



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

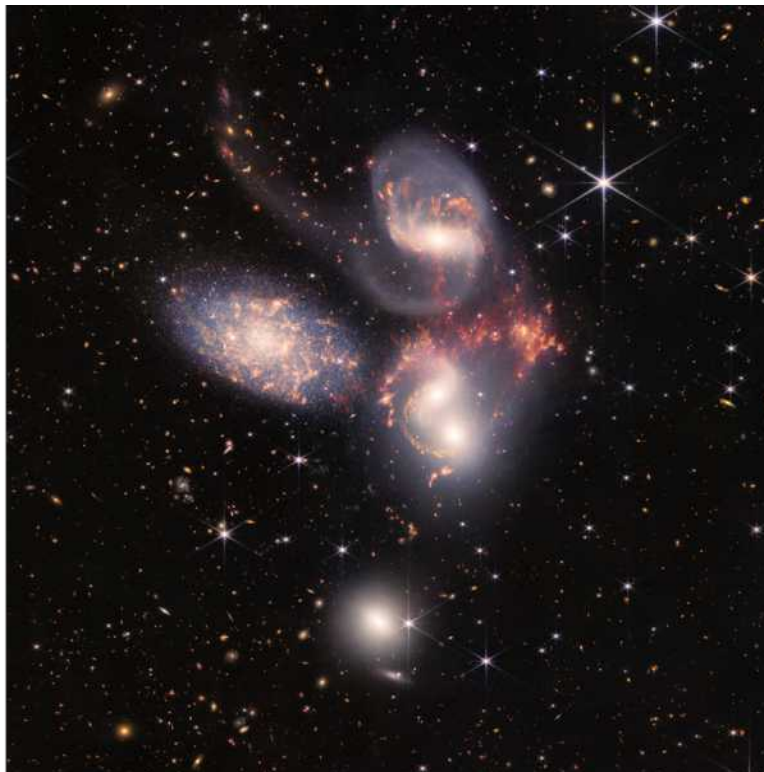
STARLITE

Fall, 2022

WHAT'S IN THIS ISSUE?

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2022 Meteor Shower & Comets
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25 & 50 years ago

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Reflector Magazine & NCRAL info
Programs for 2022 & 2023
Events & Star Parties coming near you
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The Planetarium Report
Northmoor & Jubilee Schedules



JWST image of Stephens Quintet

Officers:

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

Directors:

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

PEORIA ASTRONOMICAL SOCIETY IS NOW ON FACEBOOK:
www.facebook.com/PeoriaAstronomicalSociety

Update your address, phone or email changes

Please notify Dan Son at 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. He would also like to receive any changes to your e-mail address as this is part of his database.

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 with your e-mail address (for in-club use only – not given out to other sources). He does not need your mailing address or phone number. If you are not a member of the e-group, you may want to consider joining.

NEW MEMBERS:

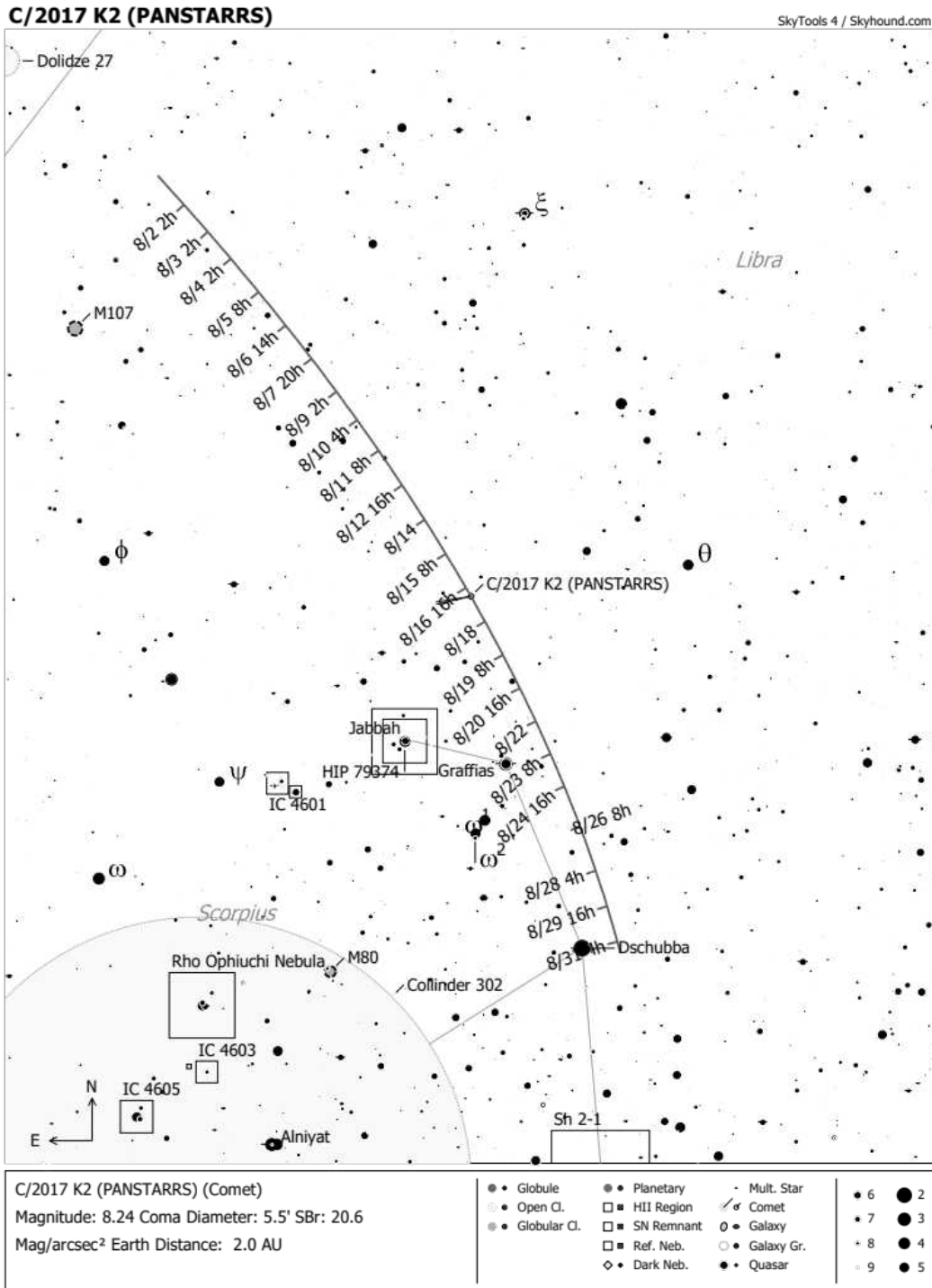
The Peoria Astronomical Society welcomes new members: **James Copes** and **Nick Rae**

2022 Meteor Shower Schedule:

The Leonids meteor shower peak is November 17-18, 2022 and the Moon will be 36% full.

Comet Hunting:

C/2017 K2 (Panstarrs) is in Ophiuchus at magnitude 9.7 and should brighten a little by months end. Information from <https://cometchasing.skyhound.com>



Finder chart for comet c/2017 K2

Presidents Ramblings:

Summer is passing by so quickly that if you didn't get the scope out, what awesome views did you miss?

I hope you are planning to attend the Banquet on September 18th at Avantis on Knoxville. What a great way to meet members and enjoy our love of All Things Astronomy. More information on the Banquet in this starlite. We have lots of observing opportunities coming this fall, Havana Public Star Party, Illinois Dark Skies Star Party, Observe the Moon Night at Northmoor and more! I am looking forward to Fall, we start meeting again at the Riverfront Planetarium and see some great programs that Sheldon Schafer has worked set up for us. If you don't come out to the Programs you are missing a great opportunity to a great building, and an awesome show and get to meet Renae Kerrigan who does a great what's up in the sky adventure.

I want to thanks all the helpers and keyholders for Northmoor and at Jubilee to make public observing a possibility for so many people. When I think about everything that make PAS work, it takes a lot of volunteers from our membership to have a great adventure. Please consider volunteering to Northmoor and mowing at Jubilee for next year, we need you to continue doing what we do. Thanks Dan Son



Remembering Rich Tennis

Rich was an engaged PAS member for more than 20 years. He joined in the 1990's and was soon involved at Northmoor Observatory.

After the turn of the century he chose to serve on the board of directors as vice president and subsequently as president of the society.

Eventually he and his wife Margo would become honorary members of the PAS.

Rich authored articles for the Starlite and presented at the general meetings. A memorable presentation was of his design and construction of a 17 inch dobsonian he made using a Coulter mirror, Rich was a mechanical engineer after all.

Many members will recall Rich organizing trips to Yerkes Observatory. One such trip included a scheduled viewing through the 40 inch.

Rich invited members to his rural Eureka home for Messier marathons and he and Margo would provide for hospitality. The house was the warm up

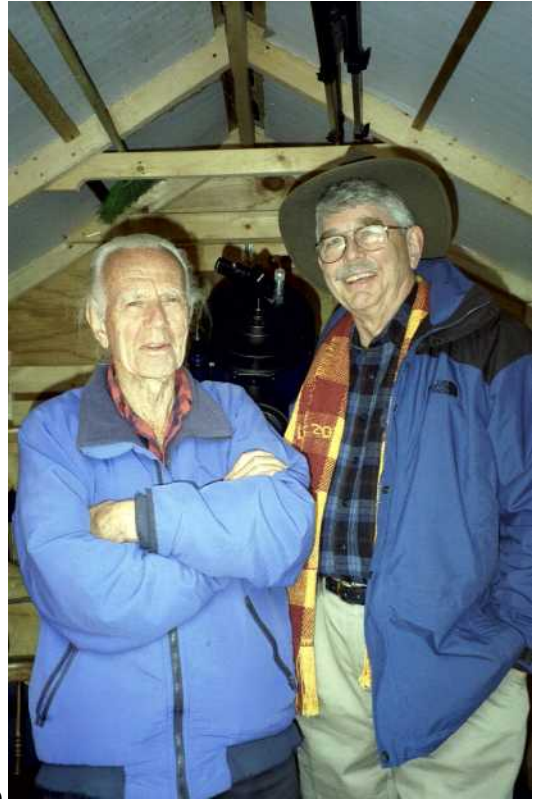
room along with the offer of a glass of wine for those of us interested. Margo was also willing to share her loom collection and weavings which were beautiful. A Messier marathon at the Tennis home was a welcoming event.

A lasting legacy of Riches was the new dome at Northmoor. While fund raising had been an ongoing activity. Rich and Margo were instrumental in writing a grant for the largest single contribution towards the purchase of the dome. With the left over funds president Tennis proposed that the board purchase the Hyperion eyepieces currently in use at Northmoor.

My personal favorite memory of Rich is when he came to my home, before we drove to Yerkes, and my wife demonstrated to Rich how she peeled a pineapple. It must have impressed him as he talked about that for some time.

Rich was always warm and inviting. He relished the night sky and was a willing participant in the Society. He is a great example for us all.

Respectfully,
Brian Hakes



Rich was a joy to be around, either at PAS star parties, members meetings or hearing stories of observing sessions from his roll off roof observatory. He was one to do all he could to help someone or a group, he was generous with his time toward PAS and helping local Boy Scouts earn Merit Badges. If we had not seen each other for a few months, we could always sit for an hour or two and talk about what we had been doing since we had last been together. I will never forget when Rich, Jim Kelly and

myself went to assist the International Dark Sky Association in their booth during a show in Chicago, we talked just about everything driving up and back; in the end he insisted I put some fuel in my car from his 'farm' fuel tank. Rich, I hope your new view of the heavens will always be cloud free, rest in peace my friend.

Tim Lester

Among the many happy times with Rich, I will especially remember the fun sessions with him at his starhouse, particularly during Messier Marathons. It was always a challenge to move my scope from one end of the yard to the other in the middle of the night. Margo made it a little more endurable by always having coffee or hot chocolate available. He will be missed.

John Barra

I have an especially fond memory of the dinner with John Dobson when Rich and Margo so generously hosted him in their home when he came to visit all of us at PAS. Rich gave so much of himself to all that he embraced. He will be missed so very much.

Calene Fleming

So much has been said and is true of Rich Tennis. I so enjoyed his very dark eastern sky, spending long nights out in Eureka observing with him and going inside to visit Margo with her large weaving looms. It was a gift to know both of them and when you look at Northmoor just remember they both did a lot of work it to get that new dome on. PAS has benefited from Rich Tennis for all he has done. Clear skies and great view my friend.

Dan Son

A Primer for the Beginner *Lesson Four: Learning to Starhop*

by John Barra

Lessons One through Three appeared in Starlite Issues #128-130, December 1996-June 1997

The easier it is to find deep sky objects, the more fun you'll have with amateur astronomy. You won't need setting circles or computers. All you'll need is your telescope, a finderscope, and a low power eyepiece. Add some star maps and you're ready to go.

The art of starhopping requires you to locate a naked-eye star near your target deep sky object. Put the star in the center of your finderscope. Then use one of the techniques explained below to locate your object. Any fair finderscope will work; I prefer the Telrad reflex sight because of its versatility. It's non-magnified but has three concentric illuminated rings: 4°, 2°, and 1/2° wide.

I will describe five starhopping techniques using different Messier objects as targets. You should use the lowest power eyepiece with the widest field of view that you have, to make it easier to locate objects. You can then switch to higher power as needed.

IN LINE WITH TWO STARS

The simplest technique is to "hop" from one star to another to your object. M31, the Andromeda Galaxy, can be quickly found using this technique. Aim your finder at the bright star Beta Andromedae. Then move your finder to another naked-eye star above it, Mu Andromedae. Continue to move your finder in the same direction, to a distance the same as the distance between the two bright stars. Now look in your eyepiece and you should see this great galaxy.

BETWEEN TWO STARS

The small globular cluster M80 in Scorpius can be elusive but you should have no difficulty if you use

this technique. Locate the two brightest stars in Scorpius: Antares (Alpha) and Beta. Aim your finder exactly halfway down an imaginary line between the two. M80 should be right there.

Vary this technique. Look at star atlases to see which objects lie on a straight line between two bright stars. Aim your scope the appropriate distance between the two, whether that distance is 1/2 or 1/3 or some other fraction that is easily approximated.

IN A TRIANGLE WITH TWO STARS

While still in Scorpius you can learn another technique by locating the large globular cluster M4. It forms an isosceles triangle with Antares (Alpha) and Sigma.

Aim your finder 1° below the center of a line between Alpha and Sigma, the longest leg, and at a right angle to it. If you have a Telrad, aim it so that the 2° circle touches the halfway point between the two stars. M4 should be in your view.

You can find many other patterns of triangles among two naked-eye stars and a deep sky object. For example, the galaxy M94 is approximately 2° above and at right angle to the halfway point between the stars Cor Caroli (Alpha) and Beta, in Canes Venatici. Place the edge of the largest Telrad circle here.

AT THE INTERSECTION OF TWO LINES OF STARS

Some deep sky objects are not close enough to a naked-eye star to use any of these techniques. However, they usually fall along lines between several pairs of stars that are farther away. Aim your finder where these lines intersect to find your object.

For example, M3 is on an imag-

inary line between Arcturus and Cor Caroli. It is also on a line that connects Epsilon Bootis and Beta Comae (Berenices). Point your scope to where these lines intersect. With a low power eyepiece, you should be able to see the bright cluster almost in the center of your view.

IN THE EYEPIECE

To locate fainter objects, you will need to learn how to starhop through your eyepiece. Find a nearby bright star and aim your finder at it.

Starting with your eye on the eyepiece with the bright star in the center, move the scope while following stars or star patterns to get to your target object.

To find the galaxy M108, aim your finder at Beta Ursa Majoris, the lowest star to the right in the bottom of the Dipper's bowl. You will notice two fainter stars near Beta in the eyepiece. Starting with the one nearest Beta, move your scope to Beta; keep going in the same direction about 2/3 of a degree to a brighter star. Continue on this line, passing two more fainter stars which are an equal distance apart. Follow the last star to another star close to it at a 135° angle. On that line, the same distance away as these last two stars are from each other, is M108. Making a right angle to the south, you will find a bright star 1° away. Within the eyepiece will be M97, the Owl Nebula.

As you become more experienced, get out your star atlas and pick objects to find. Look at the brighter stars or star patterns nearby and determine which technique to use for each object. Then have fun finding them. ☼

NEXT ISSUE: LESSON FIVE: PLANNING AN OBSERVING SESSION

*The easier
it is...the
more fun
you'll
have....*

50 Years ago:

MUSCA BOREALIS - George Triff

It is always interesting to rediscover one of those long, so called "lost constellations". Various charts and books list these star groups that once were recognized from Ptolemy's time (125 A.D.) to about 1800. Then, for some reason, they were dropped from circulation. One such constellation is tiny, Musca Borealis, the "Northern Fly". The Southern Fly, listed on modern charts, is close to the celestial South Pole. This is never seen by observers in the northern hemisphere. But, it is our only officially recognized "Fly".

Musca Borealis last appeared on Flamsteed's chart of 1781. It is shown just above the back of Aries, the Ram. The principle stars are Aries 31, 33, 35 and 39. All are stars of the third and fifth magnitude, extremely dim stars to the naked eye. The group rises in the east at 11 p.m., at this time, and is visible until dawn.

Interestingly, Musca Borealis was also known in early days as Vespa, "The Bee" and "Apis", The Bee. Tracing the name leads to a blank. The origin of Musca Borealis, likewise, is uncertain but probably came about during the time of Ptolemy. The french at one time tried to claim it, giving it the official title of Fleur de Lis, "The Lily", but the idea didn't catch on and, eventually it was dropped from contemporary charts and globes.

cont'd

MUSCA BOREALIS - cont'd

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Musca is in best position for observation during the cold days of December. It culminates on the 17th and can be seen just to the west of the Pleiades. A dark, clear night would be ideal to spot this forgotten insect constellation. Maybe a good time to spot this little glitter would be during a ride far out in the dark areas of the countryside, away from the cities bright glare.

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 or Dan Son 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. 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:

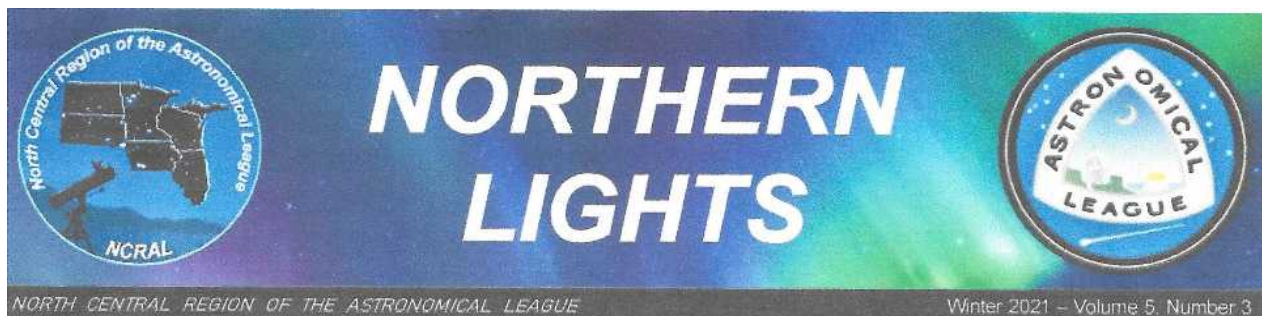
Reflector Magazine digital edition is available for download

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 (speakers via Zoom) Again please note the new time we will be starting..7pm.

October 5, 2022 NASA & Planetary Defense

Rob Landis, NASA

Planetary defense entails detecting, monitoring, understanding, and mitigating near-Earth objects, also known as NEOs. NEOs are small objects in our solar system such as asteroids and comets that come close to and could pose a threat to Earth.

November 2, 2022

Dean Regas, Cincinnati Public Observatory.

Archaeoastronomy + Historic Midwestern Observatories

December 7, 2022

2022's biggest astronomy news – the ongoing stories

Dr. Shannon Schmoll PhD, Abrams Planetarium, MSU

January 4, 2023 No Meeting in January

February 1, 2023 New Full Dome Show

March 1, 2023
observe

The October 14, 2023 Eclipse + Sharing of members' plans to

April 5, 2023

Titan! Dr. James Dire

May 3, 2023

Astro-Jeopardy II Brian Bill

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.

Events Coming near you!

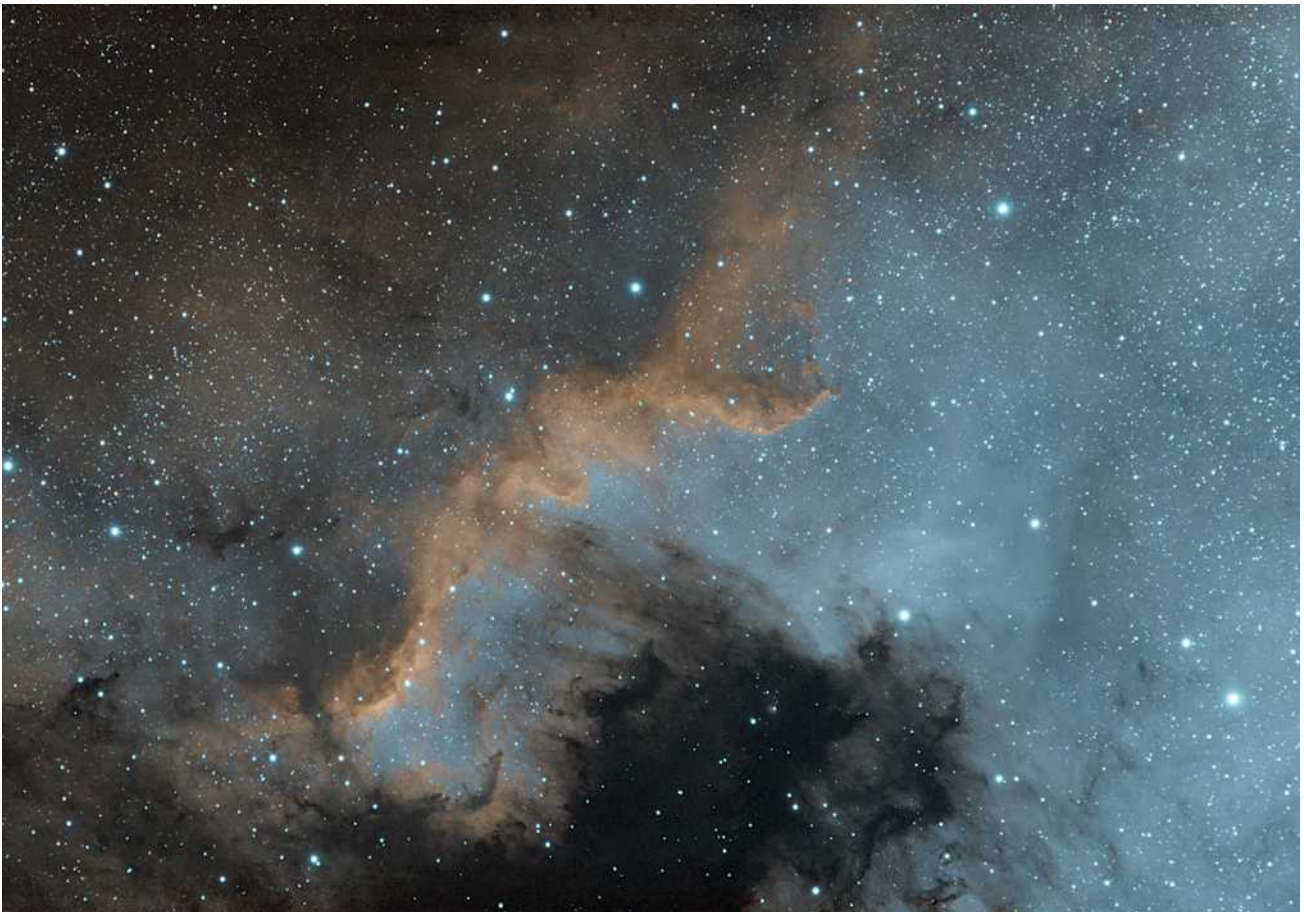
2022 Illinois Dark Skies Star Party September 22-25 at Jim Edgar Fish and Wildlife Area about 31 miles from Springfield, IL. Registration form: <https://sas-sky.org/wp-content/uploads/2022/06/2022-IDSSP-Registration-form.pdf>

I have done this star party many times and it is great, they have meals at a reasonable cost, Dark skies in a beautiful state park. Many people with different scopes and a lot of astro-photographers included. Well worth the time and cost.

Hanavna Star Party (Fly-in & Star Gazing) Friday September 16 at Havana Regional Airport. This is new to me and has been going on for a few years. They need scopes for the public viewing (have asked Sangamon, Twin Cities, PAS). They will provide members with dinner and breakfast if we want to stay all night. This is sure to be dark skies and sounds exciting.

October 1st at Northmoor Observatory is Observe the Moon Night sponsored by the Peoria Public Library. I am hoping a few members will come down with scopes or use or scopes and show off the night sky to the public including the Moon.

Photos from Members



Cygnus Wall in NGC7000 4 hours by J Nowack



Comet K2 Panstarr near M10 by J Armstrong



Lunar Eclipse by Brian Bill

The Planetarium Report by Renae Kerrigan

This fall and winter, the Peoria Riverfront Museum will be featuring an exhibition on Mars that members of the Peoria Astronomical Society may be interested to see. The exhibit will include a highly realistic artwork of Mars created by British artist Luke Jerram, made using images from the Mars Reconnaissance Orbiter. Full sized models of the Sojourner and Spirit rovers will be featured, as well as an abundance of pop culture items related to Mars exploration. The exhibit will open October 7 and be up until mid-April, 2023.

In the planetarium, we will be showing a new fulldome film, Living Worlds, a beautiful immersive film that discusses the search for life beyond Earth. We also are starting a Planet Passport Series – sign up for a passport, and collect a stamp for each show you attend on the different locations in our Solar System!



Northmoor Hosting Schedule Dates for 2022

Sept 03	Terry Bachler	Rodney Nordstrom	Larry Reeves
Sept 10	John Lyle	Dave Grebner	Trent Widmer
Sept 17	Bob Pauer	Jesse Hoover	John Manney
Sept 24	Phil Burroughs	John Lyle	Brian Austin
Oct 01	Terry Beachler	Rodney Nordstrom	Larry Reeves
Oct 08	Gerald Horst	Trent Widmer	John Manny
Oct 15	Dan Son	Elias Samaha	Brandt Bechtold

If you have a conflict with any dates, let me know as early as possible and ask the Northmoor group for help to switch dates with another member. Everyone has 4 dates this year with 22 weekends and Bold print is full Moon weekend. Thanks Everyone.

Jubilee Maintenance Schedule:

September 3rd Jesse Hoover & Gary Bussman

September 10th Brian Bill & Brandt Bechtold

September 17th John Crow & Steve Russell

September 24th Jesse Hoover & Dan Son

Responsibilities:

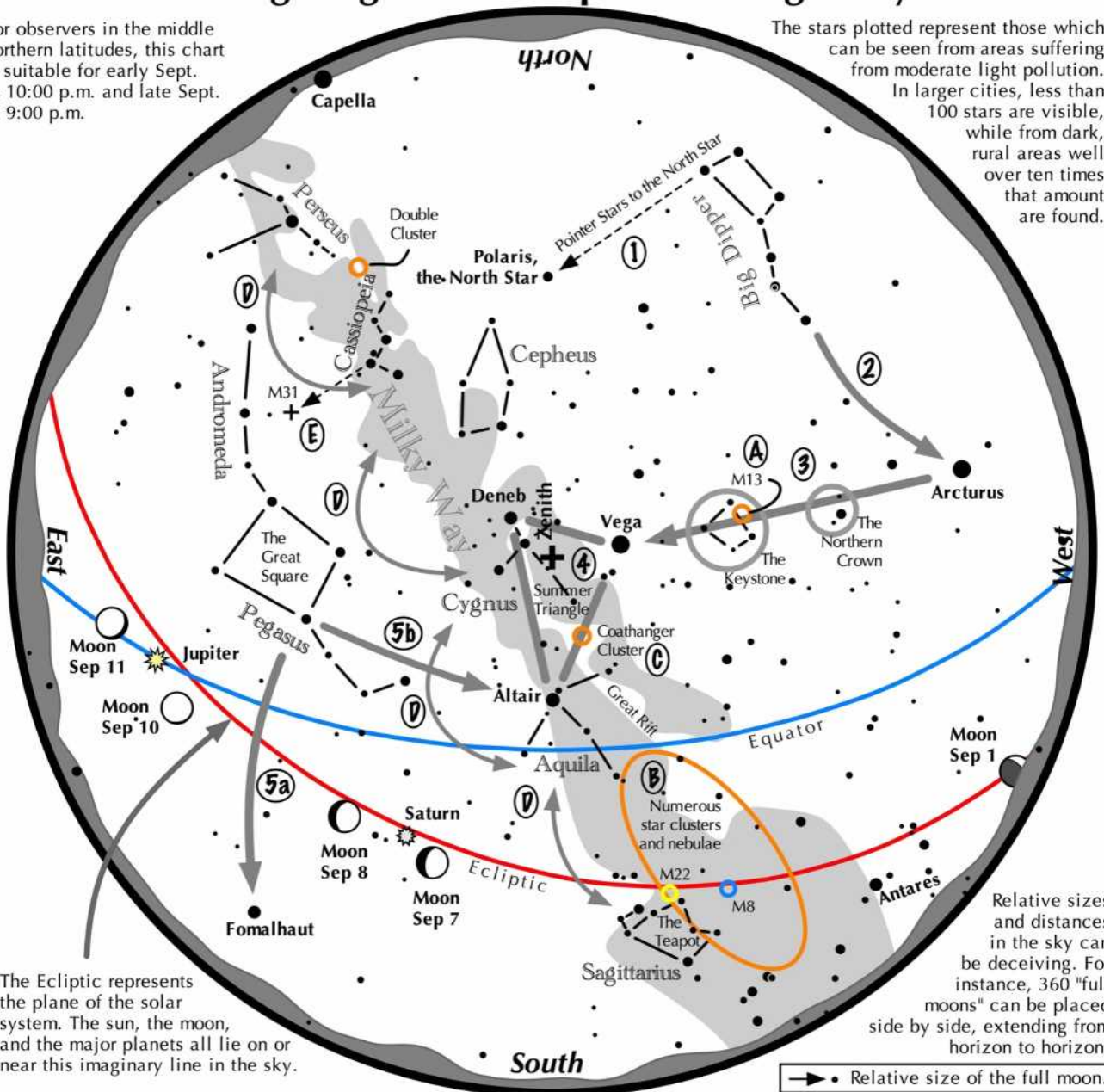
- * Check each building to ensure security of equipment.
- * Sweep floors, mow lawn and trim around buildings, blow or sweep off grass clippings from walkways.
- * Mowing once a week will help prevent clumping and the need to sweep up clumps.
- * Bring gas to top off mower tank. Currently there is no line trimmer at Jubilee.
- * Since only two people are scheduled each week, it is imperative they ensure that someone goes to Jubilee and perform scheduled tasks.
- * Please notify me of any schedule conflicts or problems with the equipment.

Jesse Hoover: 309-258-0343

Navigating the mid September Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Sept. at 10:00 p.m. and late Sept. at 9:00 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 mid September night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the September evening sky.
- 3 Nearly overhead shines a star of similar brightness as Arcturus, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 The stars of the summer triangle, Vega, Altair, and Deneb, shine overhead.
- 5 The westernmost two stars of the Great Square, which lies high in the east, point south to Fomalhaut. The southernmost two stars point west to Altair.

Binocular Highlights

- A:** On the western side of the Keystone glows the Great Hercules Cluster.
- B:** Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- D:** Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
- E:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.



Fly-in & Star Gazing

Havana Regional Airport 9I0
Friday, September 16, 2022

Fly-in and Camp at the airport

*Cook out Friday Night and
Breakfast Saturday for Fly-In campers*

*Telescopes and night sky guidance will be
provided by the Peoria Astronomical
Society and other volunteers.*

The Public is Welcome to attend this event



**Please arrive before dusk. Per NOTAM field lights
will be turned off that evening**

The airport is equipped with bathrooms and showers and has a Courtesy car for those wishing to spend the night in town. Check Airbnb for lodging

For more information call 309 253-3300 or 309 397-6926