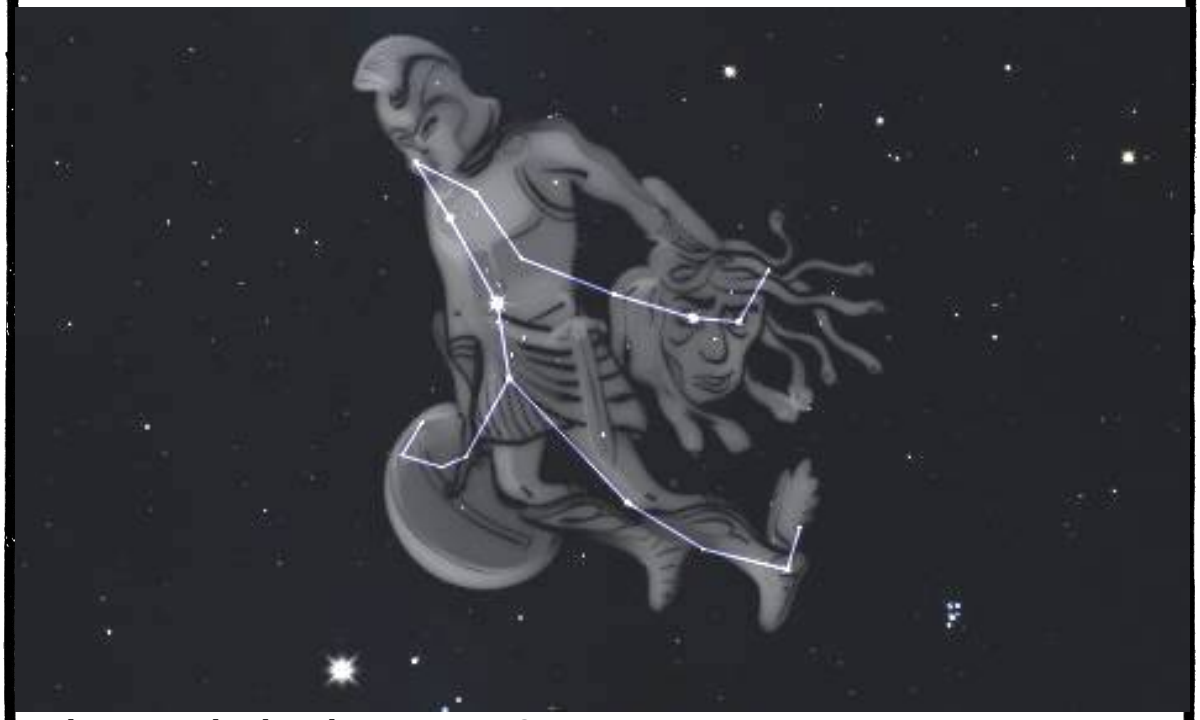
STELLAR SENTINEL
Grand Traverse Astronomical Society November 2026

Exploring Perseus

By Bob Moler



Where and what is Perseus?

Located in the northeastern November sky, Perseus, a Greek mythological hero can be found in the stars. He is found below the W shaped constellation of Cassiopeia, and above the bright star Capella and Auriga the Charioteer. In the Stellarium image, the artist figure of Perseus covers all the stars that are connected by the constellation lines, however he appears to lean backward. He is shown with Athena's shield and Hermes' winged sandals and helmet. Held in his left hand is the decapitated head of Medusa, whom he had slain. The star Algol marks one of her eyes.

The story of Perseus has been told by me many times and in many presentations over the years. I won't go into it here, but you can check it out on my blog: https://bobmoler.blog/2019/09/18/ephemeris-extra-the-great-star-story-of-autumn/.

What's wrong with Algol?

The star Algol, which has. Been depicted as one of Medusa's eyes, has a bad reputation. The Arabs called it Algol, meaning Ghoul Star, or Demon Star. It and the stars around it were noted by the Chinese as the mausoleum, and in some descriptions: piled up corpses. So there was something odd about the star. It is suggested that the ancients may have known, but it was never recorded.

It wasn't until 1667 that Italian astronomer Geminiano Montanari discovered that it varied in brightness, though he didn't know its period, or if it had one. That was put to rest by John Goodricke in 1783 when he suggested that it could be an eclipsing system or a star with a bright and dark side that was rotating. It turned out to be the former. Medusa's eye winks in a period of two days. 20 hours, 48 minutes, and 57

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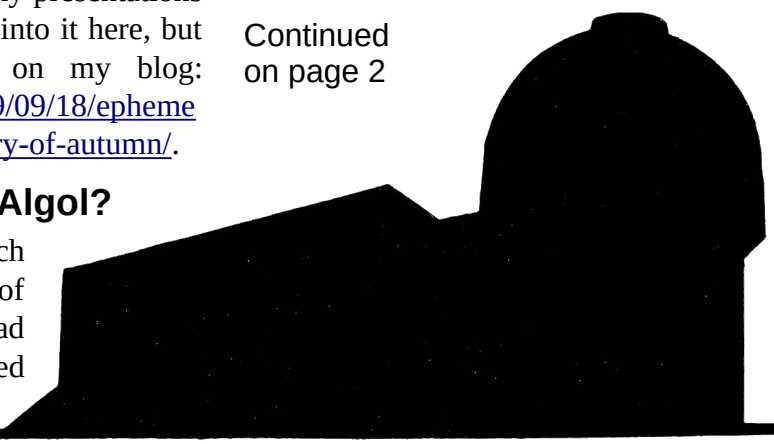
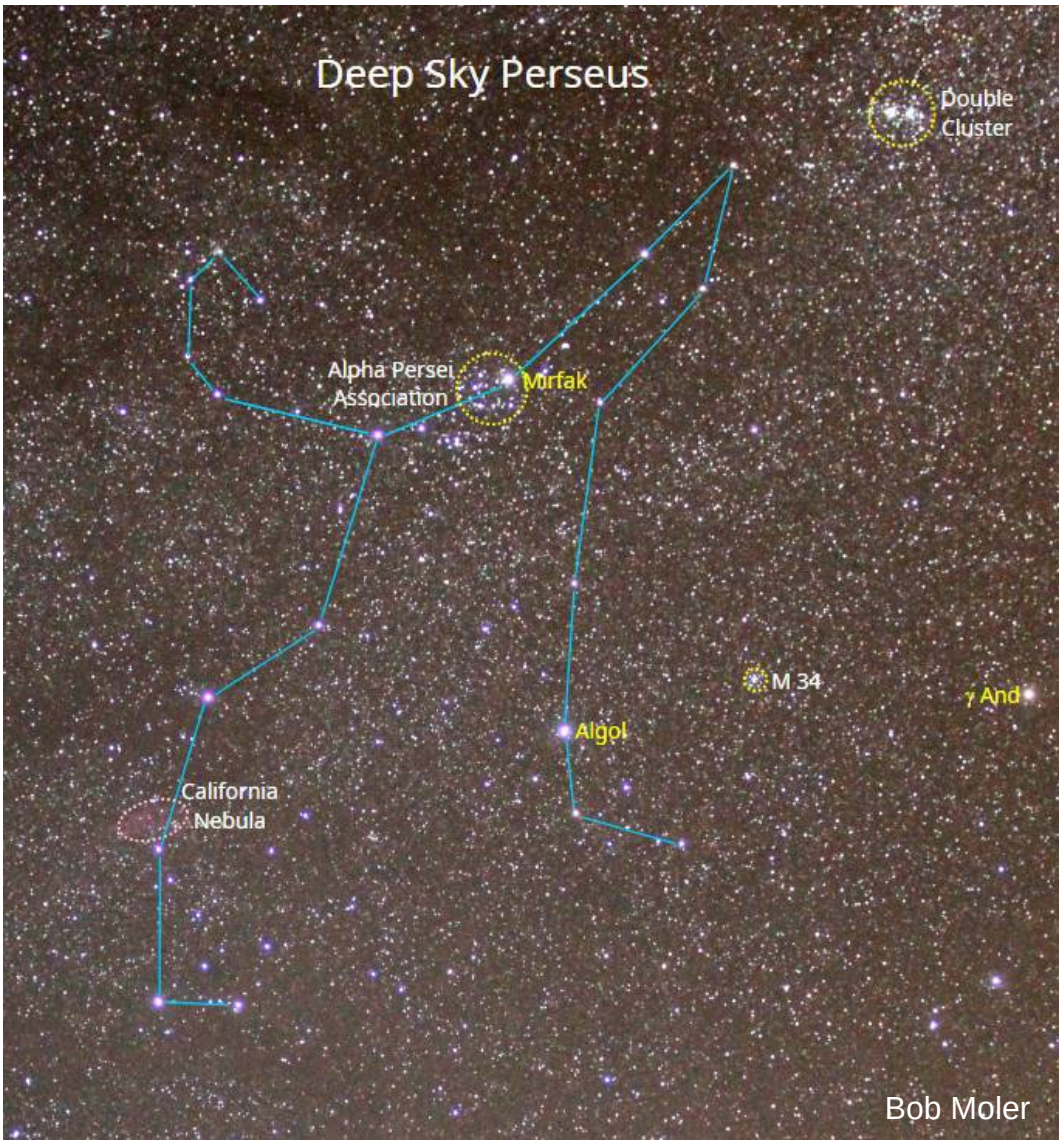


Exploring Perseus (Continued from page 1)



binoculars and astrophotographers. Most famous is the Double Cluster, two star clusters which appear to be side by side. Located between Perseus and Cassiopeia, they can be detected with the naked eye and binoculars as a fuzzy spot or two in the Milky Way. That's how I find them. In low power (50x) telescope field they are simply striking. I get more wows at star parties from the Double Cluster than from anything I can point my telescope to, other than Saturn. In the image on the left they are officially, from left to right, NGC 884, and 869. They also have Bayer star designations of h and chi (χ) Persei. They are about 180 light years apart at a distance from the Earth of about 7,550 light years.

Another star cluster is M 34, located nearly halfway and a bit above a line from Algol and Gamma (γ) Andromedae AKA Almach, the last of the lower string of stars coming from Alpheratz in the Great Square of Pegasus. In Stellarium the cluster is called the Spiral Cluster. This sparse and young open cluster is 1,500 light years away.

seconds; or 2.867328 days on average. It varies due to the change in distance, and therefore light-time between Earth and Algol, due to the Earth's changing position in its orbit of the Sun. A minima of Algol calculator is available on the Sky & Telescope website under Tools: https://skyandtelescope.org.

Deep sky wonders in Perseus

Perseus has deep sky objects for telescopes, For binoculars. We have the Alpha Persei

Continued on page 3

Grand Traverse Astronomical Society - Est. June 1982 – 44 years of service

-----Officers-----		*-----Directors-----*	*----------Patrons----------*
President	Jerry Dobek	Charles Bell	Charles Bell, Robert Carroll & Terri Mills, Daniel Dall'Olmo, Don and Kathy Flegel, Bill Hathaway, Judy Moler, Chris & George Renner, Ronald & Jan Uthe
Vice President	Tony Pernicano	Joe Brooks	
Secretary	Don Flegel	Kim Dobek	
Treasurer	Gary Carlisle	Bill Hathaway	
Editor	Bob Moler		

Upcoming Society Events

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

Friday, November 6 – 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 to click.

7 PM – Board of Directors Meeting **(Important subject to be discussed)**

8 PM – General Meeting: The Grand Traverse Linux User Group will be presenting their rocket project. They're planning to launch the rocket the following day, November 7.

9 PM – Observing, if it is clear.

Friday, December 4 – 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 to click.

7 PM – Possible Board of Directors Meeting

8 PM – General Meeting: Bob Moler – *The Golden Age of Islamic Astronomy*

9 PM – Observing, if it is clear.

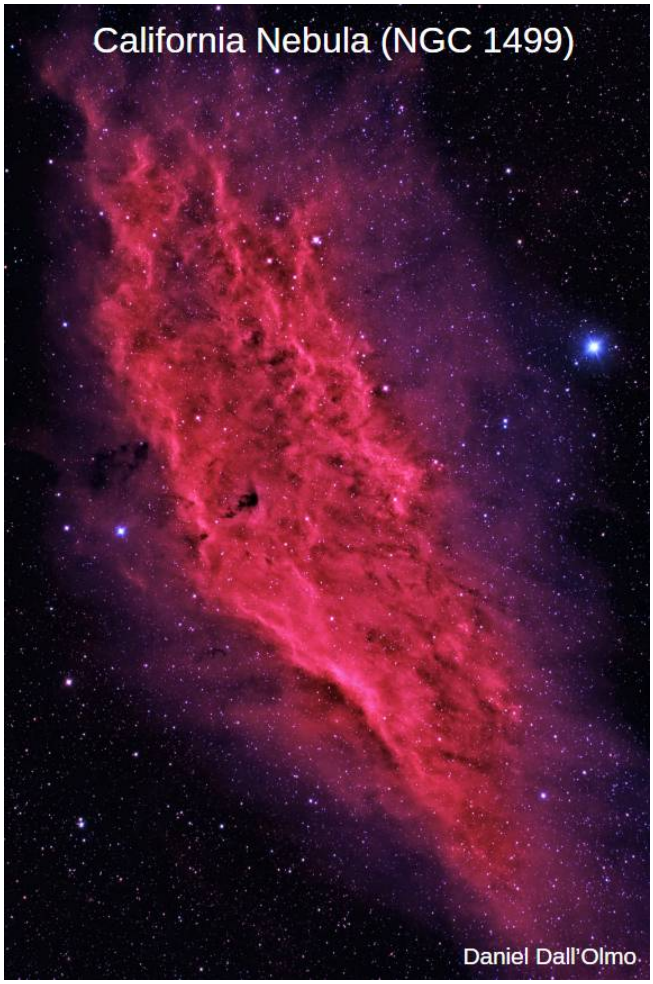
Zoom Meeting Link: https://us02web.zoom.us/j/8388913229?omn=88435646093

Exploring Perseus (Continued from page 2)

Association. Look to Mirfak, which is the brightest star in Perseus, also known as Alpha (α) Persei, and you will find a great number of stars, which appear fairly bright in binoculars, but are just below naked eye visibility. This fairly wide field I found by accident and had to look it up. It was that striking.

For the astrophotographer, there's the Double Cluster again. And also, with very long exposures the California Nebula. Which is on the trailing leg of my personal asterism of of Perseus' stars, the cartoon Road Runner. I found it by accident in the photography of a comet that was in the vicinity. ★



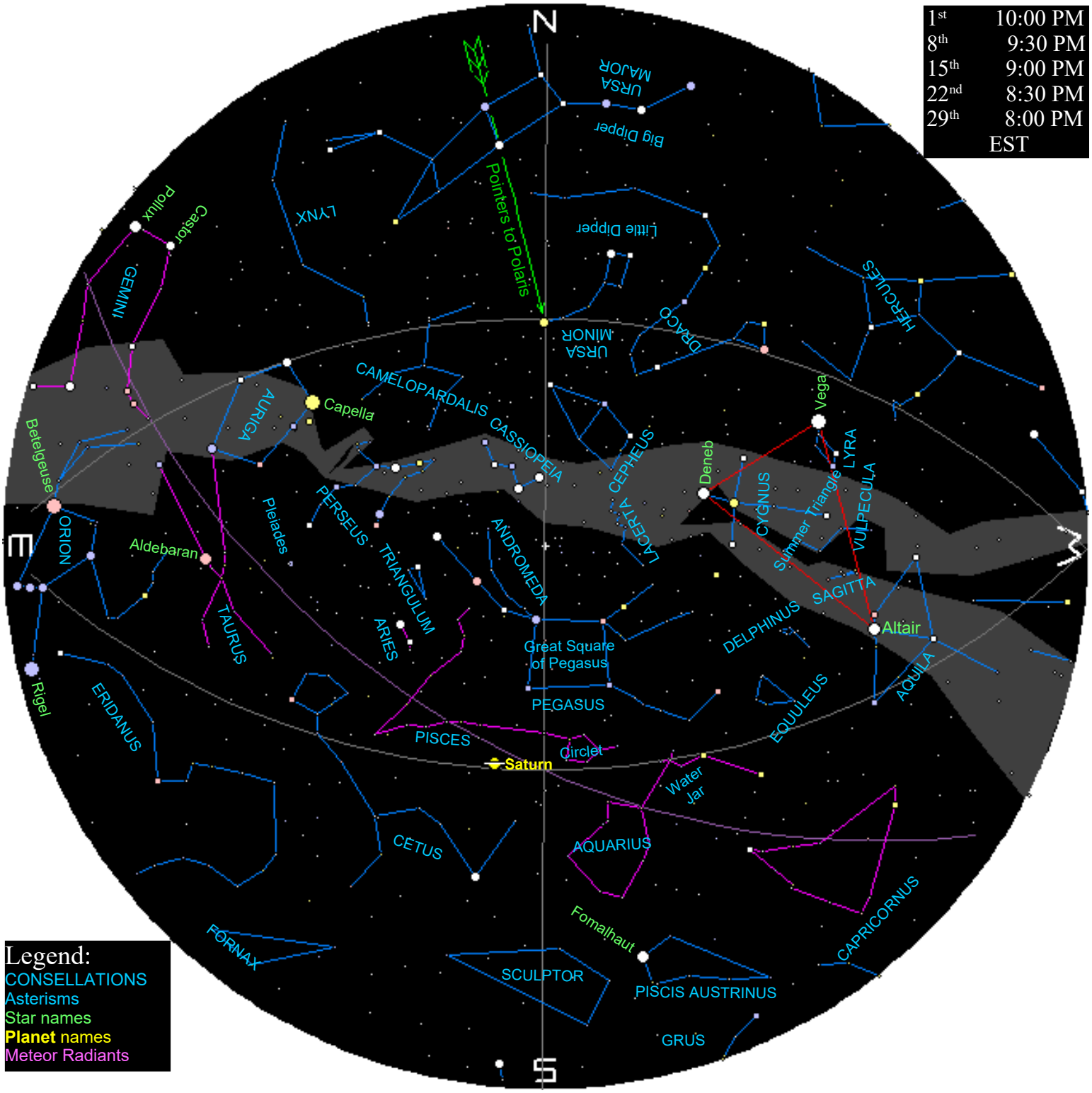


The Evening Stars and Planets for November 2026

By Bob Moler

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

1st	10:00 PM
8th	9:30 PM
15th	9:00 PM
22nd	8:30 PM
29th	8:00 PM
	EST



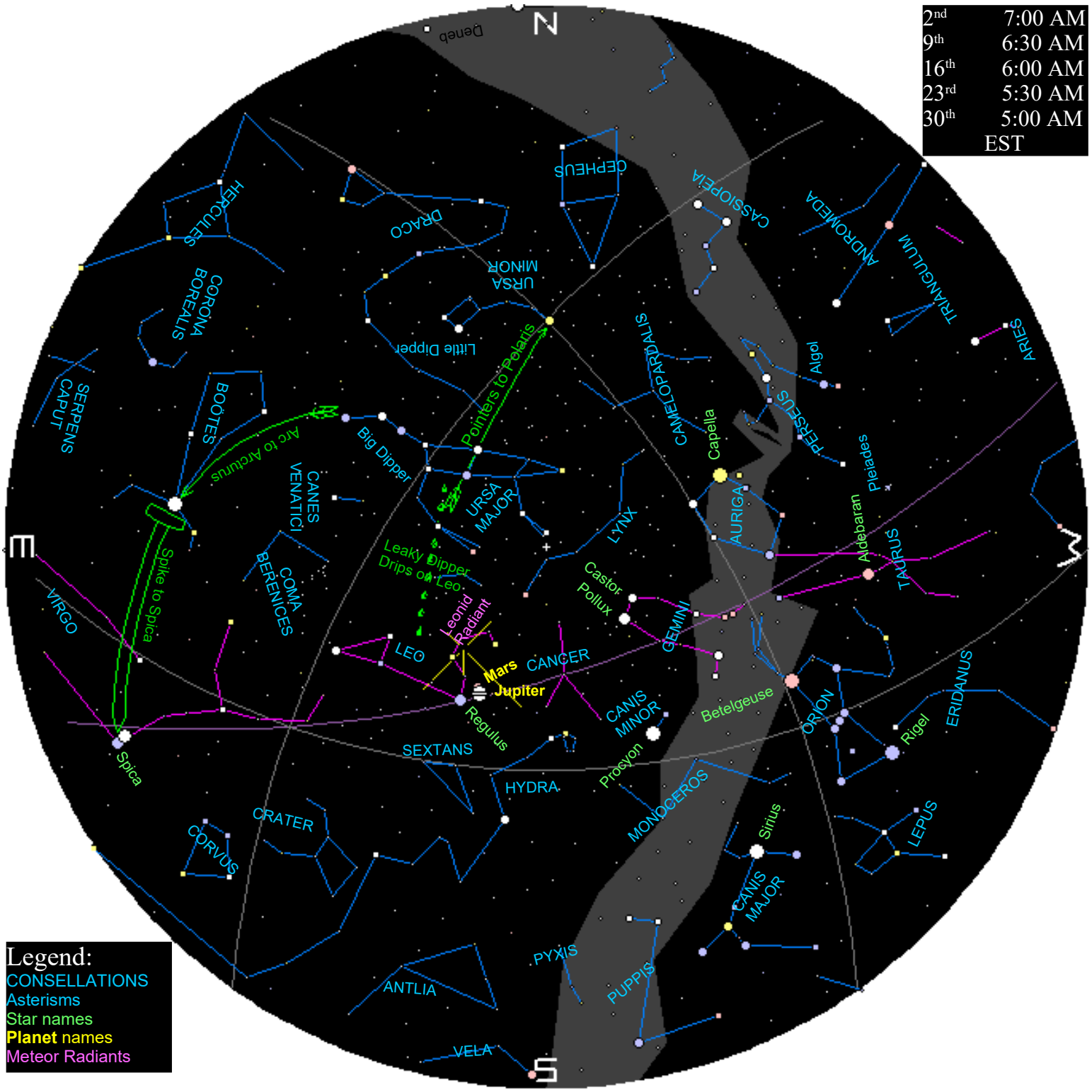
Legend:
CONSELLATIONS
Asterisms
Star names
Planet names
Meteor Radiants

November brings the autumn constellations to center stage in the south. The northernmost of the summer constellations are still hanging on in the western sky. Saturn is in Pisces for the second year. The northernmost constellations of the winter sky are in the northeast. Even the central winter constellation Orion is seen on the eastern horizon, now that his nemesis, Scorpius, has set. Pegasus the aerobatic flying horse is flying upside down nearly overhead in the south at chart time. It rides high along with Cassiopeia the queen, Cepheus the king, Andromeda the princess, Perseus the hero and Cetus the sea monster, of that wonderful autumn story.

The Morning Stars and Planets for November 2026

By Bob Moler

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

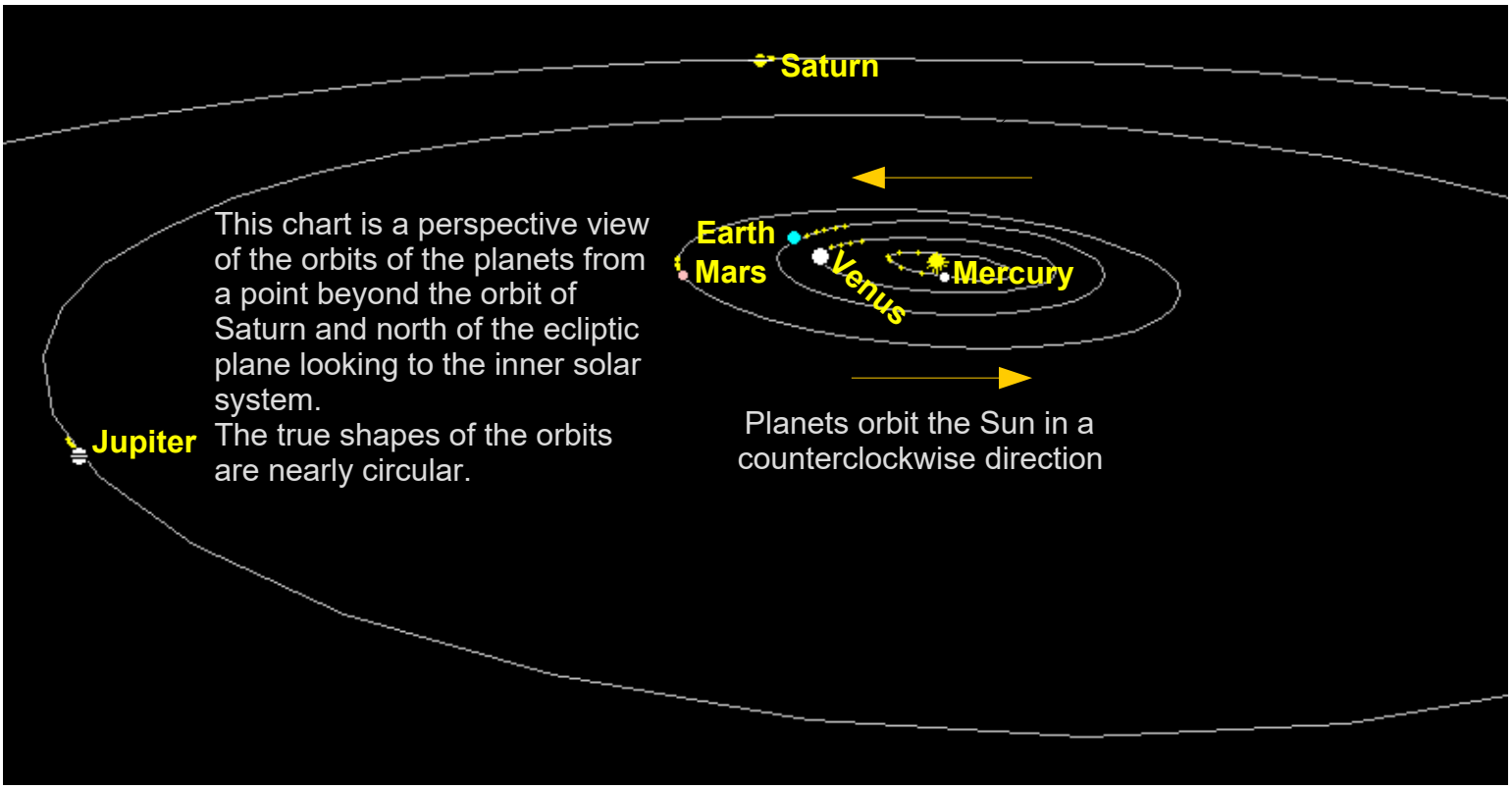


Now that the night skies span more than half the day, the morning sky is accessible to those who rise for daytime jobs or school children waiting for the school bus. The star positions are the same as early April in the evening. It's a preview of spring skies as we head into winter. Jupiter and Mars are the two naked eye planets visible, and are in conjunction on the morning of the 16th. The Leonid meteor shower will reach peak on the night of the 17-18th. The Moon won't interfere after 12:40 AM on the 18th. The Leonids, every 33 years or so, have a great meteor storm, which is 5 or 6 years away.

For more information on planets and their locations each Wednesday:
https://bobmoler.blog.

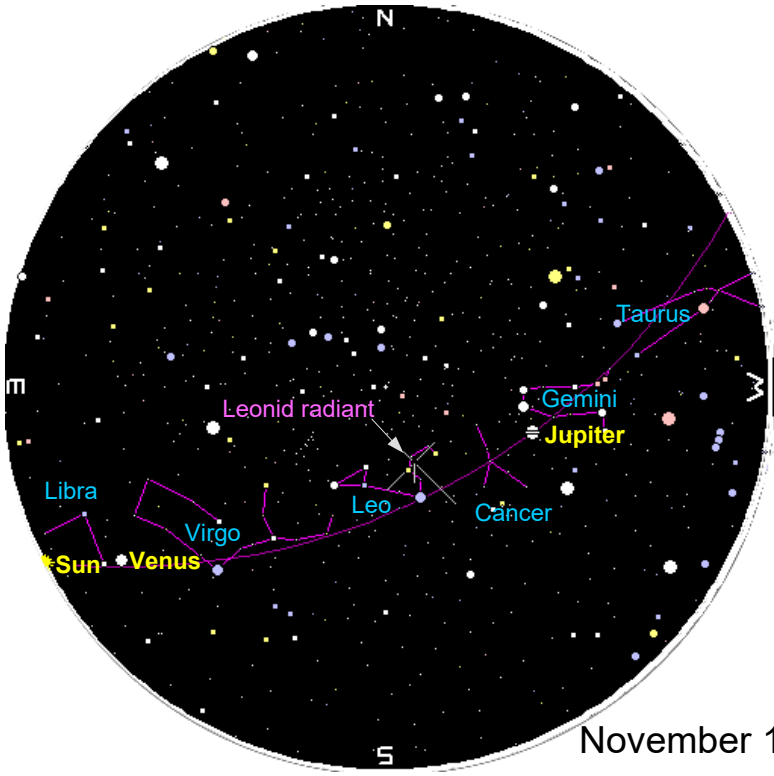
The Naked Eye Planets

November 1st, 6th, 11th, 16th, 21st, 26th, December 1st

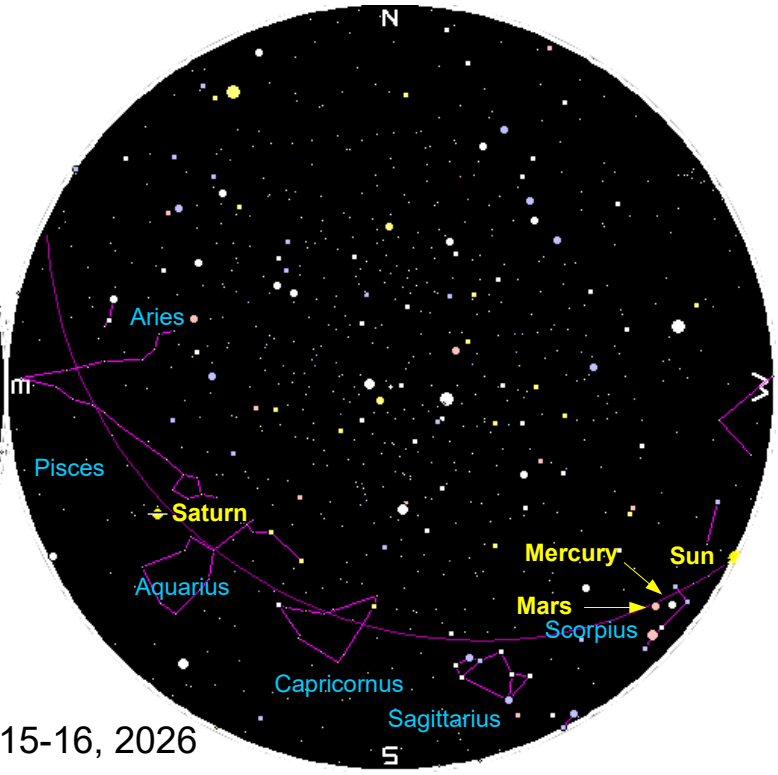


The Planets as Seen From Northern Michigan

Sunrise



Sunset



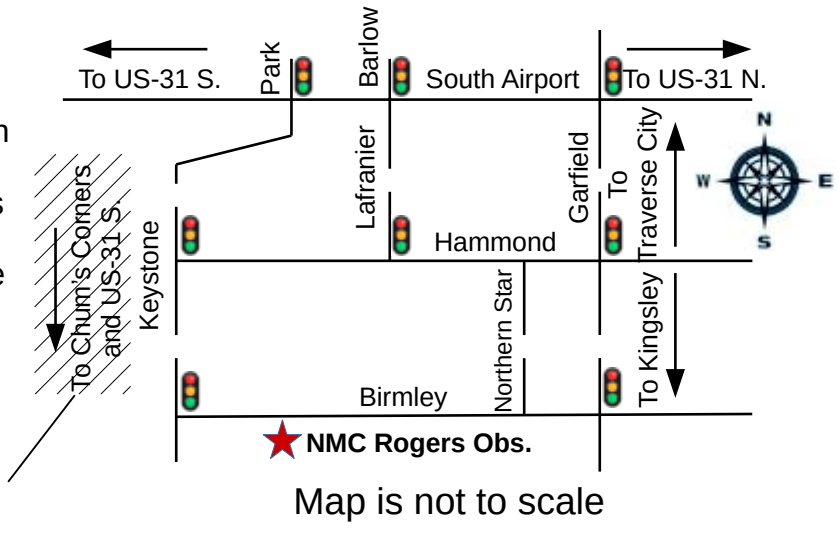
November 15-16, 2026

CELESTIAL CALENDAR

Date		Time	Event
Oct 1	Th		Venus: 30.8° E
1	Th	4:41 PM	Moon Perigee: 369300 km
2	Fr	7:35 AM	Moon North Dec.: 28° N
3	Sa	9:25 AM	Last Quarter
4	**Su**	**7:52 AM**	**Saturn Opposition**
5	Mo	1:30 AM	Moon-Mars: 1.2° S
5	Mo	7:06 AM	Moon-Beehive: 0.4° S
6	Tu	6:18 AM	Moon-Jupiter: 0.2° S
6	Tu	9:19 PM	Moon Descending Node
6	Tu	10:57 PM	Moon-Regulus: 0.6° N
6	Tu	11:59 PM	Mercury-Venus: 5° N
10	Sa	11:50 AM	New Moon
10	Sa	11:55 AM	Mars-Beehive: 0.4° S
11	Su	10:30 PM	Moon-Venus: 3.3° S
12	Mo	5:59 AM	Mercury Elongation: 25.2° E
12	Mo	4:08 PM	Moon-Mercury: 2.3° N
14	We	4:25 PM	Moon-Antares: 0.5° N
15	Th	10:45 PM	Moon South Dec.: 27.9° S
16	Fr	6:56 PM	Moon Apogee: 404600 km
18	Su	12:13 PM	First Quarter
21	We	4:53 AM	Moon Ascending Node
21	**We**	**2:16 PM**	**Orionid Shower: ZHR = 20**
23	Fr	11:29 PM	Venus Inferior Conjunction
25	Su	11:12 PM	Full Moon
27	Tu	8:11 PM	Moon-Pleiades: 1° S
28	We	1:01 PM	Moon Perigee: 364400 km
29	Th	12:40 PM	Moon North Dec.: 27.8° N
Nov 1	Su		Venus: 13.9° 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 1st Friday of each month except August at the Northwestern Michigan College Rogers Observatory. The public is invited to all society functions as our guests. We are a non-profit group dedicated to the study of astronomy. If you'd like more information about us, our meeting and outreach schedule, see our website: www.gtastro.org.



Map is not to scale

Sun, Moon, and Twilight for NMC Observatory (Traverse City)

November, 2026 Local time zone: EST

DATE	SUN RISE	SUN SET	DAYLIGHT HOURS	TWILIGHT* END	TWILIGHT* START	MOON PHASE	MOON RISE OR SET**	TIME	ILLUM FRACTN
Sun 1	07:20a	05:31p	10:10	06:36p	06:15a	L Qtr	Rise	11:52p	48%
Mon 2	07:21a	05:29p	10:08	06:34p	06:16a		Rise	01:08a	37%
Tue 3	07:23a	05:28p	10:05	06:33p	06:17a		Rise	02:21a	27%
Wed 4	07:24a	05:27p	10:02	06:32p	06:19a		Rise	03:32a	18%
Thu 5	07:25a	05:25p	10:00	06:31p	06:20a		Rise	04:41a	11%
Fri 6	07:27a	05:24p	09:57	06:30p	06:21a		Rise	05:51a	5%
Sat 7	07:28a	05:23p	09:54	06:29p	06:22a		Rise	07:00a	2%
Sun 8	07:29a	05:22p	09:52	06:27p	06:23a		Rise	08:09a	0%
Mon 9	07:31a	05:20p	09:49	06:26p	06:25a	New	Set	05:06p	1%
Tue 10	07:32a	05:19p	09:47	06:25p	06:26a		Set	05:42p	3%
Wed 11	07:33a	05:18p	09:44	06:24p	06:27a		Set	06:26p	7%
Thu 12	07:35a	05:17p	09:42	06:24p	06:28a		Set	07:18p	12%
Fri 13	07:36a	05:16p	09:39	06:23p	06:29a		Set	08:17p	19%
Sat 14	07:37a	05:15p	09:37	06:22p	06:31a		Set	09:21p	27%
Sun 15	07:39a	05:14p	09:35	06:21p	06:32a		Set	10:26p	36%
Mon 16	07:40a	05:13p	09:33	06:20p	06:33a		Set	11:32p	45%
Tue 17	07:41a	05:12p	09:30	06:19p	06:34a	F Qtr	Set	12:39a	55%
Wed 18	07:43a	05:11p	09:28	06:19p	06:35a		Set	01:46a	65%
Thu 19	07:44a	05:10p	09:26	06:18p	06:37a		Set	02:56a	74%
Fri 20	07:45a	05:10p	09:24	06:17p	06:38a		Set	04:09a	83%
Sat 21	07:47a	05:09p	09:22	06:17p	06:39a		Set	05:26a	90%
Sun 22	07:48a	05:08p	09:20	06:16p	06:40a		Set	06:47a	96%
Mon 23	07:49a	05:07p	09:18	06:15p	06:41a		Set	08:10a	99%
Tue 24	07:50a	05:07p	09:16	06:15p	06:42a	Full	Rise	04:47p	100%
Wed 25	07:52a	05:06p	09:14	06:14p	06:43a		Rise	05:45p	97%
Thu 26	07:53a	05:05p	09:12	06:14p	06:44a		Rise	06:57p	92%
Fri 27	07:54a	05:05p	09:10	06:14p	06:45a		Rise	08:17p	84%
Sat 28	07:55a	05:04p	09:09	06:13p	06:46a		Rise	09:39p	74%
Sun 29	07:56a	05:04p	09:07	06:13p	06:48a		Rise	10:58p	64%
Mon 30	07:58a	05:04p	09:05	06:13p	06:49a		Rise	12:12a	53%

* Nautical Twilight

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

Grand Traverse Astronomical Society

Membership Application / Renewal for 2027

For renewing members, all we need is your name and email or street address to identify you, plus any information that has changed.

___ I am interested, please send me more information about the next GTAS meeting. (Also see www.gtastro.org)

___ I'll join, payment enclosed

___ Membership renewal

Membership term runs from January to December

Email Address:_____

Newsletter Delivery: ___ Email ___ Mail (Postcard only)

Interests: _____

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

Address: _____ __

(Street, City, State ZIP)

Dues: ___ Single Membership $25.00/yr

___ Family.....….....$30.00/yr

___ Student (up to 18 years age)....$15.00/yr

___ Patron (Donation)……..……..$_____

Mail check to: G.T.A.S.

Gary Carlisle, Treasurer

1473 Birmley Road

Traverse City, MI 49696-8808

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

Eileen Carlisle
Avon Representative
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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, instuctionals 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