

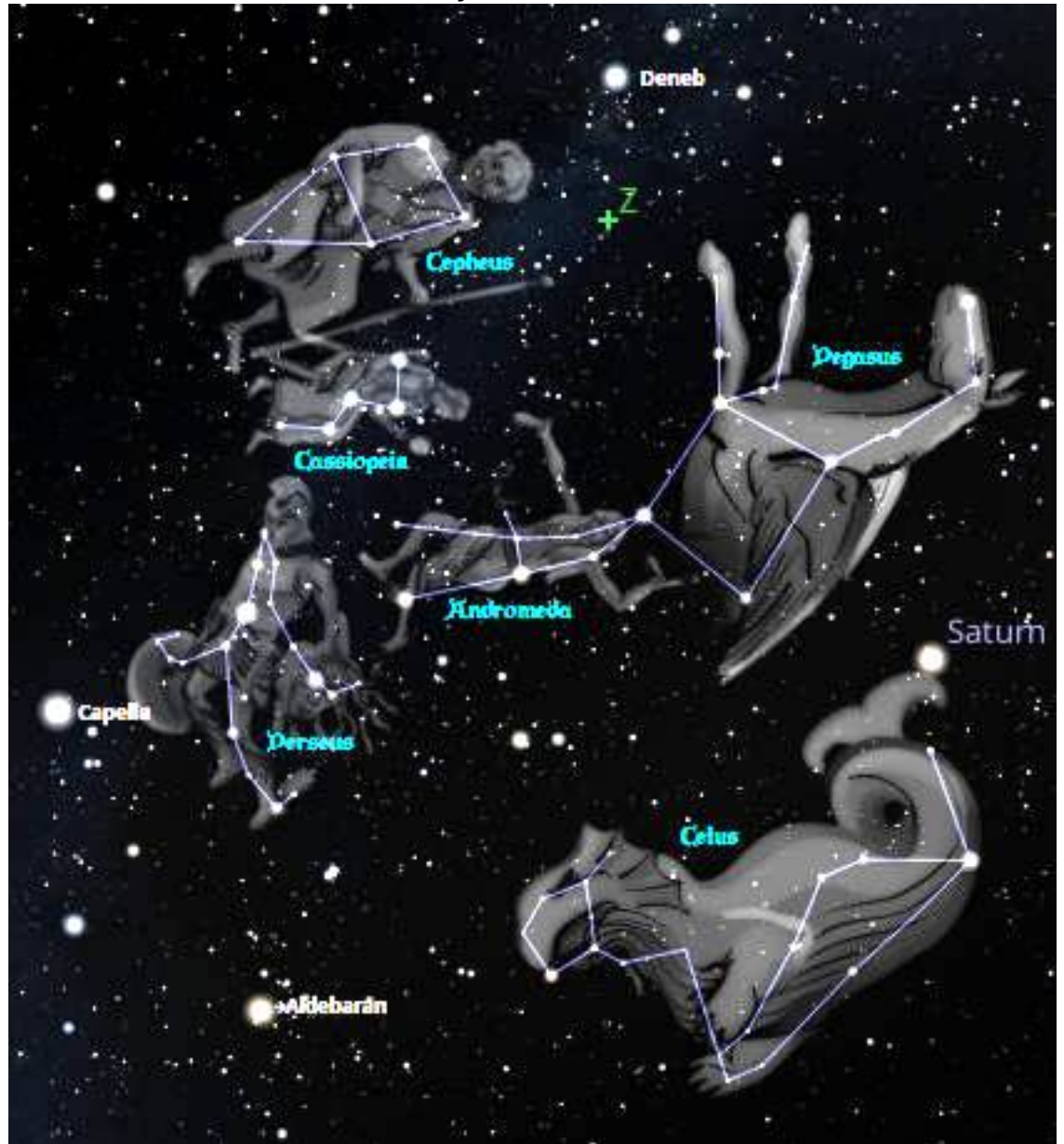
STELLAR SENTINEL



Grand Traverse Astronomical Society October 2025

Stars, Stories and Galaxies of Autumn I

By Bob Moler



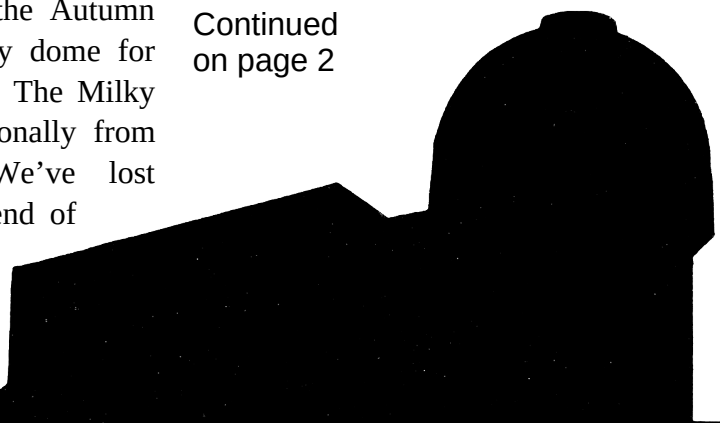
Characters of the Great Autumn Constellation Story, looking east on October 15, 2025. Created using Stellarium.

This article is based on a talk I gave a few years ago to the society and at the Traverse Area District Library.

We'll start our look at the Autumn skies with a look at the sky dome for October further in this issue. The Milky Way runs pretty much diagonally from northeast to southwest. We've lost Sagittarius, at the southern end of the Milky Way, but we still have the Summer Triangle up high in the west, and will through the end of

autumn. Saturn is the evening planet this season, with its rings nearly edge-on. Also visible is one of the harbingers of

Continued on page 2



Stars... (Continued from page 1).

autumn one can see late at night on September evenings, and becomes a regular feature in the eastern sky during autumn, the Pleiades, or Seven Sisters.

Another harbinger of autumn is Fomalhaut, which is low in the south, and is usually the loneliest star in the sky. Saturn, which has been keeping it company for the past few years is slowly leaving it.

We now go to the image on page 1, a view to the east southeast from the horizon to overhead, and look at some of the constellations of autumn. These are constellations that belong to a particular story. Hollywood has made a couple of films, at least, of this story under the title *Clash of the Titans*. Though in the strict usage of the word Titan, no actual Titans were harmed in the making of this story. The gods and goddesses in this story were their descendants.

The constellations depict the five main and one minor characters of the story: Cassiopeia, Andromeda, Perseus, Pegasus, Cetus, and incidentally... Cepheus, only because he is the husband of Cassiopeia.

The Story

In distant Ethiopia a crisis was brewing. King Cepheus and Queen Cassiopeia were at wits end as how to stop it. A giant sea monster named Cetus was ravaging the country's coastal cities destroying them and devouring the inhabitants.

The king and queen consulted the temple oracle as to what happened and what could be done to save their country. The oracle intoned gravely that the fault was Cassiopeia's. Suddenly the queen knew what happened. Cassiopeia was very beautiful and she had vainly boasted to all who could hear that she was more beautiful than even the sea nymphs, the lovely daughters of the sea god Poseidon.

The sea nymphs had heard of Cassiopeia's boast and complained to their father. Poseidon, like any father, was angered, and being a god was able to do something about. Being a god means never having to say your sorry when you do something really mean. He loosed the monster Cetus upon the Ethiopians.

The oracle said that to appease the monster and Poseidon Cassiopeia would have to sacrifice her daughter the Princess Andromeda to the monster. That is how young Andromeda was chained to the rocks on the sea shore to await her doom...

Far away in ancient Greece a wedding was about to take place between the beautiful Princess Danaë and King Polydectes. Danaë's son Perseus, fathered by Zeus, but that's another story, wasn't too happy about the proposed union, and Polydectes wanted the boy gone.

When Perseus asked Polydectes what he wanted for a wedding gift, he said, "I want the head of Medusa." The boy immediately and foolhardedly agreed to get it for him.

Medusa, it turns out, was one of three sisters, the Gorgons, who had snakes for hair. They were so ugly that one glimpse of them would turn the beholder to stone. Medusa was the only mortal one.

Luckily Perseus had the favor of the god Hermes and Athene. They armed him with Hermes' winged sandals, a helmet that made him invisible, a pouch that would expand to hold an object of any size, a shiny mirror shield, and a sword.

Thus armed Perseus was told to find the Graiae or the gray women, who could tell him where the lair of the Gorgons was. They were three in number and shared but one eye and one tooth among them which

Continued on page 3

Grand Traverse Astronomical Society - Est. June 1982 – 43 years of service

-----Officers-----		-----Directors-----	-----Patrons-----
President	Jerry Dobek	Charles Bell	Charles Bell, Robert Carroll & Terri Mills, Daniel Dall'Olmo, Jessica DeWitt, Don and Kathy Flegel, Bill Hathaway, Richard Kuschell, Mark Leugers, Judy Moler, Ronald & Jan Uthe
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Upcoming Society Events

Events not held at the Joseph H. Rogers Observatory depend on the weather.

Friday, September 5 – Monthly meeting and star party at NMC Rogers Observatory. Also available via **Zoom**. See our website <http://www.gtastro.org> for instructions and a link.

No Board of Directors Meeting

8 PM – General Meeting: Dan Dall’Olmo, who has taken some amazing astrophotographs, will present the program

9 PM – Star Party, if it is clear.

Friday, October 3 – Monthly meeting and star party at NMC Rogers Observatory. Also available via **Zoom**. See our website <http://www.gtastro.org> for instructions and a link.

No Board of Directors Meeting

8 PM – General Meeting

9 PM – Star Party, if it is clear.

Zoom Meeting Link:

<https://us02web.zoom.us/j/8388913229?omn=88435646093>

Stars... (Continued from page 2).

they passed from one to another to use.

The Graiae refused to help Perseus. But he was able to force them to help by snatching their one eye while it was being passed from one to another. They told him that the Gorgons dwelt in the shore of the river Ocean at the edge of the world in perpetual twilight.

In approaching the lair of the Gorgons, Perseus put on the helmet of invisibility. He approached Medusa stepping backwards, cautiously peering only at Medusa’s indistinct image in his shield. Perseus then swept his sword in a backhanded way and managed to sever Medusa’s head. It is said that Athene guided his hand.

Amazingly, springing full grown from Medusa’s blood was the winged white stallion Pegasus. After placing Medusa’s head in the pouch, Perseus mounted Pegasus for the trip home.

Cruising high in the sky over the Ethiopian coast Perseus spotted a horrific sight. There, far below, the

beautiful Andromeda, in chains; her screams reaching his ears. Then he spotted why she was screaming. A short distance away, crawling out of the surf was the monster, Cetus, heading towards Andromeda. Perseus immediately sized up the situation and swooped with Pegasus down to a spot between Andromeda and the monster. Then, burying his head in his elbow, drew out the head of Medusa from the pouch and held it in front of Cetus. The head was as lethal in death as in life, and the monster was promptly turned to stone. Replacing the head in the pouch, Perseus freed Andromeda. They flew off to, supposedly, live happily ever after.

Oh yes. Perseus did present the head of Medusa to his step father Polydectes. Who was also turned to stone when he opened the pouch and peered inside.

Where is the head of Medusa now?

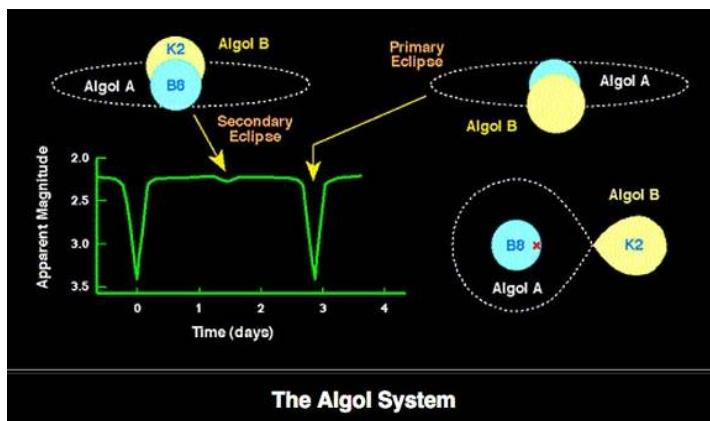
The Demon Star

Look again, see what Perseus is holding in his left hand. It’s the severed head of Medusa. And one of those stars is its eye. The still winking eye of Medusa, whose name is Algol. The artist for Stellarium has

Stars... (Continued from page 3).

drawn stars in both eyes of Medusa. Only the brighter one is the one we're concerned with, and that is Algol, which means, in Arabic, the Ghoulish Star or the Demon Star. The Chinese called that part of Perseus The Mausoleum, and Algol and the stars around it a Heap of Corpses. So it had been known over the centuries that there was something wrong with Algol, and it wasn't until the 17th century that someone caught Algol doing something very odd. It winked!

It's a slow six hour wink, but it winks. In the 19th century it was determined that the winks occurred at intervals of 2 days, 21 hours and 10 and a fraction minutes. Algol is actually two stars eclipsing one another.



Credit: Mike Guidry, University of Tennessee.

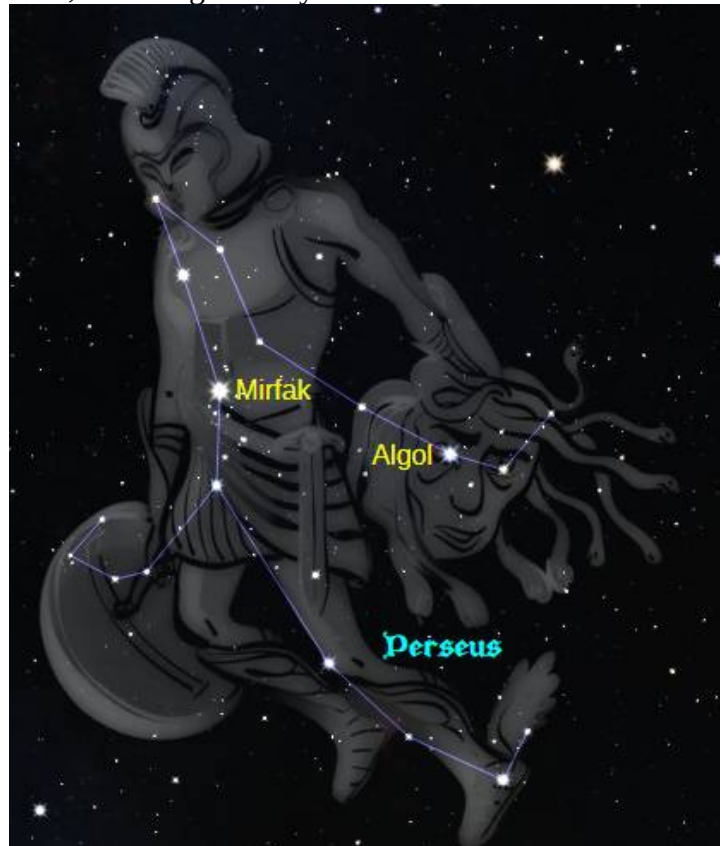
There is a hot blueish star of spectral type B8 and a orangish K2 type star orbiting each other. The plane of their orbits is nearly in line with the earth, so that we see one big eclipse when the K star moves in front of and partially blocks the blue star, and a minor dip, which probably cannot be discerned with the naked eye when the B star partially eclipses the K star. The secondary eclipse is just a little bit of a dip in brightness, and is probably not noticeable to the naked eye. The visible dip lasts about nine and a half hours according to Stellarium. At the midpoint which is called the minimum or minima plural, is in the middle of that. I find that most of the time Algol is nearly as bright as Mirfak, Perseus' brightest star. At minimum, it is decidedly dimmer. That's my quick check if an eclipse is in progress.

Here is a list of Algol minima times visible at nighttime for the Grand Traverse Area for October:

- 10/07/2025 @ 7:04 AM

- 10/10/2025 @ 3:53 AM
- 10/13/2025 @ 12:42 AM
- 10/15/2025 @ 9:30 AM

Minima times for other dates can be calculated from the website: <https://www.astropical.space/algol.php>. The site can calculate times for other eclipsing binary stars, including Beta Lyrae.



Perseus, naming its two brightest stars. Created using Stellarium and LibreOffice Draw.

Alpha Persei Association

There's another cool thing to view in Perseus. Just below naked eye visibility there is a surprising group of stars. It's called the Alpha Persei Association. A stellar association is a loose star cluster, or one so close to us to be unrecognizable as a star cluster. The brightest star in Perseus, Mirfak, also has the designation of Alpha Persei. It is about 500 light years away and the brightest star in this group. The Alpha Persei Association doesn't look like anything to the naked eye. However, in binoculars, dozens of stars appear that are just below naked eye visibility. It's quite a revelation, the first time you see it.

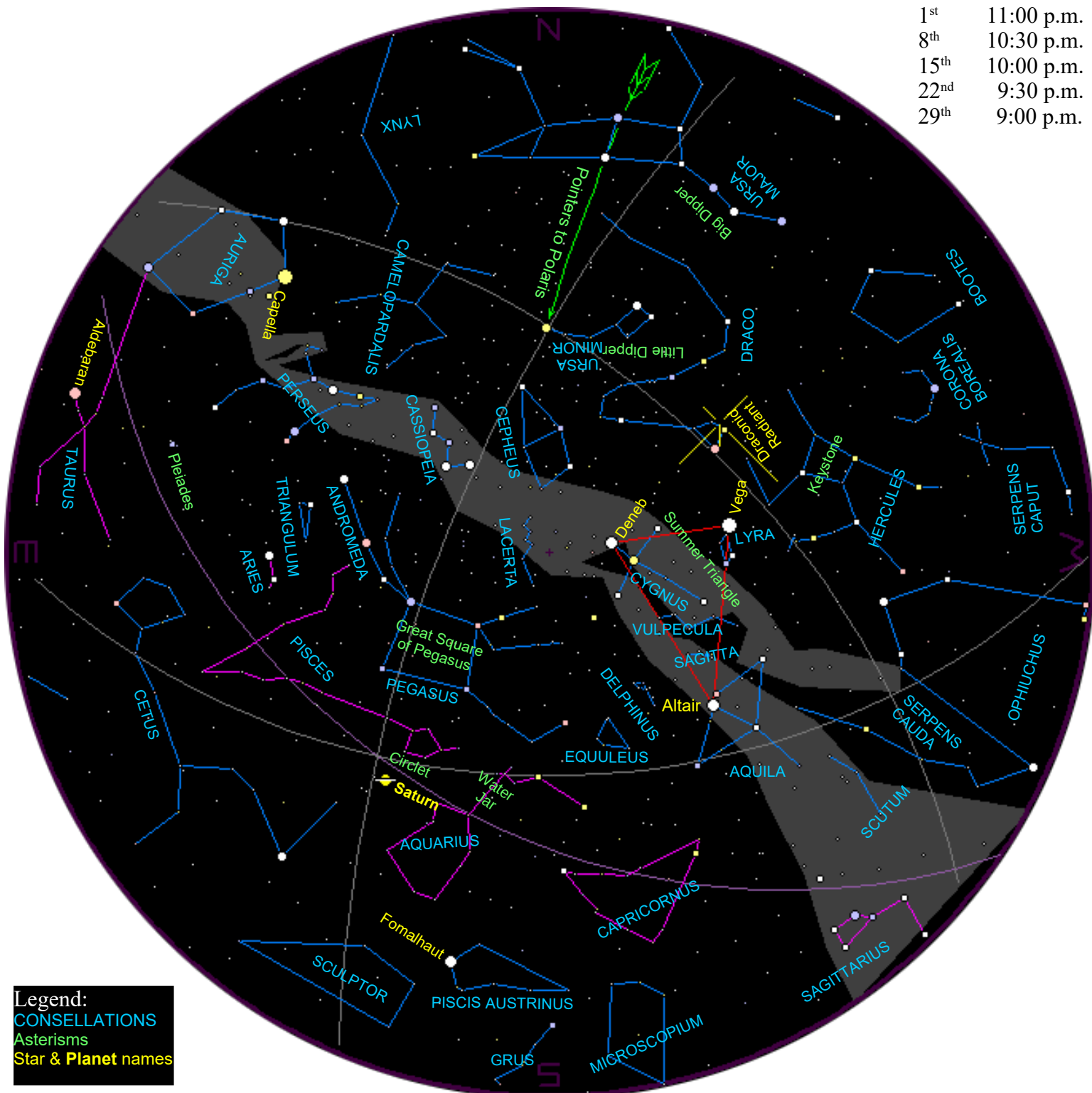
We will explore the autumn skies further next month with part 2. ★

The Stars and Planets for October 2025

By Bob Moler

Planets are plotted for mid month. The star positions are correct for:

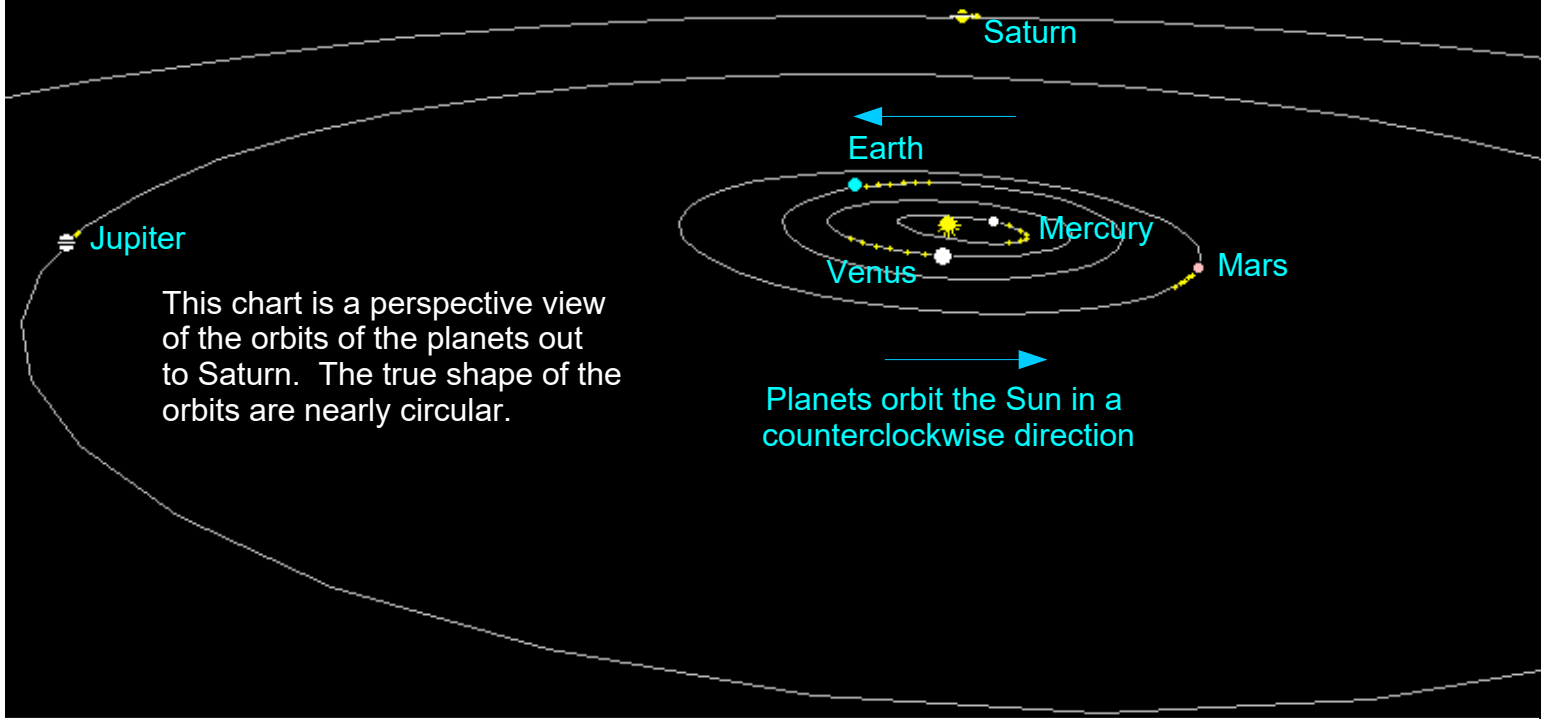
1 st	11:00 p.m.
8 th	10:30 p.m.
15 th	10:00 p.m.
22 nd	9:30 p.m.
29 th	9:00 p.m.



The naked-eye planet Saturn is visible at chart time. Saturn is entering Pisces. October brings the autumn constellations into prominence in the eastern half of the sky. The Pleiades is the beautiful star cluster rising in the east. The northernmost of the summer constellations are still hanging on in the western sky. The Milky Way, overhead, seems to rotate slowly counterclockwise over the evening. Another sign of autumn is low in the south, the bright star Fomalhaut appears for a few hours in the evening. There's still a lot to scan with binoculars for in the Milky Way as it is twisted now from northeast, through the zenith (+) and the star Deneb, to the southwest.

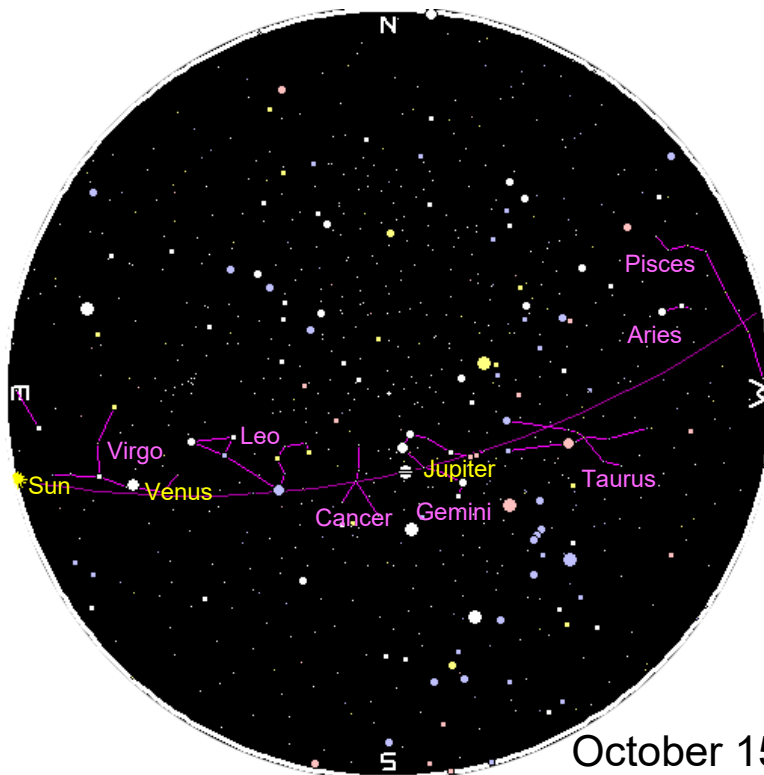
The Naked Eye Planets

October 1st, 6th, 11th, 16th, 21st, 26th, 31st

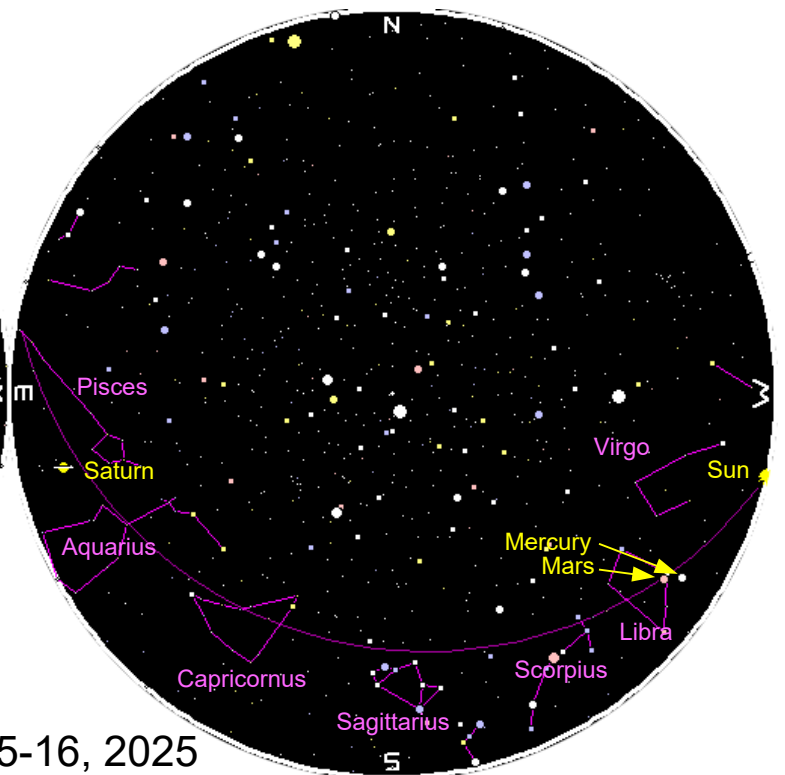


The Planets as Seen From Northern Michigan

Sunrise



Sunset



October 15-16, 2025

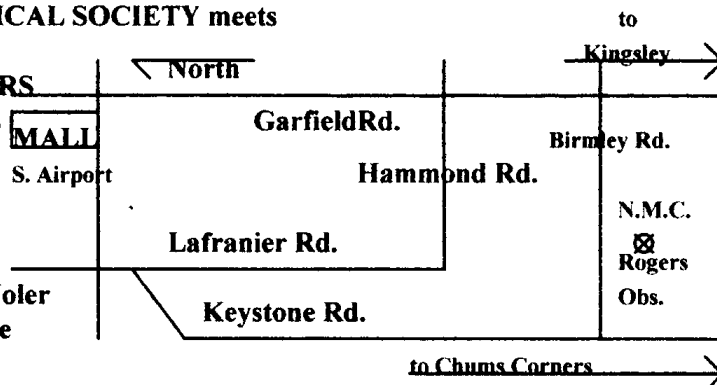
CELESTIAL CALENDAR

	Date	Time	Event
Oct	1 We		Venus: 23.9° W
	5 Su	5:20 AM	Moon Ascending Node
	5 Su	10:46 PM	Moon-Saturn: 3.8° S
	6 Mo	11:48 PM	Full Moon
	8 We	8:36 AM	Moon Perigee: 359800 km
	8 We	5:08 PM	Jupiter-Pollux: 6.7° S
	10 Fr	1:20 AM	Moon-Pleiades: 0.9° S
	11 Sa	11:30 PM	Moon North Dec.: 28.5° N
	13 Mo	2:13 PM	Last Quarter
	13 Mo	6:31 PM	Moon-Jupiter: 4.4° S
	13 Mo	7:30 PM	Moon-Pollux: 2.6° N
	14 Tu	6:53 PM	Moon-Beehive: 2° S
	16 Th	12:56 PM	Moon-Regulus: 1.4° S
	18 Sa	12:34 AM	Moon Descending Node
	19 Su	4:25 PM	Mercury-Mars: 2° N
	19 Su	5:37 PM	Moon-Venus: 4° N
	21 Tu	8:07 AM	Orionid Meteor Shower: ZHR = 20
	21 Tu	8:25 AM	New Moon
	23 Th	12:15 PM	Moon-Mercury: 2.5° N
	23 Th	7:31 PM	Moon Apogee: 406400 km
	24 Fr	8:15 PM	Moon-Antares: 0.6° N
	26 Su	7:50 AM	Moon South Dec.: 28.5° S
	29 We	11:21 AM	First Quarter
	29 We	4:59 PM	Mercury Elongation: 23.9° E
Nov	1 Sa		Venus: 16.2° W

Sky Events Calendar by Fred Espenak and Sumit Dutta (NASA's GSFC), <http://eclipse.gsfc.nasa.gov/SKYCAL/SKYCAL.html> to make your own for any year. Some additions and clarifications were made by the editor.

The GRAND TRAVERSE ASTRONOMICAL SOCIETY meets

on the first Friday of each month at the NORTHWESTERN MICHIGAN ROGERS OBSERVATORY at 8 p.m. The public is invited to attend all Society functions as our guests. We are a non-profit group dedicated to the study of astronomy and the sky above us. If you would like more information on GTAS, please call Bob Moler at 946-8649, or write to the address on the last page of this publication.



DATE	SUN RISE	SUN SET	DAYLIGHT HOURS	TWILIGHT*		MOON PHASE	RISE OR SET**	OR TIME	ILLUM FRACTN
Wed 1	07:40a	07:22p	11:41	08:25p	06:37a		Set	01:55a	70%
Thu 2	07:41a	07:20p	11:38	08:23p	06:39a		Set	03:10a	79%
Fri 3	07:43a	07:18p	11:35	08:21p	06:40a		Set	04:26a	87%
Sat 4	07:44a	07:16p	11:32	08:19p	06:41a		Set	05:43a	94%
Sun 5	07:45a	07:15p	11:29	08:17p	06:42a		Set	07:02a	98%
Mon 6	07:46a	07:13p	11:26	08:16p	06:43a	Full	Rise	06:52p	100%
Tue 7	07:48a	07:11p	11:23	08:14p	06:45a		Rise	07:15p	99%
Wed 8	07:49a	07:09p	11:20	08:12p	06:46a		Rise	07:42p	95%
Thu 9	07:50a	07:07p	11:17	08:10p	06:47a		Rise	08:16p	88%
Fri 10	07:51a	07:06p	11:14	08:08p	06:48a		Rise	09:00p	80%
Sat 11	07:53a	07:04p	11:11	08:07p	06:50a		Rise	09:57p	69%
Sun 12	07:54a	07:02p	11:08	08:05p	06:51a		Rise	11:05p	58%
Mon 13	07:55a	07:00p	11:05	08:03p	06:52a	L Qtr	Rise	12:19a	47%
Tue 14	07:56a	06:59p	11:02	08:02p	06:53a		Rise	01:34a	37%
Wed 15	07:58a	06:57p	10:59	08:00p	06:54a		Rise	02:47a	27%
Thu 16	07:59a	06:55p	10:56	07:58p	06:56a		Rise	03:57a	18%
Fri 17	08:00a	06:54p	10:53	07:57p	06:57a		Rise	05:04a	11%
Sat 18	08:02a	06:52p	10:50	07:55p	06:58a		Rise	06:09a	6%
Sun 19	08:03a	06:50p	10:47	07:54p	06:59a		Rise	07:14a	2%
Mon 20	08:04a	06:49p	10:44	07:52p	07:01a		Rise	08:19a	0%
Tue 21	08:05a	06:47p	10:41	07:51p	07:02a	New	Set	06:32p	0%
Wed 22	08:07a	06:45p	10:38	07:49p	07:03a		Set	06:54p	2%
Thu 23	08:08a	06:44p	10:35	07:48p	07:04a		Set	07:21p	6%
Fri 24	08:09a	06:42p	10:32	07:46p	07:05a		Set	07:55p	11%
Sat 25	08:11a	06:41p	10:29	07:45p	07:07a		Set	08:38p	17%
Sun 26	08:12a	06:39p	10:27	07:43p	07:08a		Set	09:30p	25%
Mon 27	08:13a	06:38p	10:24	07:42p	07:09a		Set	10:31p	34%
Tue 28	08:15a	06:36p	10:21	07:40p	07:10a		Set	11:39p	43%
Wed 29	08:16a	06:35p	10:18	07:39p	07:12a	F Qtr	Set	12:50a	53%
Thu 30	08:17a	06:33p	10:15	07:38p	07:13a		Set	02:03a	63%
Fri 31	08:19a	06:32p	10:13	07:36p	07:14a		Set	03:17a	73%

* Nautical Twilight

** Moonrise or moonset, whichever occurs between sunset and sunrise

New members: Pay a full year now, and get the rest of this year free!

Grand Traverse Astronomical Society – Membership Application / Renewal 2026

I am interested, please send me more information about the next GTAS meeting.

I'll join, payment enclosed

Email Address: _____

Membership renewal

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Membership term runs from January to December

Interests: _____

Name(s): _____ Home Phone: _____ Cell: _____

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For new members just joining mid-year, pro rate the dues thus:
 Annual Dues x months remaining in the year / 12.
 Example: Single Joining in June:
 \$25.00 X 6 (Jul-Dec) / 12 = \$12.50

Editor's Corner

This is the first issue of the all electronic *Stellar Sentinel*. I've done little to rearrange the contents, choosing to as much as possible keep the article or articles together before the last five pages of diagrams, tables, and this last page.

I've been associated with the *Stellar Sentinel* since almost the very beginning of the organization, being its first president. The charts and diagrams in the *Stellar Sentinel* have for the most part been produced by myself.

Mary Gribbin has been elected Newsletter Editor this past May, since I wish to step back a bit from the newsletter. Originally it was because, due to my disability of not being able to drive, and having to rely on others to pick up the *Stellar Sentinels* from the printer and deliver them to the Post Office, and my daughter's insistence that I give it up. The first problem is now nonexistent by going strictly electronic. The Ephemeris program on Interlochen Public Radio and accompanying blog will continue, 50 years and counting! It will be up to the Board and

Mary as to the future format of the *Stellar Sentinel*. I will continue to supply content like star and planet charts and the calendar pages, if wanted.

In another development, The NASA Night Sky Network will no longer supply monthly articles due to budget cuts. They missed September, and I got one for this month, but too late. It's not timely, so it can be used in the future.

I also would like other members with knowledge, or experiences related to astronomy to contribute to the *Stellar Sentinel*. We can also publish your astrophotos. Dan Dall'Olmo gave me a collection of his excellent astrophotos, which I have used to illustrate my articles. And even the NASA ones.

What do you think of the new *Stellar Sentinel*, good or bad? Want improvements? Willing to contribute? Email me at brelom@gmail.com, and put GTAS somewhere in the subject line.

Eileen Carlisle

Avon Representative

1473 Birmley Road

Traverse City, MI 49696-8808

Phone: 946-8123 Fax: 929-0859

E-Mail: EileenAvonRep@charter.net

WANTED: Astronomers interested in working with Project ASTRO POLARIS.

Willingness to work with K-12 students and teachers. Visiting classrooms and conducting experiments, discussing astronomy interests and events. Sharing your love of astronomy with others. Will provide; training, materials, instructions and support. Please contact: Jerry Dobek Site Coordinator Project ASTRO POLARIS NMC Science & Math 1701 East Front Street Traverse City, MI 49686 email jdobek@nmc.edu phone 946-1787 obsv. 223-4545 home

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