STELLAR SENTINEL
Grand Traverse Astronomical Society
June 2026



The Twilight Zone

By Bob Moler

For an amateur astronomer, June is a month that seems to be in continuous daylight, with the few hours of dark skies banished to the wee hours of the morning. On star party nights this time of year at the Sleeping Bear Dunes the entire official viewing time happens from just before sunset to before twilight ends.

Actually there are three twilight zones: civil, nautical and astronomical. Civil twilight lasts from sunset until the sun has reached 6° below the horizon. Nautical twilight, when mariners can see the brighter stars and the horizon lasts from then until the sun descends to 12° below the horizon. Astronomical twilight, when we can see most of the constellation stars and the brighter deep sky objects, will last from the end of nautical twilight until the sun has dropped to 18° below the horizon and the last twilight glow has disappeared.

Before entering the twilight zone

So if you're stuck, as we are, with the sun setting late and twilit viewing nights, here are some viewing opportunities.

In daylight we have the sun. We are just off a sunspot peak, the sun still has of sunspots. With white light solar filters, you can see them and faculae, bright surface areas, better seen near the limb. With hydrogen alpha filters the bright surface of the sun is blocked and the hydrogen chromosphere and prominences appear. The can change hour by hour or minute by minute.

Viewing Venus in the daytime in a telescope is a treat. However be careful, you wouldn't want to run into the sun with an unfiltered telescope or binoculars. When looking for Venus in the daytime, make sure the sun is hidden by a building or other obstruction just in case. In June Venus eastern elongation (angular distance) from the sun will increase from 35 to 41 degrees. Its greatest elongation will occur on August 15th.

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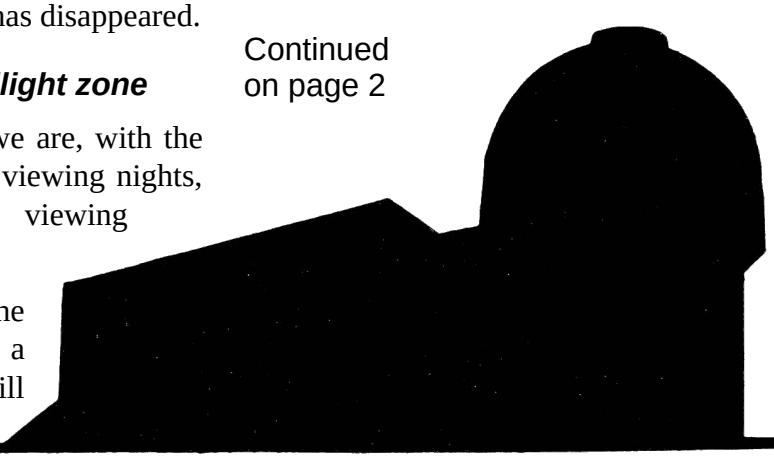
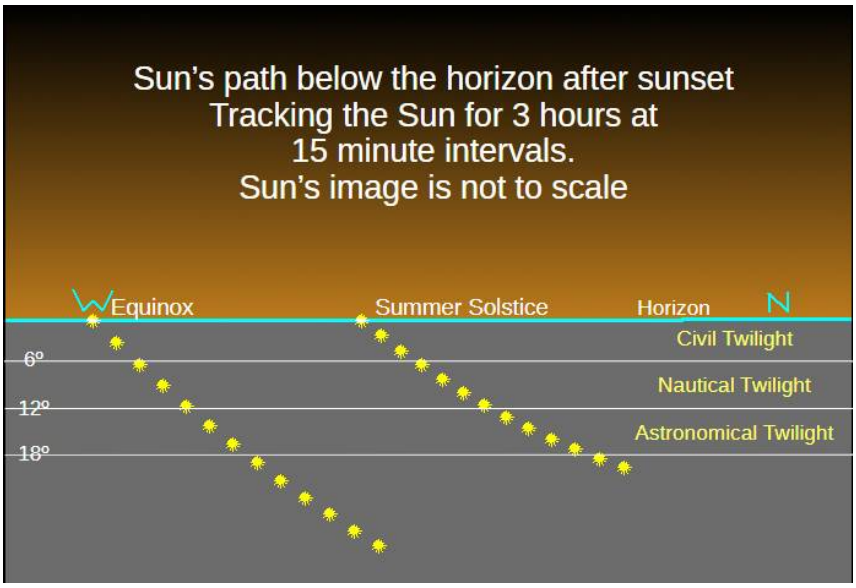


The Twilight Zone (Continued from page 1)



Why late spring and early summer twilight lasts longer than around the equinoxes. Diagram by thje author.

Observing in twilight

Ok, back to twilight. Mercury, when its near elongation can be found low on the horizon. But you've got to know where and when to look. Not all elongations are equal, in both distance from the sun and how high it will appear above the horizon. As far as distance from the sun goes: we're somewhat screwed. All our favorable elongations of Mercury have it 22 degrees from the sun or less. The southern hemisphere has better elongations, up to 28 degrees. That's because of Mercury's markedly elliptical orbit. The best time to view Mercury at its greatest eastern elongation, in the evening, is in late winter and early spring. That's a view just after sunset. Mercury is actually brightest, and not much closer to the sun on the week before greatest elongation. In the late summer and early autumn we can best see Mercury at its western elongation before sunrise. And with the reverse situation to its evening appearance, it is brighter the week after elongation. The reason for the brightness changes in Mercury is its change in its illuminated phase. Mercury's next fairly good evening elongation will be on the 15th of this month.

If there's more than one observer, make a competition of locating the first planet and or star after sunset. Oh, yes, they have to name the object. Then it's a race to spot other stars. In a telescope star colors contrast with the sky color. Arcturus' orange is a fine contrast. Spica's blue-white will seem to blend in in a blue sky, but contrasts with the sky lower down later in summer. Red Antares is another color contrast to the bright sky. As always it is a riot of color due to the turbulence of the earth's atmosphere. Sometimes its a big multicolored sparkler. Once the first magnitude stars have been found, the second magnitude stars become fair game. In the summer time two of them are special.

Mizar at the bend in the handle of the Big Dipper is a fascinating multiple star. The naked eye companion Alcor may not fare well in twilight, but a telescope will easily show it and Mizar's close companion star. All these stars are pure white, a nice contrast to the blue of the sky.

If you're talking about double stars there's the arguably best of all, Alberio the blue and gold binary. Its third magnitude, but I always put a premium on locating it. It's location below the parallelogram of Lyra with bright Vega pointing the way, and right of Deneb makes it relatively easy to find in a good finder telescope. One glimpse in the main telescope will easily confirm that you've got it. The estimate of its distance is 385 light years. The bright yellow star Alberio A is actually a double, making the blue companion Alberio C. Anyway they are a beautiful

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

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Upcoming Society Events

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

Friday, June 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 to click.

8 PM – Board of Directors Meeting

9 PM – General Meeting. Review and discussion of the images brought back from the Artemis II Mission.

10 PM – Star Party, if it is clear.

Friday, July 3 or 10?* – 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.

8 PM – Board of Directors Meeting

9 PM – General Meeting.

10 PM – Star Party, if it is clear.

Saturday, August 8 – GTAS Annual Picnic at Evelyn Brandt's Farview Orchards, Suttons Bay.

7 PM to ? – More details next month.

Zoom Meeting Link:

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

* July 3rd is the Friday before a holiday, and is considered part of the three day holiday weekend. The Board must approve bumping the meeting back a week to the 10th.

pair, and one that shows that stars really do come in colors. I call it the U of M star, with apologies to Spartan fans. Though there are white stars, there just aren't any green stars, so no MSU star pair.

As nautical twilight nears its end in the summer some of the brighter deep sky objects are reachable. M57 the ghostly Ring Nebula is great in deep twilight and even on full moon nights. Once found, higher power can darken the sky and bring out the ring. M13, the Great Hercules Globular Cluster in larger telescopes, and high power can also defeat the not so dark skies of deep twilight.

If you're willing o stay up past midnight for those few precious dark hours, moon willing, the splendor of the summer milky way awaits. It's a preview of, earlier in the evening, August skies. ★



Alberio, by Daniel Dall'Olmo.

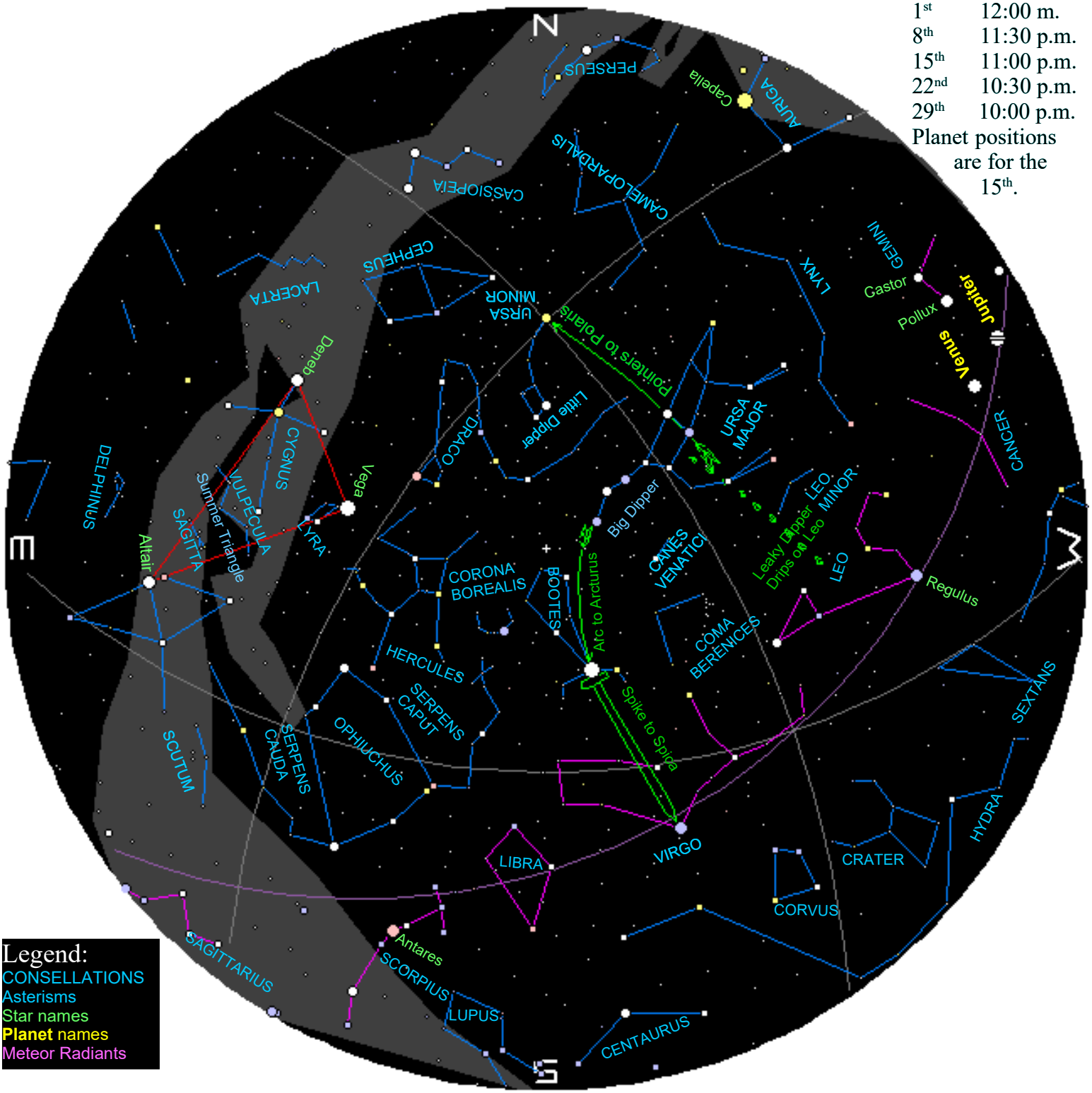
The Stars and Planets for June 2026

By Bob Moler

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

1st	12:00 m.
8th	11:30 p.m.
15th	11:00 p.m.
22nd	10:30 p.m.
29th	10:00 p.m.

Planet positions are for the 15th.



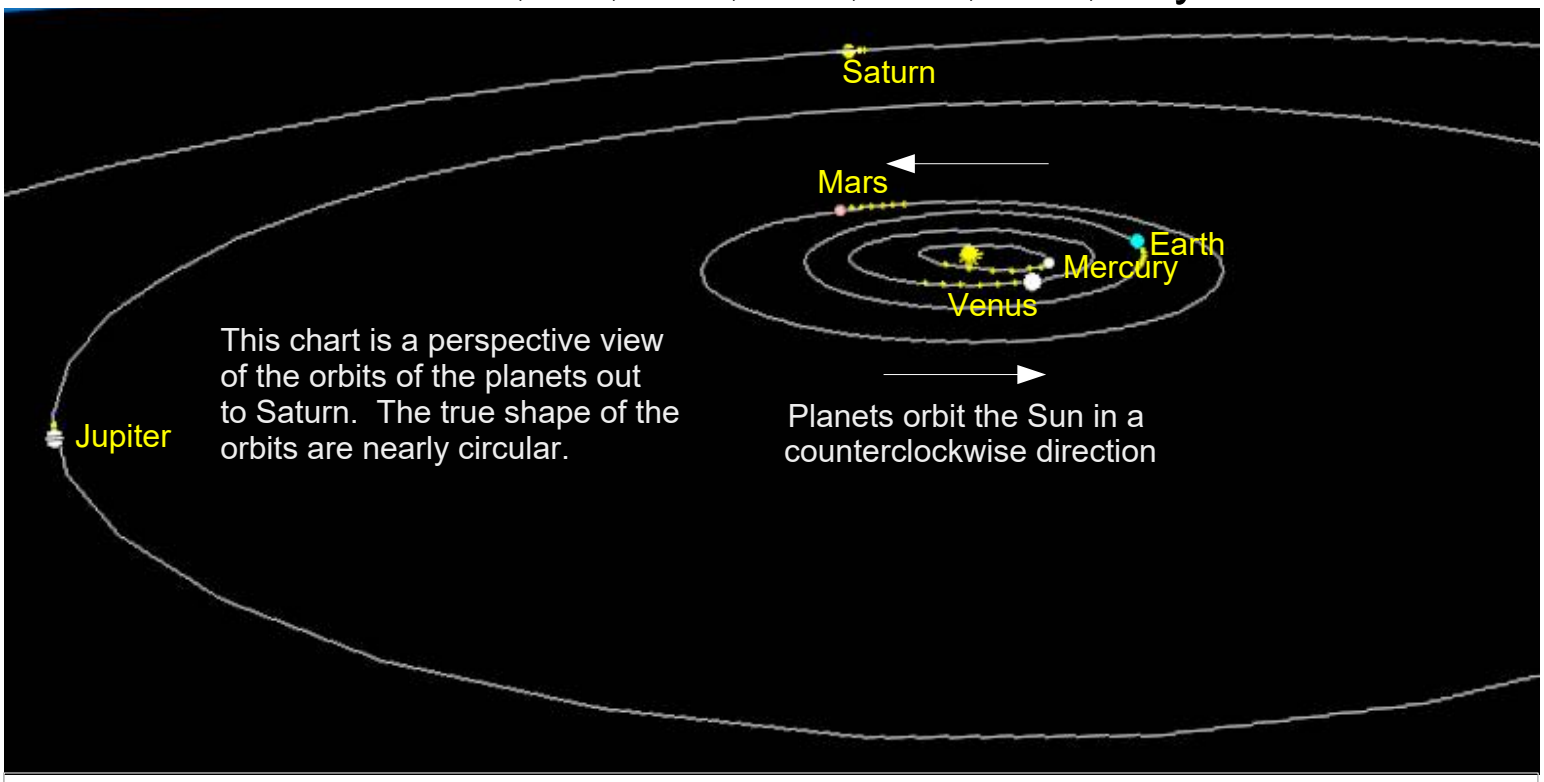
Legend:
CONSELLATIONS
Asterisms
Star names
Planet names
Meteor Radiants

The 11 p.m. chart time is a compromise because astronomical twilight will not have ended. Yet most of the sky will be dark enough for constellations as long as the bright moon isn't out. The Summer Triangle is now completely up at chart time announcing summer's start on the 20th. Jupiter and Venus will hang out in the western sky this month as Jupiter dips lower and lower. The red giant star Antares is now in the south southeast, the heart of Scorpius, as summer begins. Capella, the northernmost of the winter first magnitude stars will never leave those who live north of Ludington.

For more information on the planets and where to find them, check each Wednesday at https://bobmoler.blog.

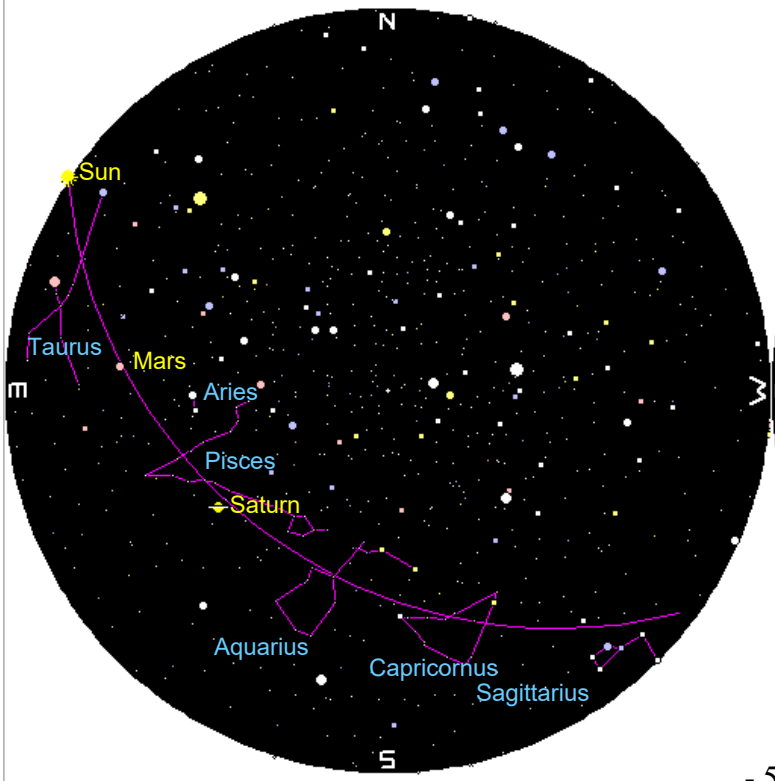
The Naked Eye Planets

June 1st, 6th, 11th, 16th, 21st, 26th, July 1st

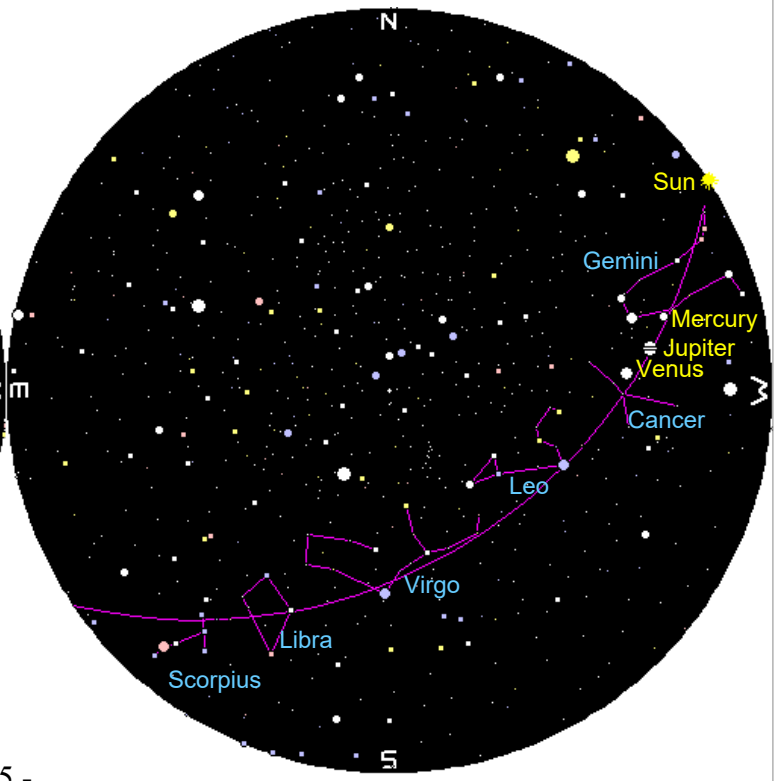


The Planets as Seen From Northern Michigan

Sunrise June 16



Sunset June 15

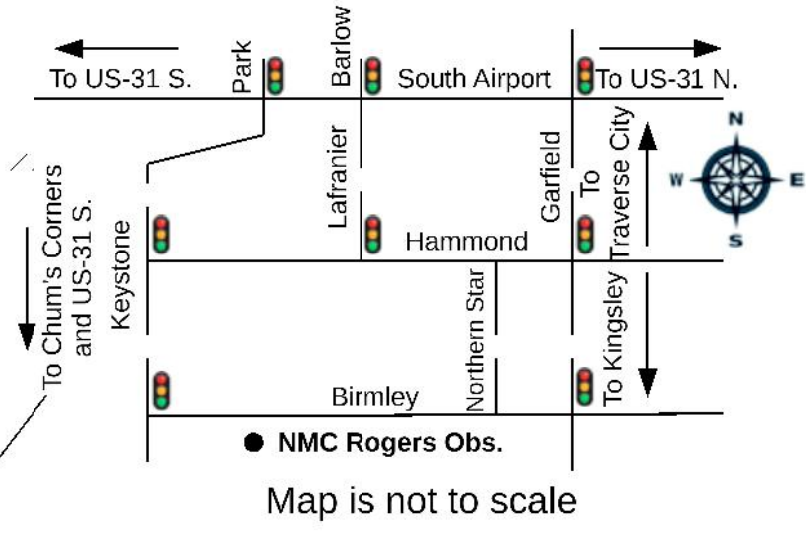


Celestial Calendar

Date		Time	Event
Jun 1	Mo		Venus: 35° E
1	Mo	12:32 AM	Moon Apogee: 406400 km
1	Mo	12:59 PM	Moon South Dec.: 28° S
7	Su	2:19 AM	Moon Ascending Node
7	Su	12:15 PM	Venus-Pollux: 4.7° S
8	Mo	6:00 AM	Last Quarter
9	**Tu**	**4:11 PM**	**Venus-Jupiter: 1.6° N**
13	Sa	9:15 AM	Moon-Pleiades: 0.9° S
14	Su	7:18 PM	Moon Perigee: 357200 km
14	Su	10:54 PM	New Moon
15	Mo	1:29 AM	Moon North Dec.: 28° N
15	**Mo**	**3:59 PM**	**Mercury Elongation: 24.5° E**
16	Tu	3:32 PM	Moon-Mercury: 2.6° S
17	We	2:54 AM	Moon-Jupiter: 2.5° S
17	We	4:21 PM	Moon-Venus: 0.3° S
17	We	7:40 PM	Moon-Beehive: 0.6° S
18	Th	10:59 AM	Mercury-Pollux: 6.4° S
19	Fr	10:31 AM	Moon-Regulus: 0.3° N
19	Fr	11:44 AM	Venus-Beehive: 0.4° N
19	Fr	1:57 PM	Moon Descending Node
21	**Su**	**4:25 AM**	**Summer Solstice**
21	Su	5:55 PM	First Quarter
23	Tu	4:11 PM	Moon-Spica: 2.3° N
25	Th	7:54 AM	Mercury-Jupiter: 3.8° N
27	Sa	10:32 AM	Moon-Antares: 0.5° N
28	Su	3:11 AM	Moon Apogee: 406300 km
28	Su	2:30 PM	Mars-Pleiades: 4.4° S
28	Su	6:06 PM	Moon South Dec.: 28° S
29	Mo	7:57 PM	Full Moon
Jul 1	We		Venus: 41.1° E

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.



Sun, Moon, and Twilight for NMC Observatory

June, 2026 Local time zone: EDT

DATE	SUN RISE	SUN SET	DAYLIGHT HOURS	TWILIGHT* END	TWILIGHT* START	MOON PHASE	RISE OR SET**	TIME	ILLUM FRACTN
Mon 1	06:00a	09:20p	15:20	10:43p	04:37a		Rise	11:10p	97%
Tue 2	05:59a	09:21p	15:21	10:44p	04:36a		Rise	11:53p	94%
Wed 3	05:59a	09:22p	15:22	10:45p	04:36a		Rise	12:28a	88%
Thu 4	05:59a	09:23p	15:24	10:46p	04:35a		Rise	12:57a	82%
Fri 5	05:58a	09:23p	15:25	10:47p	04:34a		Rise	01:20a	74%
Sat 6	05:58a	09:24p	15:26	10:48p	04:34a		Rise	01:41a	64%
Sun 7	05:57a	09:25p	15:27	10:49p	04:33a		Rise	01:59a	54%
Mon 8	05:57a	09:25p	15:28	10:50p	04:33a	L Qtr	Rise	02:18a	44%
Tue 9	05:57a	09:26p	15:29	10:51p	04:32a		Rise	02:38a	33%
Wed 10	05:57a	09:27p	15:29	10:52p	04:32a		Rise	03:00a	23%
Thu 11	05:57a	09:27p	15:30	10:52p	04:31a		Rise	03:28a	14%
Fri 12	05:56a	09:28p	15:31	10:53p	04:31a		Rise	04:04a	7%
Sat 13	05:56a	09:28p	15:31	10:54p	04:31a		Rise	04:52a	2%
Sun 14	05:56a	09:29p	15:32	10:54p	04:31a	New	Set	09:43p	0%
Mon 15	05:56a	09:29p	15:32	10:55p	04:31a		Set	10:46p	1%
Tue 16	05:56a	09:29p	15:33	10:55p	04:30a		Set	11:33p	5%
Wed 17	05:56a	09:30p	15:33	10:56p	04:30a		Set	12:09a	12%
Thu 18	05:56a	09:30p	15:33	10:56p	04:30a		Set	12:36a	20%
Fri 19	05:56a	09:30p	15:33	10:56p	04:31a		Set	12:58a	30%
Sat 20	05:57a	09:31p	15:33	10:57p	04:31a		Set	01:17a	40%
Sun 21	05:57a	09:31p	15:33	10:57p	04:31a	F Qtr	Set	01:35a	51%
Mon 22	05:57a	09:31p	15:33	10:57p	04:31a		Set	01:53a	61%
Tue 23	05:57a	09:31p	15:33	10:57p	04:31a		Set	02:13a	70%
Wed 24	05:58a	09:31p	15:33	10:57p	04:32a		Set	02:36a	79%
Thu 25	05:58a	09:31p	15:33	10:57p	04:32a		Set	03:03a	86%
Fri 26	05:58a	09:31p	15:32	10:57p	04:33a		Set	03:37a	92%
Sat 27	05:59a	09:31p	15:32	10:57p	04:33a		Set	04:19a	96%
Sun 28	05:59a	09:31p	15:31	10:57p	04:34a		Set	05:10a	99%
Mon 29	06:00a	09:31p	15:31	10:56p	04:34a	Full	Rise	09:52p	100%
Tue 30	06:00a	09:31p	15:30	10:56p	04:35a		Rise	10:30p	99%

* Nautical Twilight

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

Grand Traverse Astronomical Society

Membership Application / Renewal for 2026

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

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___ 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
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, 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

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