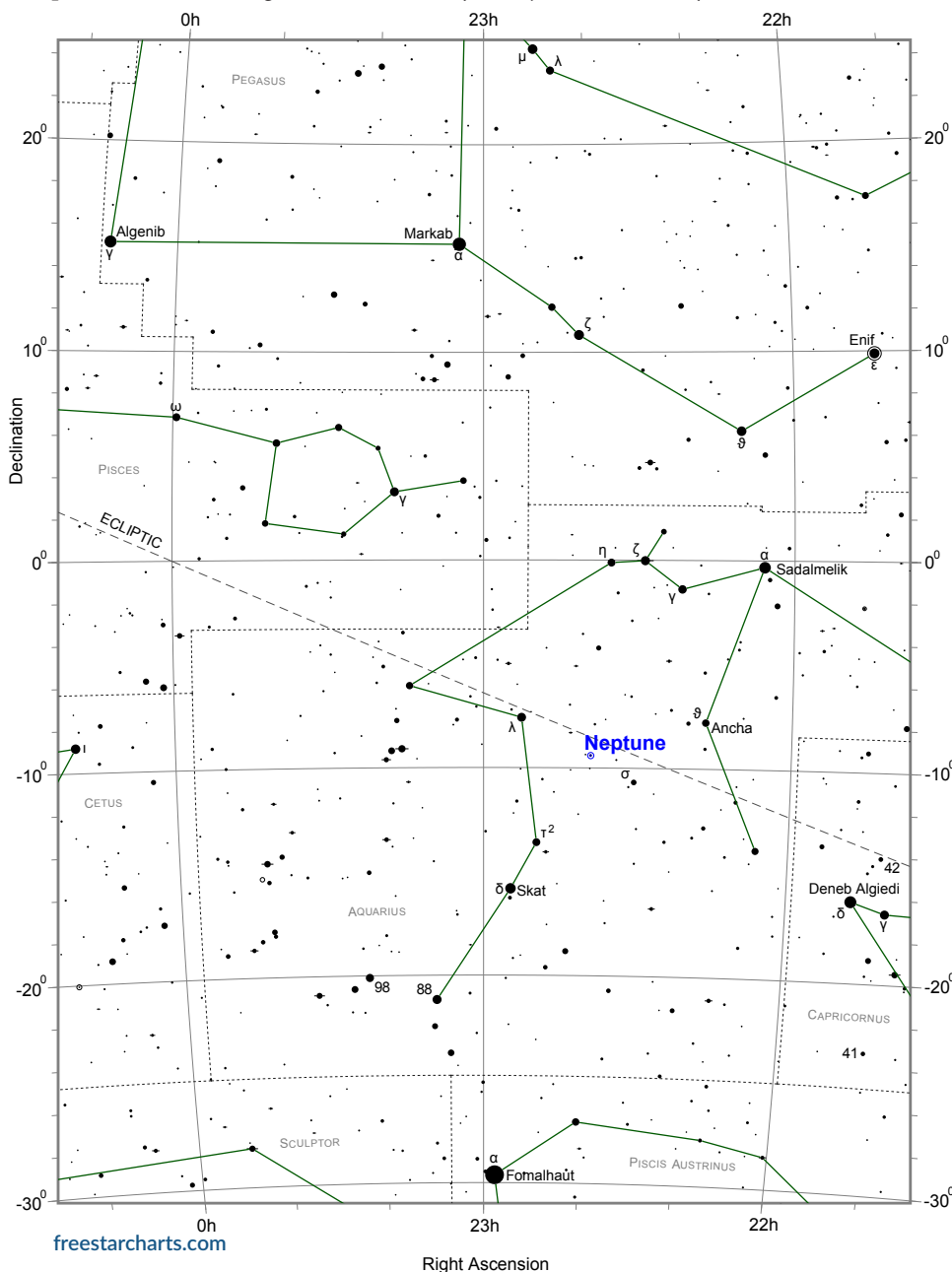


of Earth and nearly 30 astronomical units (Earth-Sun distance) from you.

Another challenge for your mid-sized scope, if you have any kind of camera, is to capture Neptune's large moon Triton. Triton is the seventh largest moon in the solar system—78% the size of Earth's Moon and 1.1 times larger than Pluto—making it a tempting and surprisingly easy target for astrophotographers. Triton can appear as far as 17 arcseconds from Neptune and shines at about 13th magnitude. It orbits Neptune in 5.8 days, but keep in mind, it orbits retrograde, so it will appear to be moving backwards compared to the moons of the gas giants you are more familiar with. The image shown here was taken in 2014 using a 130mm refractor at f/24 and a Canon SLR camera. While it may not take much aperture to capture Triton, a tracking mount is a must.

If you have a large telescope (12 inches or larger), you may want to try to detect variations in the clouds of Neptune. As we saw from Voyager 2 and subsequent observations from Hubble Space Telescope and other major observatories, Neptune does exhibit some dynamic weather patterns. At 2.3 arcseconds, these features will be extraordinarily difficult, but not impossible, to detect. A sensitive imaging camera, exceptional seeing conditions, and some specialized filters will increase your chances of seeing more than a uniform blue sphere.

Next month we'll explore Uranus.



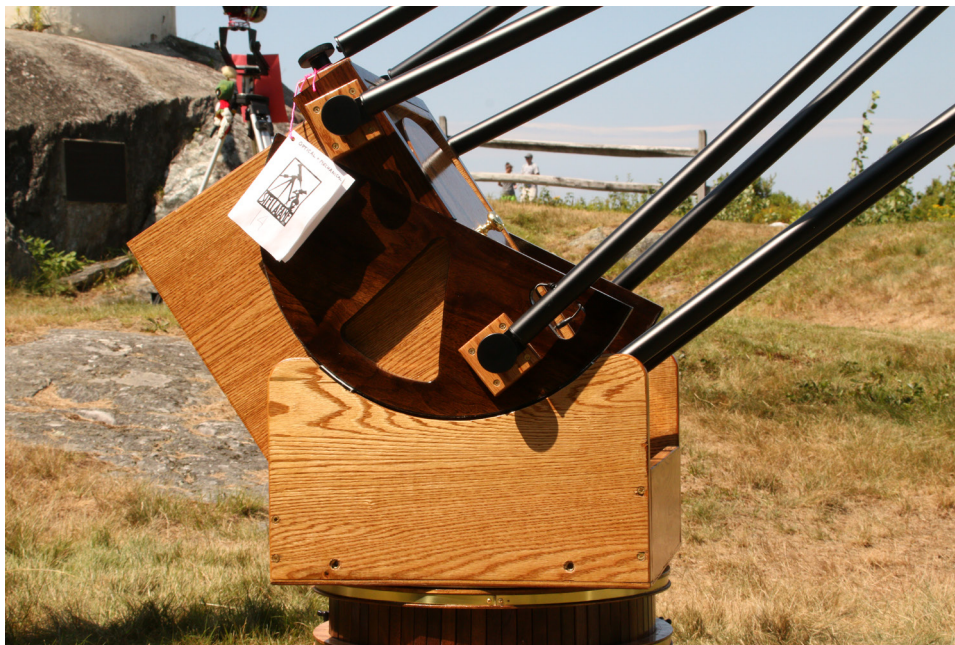
Jim Hendrickson is newsletter and web editor and has been a member for 20 years. See more at <http://theskyscrapers.org/jim-hendrickson>



Several Skyscrapers members make the trek to the annual Stellafane Convention every summer in Springfield, Vermont. This year, two telescopes were entered in the competitions.

Above & left: Bob Horton colimates a 6-inch Newtonian telescope built by Ed Turco. The telescope is mounted on an equatorial pipe mount and has several innovative features such as an anti-reflection coated window in place of a traditional spider secondary mirror mount. There is also a “dark bucket” mounted to the tube opposite the focuser to trap stray light to maximize contrast.

Right: Glenn Jackson entered his 14.5-inch f/4.5 Dobsonian/Newtonian telescope into the large telescopes category. The telescope won Third Place in Mechanical Design, Second Place in Craftsmanship and First Place in Optical for large telescopes.





Nightscape 8300 camera through a C11 SCT Telescope. Image is comprised of 60 unguided 1 minute exposures and 10 1 minute dark frames and 10 bias frames. Image was stacked and processed with AFX and Photoshop Imaging Software.

Find Pallas: Conrad Cardano took these 2 pictures of the asteroid 2 Pallas over the 2 nights from August 27-28 using a 4" Explore Scientific refractor; each photo is 10sec at ISO 800 using a Canon EOS T1i.





Here's a shot of the Blue Moon on 7/31/15, shot through Astro-Tech 65 with a Celestron Neximage 5. Photo is a stack of 200 frames. By Tom Thibault.



The Full Moon rises over Fort Hill Farms on August 29. Photo by Tracy Prell.

Carbon Star in Cepheus

S Cephei

by Glenn Chaple

This past August 15th, I presented a talk on carbon stars at the Stellafane Convention. The library at the McGregor Observatory, which served as the setting, hosts a typical audience of 12 to 20. This time, more than 30 Stellafaners showed up. The topic was obviously one of intense interest!

The reason is obvious to anyone who has ever looked at a carbon star like R Leporis (“Hind’s Crimson Star”), T Lyrae, or V Aquilae. At certain times, they can appear red – drop-of- blood red!

Popular fare for backyard astronomers over a century ago, carbon stars have enjoyed a resurgence in popularity, particularly with individuals seeking a change from the usual deep-sky fare of nebulae, clusters, and galaxies. They have become so popular that the Astronomical League recently initiated a carbon star observing program that lists 100 of these cosmic rubies.

Like its kindred carbon stars, of which nearly 7000 have been catalogued, S Cephei is a red supergiant with a ‘sooty’ carbon-laced outer atmosphere that enhances its ruddy appearance. Typical of its stellar class, it varies in brightness, ranging from 7th to 11th magnitude in a period averaging 485 days.

Lest I be accused of false advertisement, I should point out that not all carbon stars are ruby red. The color you see will depend on your vision, the nature of binocular or telescope used, sky conditions, and the star’s magnitude (carbon stars tend to be reddest when near minimum brightness). At the very least, a carbon star will shine with a rich golden yellow hue.

The accompanying finder charts point the way to S Cephei. A line from gamma (γ) to the wide pair rho (ρ) and 28 Cephei and extended an equal distance beyond brings you to a triangle of 7th magnitude stars perched atop a 6th magnitude star labeled 59 (its magnitude without decimals) on Chart B. Chart C will help you star-hop from the triangle to S Cephei. Magnitudes of surrounding stars are added (decimals omitted).

You’ll find more information on S Ce-

pei at www.aavso.org/lcotw/s-cepei. The Astronomical League’s Carbon Star Program is described at www.astroleague.org/content/carbon-star-observing-program.



Glenn Chaple is a member of the Amateur Telescope Makers of Boston, American Association of Variable Star Observers, and contributes the monthly “Observing Basics” column for Astronomy Magazine. See more at <http://theskyscrapers.org/glenn-chaple>

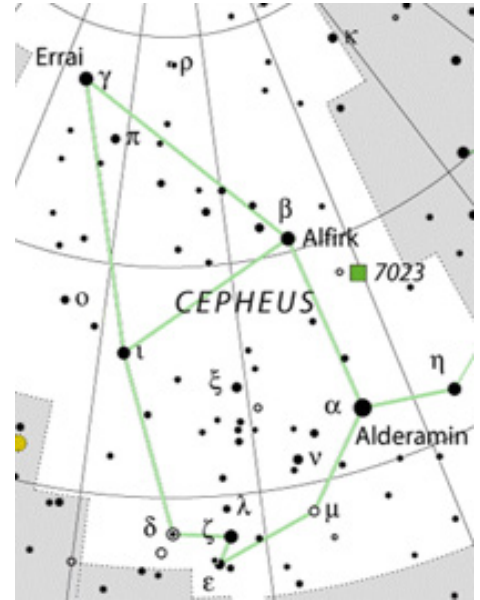


Chart A (www.constellation-guide.com)

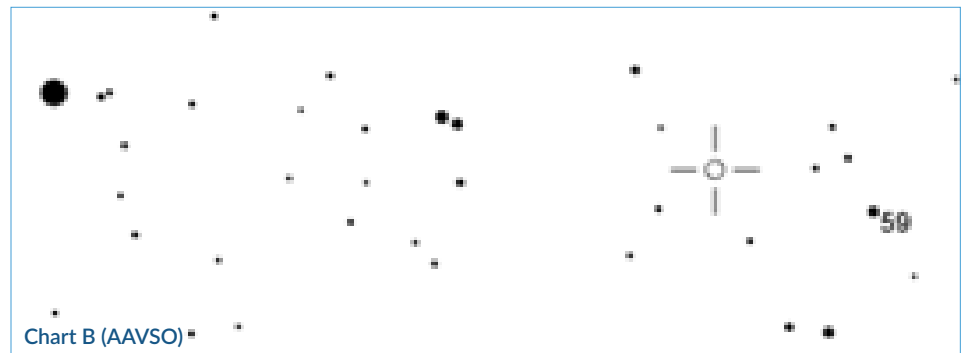


Chart B (AAVSO)

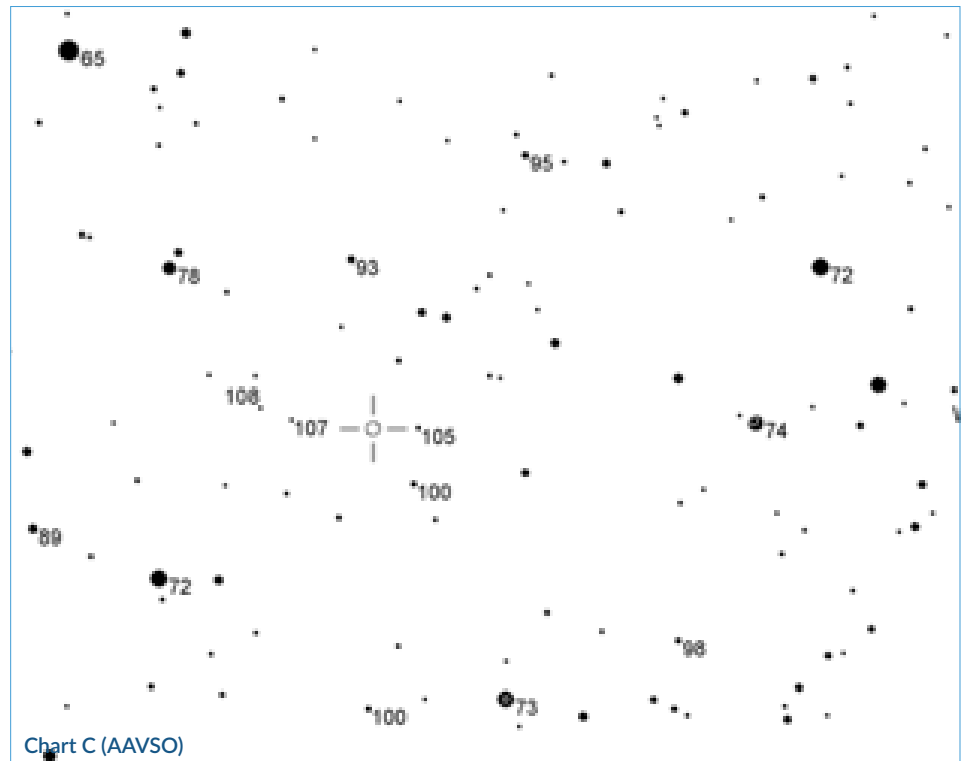


Chart C (AAVSO)



Solar Wind Creates—and Whips—a Magnetic Tail Around Earth

by Ethan Siegel

As Earth spins on its axis, our planet's interior spins as well. Deep inside our world, Earth's metal-rich core produces a magnetic field that spans the entire globe, with the magnetic poles offset only slightly from our rotational axis. If you fly up to great distances, well above Earth's surface, you'll find that this magnetic web, called the magnetosphere, is no longer spherical. It not only bends away from the direction of the sun at high altitudes, but it exhibits some very strange features, all thanks to the effects of our parent star.

The sun isn't just the primary source of light and heat for our world; it also emits an intense stream of charged particles, the solar wind, and has its own intense magnetic field that extends much farther into space than our own planet's does. The solar wind travels fast, making the 150 million km (93 million mile) journey to our world in around three days, and is greatly affected by Earth. Under normal circumstances, our world's magnetic field acts like a shield for

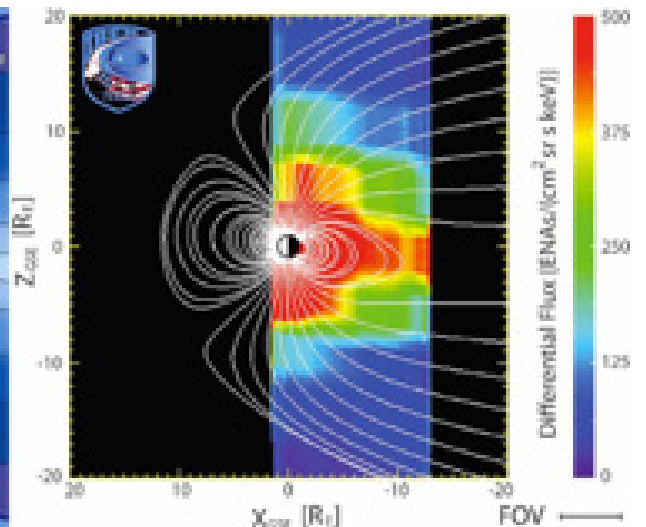
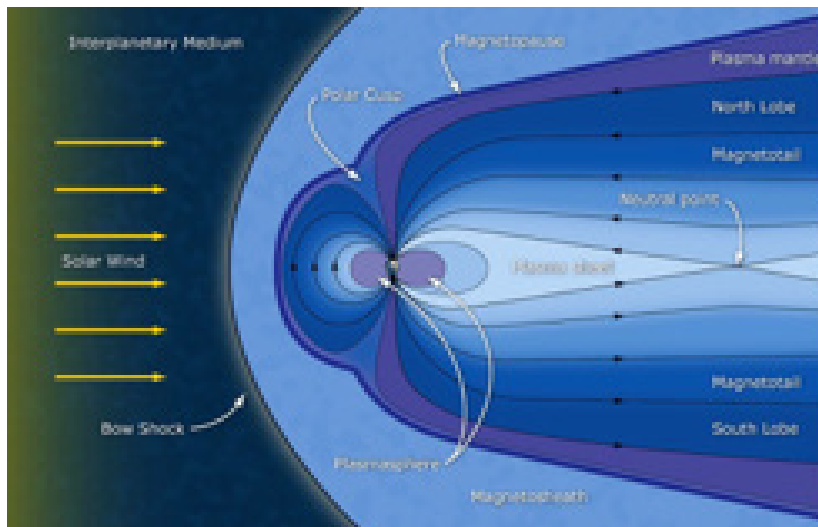
these particles, bending them out of the way of our planet and protecting plant and animal life from this harmful radiation.

But for every action, there's an equal and opposite reaction: as our magnetosphere bends the solar wind's ions, these particles also distort our magnetosphere, creating a long magnetotail that not only flattens and narrows, but whips back-and-forth in the onrushing solar wind. The particles are so diffuse that collisions between them practically never occur, but the electromagnetic interactions create waves in Earth's magnetosphere, which grow in magnitude and then transfer energy to other particles. The charged particles travel within the magnetic field toward both poles, and when they hit the ionosphere region of Earth's upper atmosphere, they collide with ions of oxygen and nitrogen causing aurora. Missions such as the European Space Agency and NASA Cluster mission have just led to the first accurate model and understanding of equatorial magnetosonic waves, one such example

of the interactions that cause Earth's magnetotail to whip around in the wind like so.

The shape of Earth's magnetic field not only affects aurorae, but can also impact satellite electronics. Understanding its shape and how the magnetosphere interacts with the solar wind can also lead to more accurate predictions of energetic electrons in near-Earth space that can disrupt our technological infrastructure. As our knowledge increases, we may someday be able to reach one of the holy grails of connecting heliophysics to Earth: forecasting and accurately predicting space weather and its effects. Thanks to the Cluster Inner Magnetosphere Campaign, Van Allen Probes, Mars Odyssey Thermal Emission Imaging System, Magnetospheric Multiscale, and Heliophysics System Observatory missions, we're closer to this than ever before.

Kids can learn about how solar wind defines the edges of our solar system at NASA Space Place. <http://spaceplace.nasa.gov/interstellar>



ESA / C. T. Russell (L), of Earth's magnetic tail and its cause: the solar wind; Southwest Research Institute / IBEX Science Team (R), of the first image of the plasma sheet and plasmasphere created around Earth by the solar wind.

Skyscrapers July Meeting Minutes — 7/18/2015

President Bob Horton called the Skyscrapers' July meeting to order at 7:45 p.m.

President Bob Horton welcomed everyone and explained that, due to the afternoon's summertime cookout, the July evening program will actually be a series of four short talks by: Alex Bergemann on his Eagle Scout project, Steve Siok on globular clusters, Dr. Peter Schultz on Pluto's moon, and David Huestis on the search for Planet X and the Seagrave connection. • Bob also mentioned that the *Sky & Telescope* article



“Restoring a Gem of the Clarks” has been framed and will be displayed in the Observatory's anteroom. The article detailed the 2010 restoration of the Society's historic Clark telescope and its fly-ball governor by Francis O'Reilly and Al Hall. Bob thanked Kathy & Steve Siok for the framing donation. The actual reproduction of the article was done by Printmakers.

Treasurer Report: Ed Haskell reported no new members and noted that David Barber was not present. Ed announced the following individuals: Peter Bond, Michael Perpall, Dan Marzilli, and Ryan Barishian so they might be voted on at the next meeting in which they are in attendance.

Announcements: Francine Jackson noted that volunteers are needed for a star party at the Little Compton Middle School, but no date has been set. Also, volunteers are needed on October 16 for the Women's Wilderness Weekend. If you can help out, contact Francine. • Steve Siok also mentioned that there will be a program on the 3rd Thursday of October or the 3rd Thursday of November for the Herreshoff Marine Museum in Bristol. If interested, contact Steve. • Gerry Dyck is seeking to borrow *The Sky* by Orion Telescopes. If you have that CD, please contact him. • Bob Horton reported that the DEM public observing night at Lincoln Woods was extremely well attended with about 100 people viewing through our telescopes. He thanked those

eight members who set up for the event and showed the crowd Venus, Jupiter, and Saturn.



Alex Bergemann presented a brief talk on scouting and his Eagle Scout project. Alex began work on the outdoor pavilion in late November of 2014. He explained that the Eagle Scout objective is two-fold: to give back to the community and to take a leadership role in undertaking a big project. Alex also gave a brief history of Camp Yawgoog in Rockville (established in 1915) and his many fond remembrances of various Boy Scout experiences. • Following his talk, Bob Horton presented Alex with a special certificate and heartfelt thanks in recognition for his achievement of Eagle Scout and numerous contributions to the Society.



Steve Siok presented his talk, “Globular Clusters in the Milky Way: Observing the Messier Globular Clusters.” Steve began with a definition of globular clusters, which are spherically shaped groups of stars found around the core of the Milky Way Galaxy. Globulars contain over 100,000 stars and are about 150 light years in diameter. They orbit the center of the galaxy, but not in the plane of the galaxy. Steve noted that (according to Harris, 1996) there are 157 globular clusters in the Milky Way. Steve explained that 28

are bright Messier objects and can be seen above the skies of Rhode Island. He passed out a listing of these Messier globulars and extended a challenge to Skyscrapers' members to go out and try to observe them and come back and share your observations.



Dr. Peter Schultz gave an informal presentation on the recent photos of Pluto and its moon, Charon, taken by the New Horizons spacecraft and answered questions. Dr. Schultz explained that, with this mission we are now able to see Pluto for the very first time as a planetary body.

David Huestis presented a historical talk on “The Quest for Pluto and the Rhode Island/Seagrave Connection.” Dave reminded everyone that Pluto was demoted to dwarf status on August 24, 2006. The hunt for Planet X began in 1905 with astronomer Percival Lowell, founder of Lowell Observatory in Flagstaff, Arizona. This search was undertaken by exposing glass plates, which had scanned the area of the sky along the ecliptic where Lowell's calculations suggested Planet X would be found. The Seagrave connection arose from Frank's friendship with Lowell, who had (unofficially) promised that he could compute the orbit of Planet X. By the time of Lowell's death in 1916, it had still not been discovered. However after Dr. Slipher assumed directorship of Lowell Observatory, the work on Planet X lapsed. It was not resumed until 1929 when Clyde Tombaugh joined the Observatory. Clyde discovered the image of Pluto on two photographic plates taken January 23 and January 29, 1930. Sadly, Frank Seagrave was not given the opportunity of calculating these initial Pluto orbits, but he was able to contribute later on. Dave ended his talk by noting that some of Tombaugh's ashes are onboard the New Horizons spacecraft.

The meeting ended at 10:00. Submitted by Tina Huestis, Secretary.



Skyscrapers August Meeting Minutes — 8/7/2015

Steve Siok called the Skyscrapers' August meeting to order at 7:30 p.m.

First Vice President, Steve Siok, welcomed everyone and explained that President Bob Horton could not be present tonight. Steve said that a brief business meeting will be held first, followed by our featured speaker.

Trustee Report: Tom Thibault reported that the cap on the Observatory's deck railing has been completed. He explained that, although the deck structure is sound, the public access restrictions would still be maintained in order to be cautious and



avoid any risk.

Treasurer Report: Ed Haskell reported no new members. Peter Bond, who was present, was voted in.

Astro Assembly Report: Kathy Siok provided a planning update on the Society's annual convention, which is scheduled for October 2nd and 3rd. Friday night will feature short talks. Saturday's program themes are the "International Year of Light" and "minor planets." • She noted that registration is \$25 for nonmembers and \$20 for members. It is our largest fundraiser and everyone is encouraged to attend. • Kathy said that more details will be announced in the next newsletter. • Kelly Beatty, Sr. Editor at *Sky & Telescope* magazine, will give one of the afternoon talks as well as the evening keynote presentation on dark skies. • Kathy encouraged Skyscrapers members to join in the work of the International Dark Sky Association (IDA) by becoming a member (see their website). The IDA's mission is to lobby for dark skies.

First Vice-President Report: Steve Siok gave an update on September 19th plans, which would be for an event at Seagrave to coincide with the "International Observe the Moon" night. More scopes are needed and the public will be invited. • October will be Astro Assembly. • On November 6th, Alan Sliski, of the Amateur Telescope Makers of Boston, will talk. • The December 4th meeting will feature member Steve Hubbard and his trip to Chile and will be held at Seagrave. • It was noted that our regularly scheduled holiday potluck will be moved to the January meeting, instead of December, since the Community Center is not available.

Good of the Organization: Dave Huestis reported on the library for Alex Bergemann, who was not present. Dave said that the downsizing work was completed and a new inventory was still to be finalized. In an effort to complete the inventory, an email was sent to the membership asking for any books to be returned. Dave explained that new borrowing procedures will be put in place, hopefully by September. A list of what's on loan from the library will be made available on the Society's website or posted on the front of the library's cabinet door. • Francine Jackson noted that volunteers are needed for a star party (sponsored by the state), which will be held at the Burlingame Camp Ground on August 8th. So far, six members have signed up to help.

Cash and Bank Accounts - As of 7/15/2015:6 As of 7/15/2015

Account	7/15/2015 Balance
Bank Accounts	
Capital One Bank	12,375.54
Checking	12,912.43
PayPal Account	276.93
TOTAL Bank Accounts	25,564.90
Cash Accounts	
Cash Account	0.00
TOTAL Cash Accounts	0.00
Asset Accounts	
Earmarked Donations	863.77
Preservation Fund	631.62
TOTAL Asset Accounts	1,495.39
OVERALL TOTAL	27,060.29

Cash Flow YTD 2015:4

4/1/2015 through 7/15/2015

Category Description	4/1/2015- 7/15/2015
INFLOWS	
Donation	
Chet Siok	640.00
Misc Donation	1,739.35
Refreshment Donation	5.00
TOTAL Donation	2,384.35
Dues	
Family	58.38
Junior	15.00
Regular	344.40
Senior	149.15
TOTAL Dues	566.93
Misc Income	
Interest Inc	3.15
Sale of Items	35.00
TOTAL Misc Income	38.15
Star Party Donations	250.00
TOTAL INFLOWS	3,239.43
OUTFLOWS	
Refreshment Expense	42.28
Trustee Expense	
Property Maintenance	87.00
TOTAL Trustee Expense	87.00
Utilities	
Electric	15.95
Porta-John	198.00
Propane	80.25
TOTAL Utilities	294.20
TOTAL OUTFLOWS	423.48
OVERALL TOTAL	2,815.95

Also Francine said that another star party is being considered for August 29th in eastern Connecticut, (confirmation pending). If you are interested in volunteering, please let her know. • Steve mentioned that the "International Observe the Moon" night will coincide with our next meeting and everyone is encouraged to bring their telescopes to the meeting. • Jim Hendrickson reminded everyone that next weekend is Stellafane and the peak of the Perseid meteor shower. Also he said to be sure to read Dave's article on the Perseids. • A special thank you was given to Tracy Prell for her heartfelt letter of thanks to members of Skyscrapers. Tracy expressed that she sees that the organization has a tremendous passion to educate

people and that everyone works together and gives 100 percent of themselves.

The meeting ended at 8:35. Submitted by Tina Huestis, Secretary.

Dick Parker, Greater Hartford Astronomical Society member, presented a talk on the two types of telescopes — refractors and reflectors — from a maker's point of view and a hands' on approach. Dick explained that a refractor telescope has its

lens in the front, whereas a reflector has its mirror at the back. Otherwise, the telescope tubes are about the same and the mountings are similar. The main difference is the objective, which is the element that collects the light down to the eyepiece. Dick offered many insights into the pros and cons of refractors and reflectors. He explained that the Newtonian is the simplest reflector and is the most common and easiest for the am-

ateur to make. One distinction between the two types of scopes is that refractors have no central obstruction, offering straight-through viewing. He provided specifics on the ways to work their different surfaces: optical quality glass has four (minimum) surfaces whereas mirrors have one surface. Dick stressed that telescope making is within the grasp of amateurs and offered his encouragement.

Steve Hubbard was out imaging on the night of September 1-2 under fairly strong moonlight and haze and captured these deep sky images. All are taken with a 14" SCT, and a MallinCam Extreme. Most are rolling stacks ranging from 10 seconds to start and accumulating up to 80 or so seconds which gives a good idea of how quickly they can be captured. Objects are identified in the upper left corners. Steve also stumbled on another imaging adjustment package that works really well. Check out Astra Imaging, it costs a mere \$29 for a download and has lots of functionality in a pretty simple package.

2015-09-01 22:45:36
MallinCam Xtreme - Color CCD
Integrating: 22 of 57 sec., Frames: 6 of 6
NGC 7331 in Pegasus, galaxy



2015-09-01 22:11:32
MallinCam Xtreme - Color CCD
Integrating: 9 of 23 sec., Frames: 4 of 4
NGC 6760 in Aquila, G Cluster



2015-09-01 21:50:53
MallinCam Xtreme - Color CCD
Integrating: 31 of 42 sec., Not Stacking
M 71 in Sagitta



2015-09-01 22:26:08
MallinCam Xtreme - Color CCD
Integrating: 18 of 23 sec., Frames: 5 of 5
NGC 6781 in Aquila, planetary nebula





Milky Way over
Seagrave Observatory
by Jim Hendrickson

Alex Bergemann Eagle Scout

by Dave Huestis

On Monday, August 24, Skyscrapers hosted an Eagle Scout induction ceremony for member Alex T. Bergemann.

It was a wonderful ceremony, with accolades and awards coming from many individuals, including former astronaut Colonel (retired) Sherwood "Woody" Spring who called in to congratulate Alex. Woody also read

a congratulatory letter from NASA Administrator Charles Bolden.

Alex was inspired by Woody Spring. Woody grew up in Harmony, RI and often visited Seagrave Observatory which inspired him to reach for the stars.

Alex has accomplished much in his short 15 years. I am proud to have

mentored him in astronomy for the past five years. He continues to excel in everything he tries, with the end goal of becoming an astronaut himself. Alex could be the first human to walk on Mars!

This young man has a very promising future ahead of him.

To Whom It May Concern,

I have had the pleasure of knowing Alex Bergemann his entire life. However, it wasn't until he began attending Astro-Assembly, an annual convention hosted by Skyscrapers, Inc., that I began to take an interest in this young man who was then only ten years old. He was always willing to assist the Society in any way he could.

But most importantly, I soon learned that he was not only a very bright individual, but also set goals for himself that far exceeded even those of some high school and university students. Alex strove for and achieved academic excellence, and he began taking flying lessons. Coupled with additional activities, including his pursuit of astronomical knowledge, Alex has one

main goal in mind...to become an astronaut.

His desire to pursue such a dream led me to sponsor Alex's membership to Skyscrapers in December 2010. He was voted into membership in January 2011. Since that time I have continued to mentor him in astronomy. He quickly learned how to perform the open and close procedures for Seagrave Memorial Observatory, as well as how to operate the Society's antique Alvan Clark refractor and locate astronomical objects with that instrument on public observing nights. He has also accompanied me with his telescope when Skyscrapers hosts off-site star parties for school groups, or when school and other civic groups visit Seagrave Observatory. We've meteor watched together, and Alex joined my wife and myself for a clouded out sunrise partial solar eclipse last year.

Alex is a special young man who I believe can attain his dreams. And I will do everything I can to support his quest. We need more young people with the motivation I have seen in Alex.

In conclusion, I am proud to see Alex select the Skyscrapers organization to be the beneficiary of his Eagle Scout Project. He is one of the most unselfish people I know. It would be great if we could bottle up Alex's compassion for others and market it.

I am humbled to play a small part in Alex's pursuit of his dreams.

Respectfully,

David A. Huestis, Historian

Skyscrapers, Inc. The Amateur Astronomical Society of Rhode Island





AstroAssembly 2015 October 2 & 3

47 Peeptoad Road North Scituate, Rhode Island

www.theskyscrapers.org/astroassembly2015

Friday Evening Talk & Stargazing at Seagrave Observatory

If you would like to give an Friday Evening Talk, please contact Kathy Siok (kathys5@cox.net).

All day Saturday at Seagrave Observatory

Poster Session, Swap Table (please bring your own table), Solar Viewing, Astrophotography Contest, Homemade Telescopes (bring yours!) Famous Astro Bake-off Contest!

10:00am Poster Session begins. Please contact Steve Siok (ssiok@cox.net) to present

12:00pm Lunch at the Skyscraper Grille

1:15pm New Horizons flyby of Pluto – the latest discoveries by **Kelly Beatty**, *Sky & Telescope Magazine*

2:30pm International Year of Light 2015 by **Kim Arcand**, Smithsonian Astrophysical Observatory

3:45pm Kepler's Second Chance: Planet Discoveries from the K2 Mission by **Andrew Vanderburg**, Harvard University

Saturday Evening Program at North Scituate Community Center

5:15pm Reception (antipasto bar with salad and real Italian accompaniments)

6:00pm Evening Banquet (pre-registration required) chicken parmesan, pastas, sauces, dessert and coffee catered by Quik Stop

7:15pm Words of Welcome, Awards, Raffle Drawing

7:30pm Light Pollution and the International Dark Sky Association by **Kelly Beatty**, *Sky & Telescope Magazine*

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:** 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.

Please support the International Dark Sky Association. Your membership adds to the number of folks concerned about light pollution. Go to www.darksky.org for more information. Indicate your Skyscrapers affiliation when you register. Thank you for your support of this important cause.

_____ Registrations	x \$25 each = \$ _____	Name _____
_____ Registrations (Skyscraper Members)	x \$20 each = \$ _____	Address _____
_____ Registrations (Children under 14)	Free _____	_____
_____ Banquet Tickets	x \$25 each = \$ _____	Email _____
_____ Banquet Tickets (Children under 14)	x \$15 each = \$ _____	
Total = \$ _____		

Send completed form and check
(Made payable to Skyscrapers Inc.) to:

Linda Bergemann
41 Ross Hill Road
Charlestown, RI 02813-2605

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