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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

June 13

1964: Apollo A-001 launched,
(Little Joe II test flight)



Back to Zoom

The PVSG meeting of June 2022 will be held via Zoom on Monday the 13th at 6:30 pm (**Meeting ID 862 9984 6478 Password: PVSG**). Doors will open around 6:00 for some socializing before the meeting. We don't know what the program will be.

Thanks for last month's program go to Shawn for the use of the planetarium and the show "Living World."

Last month was election month, and the winners were Phil, Dave, and Dwight for Secretary, Treasurer, and Member-at-Large respectively.



Where is Life?

PVSG Monthly Meeting Minutes
May 9, 2022
Planetarium and Zoom

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.

called "Living World". A technical issue caused the streaming to those connected by Zoom to be interrupted towards the end of the "Living World" presentation.

Secretary's Report and Acceptance of Minutes

Last month's minutes were approved unanimously.

Treasurer's Report

Dave stated we have \$326.17 in our checking account. Dave said he will need to pay dues to the Astronomical League of approximately \$125.00. The group voted to allow Dave to pay the dues up to \$150.00. It was determined that dues for 4 additional members would be in Dave's hands in the next few days.

Club Liaison Report:

Andy noted that Dwight was not yet present, so he opened it up to anyone who had any information about upcoming events. Wade mentioned the Maine State Star Party to be held in August at Cobcook Bay State Park where there are extremely dark skies. Dave asked if Shawn knew anything about the timing of the joint program with the Challenger Center and the expected release of first pictures from the Webb space telescope. Shawn said that the program would likely be in the first half of July and that he should be hearing more later this month. Dwight joined the meeting and gave an update on the Maine State Star Party. Dwight said that he and Charlie Sawyer from Downeast Astronomers have received a lot of interest for this year's star party. There will be at least 2 16-inch reflectors and 2 or more computerized EV scopes like the Vaonis Stellina and Vespera and Unistellar EVScope. Dwight announced that there will no longer be a star party on Cadillac mountain in the future due to current park management. Shawn mentioned that Katahdin Woods and Waters will have an event as well.

Meeting:

Call to Order and Welcome to Visitors

The meeting was held at the Jordan Planetarium at the Versant Power Astronomy Center and by Zoom videoconference. The meeting was brought to order by Andy Brown at approximately 6:35 PM.

Attendance:

Members at Planetarium:

Andy Brown – Vice-President
Shawn Laatsch – Host and Presenter
Don & Jean Krause
Wade & Donna Smith
Ralph Mallett
John Schuster
Phil Normand – Secretary

Members Online:

Don Ferrell - President
David Clark – Treasurer
Dwight Lanpher – Member at Large / Club Liaison
Bill Shackelford
Alan Davenport

Guests:

Larry Berz, Lee Academy

Presentation

Shawn presented "A new visualization of Eta Carinae" from the Hubble Institute showing 3D modeling based on observations in 4 different wavelengths. Shawn then presented a program from the California Academy of Sciences

Observing Reports:

Dave mentioned he finally saw Mercury last night about 10 degrees above the horizon. **Larry Berz** also observed Mercury and was able to discern a

crescent phase in a 8-inch F6 with increased magnification. Larry has also been observing the moon.

Old Business

Elections were held for Secretary, Treasurer and Member at Large positions. Phil, Dave and Dwight were elected to those respective positions for the next 2 years.

Shawn mentioned the hosting of the Middle Atlantic Planetarium Society and helping with observing sessions on Wednesday & Thursday, May 18th & 19th.

Weather permitting, the Clark observatory will be open for the lunar eclipse on Sunday evening, May 15th into the 16th.

New Business

John Schuster is interested in setting up some observing sessions at Birch Pond or the Hirundo Wildlife center.

Adjournment

The business meeting was adjourned at approximately 7:11 PM

Phil



Observe The Sky This Month

Some Selected Objects

June 2022

General sky comments – The summer season begins on the 21st of June at 09:14 Universal Time (UT1, simply UT) or 04:14AM Eastern Daylight Time (EDT) on Tuesday the 21st. This is the time the Sun reaches its most northerly declination. James Webb Space Telescope update: Recently a micro-meteoroid the size of a dust particle but larger than expected hit the primary mirror segment C3. A minor correction to that segment has already been made and the performance of the telescope was minimally affected and remains well below predicted performance. Micro-meteoroid hits are expected and the telescope remains on schedule for first light on July 16.

Planets this month – First quarter Moon was on Tuesday the 7th before the meeting on the 13th, full Moon is on Tuesday the 14th, last quarter is on Monday the 20th, and new Moon (lunation 1231) is on Tuesday the 28th. Mercury is pulling away from the Sun and will be visible in the morning sky a few days before the meeting. It arrives at its greatest elongation from the Sun on the 16th at magnitude +0.5. Mercury then becomes the eastern planet in the current lineup of naked-eye planets in the morning sky. They are in order Mercury, Venus, Mars, Jupiter, and Saturn. The

Moon joins them on the 23rd and 24th. Although you need a telescope to see them Uranus and Neptune are also in the morning sky. This type of “parade” of planets is relatively rare but not unusual. Venus loses 7° in elongation from the Sun during the month. Mars has a close conjunction with the Moon on the 23rd. Jupiter is in Pisces and moves into Cetus late in the month. Saturn reached its first stationary point on the 5th and begins a slow 20-week retrograde in western Capricornus. Uranus passed 1.6° to the north of Venus in the 11th. Neptune is in Pisces and reaches its first stationary point on the 28th when it begins the slowest retrograde loop of all the planets covering the least amount of sky not counting Pluto. Pluto is still in western Sagittarius. Finder charts are available.

Constellations for the month – This time of the year the Zodiac constellations are located far south in the sky and consequently the tail of the constellation Scorpio, scrapes the horizon and the bottom of the constellation is on the horizon as it is quite long and Maine is located almost halfway between the equator and the North Pole. More about Scorpius is below in the featured constellation section. Above and to the right of Scorpio is the constellation of Libra, the scales. Libra is the only inanimate object in the Zodiac. In ancient time Libra may have been connected to the scorpion by some but these claws almost universally were considered a separate constellation by most and represented justice. To me the most interesting thing in Libra are the two bright stars Zubenelgenubi (α Lib) [see below] and Zubeneshamali (β Lib) and the way they sound. There are no Messier objects in Libra and only a few galaxies none worth observing except with larger telescopes. Above and to the east of Scorpio and Libra are the constellations of Serpens Caput, the Head of the Snake and Ophiuchus, the Serpent-Bearer. Further to the east is Serpens Cauda, the Tail of the Serpent. All three are portions of the myth of Aesculapius the founder of medicine represented by Ophiuchus wrestling with a serpent. When someone asks me what zodiac sign I am I always say Ophiuchus. That causes confusion but I say the Sun spends more time in Ophiuchus than Scorpio. Serpens Caput contains one Messier object M5 (NGC 5904) a very fine globular cluster located 11½° north of Zubeneshamali (β Lib) and 7½° SW of Unukalhai (α Ser). Do not miss M5. Serpens Caput is connected on the east to Ophiuchus, the Serpent Bearer. Ophiuchus contains 7 Messier objects all globular clusters. Globular clusters are prominent this year because most orbit around the center of our galaxy the Milky Way now making its way into the sky from being low around the horizon. Ophiuchus contains numerous double stars. One of the easiest to find is located 3° NNW of Antares. 5-rho (ρ) is an easy double but you will probably notice another star there also so you can consider it a triple system. 7° due west of Antares we find the first of the Messier globular clusters M19 (NGC 6273). M19 is bright but small. Immediately to the west of M19 is one of the easiest dark nebula to observe “The Pipe Nebula”. Get out your binocular and pick out this hole in the stars. It does look like a black pipe with

smoke coming out. 4° south of M19 is M62 (NGC 6266) a globular cluster interesting because of its uneven core of stars. You may want to explore this area as there are other globular clusters in this area but we will now go to M9 (NGC 6333) a globular cluster with many lanes of stars. It is found 3½° SW of eta (η) the star at the bottom left of the body of Ophiuchus. Next is M107 (NGC 6171) a small globular cluster for a Messier object reflected in the high M number. It is found 2½° SSW of zeta (ζ) the middle star at the bottom of the body. The next three globular clusters were more difficult for me to find as they are not near any prominent stars but they are all bright making finding them easier. A good star chart helps with all these globular clusters. M10 (NGC 6254) and M12 (NGC 6218) are both located within the body of Ophiuchus and visible with binoculars. From Marfik, lambda (λ) Oph the 4th mag. middle star on the west side of the tent shaped body of Ophiuchus go 5½° SE to find M12 then go 1½° past two 7th magnitude stars to M10. Both clusters are large, bright, and beautiful. The last Messier globular cluster in Ophiuchus is M14 (NGC 6402). There are no visually bright stars near it. From M10 go 10° slightly north of west to find M14. It is bright enough to find but it took my 12" telescope to hint at stars being resolved. Above Ophiuchus is the constellation Hercules, the Strongman and to the west above Serpens Caput is the constellation Corona Borealis, the Northern Crown. Corona Borealis represents the crown given to a victor. In Greek mythology it was the crown given to Ariande by Theseus who had killed the Minotaur in the Labyrinth made by her father. The constellation only contains a number of dim galaxies we will not try to find. Last month I said we would look at the constellation Boötes, the Herdsman (see below). Back to Heracles a demigod born of the union between the god Zeus and the mortal Alcmene. Zeus's wife Hera was suspicious Heracles was the child of Zeus because the child was extraordinarily strong. (The Greek name of Hercules is Heracles.) The constellation had been previously known simply as "The Kneeler". The constellation Hercules is best known because of the globular cluster M13 (NGC 6205) but there are two other globular clusters easily visible in most telescopes and one of them also has a Messier number M92 (NGC 6341). The other is NGC 6229 a smaller globular visible in most telescopes. To find M13 locate the squashed square of stars known as the keystone just to the left and slightly above Corona Borealis. Then go ¾ of the way up the west side to find M13. At a dark site M13 is visible to the naked eye as a "fuzzy" star. It was discovered this way by Edmond Halley of comet fame in 1714. This is the best globular cluster you can see unless you travel to far southern Florida and observe Omega Centauri the largest globular cluster in our galaxy which may actually be the core of a dwarf galaxy which has had its outer stars stripped away. If you can pull yourself away from M13 look for NGC 6207 a spiral galaxy located in the same low power field as M13. A big binocular shows it but use more power for a better view. It is only ½° NE of M13 and at mag 11.4 the brightest galaxy in Hercules. Give it a try. M92 (NGC 6341) is located 6° north of pi (π) the 3rd

magnitude star at the NE corner of the keystone. Just because it is a bit out of the way do not miss it. M92 is a very nice globular cluster deserving of more attention, if it was not so close to M13. To me it looks a little flattened on one side. Is there a small dark nebula dimming that side? What do you think? The last globular cluster in Hercules is NGC 6229. It is observable with my 8" telescope but my 12" allows me to resolve a few stars with averted vision and it looks slightly granular. To find it go 7° NW of M92. It is slightly over 1° NNW of 52 Her the 4th magnitude star 6° NW of M92. Above Hercules and just slightly to the east there is another almost keystone like the one in Hercules forming the head of Draco, the Dragon. Do not confuse this keystone with the one in Hercules as I have occasionally because you will not find M13 in this one. It is smaller and we have observed it earlier in the year. As long as you keep your directions straight this will not happen and the two do not really look alike. For us Draco is a circumpolar constellation and never sets. This time of the year is the best time to follow Draco as it winds around Ursa Minor, the Little Bear the constellation most everyone has heard of but are not very familiar. Probably the most famous star in the sky is in Ursa Minor, Polaris, alpha (α) the North Star. Polaris is also the end of the tail of Ursa Minor and helps form the asterism, the little Dipper. Ursa Minor is a convenient way to determine the brightness of the sky by comparing magnitudes of the stars. Polaris is mag 2, along with Kochab, beta (β) at the end of the "bowl" of the constellation. Pherkad, gamma (γ) the other star at the end of the bowl of the "Little Dipper" is mag 3, followed by delta (δ) and epsilon (ε) the other two stars in the handle of the "Little Dipper" at mag 4. The star joining the handle to the bowl is Zeta (ζ) also at mag 4. Finally if you can see eta (η) the other star forming the "bowl" at mag 5 you have a pretty dark sky. Draco contains few bright stars making it difficult to trace through the sky but since the head is conspicuous it is best to begin there. From the head of Draco (we located it earlier in the year) we go NNE toward the north celestial pole but before it gets there it turns back SW before curving around the body of the little bear where the alpha (α) star of Draco, Thuban alpha (α) Draco forms a long triangle with the two end stars of the dipper. Thuban (mag 3.6) is not the brightest star in Draco but is the easiest star to find. Thuban is famous because of precession it was the Pole Star when the great pyramids were built around 2600 BC and they were aligned to its position at that time. Thuban as a pole star is not as bright as our Polaris but when you did not have electric lights to light the sky almost magnitude 2 was bright. Draco contains numerous dim galaxies and one notable planetary nebula, the Cat's Eye Nebula a green planetary with the central star visible in most telescopes.

Featured star – Arcturus, Alpha (α) Boötes is the brightest star in the northern sky. Its name comes from an ancient Greek word meaning bear "watcher" or bear "guardian" as it is not far from the constellation of Ursa Major. It is classified as an early giant K star with a surface temperature of 4,290 Kelvin meaning most of its

radiation is in the infrared. It is close enough and large enough to have the diameter measured and it is about 26 times larger than our sun. Arcturus is a variable star with a period of 233 days making the period too long for it to be a pulsating variable but suggestive of it having a companion, some type of acoustic vibration, or a surface feature such as a star spot since Arcturus has a slow rotational period of around two years. In 1999 at Mount Wilson adaptive optics was once again used to observe Arcturus and no companion was found at the proper distance to cause the variability. Take your pick of the remaining possibilities. It has been noted Arcturus has a large proper motion of 5 arc minutes in 1½ centuries only exceeded by Alpha Centauri among first magnitude stars. The closest approach will be in 4,000 years and it will be only be a few hundredths of a light year closer. It was once thought Arcturus was a star formed in another satellite galaxy long absorbed by the Milky Way because of a group of at least 53 or more stars moving together in space known as the Arcturus Group or Stream. This was mostly been discounted when it was shown the stars were moving like other stars in the Milky Way disk. More investigation is needed.

Featured Messier object – M6 known as “The Butterfly Cluster” is a naked eye open cluster found at this time of the year low in the sky in Scorpio. It was noted by Ptolemy in the 2nd century but it was not recognized as an open cluster until sometime before 1654 by the early astronomer Hodierna using a 20X telescope. To find it look 16° WSW of Antares. Do not confuse it with M7 a more open cluster 20° SW of Antares. If you do not note it visually use your finder scope. A small telescope at low power is the way to observe this open cluster. It is 10 times farther away than it is across and spans ½° in the sky so any telescope of more than about 40X is too much to observe the whole cluster. There is a grouping of 7 or 8 stars forming a “V” shape I like to call the butterfly’s antenna. From there you can imagine other stars spreading out right and left to the rear from this grouping to form the body and wings of the butterfly. How do you see this open cluster?

Featured constellation – Last month I said we would look at the constellation Boötes, the Herdsman. Boötes

is one of the oldest constellations but the name origin has been lost. The only definite mythology of Boötes comes from the Romans who called him the Herdsman of the Septemtriones, the seven oxen represented by the seven major stars of “the Big Dipper”. As a modern constellation Boötes holds the leash of Canis Venetici, the hunting dogs. The constellation has the shape of a kite trying to take off. To appeal to the youth at planetarium shows, Boötes is usually called “The Ice Cream Cone”. The Sumerians called him, the man who drives the great cart. The only real interesting Boötes object is the alpha (α) star, Arcturus, the 4th brightest star in the sky. Its main use is as a guide star to other stars in the sky as in the saying “arc from the handle of the big dipper to Arcturus and spike on to Spica”. An obscure object in Boötes of interest to me is NGC 5466. This is a globular cluster listed as a challenge object to meet one of the requirements to obtain the Astronomical League Globular Cluster Observing Club award. Located 4° west of M3 (NGC 5272) or follow a curve of stars NW of 9 Boötes to NGC 5466. It is not hard to identify if you realize at Shapley-Sawyer concentration class of XII it contains less stars than most other globular clusters.

Other objects of interest – NGC 6369 the “Little Ghost Nebula” is a planetary in Ophiuchus. To find it go to a line of 3rd and 4th magnitude stars a little over 10° east of Antares and follow these to this planetary. It is bright enough to see in a small telescope but a larger telescope is needed to see it as a ring. Its name fits it well, it is “ghostly”. NGC 6366 is a globular cluster in Ophiuchus. It is found 3° SW of M14 just east of a 4th mag star. It is actually larger than M14 but it is in the class of globular clusters with the lowest surface brightness thus more difficult to observe. It almost looks like a large dim open cluster. NGC 6217 is a barred spiral in Ursa Minor forming an equilateral triangle with eta (η) and zeta (ζ) outside the bowl portion of the constellation. It can be located with an 8” telescope but a much larger telescope is need to see much detail.

Our city lights they steal the night away.
Bill Shackelford