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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

A little stir among the clouds, / Before they rent asunder,—
A little rocking of the trees, / And then came on the thunder.
—Oliver Wendell Holmes



September 2023

September Meeting

The next meeting of the PVSG will be held by Zoom on Monday, September 11 at 6:30 pm. (Zoom meeting ID 862 9984 6478 Password: PVSG.) We don't know what the program will be. Bill was going to present "A Short History of the Sky Atlas," but it needs more work — he has found that the history is not short.

Thanks for last month's meeting goes to Bill for his presentation on the Europa Clipper spacecraft, which is nearing completion and scheduled for launch in October of 2024.



PVSG Monthly Meeting Minutes August 14, 2023

Note: Some of the information provided in these minutes are recorded out of order to allow for organizing them according to their normal meeting section.

Meeting:

Call to Order and Welcome to Visitors

The meeting was held by Zoom videoconference. The meeting was brought to order by Don Ferrell at approximately 6:46 PM.

Attendance:

Online:

Don Ferrell – President
Don Krause
Ralph Mallett
Jeff Cunningham
Dave Clark – Treasurer
Bill Shackelford

Presentation

Bill Shackelford presented a talk on Europa, Moon of Jupiter – Potential for life. The Europa clipper spacecraft is scheduled to be launched in October, 2024. Bill played a video from NASA on the latest news about the Europa Clipper Project. Unfortunately, the audio did not play through the zoom link. Bill also shared where you can send a message along with the Europa Clipper that will be placed on a microchip and sent along with the spacecraft.

Dave also shared a long exposure image of M51 that showed lots of extra detail.

Secretary's Report and Acceptance of Minutes

The minutes for the July meeting were accepted unanimously.

Treasurer's Report

Dave stated that \$335.97 was in the treasury last month. Dave has paid our astronomical league dues. Dave mentioned that dues are due in October and he hopes members will pay their dues between October and December/January.

Club Liaison Report:

No report this meeting.

Observing Reports:

Dave reported seeing 6-7 Perseids and 1 impressive fireball last evening. He had to put up with a few clouds. Jeff took some pictures over the last few days and hopes to get a picture of a comet 12P/Pons Brooks near the constellation Cepheus.

Old Business

None

New Business

Andy had given up his position of vice-president and Jeff may volunteer to serve. He will let us know next month. Don is reaching out to the Challenger Center to see if they are going to have some kind of event for the annular solar eclipse in October and the full eclipse next April. Dave mentioned that Shawn will be getting back to the group on local eclipse happenings.

Dave asked if folks had received the latest Reflector magazine.

Upcoming Calendar of Events

Adjournment

The meeting was adjourned at approximately 8:00 PM

Phil

Dues Are Due October 1



Regular \$18.00
Family \$27.00
Junior \$9.00

send to:
Treasurer, PVSG
609 Cape Jellison Road
Stockton Springs, ME 04981



Observe The Sky This Month Some Selected Objects September 2023

General sky comments – September 23 is the fall equinox at 6:50 UT and autumn officially begins. The Zodiacal Light is visible in the morning sky for two weeks beginning on the 23rd. How many of you have ever seen the Zodiacal Light? (Other than I) When you walk the dog in the early morning darkness or take a walk a half hour before dawn breaks look to the Eastern horizon. If you can see 5th magnitude stars you may discover the sky brightening before scheduled dawn time. However, this may not be true dawn rather the zodiacal light. No wonder it is sometimes called the “false dawn”. Also it does not cover the entire eastern horizon but on a broad triangle of brightening wide at the bottom and narrow at the top. You have now observed the Zodiacal Light. Congratulations!

Planets this month – Last quarter Moon in September was on Wednesday the 6th before the monthly meeting on the 11th. New Moon (lunation 1246) is on Thursday the 14th, first quarter Moon is on Friday the 22nd and full Moon is on Friday the 29th. Mercury is too close to the sun to be observed early in the month. It reached inferior conjunction on the 6th. Mid-month it reappears and begins its best morning apparition [being visible] of the year for the Northern Hemisphere. It reaches greatest western elongation of 18° on the 22nd. Venus begins September low in the morning sky as it moves away from Earth. Its elongation increases from 28° on the 1st to 44° on the 30th. At the same time its equatorial diameter decreases from 49° to 32°. The Moon passes 11° south on the 11th. Venus reaches greatest illumination on the 19th shining at mag. -4.8. Mars is becoming ever more difficult to see in the early evening twilight. It is occulted by a very thin crescent Moon on the 16th this is a daylight telescopic event if you choose to observe it. Jupiter is in retrograde for the next four months and is best seen during this time. These are the best days to observe the four largest moons (The Galilean moons) when they are their brightest and at greatest elongation from the planet. Saturn is now rising before sunset in the east. It is fairly well placed for observation but best for southern hemisphere observers. The waxing gibbous Moon passes by on the 28th. Uranus (Οὐρανός) rises in the late evening hours and can be found in extreme south-eastern Aries visually (at a dark site) and with a binocular or small telescope. Neptune is at opposition on the 19th 4.0 light-hours, 28.9 au from Earth and visible all night in extreme southwestern Pisces. Pluto remains in Sagittarius at magnitude 14.

Constellations for the month – Last month we observed some of the last of the summer constellations and most of them remain visible and ready to be

viewed if you have not done so. We will add a few more this month and take advantage of the excellent sky conditions and weather occurring this time of the year. This month these new constellations will be visible starting with the constellation most southern for us Piscis Austrinus, the Southern Fish. I usually think of this constellation as a fish with its mouth wide open and turned up to catch the water falling through the sky from the “Water Jar” of Aquarius the constellation above. Piscis Austrinus is very simple to find. Low in the sky about 10 to 15 degrees above the horizon you will see the 1st magnitude star Fomalhaut. It will not be as bright as you might expect due to the low latitude but it marks the bottom of the mouth of the fish. Dimmer stars form the body of the fish. If it was not for Fomalhaut and a few double stars, Piscis Austrinus would not be worth observing for us. The easy double star 4.3 and 7.1 magnitude Beta (β) 6° WSW of Fomalhaut, Dunlop 241 a pair of orange stars 1° NW of Beta, and H VI 119 a triple system 1° slightly west of south of the top star of the “Fish” epsilon (ϵ) with a close pair of yellow stars and a more distant blue star. Above is the constellation Aquarius, the Water Bearer. Aquarius, the Water Bearer is a long constellation and covers a large segment of the sky one end of which protrudes into the summer constellations. When I look at the total constellation of Aquarius I imagine a person holding a jug under their left arm with water pouring out of a jar of water, breaking into three streams one of which pours into the mouth of the southern fish and the other two pour into a river. The jug with the water pouring out is represented by a diamond of four stars, Sadalmelik alpha (α), Sadachbia gamma (γ), zeta (ζ), and pi (π) ranging in brightness from magnitudes 2.9 to 4.4. The water coming out of the jug is represented by the 4.0 magnitude star eta (η). Arching down SW we come to a grouping of five stars where the water from the jug breaks up into streams. Three of the stars are close together and two are separated a bit. They are phi (ϕ), chi (χ), and 1, 2, 3 psi (ψ). Less than 1° NNW of the middle psi (2) is the galaxy NGC 7606 a spiral easily seen at 136X with some detail using my 12” telescope. From 1, 2, 3 psi (ψ) go 6° SW to a pair of galaxies, NGC 7727 and NGC 7723. NGC 7727 is a barred spiral but I could only note the center had several parts. NGC 7723 is likely a disturbed spiral galaxy as I could detect an unusual looking center. The last object I have observed in Aquarius is the Helix Nebula NGC 7293 found 21° south of ζ the eastern tip of the water jug. This planetary nebula should be observed by everyone. The following are my field notes: Large, brighter than expected. Numerous stars visible inside. What appears to be the central star was just visible at 13th mag. with averted vision at 150x. This was with a 12” telescope but smaller telescopes also give a nice view of this bright planetary nebula. The best looking view is with a wide field scope at low power. Above the “Water Jug” we will pass through the western third of another fall constellation, Pegasus, the Winged Horse. We will discuss it next month. At this point I realized that last month I failed to mention one of the nicest easy to recognize summer constellations in the sky lo-

cated between Equuleus and Vulpecula. It is Delphinus, the Dolphin. Delphinus actually resembles a Dolphin by having a diamond shaped group of third mag. stars for the body and a fourth mag. star for the tail. One of our emeritus members Roland Cormier would always mention the nice double star at the nose if the dolphin. It consists of a deep yellow and a rare green star. It is not really green but looks that way from the contrast with the yellow star. $3\frac{1}{2}^\circ$ west of this star is a globular cluster NGC 7006. This globular cluster and globular cluster M15 located 8° SW should also be noted. M15 will be expanded upon in our Messier object of the month covered below. Going north we now come on an obscure constellation Lacerta, the Lizard. Lacerta was created by Hevelius to cover an area not otherwise covered in the sky. It contains mostly 4th and 5th magnitude stars but is not particularly difficult to observe in a reasonably dark sky. The major features of Lacerta are three open clusters. NGC 7296 is located $\frac{1}{2}^\circ$ east of Beta (β) Lacerta the top star in the constellation. This will probably be the most difficult object you will observe this month. It is a collection of two to three dozen faint stars resolvable at 100X with a larger telescope. NGC 7243 is much easier to find $2\frac{1}{2}^\circ$ SSW of Beta (β). This cluster is a semi-circle of stars with a tight grouping of four or five stars at the bottom center and it stands out in the field of background stars. Continue another $3\frac{1}{2}^\circ$ on SSW of NGC 7243 to find NGC 7209 an open cluster of 75 to 100+ stars depending on the size of your telescope. At 100X NGC 7209 is surrounded by several brighter stars not part of the cluster. Above Lacerta is Cepheus, the King. Look for it below in Featured Constellation.

Featured star of the month – Fomalhaut, alpha (α) Piscis Austrini at mag 1.16 is the brightest star in the constellation Piscis Austrinus the southern fish. It is a main sequence Vega like star. Abbreviated as α PsA at a distance of 25.13 ± 0.09 ly. Fomalhaut has two companion stars, a main sequence K-type main sequence star and a M-type red dwarf star making it a triple system. Fomalhaut was the first star to have an exoplanet Fomalhaut b (Dagon) seen at visual wavelengths. It has been suggested from new data and examination of old data Fomalhaut b is not a planet but an expanding dust cloud resulting from an old collision. The name comes from an Arabic name *Fom al-Haut* literally “mouth of the whale”. Although Fomalhaut is listed as a southern star, it is located at a declination similar to Antares and greater than Sirius. There should be no reason not to observe Fomalhaut.

Messier object for the month – Messier15 is a class IV globular cluster located 4° NW of Equuleus. This

fine globular cluster has a sparkling bright core with many chains of stars radiating outward. It was found by Maraldi in September of 1746 while searching for the Chessaux Comet. Messier rediscovered it in 1746. The east side of the cluster is slightly less dense than the western half. In larger scopes 12” and over with 175x the 13 mag. stars in the core can be resolved along with a dark area SW of the center. This is one of the best medium size globular clusters and is fully resolvable.

Featured Constellation – Above Lacerta is Cepheus, the King. I think the constellation looks like a big head with a pointed nose wearing a pointed hat but to others it resembles a house with a pointed roof. Cepheus was the king of Ethiopia, husband of Cassiopeia, and father of Andromeda. The mythology of this family we have covered before. The precession of the axis of the Earth brings the direction of the future North Pole through this constellation with Errai, gamma (γ) the top star in Cepheus the pole star in 2,000 years and the alpha (α) star Alderamin the pole star in 4,700 years. The pole also passes near Alfirk, beta (β) but not as close as the other two stars. Halfway between Alderamin and iota (ι) is the white and light yellow double star Kurhah xi (ξ) cep. This double is a true pair. At the bottom left side of Cepheus is the star delta (δ) cep the original Cepheus variable star. $5\frac{1}{2}^\circ$ ESE of Alderamin is one of the deepest red stars in the sky known as Herschel’s “Garnet Star.” This star looks the reddest in small telescopes and near minimum magnitude. This star is similar to Betelgeuse being a pulsating red supergiant but likely brighter considering the differences in distance of the two. NGC 7160 is an open cluster 4° W of Alderamin. It contains about a dozen stars with a couple of brighter stars one being double. 4° NE of Alderamin is the open cluster NGC 7142 a large loose collection of about 100 stars. $2\frac{1}{2}^\circ$ E of delta (δ) is the open cluster and emission nebula NGC 7380. It contains near 30 stars embedded in an emission nebula visible without aid but a UHC filter brightens it considerably.

Other objects for the month – If you have a medium to large telescope look for NGC 40 (Caldwell 2) a round planetary nebula with a bright section on one side $5\frac{1}{2}^\circ$ ESE of Errai, gamma (γ) Cepheus. I found it by star hopping from Errai using a star chart. Some have said it almost looks like the planet Mars with its polar cap but without the red color. The central white dwarf star is visible at powers above 200x.

Bill Shackelford
Come view with me as we observe tonight