



**Peoria Astronomical Society, Inc.**

P.O. Box 10111 Peoria, IL 61612-0111

Section of Peoria Academy of Science

Affiliate of the Astronomical League

[www.astronomical.org](http://www.astronomical.org)

# STARLITE

*Winter, 2022*

**WHAT'S IN THIS ISSUE?**

List of Board of Officers & Directors

Editor's Notes

Address/email changes

New Members

Meteor Shower & Comets

Presidents Ramblings

25 & 50 years ago

General PAS information

Caterpillar Matching Gifts

Reflector Magazine & NCRAL info

Members Monthly Programs Schedule

Photos from members

Photos from Space

The Planetarium Report

Occultation of Mars December 7, 202

2027 Eclipse Tour information

2023 Dues Notice

other information



Hubble versus JWST on the Pillars of Creation

### ***Officers:***

President: Dan Son, [sonshine1992@gmail.com](mailto:sonshine1992@gmail.com)  
Vice-President: Brian Bill  
Secretary: Phil Burroughs  
Treasurer: Dave Monroe, [dave.monroe@comcast.net](mailto:dave.monroe@comcast.net)

### ***Directors:***

Parliamentarian: Dave Monroe, [dave.monroe@comcast.net](mailto:dave.monroe@comcast.net)  
Nominating Chairman:  
Legal Agent: Rodney Nordstrom  
Northmoor Chairman: Dan Son, [sonshine1992@gmail.com](mailto:sonshine1992@gmail.com)  
Jubilee Chairman: Jesse Hoover

### ***PEORIA ASTRONOMICAL SOCIETY IS NOW ON FACEBOOK:***

[www.facebook.com/PeoriaAstronomicalSociety](http://www.facebook.com/PeoriaAstronomicalSociety)

### ***Update your address, phone or email changes***

Please notify Dan Son at [sonshine1992@gmail.com](mailto:sonshine1992@gmail.com) if you will be getting a new mailing address, email address and/or phone number. It is important that he has your personal information correct so you will continue to receive the Starlite and the Reflector.

If you would like to join the Peoria Astro e-group or if you have changed your e-mail address, please notify Dan Son at [sonshine1992@gmail.com](mailto:sonshine1992@gmail.com) with your e-mail address (for in-club use only – not given out to other sources). If you are not a member of the e-group, you may want to consider joining.

### ***NEW MEMBERS:***

The Peoria Astronomical Society welcomes new members: Elizabeth & Vincent Allen

### ***2022 Meteor Shower Schedule:***

Geminid meteor shower will be the night of December 13 and December 14<sup>th</sup>. Moon is just passed full.

Quadrantids meteor shower peak is Jan 3-4 but an almost full Moon will so but the brightest will be blotted out.

### ***Comet 2022 E3***

Be looking for this to brighten early next year as a possible naked eye comet. It swings between Earth & Mars in late January and brightens to a possible mag 4.

## Presidents

### Ramblings:

Hello and how is everyone doing, Looking outside my window on different days I see snow or blowing leaves and the wind...! Winter is coming and is a hard time for the



astronomers. We don't want to go outside with our scope in the cold icy windy nights, but the sky is so beautiful. My wife said this spring "hey, lets get a hot tub" she didn't have to ask me twice and now I sit outside and watch the constellations move overhead at different hours of the night and enjoy the view.

We have many wonderful opportunities for viewing coming up. December 7<sup>th</sup> is the Occultation of Mars by the Moon around 9pm. A scope would be great to get up close for this but binoculars will do. January we have Comet 2022 E3 coming close to Earth and may be naked eye viewable and don't forget the Geminid meteor shower in December. This is the time of year to get our equipment cleaned or repaired, look for upgrades or just go out and get a bigger..!

Dont forget to send in you membership dues for 2023 and think about joining the Northmoor or Jubilee groups to help volunteer in the Spring and Summer months. Tonight as I am finishing up the Starlite, I have a scope nearby to go to Fondulac Library to help Nick Rae show off the planets. We have lots of opportunities to have fun in Astronomy and if the weather doesn't cooperate then build a snow fort, have a snowball fights and slide down a hill till you cant climb the hill anymore and share those experiences with your family and others. Did I mention we have to think and planing ahead. On April 8<sup>th</sup> 2024 will be another Great Solar Eclipse across America, and I have already started looking into solar glasses for the event. Im sure we will be hearing a lot more on this subject in the coming months and I will be ready. May you have a wonderful Christmas Season and a Happy New Year.

Dan Son

## *A Primer for the Beginner*

### *Lesson Five: Planning an Observing Session*

by John Barra

Lessons One through Four appeared in *Starlite Issues* #128-131, December 1996-September 1997

There are two rules in planning an observing session: make it simple and make it fun. In other words, your planning should help you spend the night enjoying objects rather than struggling to find them.

#### DECIDING WHAT TO VIEW

To decide which objects to view, obtain a planisphere to see which constellations will be observable that night. As a beginner, you may not feel confident to decide which objects to view. I suggest getting a beginner's book that does the planning for you.

MacRobert's *Star-hopping for Backyard Astronomers* is an excellent choice. He picks different areas of the sky and chooses ten or twelve objects in each section that are close together and within the range of the beginner. His sky charts and descriptions of the objects lead you through the session. *Turn Left at Orion* by Consolmagno and Davis is another good book. The deep sky objects in it are arranged in the order they appear in the sky. While its charts are not as easy to follow as MacRobert's, the drawings of how the objects look in the eyepiece are quite helpful.

Another method is to pick a constellation and view the deep sky objects within it. I found the most useful book for this method is *Observing the Constellations* by Sanford. This book includes a chart of each constellation along with locations of the objects, a list of each prominent object with parameters such as size and magnitude, and a description of the best ones to view. Similar books I have found useful are *Peterson Field Guides: Stars and Planets*, *The Audubon Society Field Guide to the Night Sky*, and *The Observer's Sky Atlas* by Karkoschka.

A common way to choose objects is to use the famous Messier list. All

the books I've mentioned include the Messier objects. Just pick which ones you'd like to locate each night. I have found *The Messier Album* by Mallas and Kreimer and *Messier Marathon Observer's Guide* by Machholz quite helpful in planning many Messier viewing sessions.

Finally, as you gain experience you may want to obtain the 3-volume *Burnham's Celestial Handbook*. While it doesn't contain star maps, it provides a tremendous amount of information on many objects and will help you choose targets for later observing sessions.

#### PREPARING CHARTS

Most astronomy books (like the above) unfortunately are not good books to use in the field. You'll need a good field atlas at the viewing site to aid in finding the objects you have chosen. There are many available; I personally use *Sky Atlas 2000.0* by Tirion. Its charts give the locations of most of the popular deep-sky objects. My laminated version is very handy for field use.

You can also create your own star charts. You'd be surprised how effective they can be. Draw the bright, easier-to-locate objects and their constellations, or use a computer and one of the many stargazing-making programs available to print your charts. Put your charts in clear page protectors, snap them in a three-ring binder; you'll have a great field book.

I use the program *Star Navigator* given with Meade telescopes. First I make a chart with a wide field of view. I locate the constellation and the object, and mark the closest naked-eye star to my object. Then I make a close-up chart containing the target star and my object.

Most programs are not good at reproducing the fainter stars, so I make use of my favorite resource, the two-volume *Uranometria 2000.0* by Tirion, Rappaport, and Lovi. Big and hardbound, *Uranometria* makes a

lousy field book. However, it contains the fainter stars and as many deep sky objects as you would ever want. I locate those stars that are between my target star and the object and add them to my close-up chart. Other people have made great field charts by copying portions of pages from *Uranometria* and putting them in page protectors or laminating them.

#### DOCUMENTING YOUR VIEWING SESSION

As always, you'll want to document your observations. Some objects are verifiable merely by looking at them. However, many of these objects are dim; you can't always be sure you are looking at what you planned to. I always draw the object and the stars I see with it in the eyepiece. A folded piece of paper or a notecard works fine.

Your drawings need not be exact; just show the object in relation to the stars nearby. When you get home, you can compare the rough drawing to the photographs or star charts in the books you have. If you have access to the Internet, try using the *Digitized Sky Survey* <<http://stdatu.stsci.edu/dss/>>. It contains photographs of the entire sky with all the deep-sky objects and the stars around them. The stars seen in most amateur telescopes appear bright and slightly spiked in DSS, making for easy comparison with your drawing.

Finally, memorialize your observing session with notes and descriptions in your star journal, as simply or as detailed as you want.

You may wonder when you'll have the time to look through the books, choose objects to view, and make your field charts. Remember all those cold winter nights or the many cloudy nights the rest of the year. That's when you plan for the few good seeing nights to come. ☾

NEXT ISSUE: NEW SERIES!  
PRIMER FOR THE INTERMEDIATE: LESSON ONE: OBSERVING MULTIPLE STARS

## 50 Years ago:

### ARIES, PISCES, AND CAPRICORN - Jean Johnson

Though the forms attributed to the constellations along the ecliptic are very old, myths about them have varied over the years from culture to culture. About 2000 BC Greece was invaded by warlike herdsmen who were firmly established by 1600 BC. They brought a new god, Zeus, supplanting the older agrarian religion devoted to Gaea, the Earth Mother, and her son Cronus (Saturn). The new gods had to be connected with the zodiacal calendar essential for the agricultural life these herdsmen adopted when they settled down in Greece. The vernal equinox was then in Aries, and all over the ancient world the prominence the Taurus-Orion complex had enjoyed as the male life symbol was slowly, but incompletely, transferred to Aries, and any new up-and-coming deity had to identify with the Ram. Hence the following Greek myth:

During the war between Zeus and his allies and Gaea and her allies, Gaea gave birth to a monster, Typhon (Draco). Even Zeus was terrified and the gods fled to Egypt for safety. Typhon pursued them there and at his approach Zeus suggested that the gods turn themselves into animals so that Typhon would not recognize them. Zeus transformed himself into the lordly Ram, sign of the vernal equinox and leader of the Zodiac, incidentally identifying himself with Ammon, the ram-headed god of Egyptian Thebes, an identification which lasted until the end of paganism. Venus, (Aphrodite) and her son Cupid (Eros), changed themselves into fish (Pisces), plunged into the Nile and escaped. Pan, whose body from the waist down was that of a goat and from the waist up that of a man, became so frightened that, being of a highly excitable nature, he became confused and, when he also tried to transform himself into a fish, succeeded only in changing the lower part of his body into a fish and the upper part into a goat. Zeus thought this was hysterically funny, and shaped a constellation (Capricorn) to memorialize the event.

Pisces was identified with various Babylonian, Syrian, and Phoenician mother goddesses, and Venus was actually an import into Greek mythology, a fusion of the characteristics of these Earth and Sea Mothers/ Particularly in Phoenicia it was common to represent the only son of the Mother as a fish. We think of Cupid, the son of Venus, as a little fat boy with arrows. Cupid is sometimes called Eros, but there is another Eros, never called Cupid, who personified a cosmic force released at the beginning of creation, a force which was at once erotic love, artistic creativity, and the unifying force in all human associations. By having Venus and her son, a god of Love, however that term is interpreted, turn themselves into fish and jump into the Nile, all threads of the mythological theme are joined.

Capricorn originally represented Ea, a member of the original Sumerian Triad of great gods. He was represented as a goat-fish or a goat-man, like Pan. Pan appears to have been a very ancient god who eventually came to represent the Great All, the Universe as a god. He was a god of flocks and wild animals and on him depended the supply of meat. He was associated with Dionysus, the vegetation and wine god, whose religion was spread all over the ancient world. It is sometimes Dionysus rather than Pan who turns himself into the goat-fish. Pan is usually made to appear ridiculous in Greek myth, an attempt to laugh a very ancient and powerful god out of existence, as in this myth. In more ways than one, Pan was forever the goat.

Thus, in this myth, with one fell swoop Zeus is exalted as the primary creative force in nature and leader of the Zodiac. Aphrodite and Eros, though treated rather neutrally, are no longer the primary creative forces of other mythologies, and Pan-Dionysus is degraded into a ridiculous coward.

### **Submission of photos / article content for the Starlite: Jesse Hoover**

If you have a photo that you would like to submit for the Starlite, please send these to Jesse Hoover [hooveje@gmail.com](mailto:hooveje@gmail.com) or Dan Son [sonshine1992@gmail.com](mailto:sonshine1992@gmail.com) along with a little write-up about the photo. Photos can be from star parties, club events, personal view, etc. Astrophotography is encouraged. Also, if you have educational content, tips, techniques, lessons learned or how-to articles with photos, we encourage that material for the Starlite. We can also put these on our Facebook page if you so desire. <https://www.facebook.com/PeoriaAstronomicalSociety>

### **The Caterpillar Matching Gifts Program: Brian Hakes**

As of July 1, 2012 the Cat matching gifts program changed. Employees/Retirees are asked to submit matching gift forms electronically via the Caterpillar Foundation website, [www.caterpillar.com/foundation](http://www.caterpillar.com/foundation). The process is easy. Once you made your gift to the PAS you can go online to the Cat Foundation website and complete the electronic form, there is no paper involved. Once the form is registered with the foundation they will notify the PAS and the treasurer will then verify the gift has been received. Because there will be no mailings, the turnaround time for the whole process will be negligible. This is especially advantageous at the end of the calendar (tax) year. This is an excellent way to support the PAS. If you can, please participate in this generous program. This is a great way to help the society and the promotion of astronomy in the greater Peoria area.

### **Reflector:**

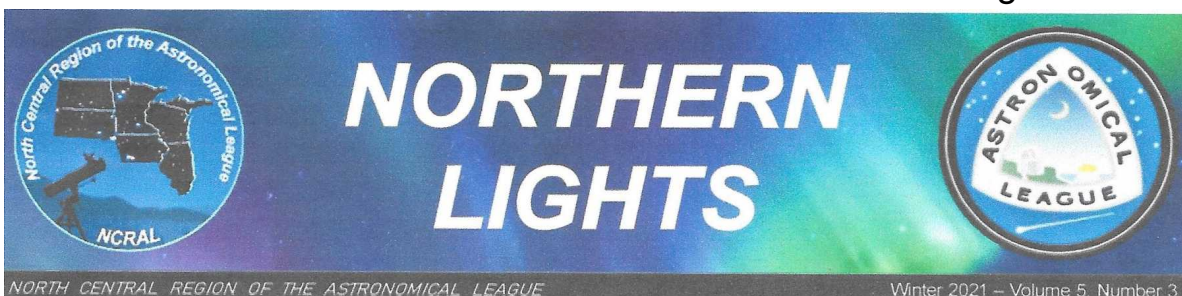
Reflector Magazine digital edition is available for download

You may access an archive of digital issues from the AL website by visiting: <https://www.astroleague.org/reflector>

### **NCRAL Newsletter:**

The North-Central Region of the Astronomical League (NCRAL) is made up of member societies... the six states commonly thought of as the Upper Midwest of the USA, plus the Upper Peninsula of the state of Michigan. The PAS is a member of the NCRAL. Their Region Newsletter, also named "Northern Lights", has been resurrected and is better than ever! The latest issue's can be read on their website can be found here: <https://ncral.wordpress.com/newsletter-archive/>

You can access the current issue and all other back issues through this link.



## **Add Your Email Address to NCRAL Member Database**

Add your email address to the NCRAL member database now so that you can get direct mailings of NORTHERN LIGHTS and important and timely announcements about Regional conferences, star parties, and so forth. Your email address will never be shared with or sold to outside entities. Sign-up takes only about a minute. You'll need to provide your name, email address, astronomy club affiliation (including at-large), and indicate if you hold particular positions within your club. Go to the following case-sensitive URL to add your information to our database: <https://goo.gl/gS8SF>

## **Program Schedule 2022– 2023 – All speakers confirmed**

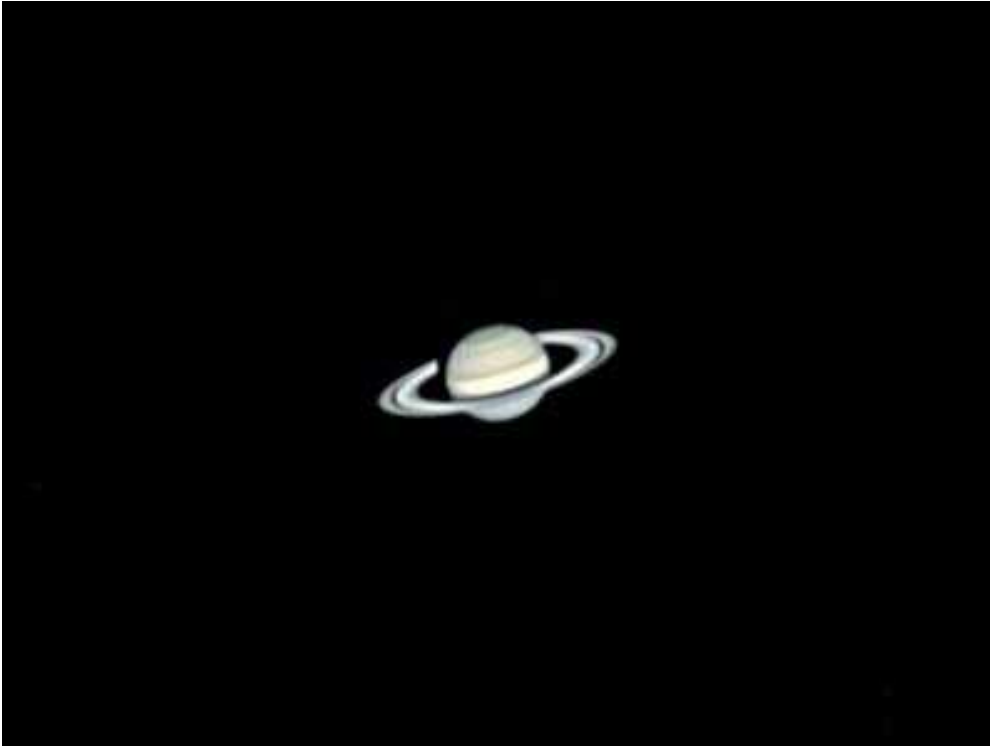
### **Meeting Time 7:00 p.m. CST/CDT (note new time)**

**Meeting in the Dome Planetarium at the Peoria Riverfront Museum (Some speakers via Zoom) Again please note the new time we will be starting..7pm.**

December 7, 2022	<b>John Nowack</b> a PAS member on his experience with Astrophotography a non Zoom, Planetarium show only!
January 4, 2023	No Meeting in January
February 1, 2023	New Full Dome Show a non Zoom, Planetarium show only!
March 1, 2023	The October 14, 2023 Eclipse + Sharing of members' plans to observe
April 5, 2023	Titan! <b>Dr. James Dire</b>
May 3, 2023	Astro-Jeopardy II <b>Brian Bill</b>

**Inclement weather notice:** Monitor email (e-group), local radio stations or PAS Facebook Page if a program, board meeting, viewing, or star party may be canceled due to weather. If we determine a risk in the weather, the Society will cancel the event. If we host an event and you feel the weather or road conditions are questionable, please take the safest actions and do not attend the event.

***Photos from Members***



**2022 Saturn by Dr James  
Dire using a 10 inch  
Cassegrain with ZWO  
Asi120 MC camera**



**Saturn by Nic Napier from Northmoor 2021/08/28**





**Double Cluster by James Armstrong 2022/11**



**Jupiter by Dr James Dire 2022 using 10 inch Cassegrain, ZWO Asi120MC camera**

## Photos from Space



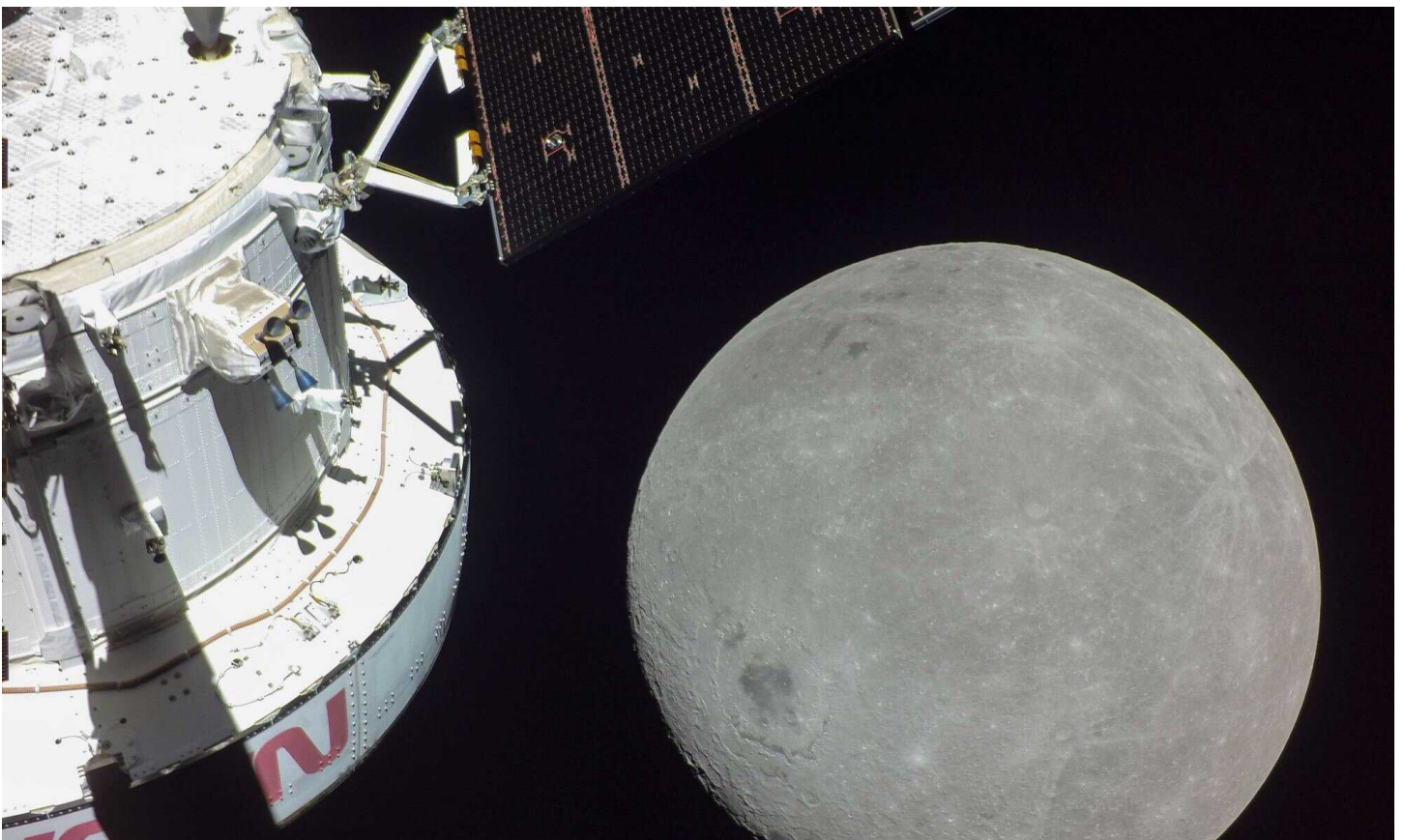
Orion spacecraft view of Earth



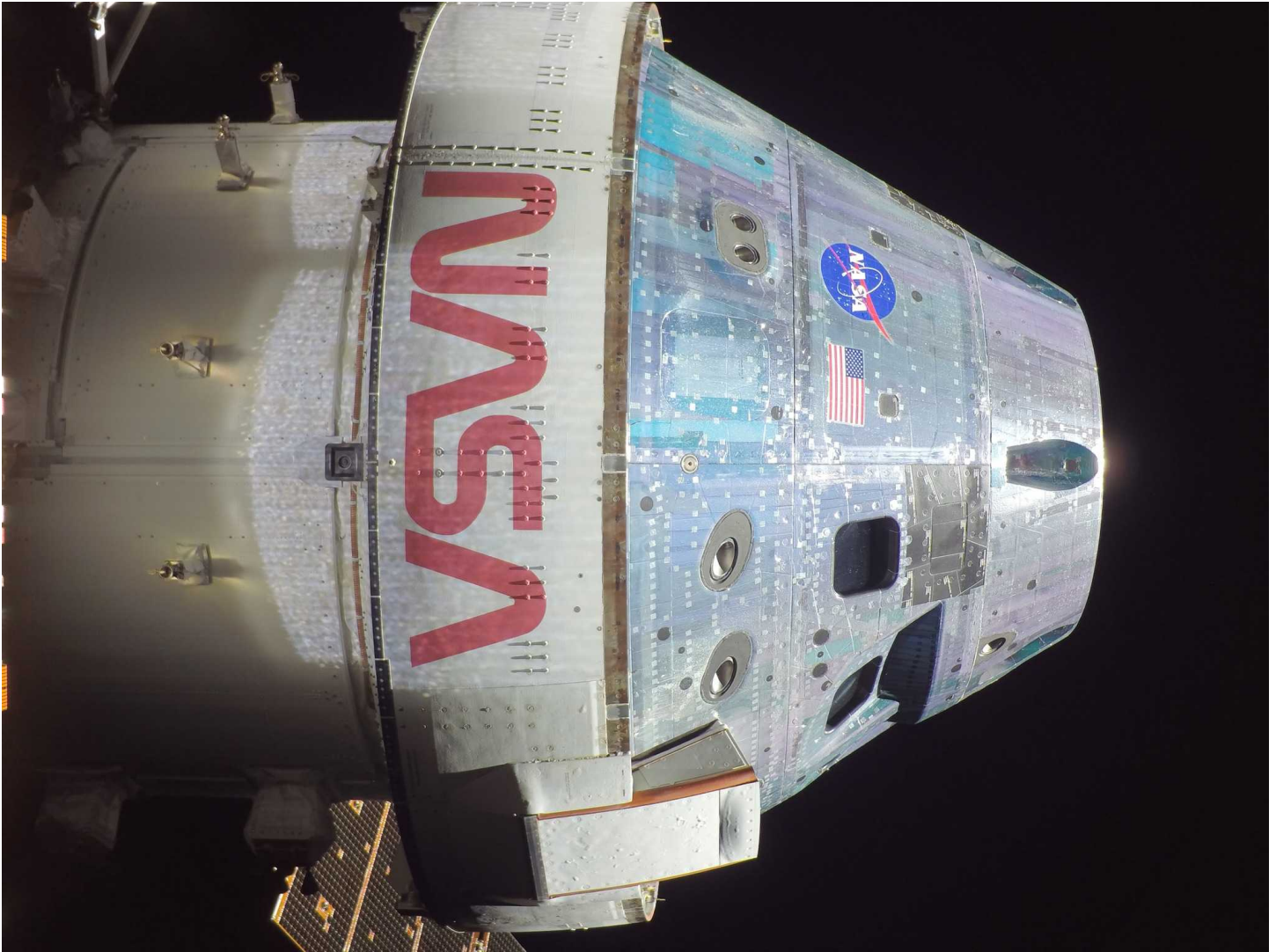
JWST view of Jupiter



**Hubble- Pismis 26 Globular Cluster**



**Orion spacecraft view of the dark side of the Moon**



**Orion Selfie!**

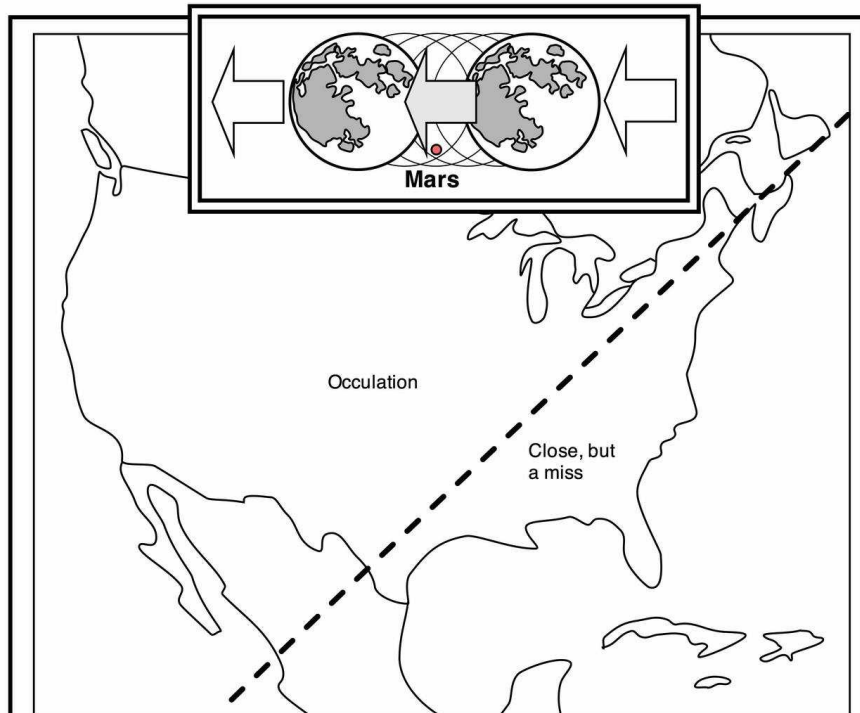
### **The Planetarium Report by Nick Rae**

“Mars: The Exhibition is currently on display at the Peoria Riverfront Museum, centered on a 3 x 3-meter inflated, illuminated, and spinning Mars globe by British artist Luke Jerram, and generously donated by Mary Ann & Sheldon Schafer. Alongside the Luke Jerram Mars there is also a slice of a Martian meteorite and life-size replicas of Mars rovers on loan from the Jet Propulsion Laboratory. The exhibition will be up into the spring.

In the Planetarium you can catch our newest show, Living Worlds, playing every day the museum is open at 1:00, with an additional showing at 4:00 on Friday, Saturday, and Sunday. The fulldome show is produced by the California Academy of Sciences and explores the search for life beyond on Earth.”

# Dont miss the Occultation of Mars

If you can see only one celestial event this December, see this one.



Occultation of Mars occurs northwest of a line drawn from Augusta, ME through Columbus, OH through Little Rock, AR, and through San Antonio, TX

## Full Moon occults Bright Mars

In the evening hours of **Dec. 7**, the brilliant full moon passes in front of bright Mars, which is at opposition, for viewers west of a line drawn from August, ME through San Antonio, TX. It may not be easy to see because of the moon's bright glare!

Approximate local times of disappearance and reappearance. Begin viewing a few minutes before listed disappearance time. Mars' time and position of reappearance is hard to judge since the planet lies concealed behind the moon beforehand.

City	Disappearance	Reappearance
Augusta	10:57	11:25
Austin	8:58	9:12
Buffalo	10:32	11:13
Chicago	9:10	10:04
Columbus	10:26	10:56
Denver	7:45	8:47
Indianapolis	10:16	10:56
Kansas City	8:57	9:51
Little Rock	9:06	9:32
Los Angeles	6:31	7:30
Phoenix	7:32	8:30
Salt Lake City	7:42	8:45
San Antonio	8:59	9:07
San Francisco	6:36	7:35
Seattle	6:53	7:50



Occultations demonstrate the moon's eastward orbital motion as Earth's rotation causes it to move in a westward arc across the night sky.



It will take only 30-45 seconds for Mars to disappear so get out the scopes and binoculars to view this. I have not found how long it will take to reappear and have information from 30 minutes onward depending on where you are at for observing.

It will take about 1 hour for Mars to reappear.



## Egypt Solar Eclipse Tour 2027



Witness the longest total solar eclipse remaining in the 21st century while exploring Egypt and the Nile River. The weather prospects for eclipse day, August 2, 2027 are excellent for viewing this eclipse from Luxor, Egypt. Luxor is near the eclipse centerline and the point of maximum eclipse duration 6m23s where the sun will be high overhead.

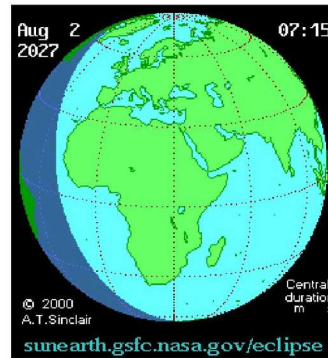


Luxor is located on the Nile River and was known as the ancient city of Thebes. It was the capital of Upper Egypt during the New Kingdom between the sixteenth century BC and the eleventh century BC. The pharaohs covered the banks of the Nile with vast tomb structures and mammoth buildings the likes including the Temple Complex of Karnak, the Tomb of Ramses IV in the nearby Valley of the Kings, the Luxor temple and Temple of Deir el-Bahri, among others.



Eclipse information for Luxor, Egypt:

Latitude		25° 41' 56.148" N	
Longitude		32° 38' 31.56" E	
Altitude		89 m	
Eclipse start time	<b>1st Contact</b>	10:40:07	local time
Sun's altitude when eclipse begins		71°	
Total eclipse begins	<b>2nd Contact</b>	12:01:57	local time
Time at maximum eclipse		12:05:07	
Sun's altitude at maximum		82°	
Sun's azimuth at maximum		196°	
Sun percentage covered		107.9%	
Total eclipse ends	<b>3rd Contact</b>	12:08:17	local time
Total eclipse duration		6m20s	
Eclipse end time	<b>4th Contact</b>	13:26:24	local time
Sun's altitude when eclipse ends:		68°	



Besides prime viewing of a total solar eclipse, this tour will include visiting sites such as Cairo, the Great Pyramids, the Spinx, a multiday Nile River Cruise, and myriad sites in Luxor. Accommodation will be the best Egypt has to offer with many meals included.



Leading this tour will be Dr. James Dire, an astronomer who has been leading solar eclipse tours for more than two decades, and Patrick Dare, a veteran international travel coordinator. Yes, those are our real names and we both were raised in St. Joseph, Missouri where we observed the Great American Solar Eclipse on August 27, 2017. We both have sisters named Carol Ann Dire (Dare's sister married Dire's brother) who were in the same second grade class at John Glenn Elementary school confusing the teacher immensely. This is all very spacy and we are all still very confused on names. But if you are the first person signing up for this tour with a last name Dere, Dore or Dure, you will be able to bring your sister for free if her name is Carol Ann. For more information on [Dare](#) or [Dire](#) click here on their names.

[Click here for the tour itinerary.](#)

[Click here for tour costs and to sign up.](#)

[Click here for Terms and Conditions.](#)

**Dare and Dire Eclipse Tours**  
**Saint Joseph, Missouri, USA**  
**(816)390-6733**

**Email Patrick Dare**  
**pdare1@mindspring.com**

**Email James Dire**  
**titan4jim@gmail.com**



---

**Peoria Astronomical Society, Inc.**

P.O. Box 10111, Peoria, IL 61612-0111  
Section of Peoria Academy of Science  
Affiliate of the Astronomical League

[www.astronomical.org](http://www.astronomical.org)

---

## 2023 DUES NOTIFICATION

Your support of the **Peoria Astronomical Society** has been greatly appreciated !!  
Please select the membership of your choice for your 2023 dues:

- Regular Membership - \$40.00
- Patron Membership - \$50.00 or greater

- Patron membership includes regular Membership status and the sincere gratitude of the Society.
- Membership includes everyone in your immediate family.
- Membership includes membership in the Peoria Academy of Science.
- If you joined PAS after September 30, 2022, you do not need to pay for 2023. You will be carried over.
- Any amount paid more than \$40.00 is tax deductible.
- If your employer has a Matching Gift Program, please consider taking advantage of it to multiply your gift over \$40.00.

➔ ***Payment is due by January 1, 2023***

Please make checks payable to:  
Peoria Astronomical Society, Inc

Mail to:  
Peoria Astronomical Society, Inc.  
Attn: Treasurer  
P.O. Box 10111  
Peoria, IL 61612-0111

Thank you again for your continued support of the Peoria Astronomical Society!! We look forward to seeing you at monthly meetings and at our Star Parties.

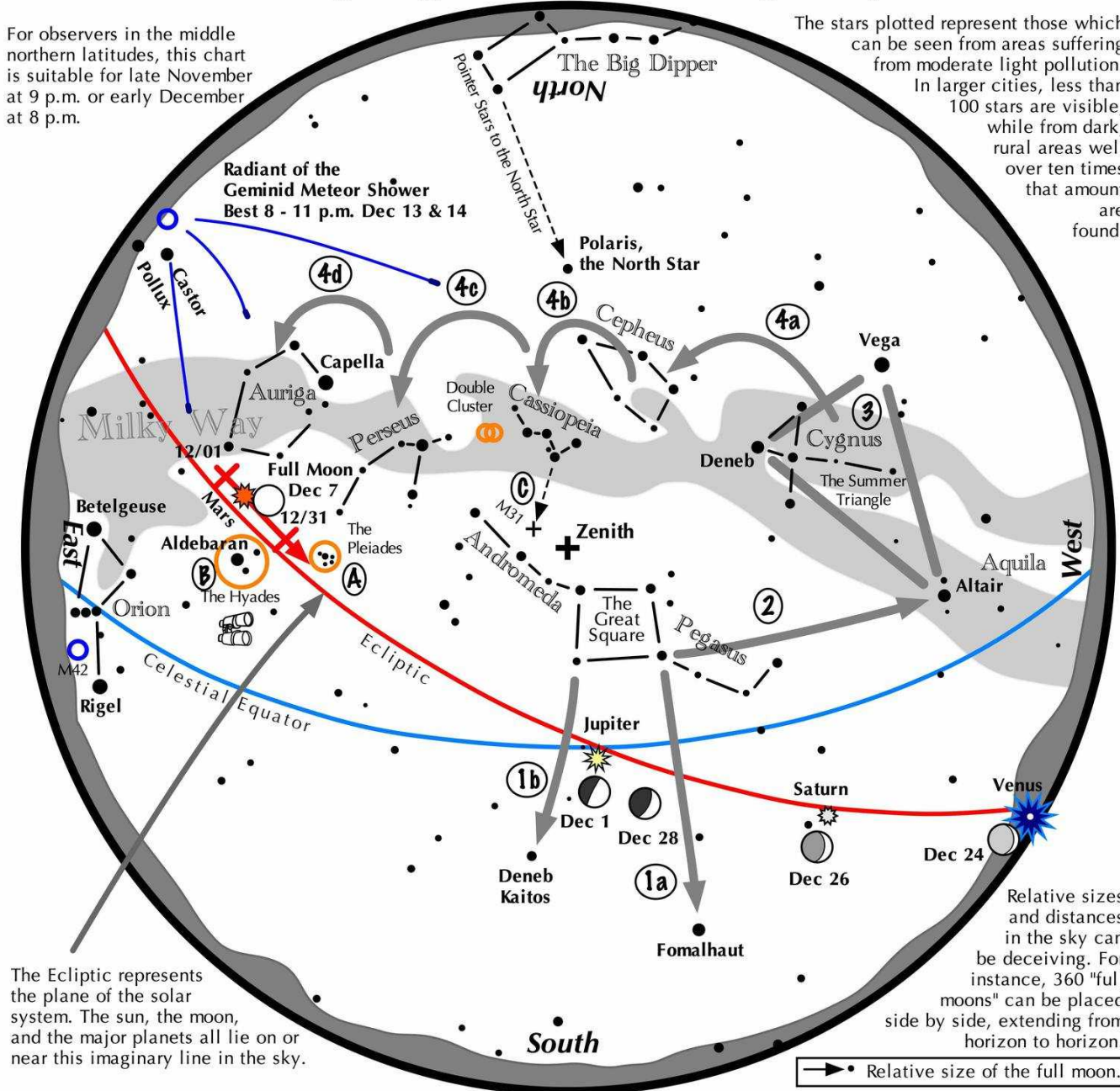
Dave Monroe  
Treasurer



# Navigating the December Night Sky

For observers in the middle northern latitudes, this chart is suitable for late November at 9 p.m. or early December at 8 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

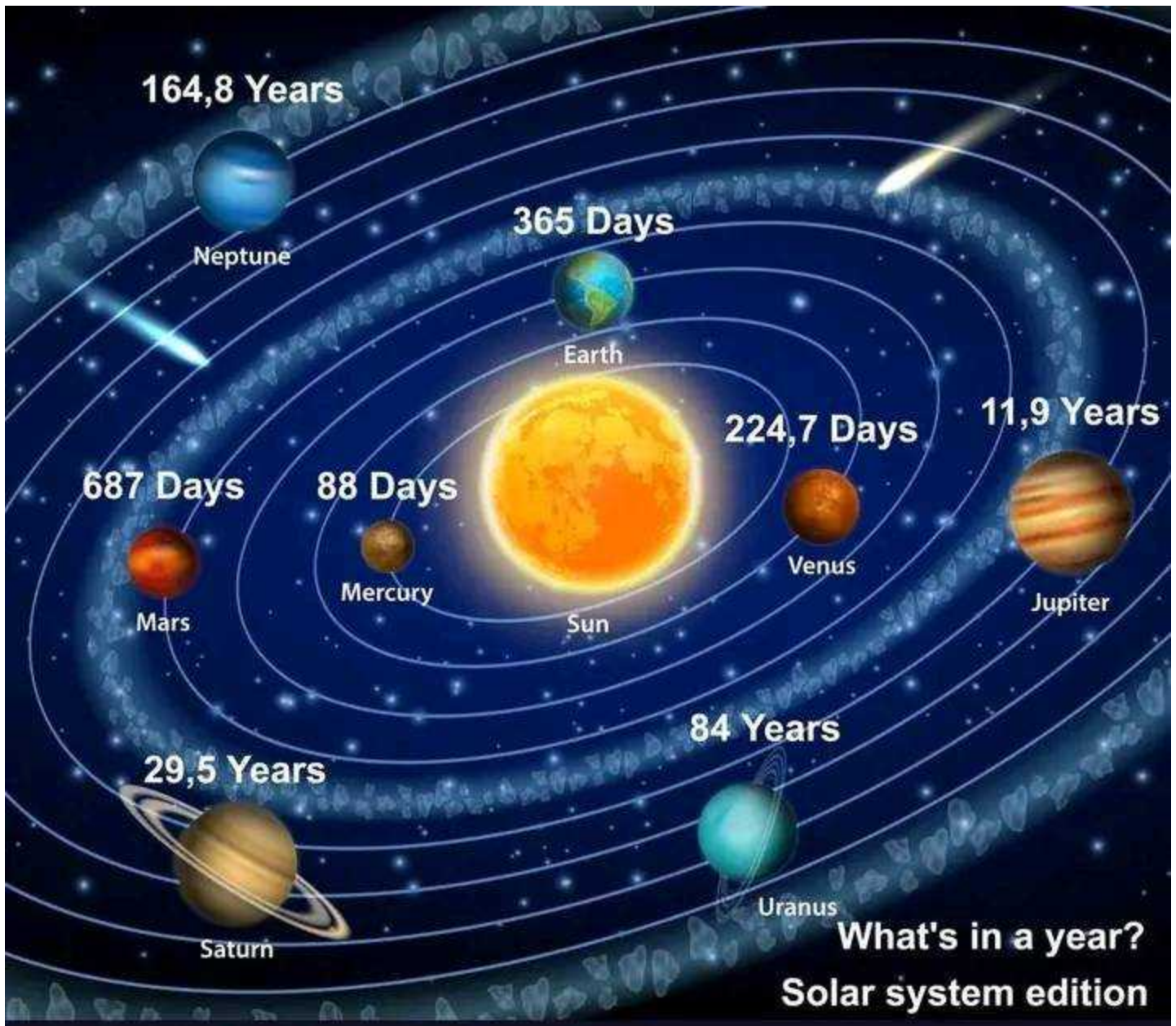
## Navigating the December night sky: Simply start with what you know or with what you can easily find.

- 1 Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the southwest. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second bright star in the south.
- 2 Draw another line, this time westward following the southern edge of the Square. It strikes Altair, part of the "Summer Triangle."
- 3 Locate Vega and Deneb, the other two stars of the "Summer Triangle." Vega is its brightest member while Deneb sits in the middle of the Milky Way.
- 4 Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, to Perseus, and finally to Auriga with its bright star Capella.

### Binocular Highlights

- A and B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters.
- C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.
- D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas.





What happened to those CubeSats that were launched with Artemis I?

<https://phys.org/news/2022-11-cubesats-artemis.html>

Artemis I releases 10 CubeSats, including a Moon lander for technology and research.

<https://www.nasaspaceflight.com/2022/11/artemis-i-cubesats/>