

The title "Event Horizon" is rendered in a large, white, outlined font. The letter "E" is stylized to resemble a radio telescope dish antenna.

Event Horizon

**Volume 30, Number 10
October 2023**

Important HAA Council Update

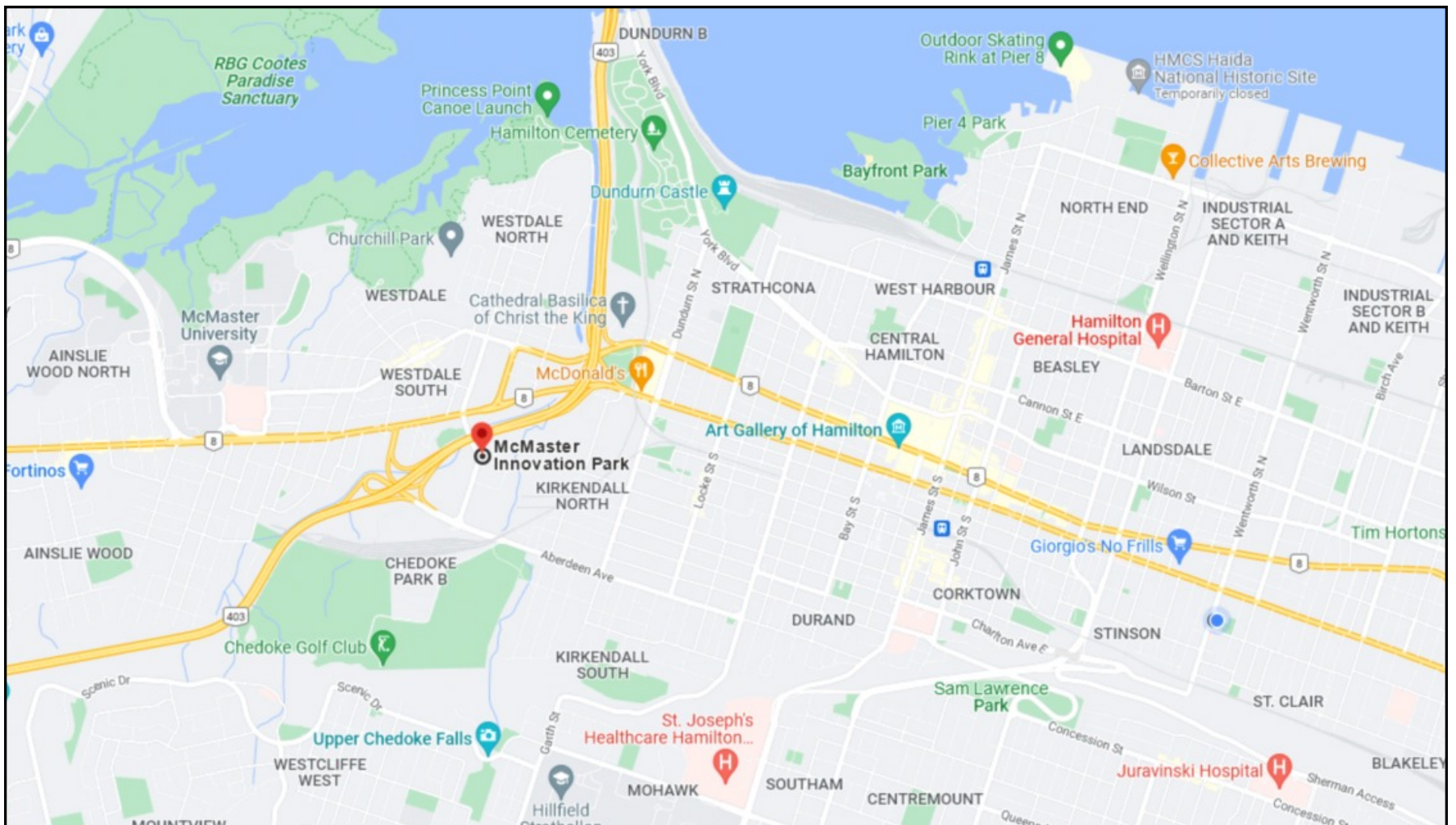
HAA Council must regretfully inform the membership that for personal reasons, Bernie Venasse has resigned from his position as HAA Chair and from Council.

Council wishes to extend their heartfelt thanks to Bernie for all of the time and effort that he has contributed to the club over the years both on Council and off.

— HAA Council

IN THIS ISSUE:

- Announcements
- HAA Explorers
- The Sky for October 2023
- What's Up in Awards? October-November 2023
- NASA Night Sky Notes
- Eye Candy
- Upcoming McCallion Planetarium Shows
- Upcoming Events
- Contact Information



Our next meeting

Our upcoming meeting is scheduled for October 13th, 2023.

We will hear from *Brother Guy Consolmagno*, the Director of the Vatican Observatory. A native of Detroit, Michigan, he earned degrees in Planetary Science from MIT and the University of Arizona. He was a research fellow at Harvard and MIT, served in the US Peace Corps (Kenya), and taught university physics before entering the Jesuits in 1989. At the Vatican Observatory since 1993, in 2015 Pope Francis appointed Dr. Consolmagno director of the Vatican Observatory.

Br. Guy's research explores connections between meteorites, asteroids, and the evolution of small solar system bodies. Along with more than 250 scientific publications, he is the author of a number of popular astronomy books, most notably *Turn Left at Orion* (with Dan Davis).

Topic: What's Surfacing About Bennu?

"The recent NASA mission to asteroid Bennu, OSIRIS-REx, which is bringing back samples gathered on its surface, discovered a surface that, on the surface, doesn't make sense: it's covered with boulders, but it absorbs heat like a powder. What's going on and how did it get that way? Our measurements of the most likely analog meteorite type, CM carbonaceous chondrites, suggests a surprising answer."

Our meeting will be at McMaster Innovation Park. MIP is located at 175 Longwood Rd. S. in Hamilton. Doors open at 7:00 and the meeting begins at 7:30.

Masthead Photo: *Galaxy NGC 7331 and Stephan's Quintet in Pegasus, by Pavle Culum.*

Taken through his SkyWatcher 190 MN scope with an ASI533MC camera. Total imaging time: 14 hours.

Membership Renewal Reminder

Kind Reminder The Annual Membership is Coming due October 31 please Remember To Renew.

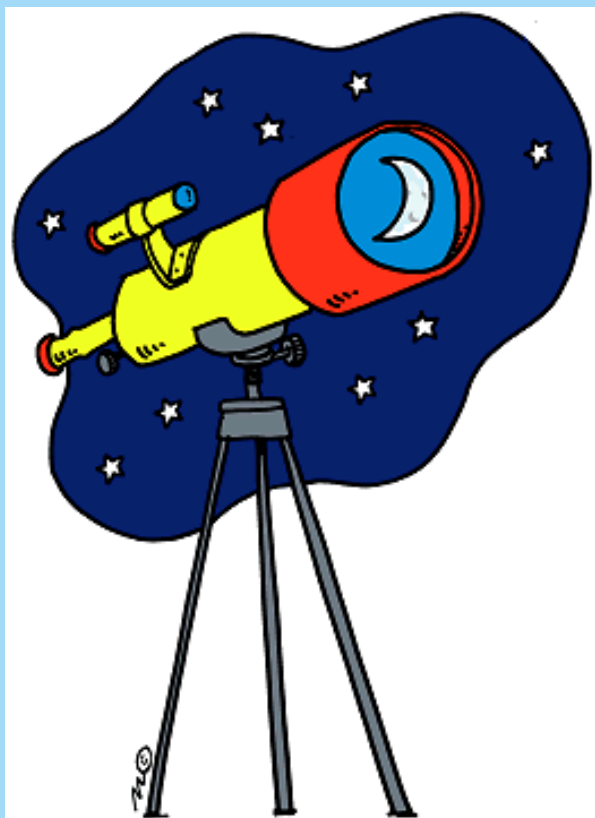
Any Questions please email: Membership@amateurAstronomy.org

If you do not hear back from me your email may not have come through please use
Paula.owen2005@gmail.com

– Paula Owen, Membership Director, H.A.A

<https://www.amateurastronomy.org/membership/>

HAA's Loaner Scope Program



We at the HAA are proud of our Loaner Scope Program. It allows members who don't own a telescope to get more up close with the night sky, and it allows members to explore different types of telescopes! Paid members are welcome to borrow a telescope for one month.

We have telescopes of varying expertise levels, a MallinCam, a spotter scope and various eyepieces.

Please visit the HAA website for more information!

If you are interested in borrowing a scope, please contact Paula Owen at

loanerscope@amateurastronomy.org.

Telescopes are loaned out on a first come basis.

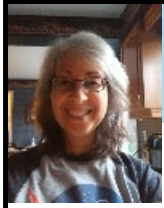
HAA Helps Hamilton



The H.A.A. is once again accepting and collecting donations from our members and guests for local food banks at our general meetings.

The H.A.A. has always valued its relationships with food banks in the community, particularly [Hamilton Food Share](#).

If you can't make an in-person meeting, you can make a donation directly to your local food bank.



...A column for young astronomers - and those young at heart!

Last month we explored light and shadows. We began exploring what an eclipse is. This month we will take a closer look at types of solar eclipses. And guess what!? There will be a chance for you to experience one this month on October 14th! Let's go!

Exploring Eclipses!

First, a Safety Warning! The Sun is so bright that even a few seconds of looking at it can cause severe damage and you could lose your eyesight. **DO NOT** look directly at the Sun. The same goes for adults, so make sure they know, too! Astronomers use special filters which allow them to study the Sun. We will explore more about safety in upcoming articles.

Now we know that light and shadows are involved with eclipses. A few other things are needed for eclipses to happen. In our case, the Sun, Moon and Earth play a part in any eclipse. AND, they all need to line up a certain way! The most interesting thing to know is that the Moon is just the right distance from Earth to cover the Sun during a total eclipse. Here are some math facts: The Sun is 390 times larger than the size of the Moon; and it is also 390 times farther from Earth than the Moon. This makes the Sun and the Moon appear to be the same size in our sky. *Fun Fact:* The Moon is moving slowly away from Earth and in about 600 million years, it won't completely cover the Sun during a total eclipse.

Let's explore what types of eclipses occur when the Earth, Moon and Sun line up in different ways.

In example number 1, the Sun, Moon and Earth line up just right, and if we are in the Umbral shadow (see last month's article!) on Earth, it would be a Total Solar Eclipse. What we would see is the Moon completely covering the Sun. This will happen on April 8, 2024 in our area! More on this next month!!

In example number 2, the Moon is further away from Earth. The Moon's orbit around Earth is not a circle and more like an oval, so sometimes it is closer to Earth and sometimes it is further away. This type of

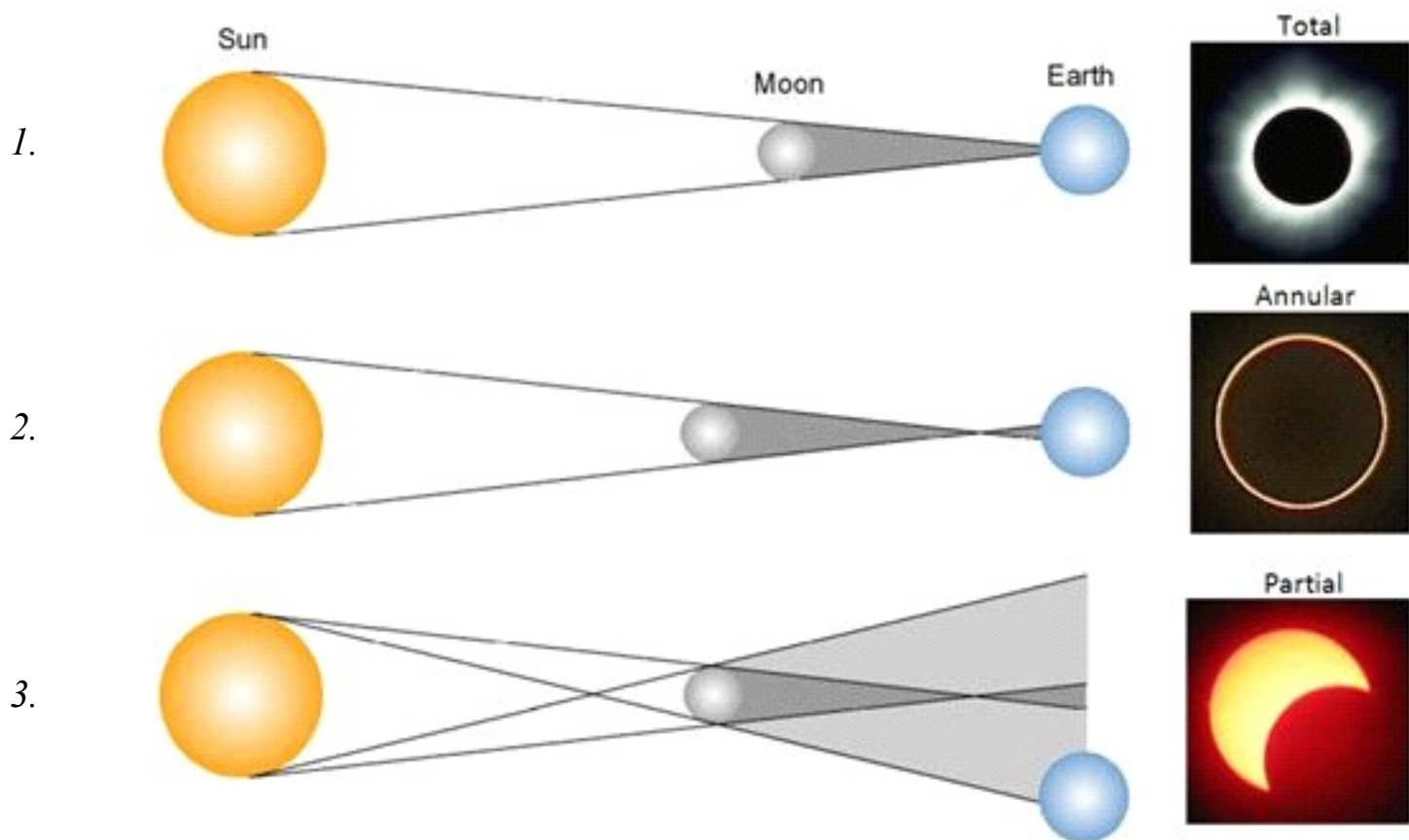


Image Credit: Pinterest

(Continued on [page 5](#))

HAA Explorers (continued)

eclipse is called an Annular Solar Eclipse. The word Annular in Latin means “Ring”, which is what this eclipse looks like...a light ring around the dark Moon.

In example number 3, The Sun, Moon and Earth do not line up in a straight line. The Earth falls in the Penumbral shadow (see last month’s article). This is called a Partial Solar Eclipse.

Depending where we are in the shadows, we might experience a combination! For example, we could be in the Penumbral shadow during an Annular Eclipse. This is what will happen on October 14th, 2023, in our area! More on this in a minute, but first...

What type of eclipse is it if the Earth is between the Sun and the Moon?

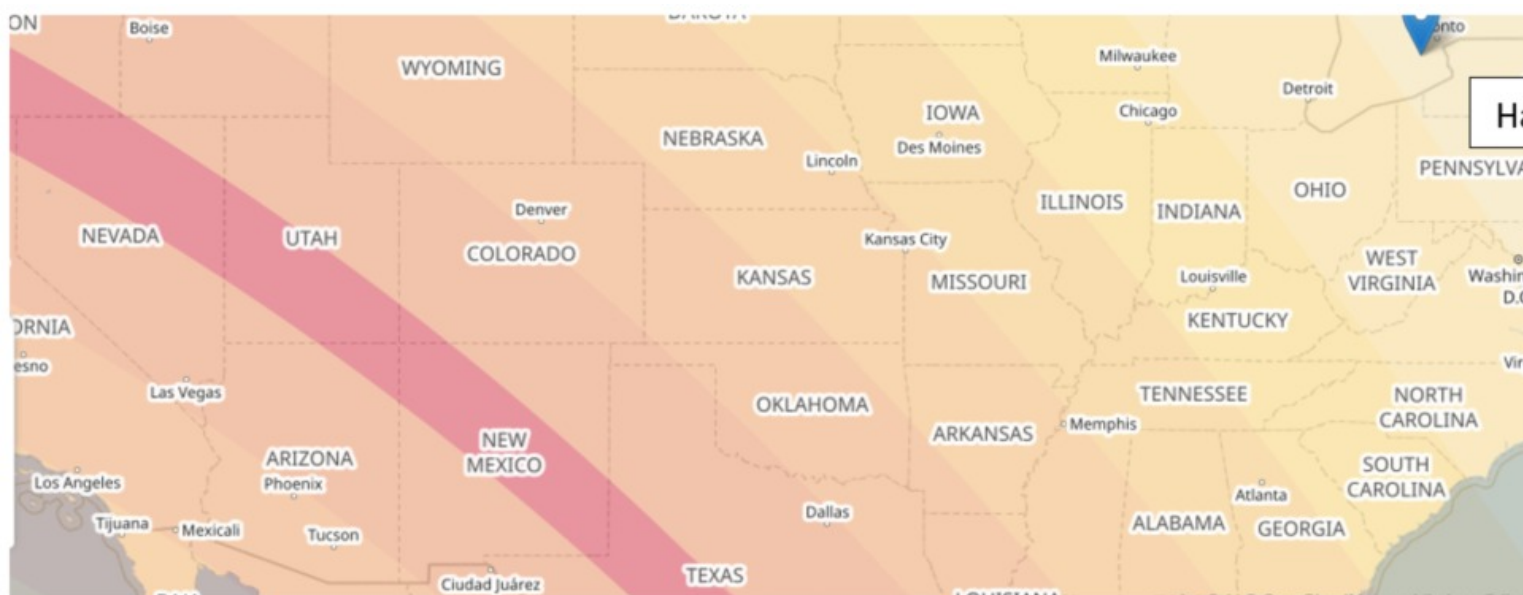
Lunar Eclipse

We will explore this type of eclipse in a future article!

Where will you be on October 14th this month? That will determine what you will see with the Annular Eclipse! If you will be in Albuquerque, New Mexico (along the dark red path on the map), you would see an Annular Solar Eclipse as pictured above. However, if you will be here in the Hamilton, Ontario area, you will see a Partial Annular Solar Eclipse. The further away from the red path of the Moon’s shadow, the less of the Sun is covered by the Moon.

So, on October 14th between Noon & 2:30pm, you may or may not notice any changes to the brightness of the day, because only about 1/3 of the Sun will be covered. ***The most important thing to know: DO NOT LOOK at the Sun during this Partial Eclipse!!! Make sure your adults know this as well! Check out this [website which shows you how to make a projector to see the eclipse safely](#). Another option is to wear Solar Eclipse Glasses if you have them. They are not the same as sunglasses and are specially made for looking at the Sun.*** More on ways to safely watch solar eclipses in upcoming articles.

See you next month where we will explore Total Solar Eclipses in more detail!



Hamilton



Hamilton, Ontario, Canada

Partial solar eclipse visible (28.18% coverage of Sun)

Magnitude: 0.4015

Duration: 2 hours, 31 minutes, 34 seconds
Partial begins: Oct 14 at 11:54:26 am
Maximum: Oct 14 at 1:09:21 pm
Partial ends: Oct 14 at 2:26:00 pm

Times shown in local time (EDT)

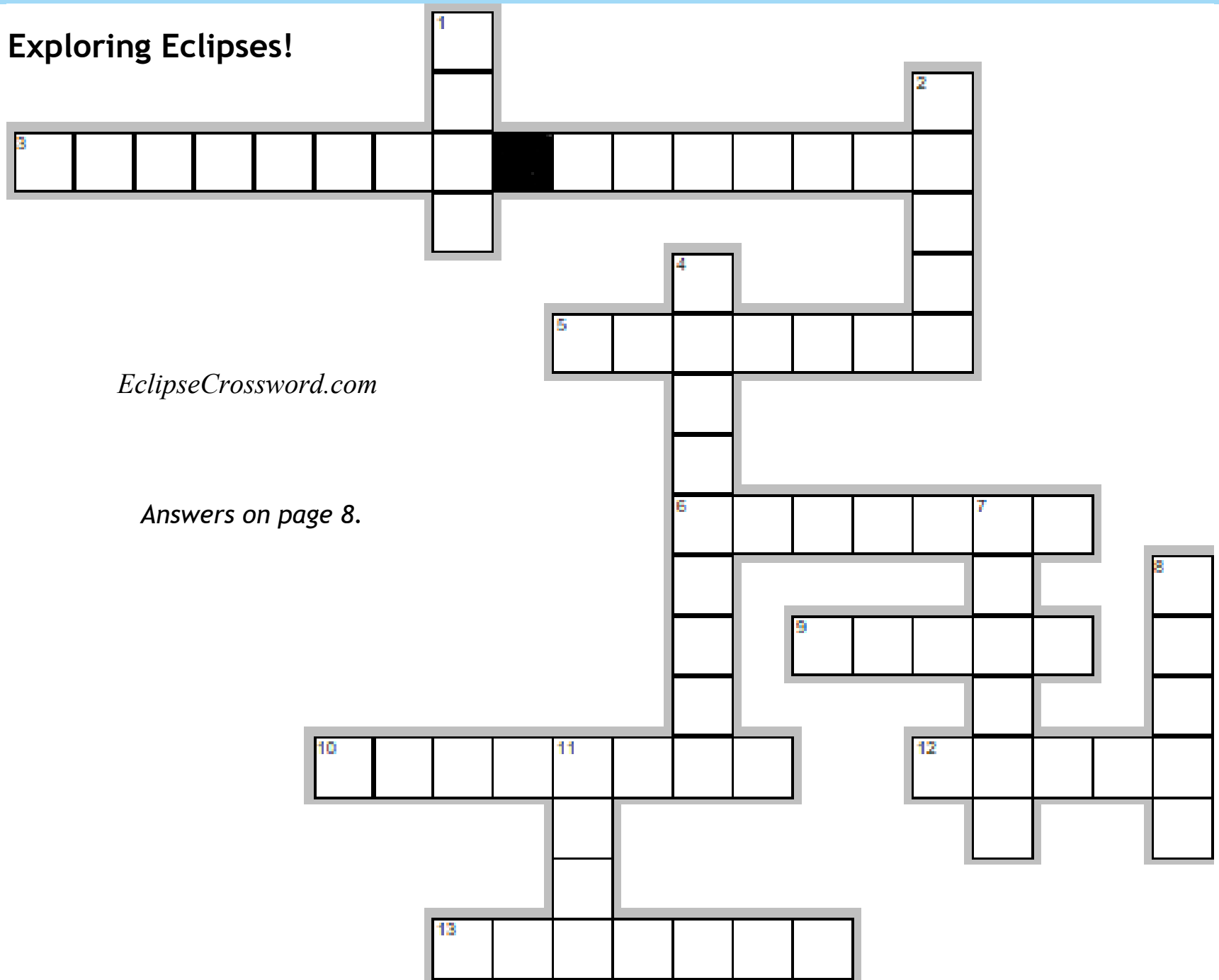
This day was cloudy 67% of the time (since 2000)

Images Courtesy: TimeAndDate.com

(Continued on [page 6](#))

HAA Explorers (continued)

Exploring Eclipses!



EclipseCrossword.com

Answers on page 8.

Across

Across

3. Where is one place you will see a Partial Eclipse on October 14th 2023?
5. Only a part of the Sun is covered during this eclipse.
6. Greek word meaning "abandonment" or "lack of".
9. This type of eclipse happens when the Earth is between the Sun and the Moon.
10. The lighter shadow next to the Umbra shadow.
12. Another word for Sun.
13. The Sun is not completely covered during this type of eclipse.

Down

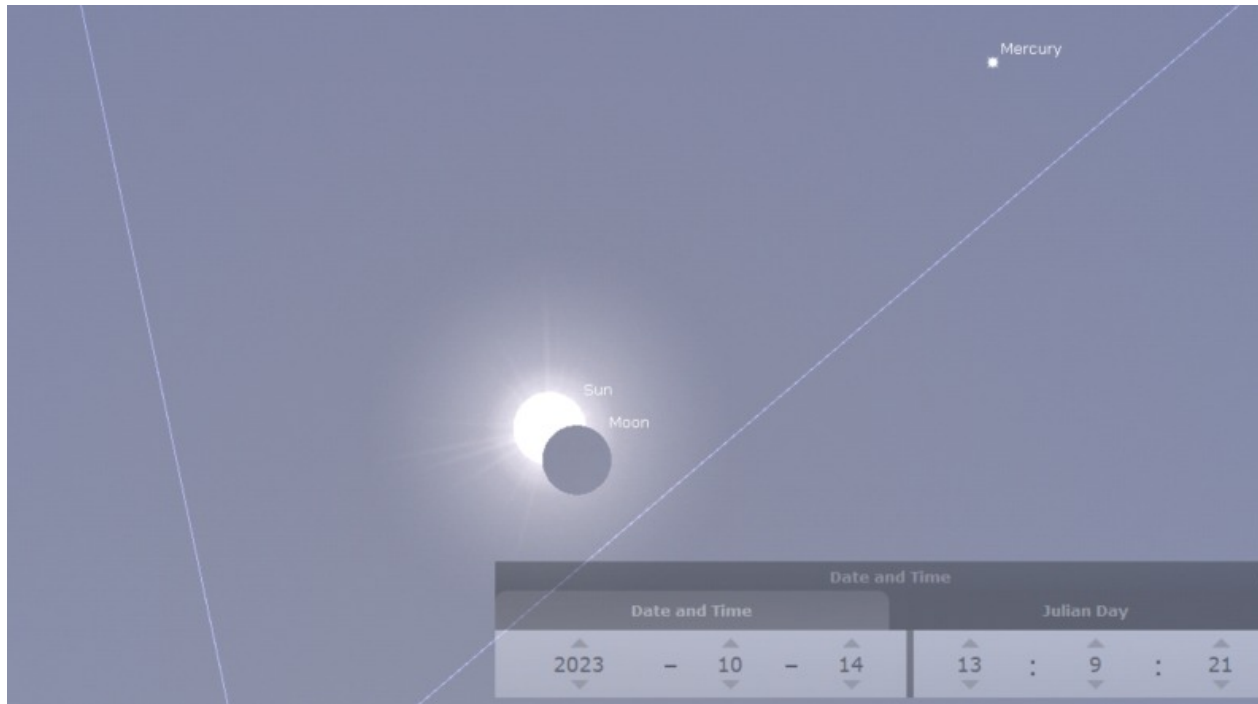
1. The English word for the Latin word Annular.
2. The entire Sun is covered during this type of eclipse.
4. Allows you to safely see a Solar Eclipse.
7. Created when light is blocked.
8. The darkest shadow created when light is blocked.
11. The Earth blocks light from the Sun to this object during a lunar eclipse.

(Continued on [page 7](#))

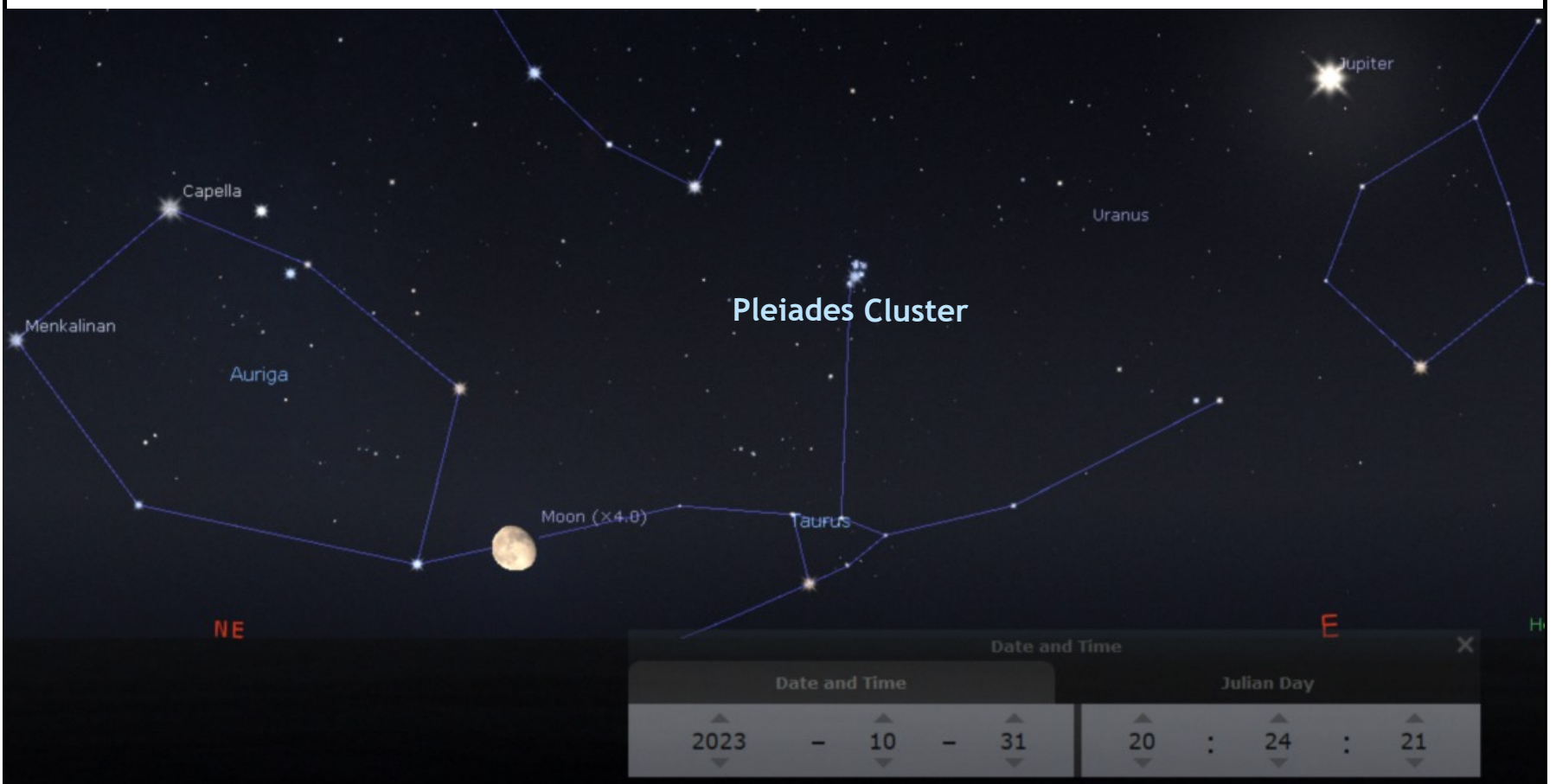
HAA Explorers (continued)

During October, check out:

1. On October 14th around 1:10 pm, the Partial Annular Solar Eclipse will be at maximum:



2. On Halloween night, October 31st, around 8:30 pm, see how the waning gibbous Moon is rising in the northeast. What a beautiful sky with the Pleiades Cluster and Jupiter all in a row!



Images generated using Stellarium

(Continued on [page 8](#))

HAA Explorers (continued)

Things to do until next time **:

** Check with your parents or caregivers before checking out websites.

1. *Watch this video* about types of solar eclipses: <https://www.youtube.com/watch?v=E6OtLfszaVI>
2. *Visit this website* for information about the Partial Annular Eclipse on October 14th from our area: <https://www.timeanddate.com/eclipse/in/@5884734>
3. *Watch* how to make a pinhole projector to safely watch a solar eclipse: <https://www.timeanddate.com/eclipse/make-pinhole-projector.html>

Finally:

Boy: Mom, can you tell me what an eclipse is?

If you have a question that you would like answered in the newsletter, please send it to education@amateurastronomy.org

Answer: :uns ON :wow



Thank you to Ro for reviewing this article! 😊

References:

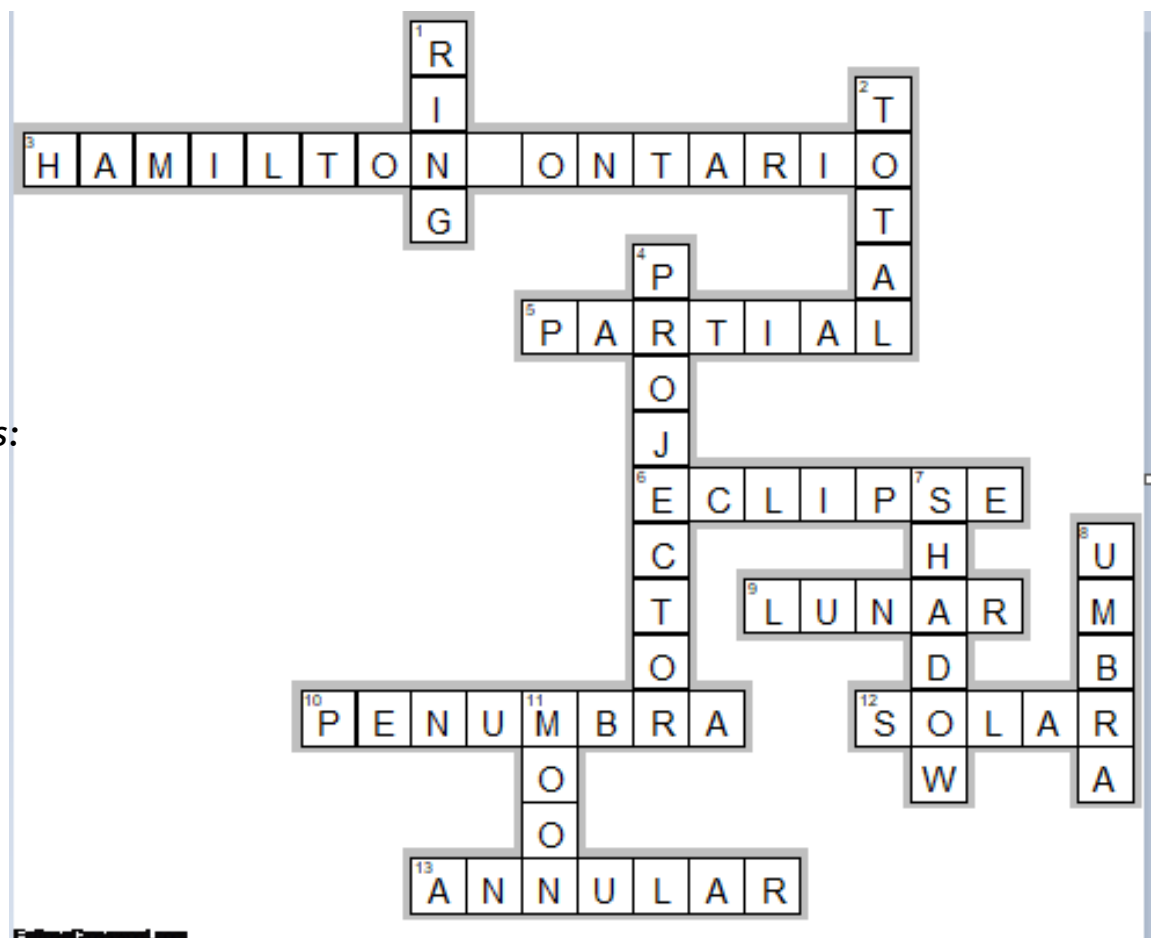
Astronomy for Kids. Astronomy. 2019.

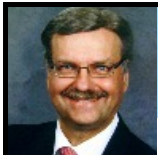
Astronomy Handbook. James Muirden. Arco Publishing, NY. 1982.

The Backyard Astronomer's Guide. Dickinson and Dyer. Firefly, 2021.

Exploring the Sky: 100 Projects for Beginning Astronomers. Richard Moeschl. Chicago Review Press, 1989.

Page 6 Eclipse Crossword Answers:





September Armchair Challenge

Kudos to all who sought Saturn in September. Saturn is at opposition and looking the best it can be. It will still be very good for a couple more months, so if you have not seen it, keep looking.

Keep your photos and reports of success with the armchair challenges coming! I will be sharing the photos at our October meeting.

And praise to anyone who glimpsed or even tried to glimpse the comet Nishimura. (Me included!)

This web page has a whole trove of info about Comet Nishimura, including that it will be a solar system faint photographic object in the new year.

<https://earthsky.org/tonight/new-comet-c-2023-p1-nishimura-bright-august-september-october-2023/>

Previous events

I have not seen any member photos of Saturn yet, so if you have something, please send it to me before the monthly meeting on October 13th.

Next 5 asteroids

As usual, this is the link for near earth asteroid events.

<https://www.jpl.nasa.gov/asteroid-watch/next-five-approaches>

The next 5 asteroids on their list are found at the above link. They change every day, and are worth checking out regularly. Be especially interested in anything more than 30 meters and closer than 1 million km. Those should be visible with binoculars, and certainly visible in photos.

For example, you can estimate how bright an asteroid will be, by clicking on the link to the asteroid.



BUS-SIZE

APPROXIMATE SIZE

13

FT | M

CLOSEST EARTH APPROACH

1,720,000

MI | KM

NAME

(2023 SV2)

DATE

Sept. 23, 2023

In this case, click on the symbol that looks like and then on that page, scroll down to the section on Physical Parameters:

Physical Parameters [\[hide\]](#)

Parameter	Value	Units	Sigma	Reference	Notes
[H] absolute magnitude	27.129		.31932	3	autocmod 3.0f

and note the absolute magnitude. This is how bright the asteroid would look if illuminated by the Sun, but 1 AU (approximately 150 million km) from us.

(Continued on [page 10](#))

The Sky for October 2023 (continued)

So this example approach is a lot closer, and for each factor of 100 closer to us than 1 AU, we subtract 10 from the magnitude, meaning this Asteroid example, at closest approach will be approximately magnitude 17.5. It will show up on 30 second time exposures but only under dark skies, so this asteroid is not really a keeper. If the corrected magnitude computes to a 14 or less, it will be visible from Binbrook Conservation Area in a 12 inch scope without photography, and if high in the sky, will be easy to photograph. The objects and their close approaches change all the time, so you need to check back for your opportunities.

One other thing matters, and that is the Azimuth and Altitude and time of closest approach. It only works for us if the close approach is at night, and above the horizon. I think a year will pass before someone in our club actually photographs one of these Near Earth Asteroids passing the Earth, but I could be proven wrong. A robotic telescope turns 'possible' into 'actual'. A determined observer can do the same.

To help you out, I tried to map one of these orbits into Stellarium. They are unknown to Heavens-Above so to get a finder chart for them is no mean task. Since they are so new, they won't be in the catalogs that Stellarium can load. The process then becomes one of manually editing the Stellarium app's *ini* file.

That's a bit like work. Instead, I sought a better website with finder charts. Alas it defies me. More luck later or after consulting with experts.

Comets

There are no new comets worth mention this month. By the time October rolls around, comet Nishimura will be invisible in the evening twilight again.

The page which would show them, as usual is this: <https://heavens-above.com/Comets.aspx>

Note that unless you specify a position, it will assume your location is 0E 0N which is in the Atlantic Ocean.

Comets

This table shows the brightest currently observable comets. Click on the name of the comet to get more details, including finder charts.

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Altitude	Azimuth	Constellation
C/2023 P1 Nishimura	4.0	2023-Sep-21	14°	-12.8°	276° (W)	Virgo
C/2023 H2 Lemmon	9.3	2023-Sep-18	44°	13.6°	319° (NW)	Ursa Major
C/2020 V2 ZTF	10.1	2023-Sep-20	141°	-20.1°	108° (ESE)	Fornax
2P Encke	10.6	2023-Sep-21	48°	-17.5°	340° (NNW)	Cancer
C/2022 V2 Lemmon	10.7	2023-Sep-10	24°	-3.9°	309° (NW)	Leo
103P Hartley	10.9	2023-Sep-21	94°	-4.4°	25° (NNE)	Auriga

The other comets on this list are potential photographic targets if you have patience and dark clear skies. Using the tool, you can pick a comet and select a date to see where it is, then compare to the places constellations are this time of year at night.

Ideal comets will be far from Libra on the ecliptic or very high in the northern sky.

So for instance, H2 Lemmon is in Ursa Major. That's circumpolar, and you should be able to capture it with a 30 second time exposure if you have tracking, or a 4 second exposure stable perch, with a reasonable aperture (100 mm). I don't recommend attempting visual observation of a 9th magnitude comet with a scope under 16 inches of aperture and very dark skies. Perhaps the HAA star party provided an opportunity?

(Continued on [page 11](#))

The Sky for October 2023 (continued)

Planets

Saturn is still near opposition and will be for a few months, a perfect opportunity for both advancement and enjoyment of astronomy.

The other planets are in the sky, and by midnight, all the planets from Jupiter outward are at easily observable altitudes above 30 degrees.

Special Things to look for

This website is a bit over the top on what to look for, but is a good basis for not missing something you might be interested in.

<https://spacetourismguide.com/october-night-sky/>

Valerie does a good job bringing astronomy to light, but promoting a meteor shower with a Zenithal Hourly Rate (ZHR) of 2 is a bit of a stretch for anyone not willing to stay up all night. You would probably see 6 Sporadic meteors per night as well. Remember the ZHR requires people with eyes on the top and the back of their head too.

Planets in the Daytime

This month, Venus, Jupiter and Saturn will spend some of their daytime within 5 degrees of the Moon.

However, the only one that makes sense to seek is *Venus*, which will rise before the Sun, near the Moon, and continue near the Moon into daylight. Venus is probably our best daytime planet of the year. Here are the particulars.

On October 10th, Venus will rise well before Dawn, near the 3 days from new Moon. It will be hard to find the Moon in the sky during the daytime, although it will be more than 45 degrees from the Sun, so you should be able to find a building to stand in the shade and still see the Moon.

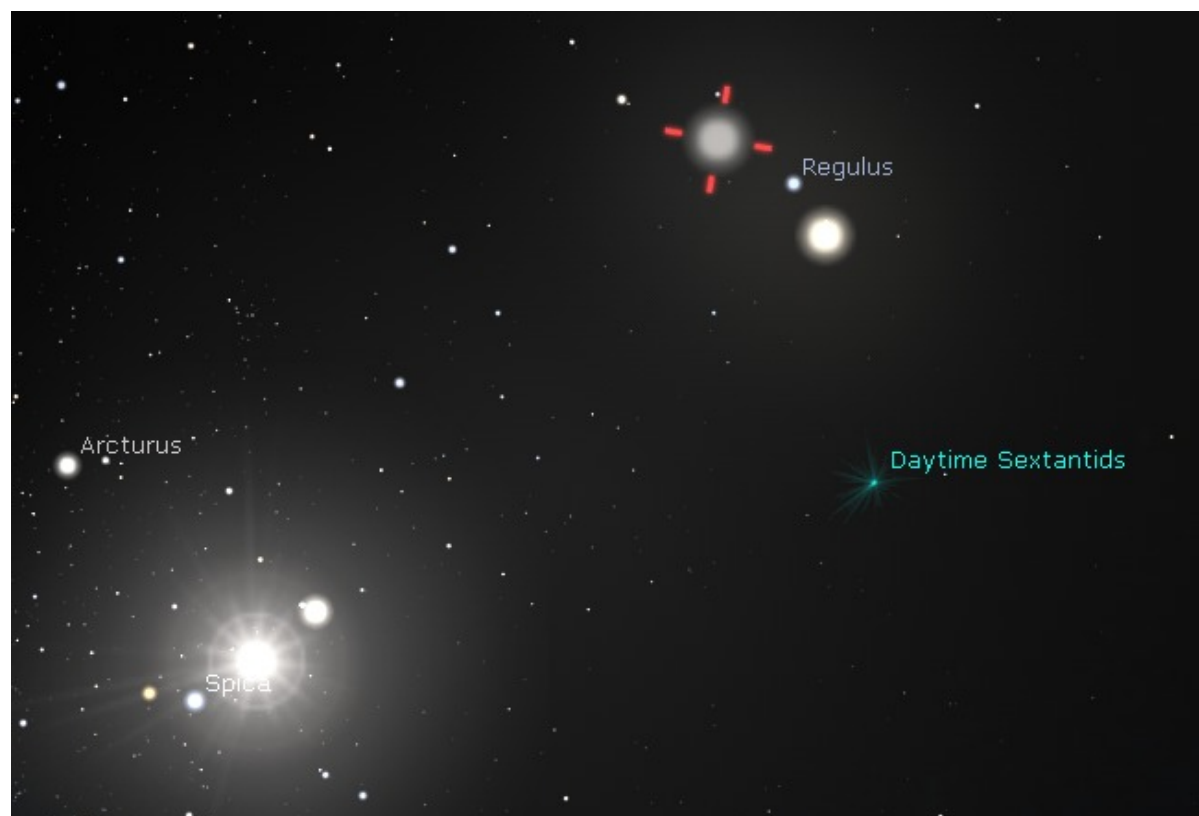


Image generated using Stellarium

I plan to put some marker in the ground, such as a post, and use it with a nearby tree branch as a guide to remember where the Moon was the last time I saw it, and to check back regularly. Key will be to note the direction of apparent motion too.

This Stellarium screenshot shows Venus below the marked Moon's position.

If you have a telescope with tracking, you can simply locate Venus before dawn, and track it all day. But if you are going

(Continued on [page 12](#))

The Sky for October 2023 (continued)

to do that, you would do better with Jupiter, which is also not too far from the Sun right now, but follows the Sun, so you cannot see it before dawn. *Cover a daytime telescope when slewing to a new target, so it does not inadvertently pass the Sun and torch the coatings on your eyepiece.* And of course, ideally, put some object in the way (preferably a building) to prevent the Sun from illuminating you when you are trying to look through the scope. Determine the time of day you plan to observe, and go out the day before to find a shaded place with a view of the sky in the intended direction. ***Beware of ever seeing the Sun through a telescope without a full aperture solar filter installed. It's dangerous to you and the telescope.*** So for Jupiter, set up the scope on the east side of the building, align it at night, leave it on, and after the Sun has passed the edge of the building and the scope is no longer in danger of being able to sight the Sun, remove its shroud and seek some targets in the sky. Jupiter will be there.

New armchair challenge

The Armchair Astronomer's challenge for the month of October 2023 is the *Partial Solar Eclipse* happening on Saturday, October 14th at 1 PM.

It's practically being served on a silver platter. It's a Saturday, midday, visible from anywhere in the area, and all you need to see it are eclipse glasses. Get yours at our meeting the day before or fish up your old pair and make sure they have no scratches. For bonus points, share a pair of glasses with a friend and ask them to view the eclipse with you.

The eclipse will have an azimuth of basically due south at 1 PM.

That's when the Sun will be highest in the sky, and the partial phase has a duration of more than an hour, so you can be early or late and still see more or less the same thing.

Here's a Photographer's Ephemeris diagram showing the direction and times.

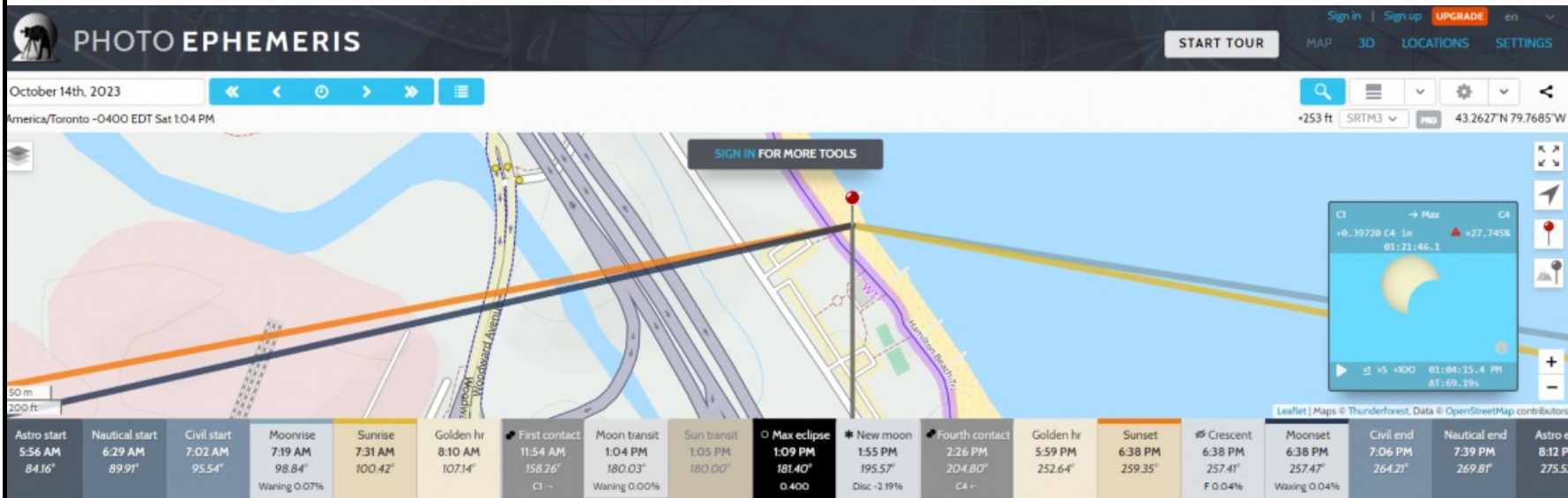


Image generated using Photographer's Ephemeris

First contact is at 11:54 am, and fourth contact will be at 2:26 PM, so you have 2.5 hours to sample the eclipse in progress.

It won't be cloudy ALL that time, will it? Either way, you can use the eclipse glasses again.

There is a dark sky alternate armchair astronomer's challenge this month. The *Orionid Meteor Shower*.

The Orionids are particles shed by Halley's comet over thousands of years, following the same general orbit in space. They are fast, and they are bright, and they often leave trails in the sky. (Continued on [page 13](#))

The Sky for October 2023 (continued)

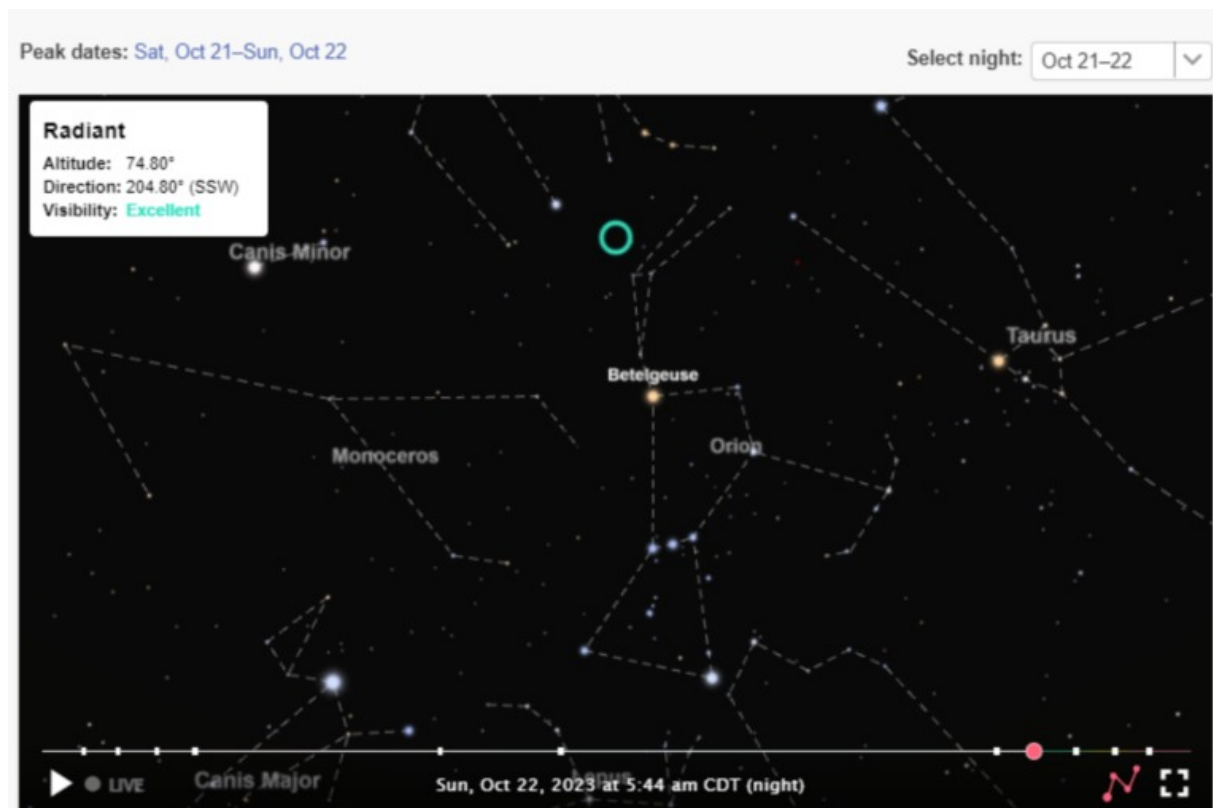
So, they are worth looking for even if you are not trying to bucket-list the Halley's comet viewing aspect of them.

Details for this shower are:

Image Credit:

TimeAndDate.com

<https://www.timeanddate.com/astronomy/meteor-shower/orionid.html>



As an added bonus, you will see Orion, and get used to it rising sooner and sooner each month as the Winter season approaches.

The Orionids are a deceptive meteor shower. Although the listing says 20 meteors per hour, and the Perseids says 120 meteors per hour, the key difference is, these particles have stayed in their orbits for thousands of years, from Halley's comet. If they were tiny dust particles, they would have been blown away by the Solar Wind by now. So what remains, although the count is smaller, is stuff in the fist-sized-rock category, and you will see bright meteors, from basically anywhere. No need to congregate under dark skies to appreciate the 'barely detectable' class of ordinary meteor showers. Just set up in a Mall parking lot, shade your head from the nearest light, and look up. (You will do just a little better in a park or your back yard, actually). Dress very warmly, use a reclining chair, bring a friend, and enjoy the evening.

Another thing about the Orionids is they are not all concentrated on one evening. You can see them for a week before and after, so if it's cloudy, no big deal, try the next night.

The Moon will be near 1st quarter.

Moonrise

As Winter approaches, the full Moon will rise earlier and earlier each month. It will rise around Sunset.

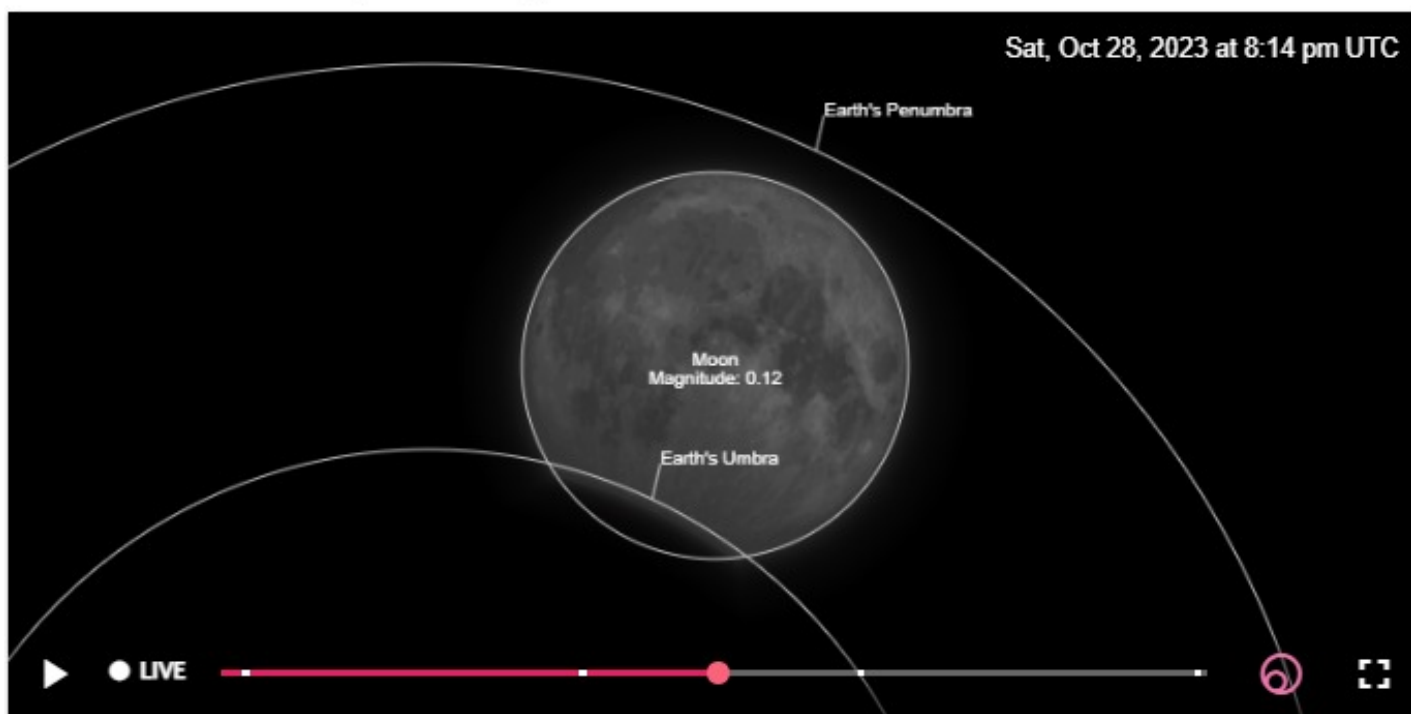
So on October 28th, another Saturday, at 6.09 PM, the Moon will rise at the azimuth of 69.98 degrees (70 degrees) and will be 99.99 percent full. That means the Moonrise is within 2 hours of the fullest full Moonrise there will ever be. The mathematical time of Full Moon is 4.24 PM, so to see that moon rise you would have to travel eastwards. (However, within about 20 hours either way, the side of the Moon we see is 100 percent lit.)

That same day, before the Moon rises, there will be a partial eclipse of the Moon, with maximum extent at 4.14 PM our time. For our vantage point, this will be about the lamest Lunar Eclipse ever. If you can endure this one, nothing will bore you.

(Continued on [page 14](#))

The Sky for October 2023 (continued)

The curvature of the shadow's path and the apparent rotation of the Moon's disk is due to the Earth's rotation.



Partial Lunar Eclipse of October 28, 2023

Image Credit: TimeAndDate.com <https://www.timeanddate.com/eclipse/lunar/2023-october-28>

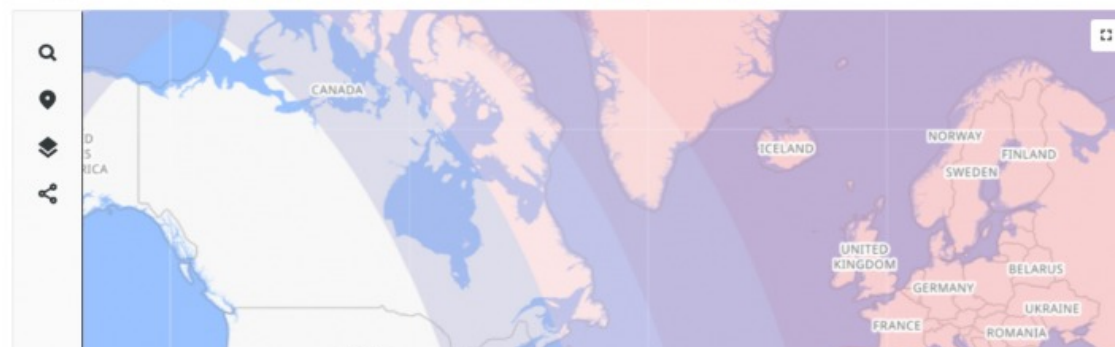
By the time the Moon rises, the eclipse stage will be penumbral, which means you will need a camera to see the subtle difference in shading across the Moon's surface. It might also affect the appearance of the Moon as it rises, since the light is dimmed by all the atmosphere when the Moon is low in the sky.

As eclipses go, this one is subtle. The illumination of the Moon will vary across its face, but really only when the Sun is fully obscured will the Moon appear really dark. That's not this time.

I wish you clear skies, and ample opportunities to see the sky.

Eclipse Map — October 28–29, 2023 Partial Lunar Eclipse

Image Credit: TimeAndDate.com



Event	Time	Altitude	Phase
Moon transit	12:29 AM	180.02°	Waxing 99.40%
Astro start	6:12 AM	91.23°	
Nautical start	6:45 AM	96.79°	
Civil start	7:19 AM	102.38°	
Moonset	7:27 AM	286.22°	Waxing 99.81%
Sunrise	7:48 AM	107.34°	
Golden hr	8:28 AM	114.37°	
Sun transit	1:02 PM	180.00°	
Penumbral			PRO
Partial			PRO
Greatest			PRO
Full moon	4:24 PM	51.36°	Disc +3.51%
Partial			PRO
Golden hr	5:36 PM	245.45°	
Moonrise	6:09 PM	69.98°	Waning 99.99%
Sunset	6:16 PM	252.46°	
Penumbral			PRO
Civil end	6:45 PM	257.40°	
Nautical end	7:19 PM	262.97°	

Image generated using Photographer's Ephemeris



Contents:

What's up in awards?

Rising Star Program: October-November

Pathways Observing Program targets... October-November

Messier Observing Program: October-November... Including target hints!!

The Planets, Comets, Upcoming Meteor showers, Award Programs

What's Up in Awards?

The Hamilton Amateur Astronomers Observing Programs are designed to provide direction for amateur astronomer's observations and to reward their accomplishments. A certificate is awarded when the goals of the observing program are met. The HAA offer various certificates based upon achieving specific observing goals. There is no time limit for completing the required observing but good record keeping is required. Each observer must perform all the requirements of each Observing Program themselves. However, observers are able to receive help from (an)other observer(s) as they learn to find and identify different objects. Each observer will then need to locate and observe the object on their own to meet the goals of the program. Observing logs will be submitted to and examined by the HAA Observing Programs Project Coordinator to confirm all observations before a certificate is granted.

This column tells you which objects are visible this next month for the HAA Observing Programs and other sights of interest.

HAA Rising Star Observing Award

October

Constellations: Pegasus

Stars: Alpheratz

Double Stars: delta Cephei

Object Pairs: NGC 7788/NGC 7790

Messier objects: M52

November

Constellations: Cassiopeia

Stars: Schedar

Double Stars: Almach, Mesarthim

Object Pairs: M31/M32, NGC 133-NGC 146, NGC 436/NGC 457

Messier objects: M33

Pathways Observing Program

Group A

Observable in October, November, December.

Winter Constellations: Find, observe, sketch: *Perseus, Cygnus, Lyra*

Stars: Find, observe, sketch: *Algol, Deneb, Fomalhaut*

Asterisms: Find, observe, sketch: *Great Square, Northern Cross, Circlet*

Planet: Any one planet that is remaining in the list.

HAA Messier Objects Observing Award

October Messier targets

M24 This um..."object" is a section of the Milky Way in Sagittarius. It is easily seen with the naked eye as a fuzzy, oval patch about four times the size of the full moon. The best views are through binoculars or rich field telescopes. Includes several other objects including NGC 6603, Markarian 38, and Collinder 469.

(Continued on [page 16](#))

What's Up in Awards? October-November 2023 (continued)

- M25** Find this open cluster just east of M24 in Sagittarius. Visible to the naked eye, M25 lies in the same binocular field as M24. A view through a telescope shows the nebulosity is in fact many faint stars that are not resolved in small instruments.
- M18** This is a small open cluster just north of M24 in Sagittarius. Telescopes reveal this cluster for what it is - a small, sparse collection of bright stars.
- M17** Just north of M18 lies the Omega nebula. Possible to see with the naked eye, this nebula appears as a small faint patch of fuzz. A telescope will show the unique V shaped nebulosity that gives the cluster its name.
- M16** Through a telescope M16 looks like a sparse open cluster of stars surrounded by faint wisps of smoke. IC 4703 is the diffuse emission nebula or HII region associated with Messier 16. It is the nebulous region surrounding Messier 16. These two objects make up the Eagle Nebula.
- M26** Telescopes partially resolve this cluster and show several stars buried in a faint glow from the unresolved stars.
- M11** Just north of M26 in Scutum lies the Wild Duck Cluster. Possible to see with the naked eye, telescopes resolve many of the stars in this very rich cluster.
- M55** Possible naked eye object. Telescopes show a round patch of light - bright in the center and fading toward the edges. Large apertures are needed to resolve this globular.
- M75** A telescope will show a small fuzzy with a bright center.

November Messier targets

- M57** This smallest planetary nebula in the Messier Catalog is the famous Ring nebula in the constellation Lyra. Low power telescope views show a very small blue/green disk, not much bigger than a star. Medium to high power will magnify the size of the nebula while leaving the surrounding stars the same size, confirming you have found it.
- M56** Look for a small round ball of light, slightly brighter in the center.
- M27** Also known as the Dumbbell nebula, the largest planetary nebula in the Messier Catalog. This object lies in the constellation Vulpecula. In a small to medium sized telescope it appears as a rectangular patch of light. In large scopes It may even appear round with a bright rectangular, or dumbbell shaped core.
- M71** Lying in Sagitta, this globular cluster appears as a faint oval hazy patch of light in a telescope.
- M30** Telescopes show a small fuzzy ball of light, bright in the center fading to the edges.
- M72** This is a small faint globular cluster in Aquarius. Look for a faint oval patch of light, gradually brighter towards the middle.
- M73** This asterism is located near M72 in Aquarius. In a low power telescope view it looks like a very small fuzzy patch of light at first glance. When stared at it reveals itself as a small collection of stars. Medium to high power shows the view best described by Messier "cluster of three or four stars...containing very little nebulosity".

(Continued on [page 17](#))

What's Up in Awards? October-November 2023 (continued)

The Planets... October 2023 via (BBC) Sky at Night Magazine

- 1 October: Morning Moon close to Jupiter.
- 13 October: Comet 103P Hartley near NGC 2392.
- 21/22 October: Orionid meteor shower peak (favourable).

Mercury: Best during first week of October, bright in the morning. Lost after.

Venus: Brilliant morning planet at greatest western elongation on 24 October, 46.4° from the Sun.

Mars: Not visible this month.

Jupiter: Jupiter is very bright (mag. -2.8) and really well placed this month in southern Aries.

Saturn: Well placed evening planet in Aquarius. A gibbous Moon is nearby on the evenings of 23 and 24 October.

Uranus: Well-placed near Botein (Delta (δ) Arietis). Jupiter nearby; both joined by a gibbous Moon on 1/2 October.

Neptune: Well-placed evening planet. Reaches highest point, due south in darkness all month. Requires binoculars to see.

The Planets... November 2023 via (BBC) Sky at Night Magazine

- 3 November: Jupiter reaches opposition.
- 10 November: Excellent transit of Ganymede and its shadow from 17:15 UT.
- 13 November: Uranus reaches opposition.
- 17/18 November: [Leonid meteor shower](#) peak (favourable).

Mercury: Evening planet, not really viable this month due to low altitude after sunset.

Venus: Bright morning planet, visible against dark skies all month.

Mars: Solar conjunction on 17 November. Too close to the Sun to be seen this month.

Jupiter: Superbly placed, reaching opposition on 3 November. Attains 50° altitude when due south.

Saturn: Well-placed evening planet. Moon close on 20 November.

Uranus: The planet is at opposition on 13 November. It sits 2.2° south of Botein (Delta (δ) Arietis).

Neptune: Well-placed evening planet. All month Neptune reaches its highest position in darkness. Binoculars will be needed in order to see the planet this month.

Comets October-November 2023 via Seiichi Yoshida – Click here:

<http://www.aerith.net/comet/future-n.html>

Meteor Showers via American Meteor Society

Orionids

Period of activity: September 26th, 2023 to November 22nd, 2023

Peak Night: Oct 20-21, 2023

The Orionids are a medium strength shower that sometimes reaches high strength activity. In a normal year the Orionids produce 10-20 shower members at maximum. In exceptional years, such as 2006-2009, the peak rates were on par with the Perseids (50-75 per hour). Recent displays have produced low to average displays of this shower.

Shower details - Radiant: 06:21 +15.6° - **ZHR:** 20 - **Velocity:** 41 miles/sec (swift - 66km/sec)

Parent Object: 1P/Halley

Next Peak - The Orionids will next peak on the Oct 20-21, 2023 (Fri-Sat) night. On this night, the moon will be 37% full.

(Continued on [page 18](#))

What's Up in Awards? October-November 2023 (continued)

Southern Taurids

Period of activity: September 28th, 2023 to December 2nd, 2023

Peak Night: Nov 4-5, 2023

The Southern Taurids are a long-lasting shower that several peaks during its activity period. The shower is active for more than two months but rarely produces more than five shower members per hour, even at maximum activity. The Taurids (both branches) are rich in fireballs and are often responsible for increased number of fireball reports from September through November.

Shower details - Radiant: 03:35 +14.4° - **ZHR:** 5 - **Velocity:** 17.2 miles/sec (slow - 27.7km/sec)

Parent Object: 2P/Encke

Next Peak - The Southern Taurids will next peak on the Nov 4-5, 2023 (Mon-Tue) night. On this night, the moon will be 54% full.

Northern Taurids

Period of activity: October 13th, 2023 to December 2nd, 2023

Peak Night: Nov 11-12, 2023

This shower is much like the Southern Taurids, just active a bit later in the year. When the two showers are active simultaneously in late October and early November, there is sometimes a notable increase in the fireball activity. There seems to be a seven year periodicity with these fireballs. 2008 and 2015 both produced remarkable fireball activity.

Shower details - Radiant: 03:55 +22.8° - **ZHR:** 5 - **Velocity:** 18 miles/sec (slow - 30km/sec)

Parent Object: 2P/Encke

Next Peak - The Northern Taurids will next peak on the Nov 11-12, 2023 (Sat-Sun) night. On this night, the moon will be 2% full. The Northern Taurids will next peak on the Nov 11-12, 2023 (Sat-Sun) night. On this night, the moon will be 2% full.

Observing Award Recipients

We would like to give recognition and congratulations to any member who completes an award program regardless of the sponsoring organization. Congratulations to the following:

HAA Pathfinder

A01 Anastasia Morissette

HAA Rising Star Awards

001 Jean Jefferson

002 Kevin Salwach

003 Jo Ann Salci

HAA Messier Award

No recipients

HAA Lunar Award

No recipients

RASC

Jo Ann Salci

Exploring Exoplanets (on-line course)

Swapna Shrivastava

Explore the Moon

Explore the Universe

Bernie Venasse

Explore the Universe

Explore the Moon (*new this month*)

(Continued on [page 19](#))

What's Up in Awards? October-November 2023 (continued)

Astronomical League

Bernie Venasse (2023)

Sunspotters Observing Program

Hydrogen Alpha Solar Observing Program

Lunar Evolution

Asteroid Observing Program-Gold

Master Observer-Silver

Please feel free to contact me with any questions or comments at awards@amateurastronomy.org

– Bernie

HAA Outreach Presentations with Vulnerable Sectors

The HAA executive has created a policy for any HAA member who wishes to do outreach presentations to vulnerable sectors, which includes children under 18 years of age and vulnerable adults. This does not include our general club outreach activities.

Presentations include in-person or virtual sessions where parents/guardians may not be present. **As it is not always possible to anticipate caregiver attendance at outreach activities for children under the age of 18, or vulnerable adults, it is therefore a requirement for HAA member-volunteers who work with these vulnerable populations to complete a Police Vulnerable Sector Check.**

These can be obtained only in your region of residency. Costs vary from one area to another. They will be kept on file by the HAA Education Director. No details regarding the findings of the check will be made in any way public or viewed beyond the HAA Education Director.

The HAA will reimburse any member who wishes to do outreach presentations to vulnerable individuals, provided a receipt is submitted.


Please contact Jo Ann Salci if you have any questions about this policy and/or if you wish to put your name forward to help with outreach activities to young people! This policy is effective immediately.

“HAA Presents”

Members of the public of any age in the GTHA can now request an in-person (once it is safe to do so) or virtual presentation from the HAA directly on our website.

Simply navigate to www.amateurastronomy.org and select “Contact” from the top menu bar and then click on “HAA Presents” (see image below). You will be presented with a request form and once all required fields are entered, click on the “Submit” button and you will see a confirmation message that your request has been successfully submitted.



[Home](#) [About](#) [Newsletters](#) [Gallery](#) [Club Events](#) [Resources](#) [Contact](#) 

HAA Presents

Once received, our Public Education Director, Jo Ann Salci, will respond to your request within 5 business days to discuss next steps. If you have any questions, feel free to send an email to: haapresents@amateurastronomy.org.



This article is distributed by NASA Night Sky Network (NSN).

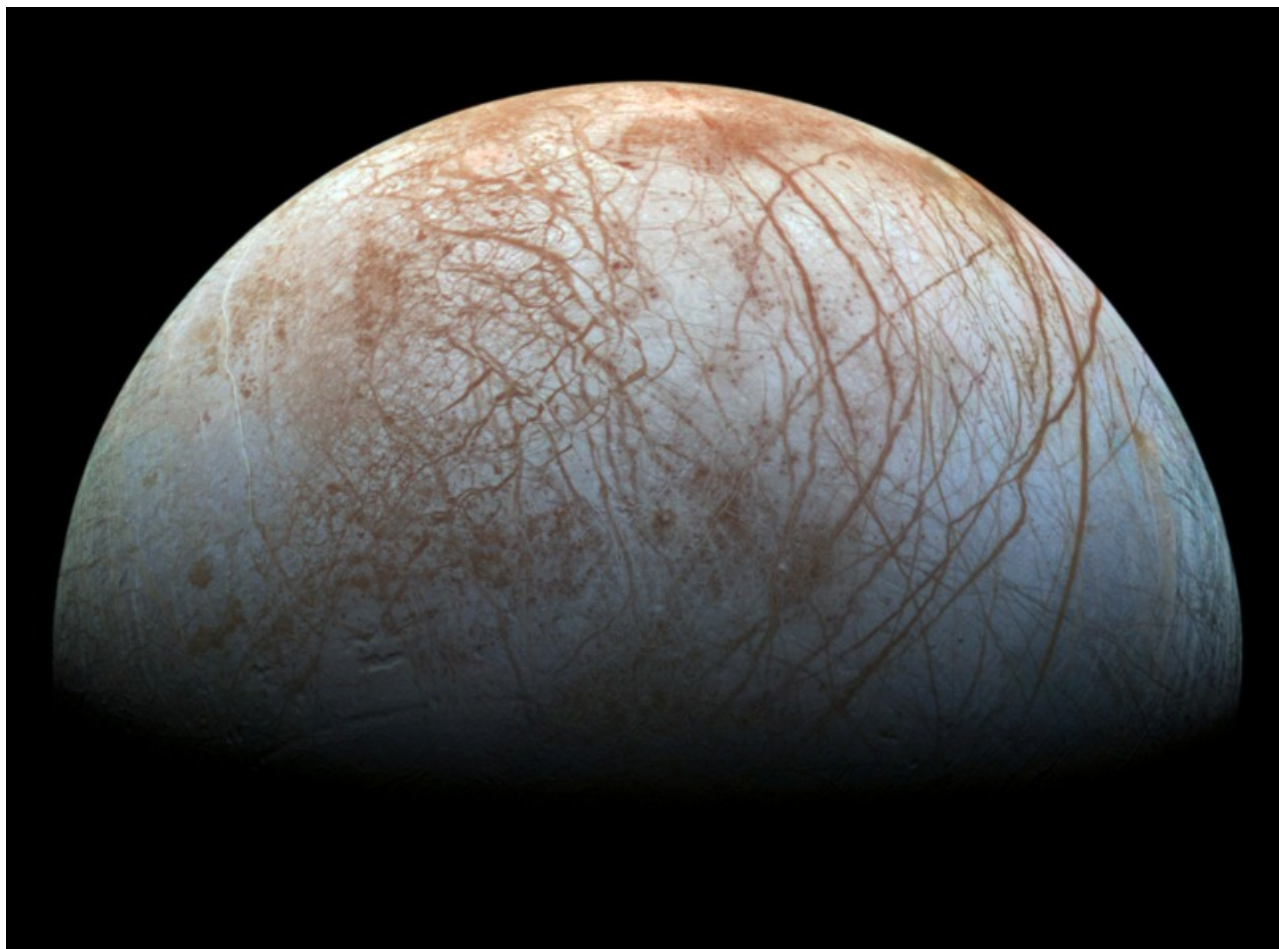
Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

From Galileo to Clipper, Exploring Jupiter's Moons

by Vivian White

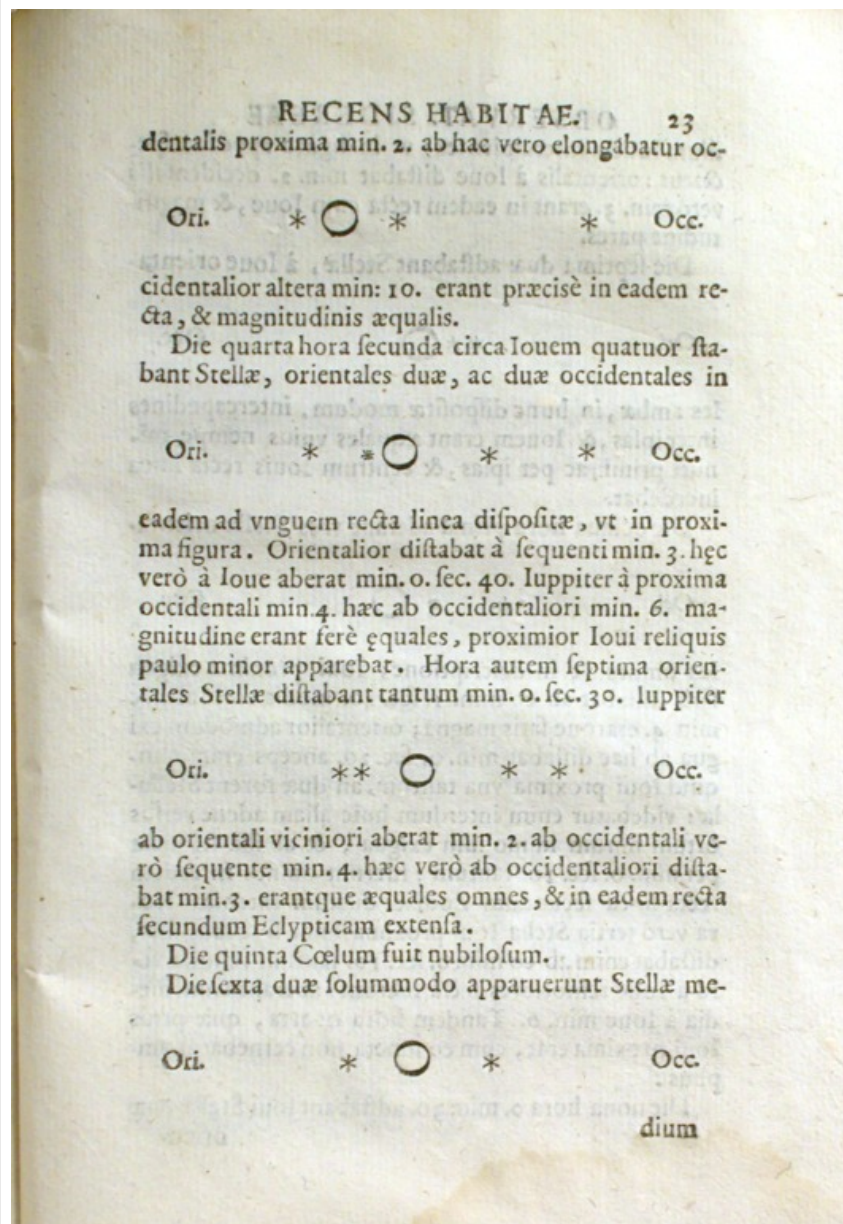
*“...We, too, are made of wonders, of great
and ordinary loves, of small invisible worlds,
of a need to call out through the dark.”*

From *In Praise of Mystery: A Poem for Europa* by Ada Limon



As autumn begins, if you're up late, you may notice a bright point of light rising in the east. Look a bit closer, with a pair of binoculars, and you'll notice it's not a star at all. While stars look point-like no matter how big your backyard telescope, this light appears as a circle under closer examination. Even more curious, you will likely see a line of smaller dots on one or both sides. Congratulations! You've rediscovered the king of the planets - majestic Jupiter - and its four largest moons.

Galileo famously chronicled the four moving dots near Jupiter and surmised that they were orbiting the distant world. While Jupiter has well over 80 discovered moons as of September 2023, these brightest four are called the “Galilean Moons” - Io, Europa, Ganymede, and Callisto. (Great mnemonics exist to remember
(Continued on [page 21](#))



these in order of distance from Jupiter, such as “I Eat Green Caterpillars”) You can follow these like Galileo did, using stargazing apps or the handy image below. A favorite beginning observing challenge is to [track the movement of the Galilean Moons](#) over the course of many nights. Even within a few hours, you will notice them moving in relation to Jupiter, just as Galileo did.

Fast forward 414 years, and NASA will be sending a robotic mission to investigate the surface of one of these distant worlds. The [Europa Clipper Mission](#) is launching to the cold, icy moon in 2024, to begin orbiting in 2030. With its salty oceans covered by ice, Europa was chosen as an excellent location to continue the search for life outside of Earth. Clipper will be the largest spacecraft ever sent to another planet, designed to withstand Jupiter’s punishing radiation. Once it arrives at Jupiter in 2030, NASA plans to do about 50 flybys of Europa, mapping almost the entire surface of this watery world.

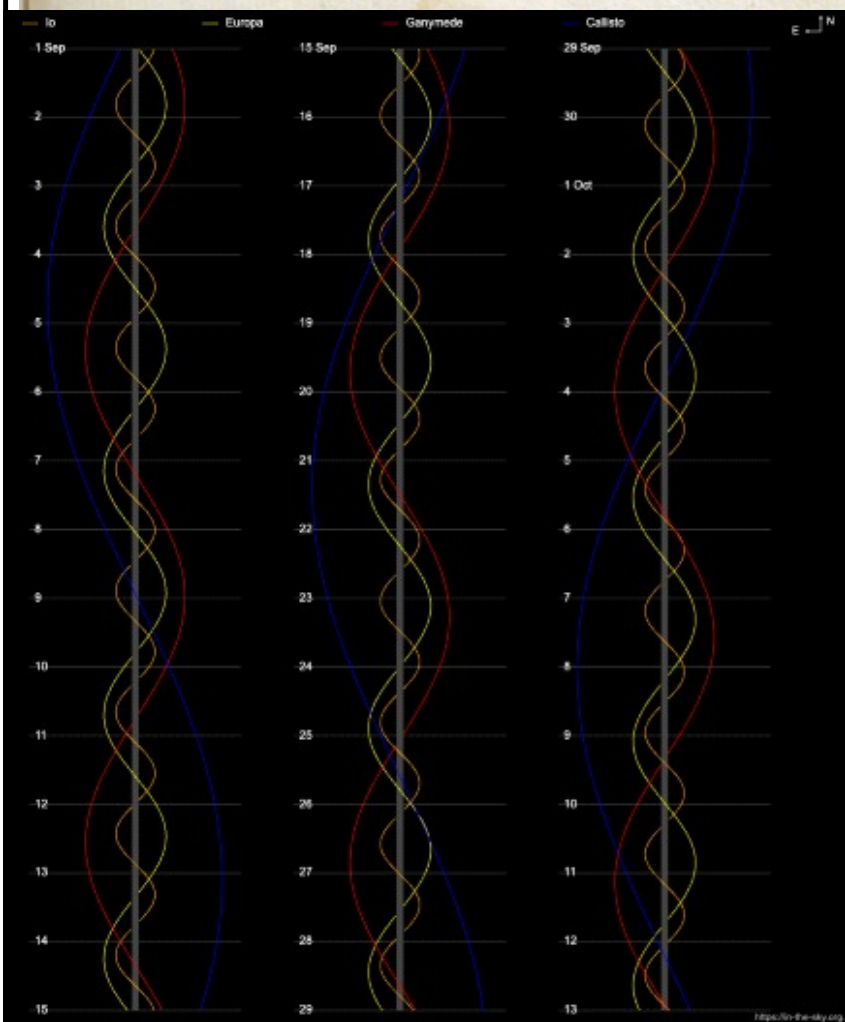
What was once only dreamed of in the small telescope of Galileo, or in great works of fiction, NASA is turning our wildest imagination into reality. One of the celebrated quotes from the classic 2010: Odyssey Two warns, “All these worlds are yours, except Europa. Attempt no landing there.” Science fiction fans can feel relieved knowing that writer Arthur C. Clarke gave his blessing for the Europa Clipper mission.

Join the Europa Message in a Bottle Campaign to send your name with the spacecraft, hear the rest of the poem by the US Poet Laureate, and learn more about the wonders of space travel with the Clipper Mission: <https://europa.nasa.gov/participate>

Watch a wonderful Clipper webinar with Dr. Cynthia Phillips, planetary geologist with the mission: <https://www.youtube.com/live/RnnLJBLRBCA?feature=shared&t=269>

top left:
Galileo's drawings of Jupiter and its Medicean Stars from Sidereus Nuncius. Image courtesy of the History of Science Collections, University of Oklahoma Libraries.

bottom left:
The position of the Galilean Moons of Jupiter in October 2023: <https://in-the-sky.org/jupiter.php>



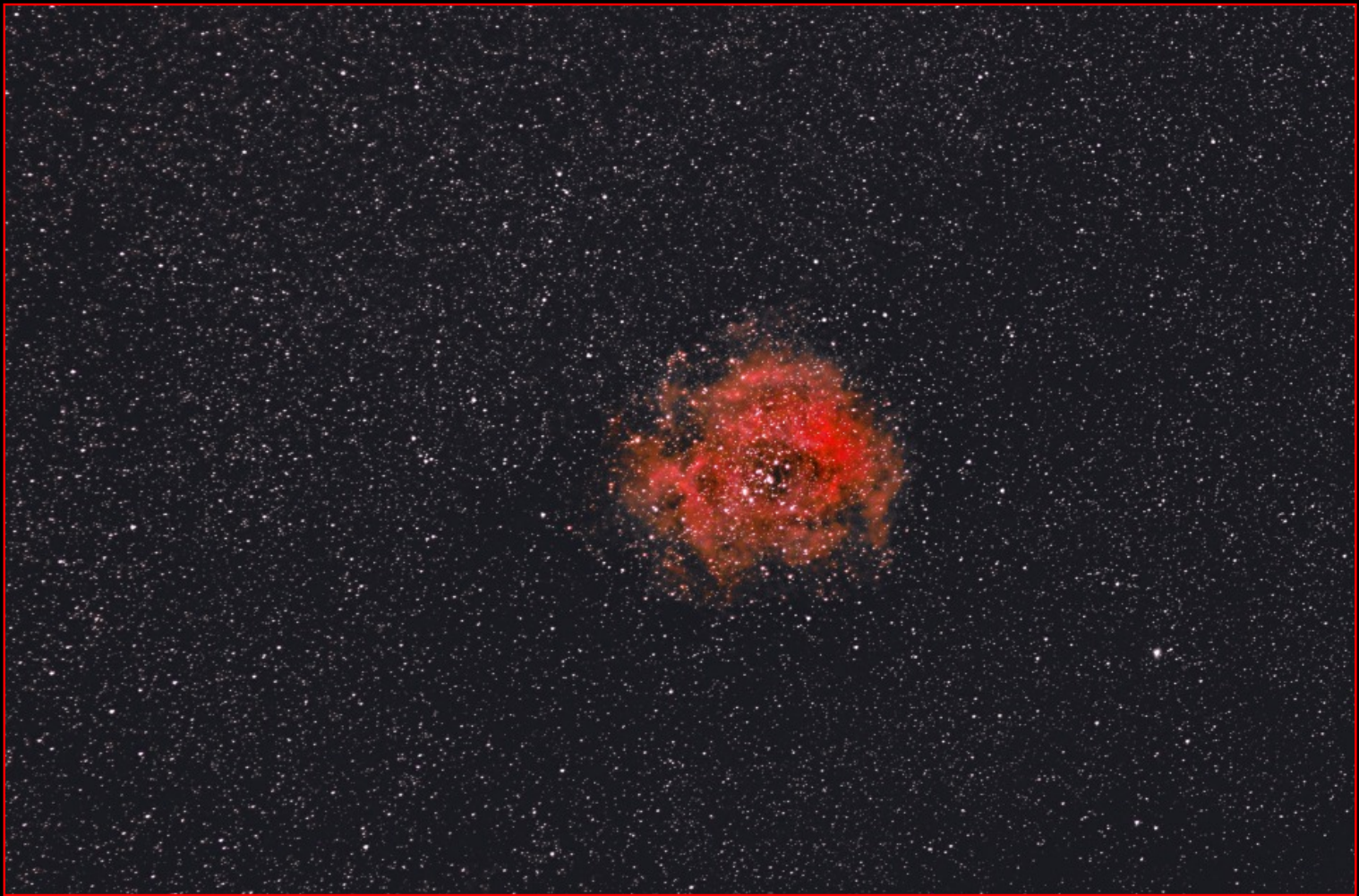


**The Iris Nebula
(NGC 7023)**

by Alex Kepic

Taken through a
Celestron C8
scope with a
ZWO ASI294MC
Pro camera on a
Celestron AVX
mount.

Exposures:
613 x 2 minutes;
20 hours 26
minutes total
integration time



The Rosette Nebula (NGC 2237, etc.), by John Gauvreau
Taken with a Canon 80D DSLR through his 200mm f/2.8 lens.



The Hercules Globular Cluster (M13), by Alex Kepic
Equipment same as for his Iris image or page 22. Exposures: 329 x 30 secs; 2 hrs 44 mins 30 secs total.



top:

**The Aurora Borealis from
Woodstock, ON, September
18, 2023 @11:27 pm
by Chris White**

above:

**The August 31st Blue
Supermoon
by Isabella Lopes-Daniele.**



South Pole of the Moon, by John Gauvreau



William J. McCallion Planetarium

McMASTER UNIVERSITY, HAMILTON, ONTARIO

- Public shows Wednesdays and some Saturdays
- Public transit available directly to McMaster campus
- Tickets \$7 per person; private group bookings \$150
- Different shows every week
- Upcoming shows include:
 - **Oct 4 & 21: Introductory Astronomy for Kids — Solar System**
 - **Oct 11: Astrological Signs and Stories in the Sky**
 - **Oct 18: Black Holes, Neutron Stars, Supernovae, and other cool things that happen when a star dies**
 - **Oct 25: Astronomy in the Arab World**
- For show times and further details, visit www.physics.mcmaster.ca/planetarium

UPCOMING EVENTS

October 13, 2023 - 7:30 pm – H.A.A. Meeting at McMaster Innovation Park. This is our *Annual General Meeting*. Our main speaker will be *Brother Guy Consolmagno* of the Vatican Observatory. This will be a “hybrid” meeting, with the attendance option of in-person or online via [Facebook](#) and [Zoom](#).

November 10, 2023 - 7:30 pm – H.A.A. Meeting at McMaster Innovation Park. The H.A.A.’s *Doug Turner* will talk about the 2024 H.A.A. Calendar.

2022-2023 Council

Chair	Vacant
Second Chair	Sue MacLachlan
Treasurer	Ann Tekatch
Digital Platforms Director	Christopher Strejch
Membership Director	Paula Owen
Observing Director	Steve Germann
Education Director	Jo Ann Salci
Event Horizon Editor	Bob Christmas
Recorder	Brenda Frederick
Secretary	Denise White
Publicity Director	Mario Carr
Councillor at Large	Matthew Mannering

Check out the H.A.A. Website
www.amateurastronomy.org

Follow us!



Contact Us

Hamilton Amateur Astronomers
PO Box 65578
Dundas, ON
L9H 6Y6

www.amateurastronomy.org

General Inquiries:

secretary@amateurastronomy.org

Membership:

membership@amateurastronomy.org

Meeting Inquiries:

chair@amateurastronomy.org

Public Events:

publicity@amateurastronomy.org

Observing Inquiries:

observing@amateurastronomy.org

Education:

education@amateurastronomy.org

Newsletter:

editor@amateurastronomy.org

Digital Platforms Director:

webmaster@amateurastronomy.org

All active HAA members have the privilege of access to an exclusive HAA members only dark sky location.

Be on the lookout for e-mails with dark sky observing details. Space is limited.

The Harvey Garden HAA Portable Library



Contact Information

E-mail: library@amateurastronomy.org