

# STARLIGHT JOURNAL

## JULY 2024



Picture of Ashton Observatory by JoAnn Cogil

JoAnn took this picture with an android cell phone using only moonlight on June 14 when she and Jim VandeBerg were hosting a private DMAS program. Looking to the northeast through some clouds, you can see the constellation Cygnus and the bright star Deneb.

### SAVE THESE DATES NOW!

July 6 – no business meeting

July 13 – DMAS Annual **Summer Picnic** 6:00 p.m. followed by **stargazing**

July 28 – August 2 - **Nebraska Star party**

October 3 – 6 - **Iowa Star party**

October 12 – **Astronomy Day**

## July 2024 – President's Report



The summer solstice has arrived! It is interesting to note that it occurred on Thursday June 20, at 3:51PM, the earliest start since 1796. It is time to greet the summer constellations and to enjoy the earlier occurrence of astronomical twilight. It is also time for our **Annual Summer Picnic at Ashton on Saturday, July 13**. Check for details elsewhere in this Journal. Please come and enjoy the event and the night under the stars. No

business meeting is planned.



We have had a series of excellent, well attended public nights recently and more are planned. Invite some friends and enjoy an exciting night out at Ashton.

We have many guests interested in viewing the sky through our telescopes in the domes and under the sky outdoors. We have been a bit short on members to act as hosts to greet these guests, answer questions and offer assistance in getting access to the domes, displays, other equipment, and signing the guest book. Please consider volunteering for this important work. Let me know if you are willing to help.

The Financial Review Committee Members: Dave Lynch, Dave Bailey, and Paul McCuen completed the financial review for 2023. Dave Bailey presented the report at our June Meeting. Thanks to the committee for doing this important work. I have asked the members to serve for another year to complete the 2024 review.

We are continuing discussions about management and future planning for our Timberline property. The District Forester has prepared an outline of estimated costs and benefits of implementing a stewardship plan and the members have authorized further work toward implementing a plan. These discussions include an inventory of trees that are ready to be harvested, planting replacement trees, and possible assistance in controlling invasive species. Jim and Norm will be working with the Forester on next steps and will report regularly to the membership. We are currently seeking an attorney to review plans and provide us with an opinion to assure we are following proper guidelines in our efforts to conserve and manage the property

The Globe at Night; (<https://globeatnight.org/campaigns/>) Constellations featured include Hercules and Cygnus July 26 - August 4, 2024. Find a viewing site and give it a try!

- Norm



# Observatory Committee Report

July 2024 *Greg Woolever, Observatory Director*

We are basically settled into routine this season at Ashton Observatory. Extreme weather continues to be a potential disruption but visitors continue to come to Saturday Public Nights, especially for the classroom programs that we have planned for each month – 2nd and 4th Saturdays.

My gratitude to JR Paulson and Derryl Barr who have been doing the majority of the classroom programs! You guys are terrific! There were two delightful private groups in June.

As we have done in recent years, we will continue to open Ashton on Saturdays in July, although we do not have classroom programs planned for July.

For our newer members who might not know, Ashton was not opened in July at all in earlier years. Our schedule said the following: "Regular activities are suspended for July due to heat, humidity, and late sunset times." I think bugs were also often mentioned. In 1917 Norm and I noted that if we were at Ashton in July, visitors were still eager to check out the night sky with

us. Since then we have remained active in July.

I do want to mention that several DMAS members have recently tested positive with COVID-19. While we wish COVID-19 would be gone, it is not. Please remain vigilant to that continuing risk, observing precautions as appropriate. We do have masks available in the classroom. And for sure, if you are feeling ill, please stay home until you are well. Doing a COVID test is always a good thing to check too. And COVID-19 vaccinations do need to be renewed at intervals to maintain resistance. Sadly, COVID-19 is complex, and while vaccinations can prevent most infections and lessen symptoms, they don't deliver 100% protection yet. Take care.

Thanks - Greg Woolever & the Observatory Committee: Dave Heck, Norm Van Klompenburg, Jim VandeBerg, Greg Woolever.

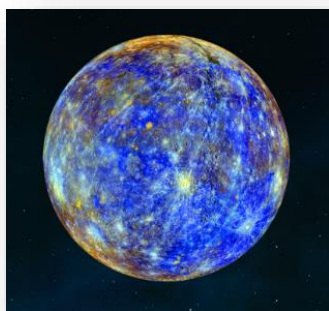




## THE PLANETS FOR JULY 2024

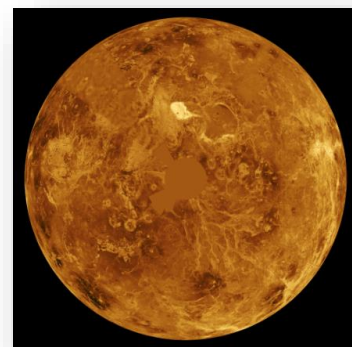
*By JoAnn  
Cogil*

**Fun target this month** – the 1 Ceres asteroid which is at opposition, so try looking from sundown to sunup. Look at the bottom junction of the “Teapot” and the handle asterisms of the constellation Sagittarius. (See more information on Ceres later in this newsletter)



**Mercury** – in our evening sky with magnitude of -0.6 early this month. Should be easy to see with Castor & Pollux (from the constellation Gemini) to the NW of Mercury in the first week of July. On the 7<sup>th</sup>, the waxing Moon will be 3° above Mercury in the twilight sky. On the 22<sup>nd</sup>, Mercury has the greatest eastern elongation (greatest distance from the Sun) and is dimmed to 0.5 magnitude. It is headed to superior conjunction (opposite side of the Sun from Earth) in August.

**Venus** – also in our evening sky, setting within 30 minutes of the setting Sun. Which makes it a bit difficult to see right now. It will still be hugging the horizon till the end of the month.



**Earth** – reaches aphelion, its farthest distance from the Sun on July 5<sup>th</sup>, about 94 million miles.

**Mars** – rises after midnight, with a magnitude of 1, in Aries, about 15° from the Pleiades (M45). On the 30<sup>th</sup>, Mars, Jupiter & the Moon abound in Taurus, in the east about 1 hour before sunrise. Mars will give Taurus the Bull a 2<sup>nd</sup> eye, the better to see us!!





**Jupiter** – becomes more visible each day and climbs higher in the pre-dawn sky, HOORAY!!!. Early month finds the planet at -2 magnitude and about 15° above the horizon. On the 3<sup>rd</sup>, Jupiter has a stunning conjunction with the Moon, between 4:30 & 5 AM, in the E-NE. By the end of the month, it is at 0.1 magnitude and about 40° above the horizon. On the 13<sup>th</sup>, it will stand about 5° due north of Aldebaran with a magnitude of -2.1.

**Saturn** – rises after midnight, in the NE in Aquarius with a magnitude of 0.9. On the 24<sup>th</sup>, the Moon will be 7° west of Saturn. The rings remain very fine, nearly edge-on. On the 8<sup>th</sup>, Saturn occults its Titan moon about 1:30 AM with a 2<sup>nd</sup> occultation on the 24<sup>th</sup>. Titan, Saturn's large moon, orbits the planet every 16 days with a magnitude of 8.5.



**Uranus** – is in Taurus all month. On the 12<sup>th</sup>, Mars can be found just 2° from this planet. On the 15<sup>th</sup>, Mars and Uranus will be only 0.6° apart & about 30° above the horizon, with Uranus north of the tiny Mars. Mars will pull away as the month proceeds. Uranus shows a dim, greenish-blue hue & magnitude 5.8. These 2 planets are quite the dancing pair this month.

**Neptune** – also rises after midnight, in Pisces. On the 25<sup>th</sup> the waning gibbous Moon is about 4.5° SW of the planet, 2 hours after rising.



### July Moon

6<sup>th</sup> – NEW Moon

13<sup>th</sup> – First quarter

21<sup>st</sup> – FULL Moon

27<sup>th</sup> – Last quarter

This month's full moon is commonly known as the 'Buck Moon', as new antlers are emerging from a buck's forehead.

Other names are Thunder Moon (due to frequent thunderstorms), Hay Moon (because of hay harvest), Salmon Moon (as salmon begin their migration upriver) and the Herb Moon (time to gather herbs for drying).

July's full moon is a time to appreciate the glory of summer's ripeness.

### Comet(s)

Be ready as darkness arrives to look for comets!!!

**13P/Olbers** – in the NW at Ursa Major's feet, also with an 8<sup>th</sup> magnitude. It is traveling through Lynx and Leo Minor and should provide about 3 months of telescope viewing. Olbers comet has an orbital period of 69 years. July 20<sup>th</sup> is when the comet reaches its closest approach to Earth.

The name of a comet contains information about where and when it was 1<sup>st</sup> seen. For example:

- **P** – means the comet is periodic (a comet that takes less than 200 years to orbit the Sun)
- **13** – that comet Olbers was the 13<sup>th</sup> comet identified as periodic
- **Olbers** – name of the comet's discoverer, Heinrich Olbers

**C/2023 A3 (Tsuchinshan-ATLAS)** – with an 8<sup>th</sup> magnitude, it may be seen south of Leo's tail. It should have a faint eastward tail. Only discovered in January 2023. Will provide a more spectacular view in October.

### Meteor Showers

**South Delta Aquariid** – active mid-July through late August. From the comet 96P/Machholz, which orbits every 5.3 years and is one of 8 meteor showers from this comet. Produces about 25 meteors per hour but may be fewer in our part of the country.

**Perseids** – active from July 17<sup>th</sup> through August 24<sup>th</sup>, with the peak being in August. The Perseids typically provide one of the best shooting stars displays of the year. It generates from the Comet Swift-Tuttle, which was discovered in 1862. The comet passed the Earth last in 1992.

DES MOINES ASTRONOMICAL SOCIETY  
WELCOME NEW MEMBERS!

JANUARY - KYLE AND CATHERINE BAILEY  
JANUARY - KAREN TEGTMEYER  
MARCH – ROD WILLIAMS  
APRIL – PAUL CALIGIURI  
APRIL – JASON HIRSCH

## DES MOINES ASTRONOMICAL SOCIETY SUMMER PICNIC

The annual **DMAS Summer Picnic** will be Saturday, July 13 starting at 6:00 p.m. at Ashton. Bring your own ingredients to grill and non-alcoholic drinks. The charcoal grill will be fired up. Disposable plates, cups, tableware, and napkins provided. If you wish to bring a side dish to share that is up to you, but not required. This is for DMAS members and their families and guests. Stargazing will follow for members and public visitors. See you on Saturday to renew our enduring friendships and shared love of the sky!

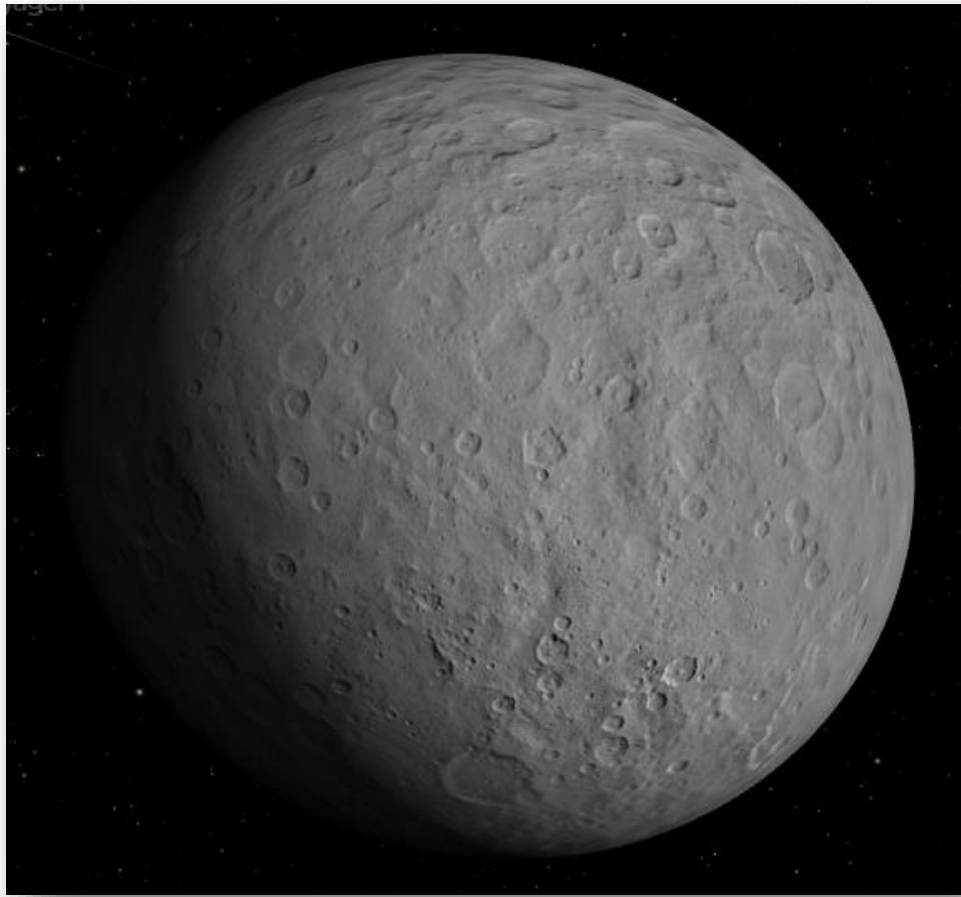


### Watch the Dwarf Planet Ceres!

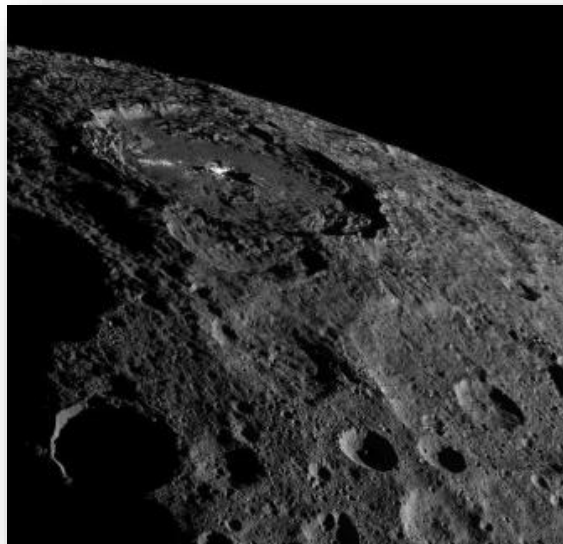
Dwarf planet Ceres (about 600 miles across) reaches opposition on July 5 at magnitude 7.3. It is a fairly easy binocular target as it passes through the bottom of the handle of the Teapot asterism in Sagittarius. By the 15<sup>th</sup> of the month, it will be past the handle of the Teapot and be near M54. By the end of the month, it will be near to M69.



Use Sagittarius the Archer and its Teapot asterism to find Ceres in July



Dwarf planet Ceres imaged by NASA's Dawn spacecraft  
Ceres is the largest object in the asteroid belt between Mars and Jupiter



Close-up view of the strange bright spots of the Occator Crater on Dwarf Planet Ceres.

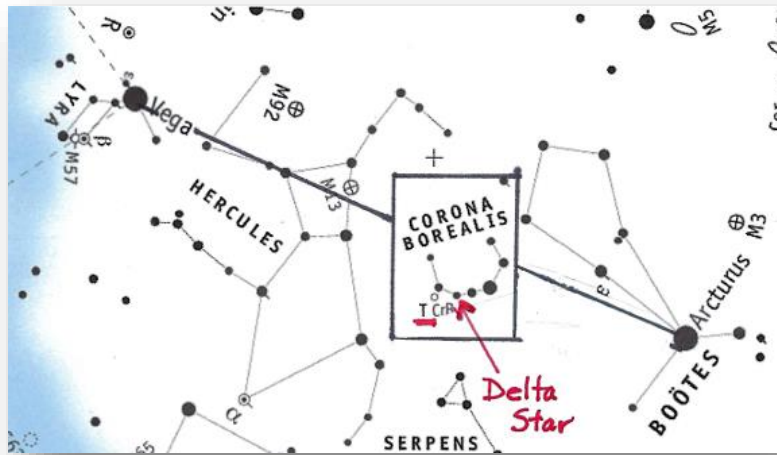
## T Coronae Borealis is Generating a Really Big Show!

By JoAnn Cogil

The star called T CrB or the “Blaze Star” is a double star system that consists of a red giant and a white dwarf star that orbit each other. The red giant is about 75 times more voluminous than our Sun, while the white dwarf is earth-sized, with both being about 10% heavier than our Sun. The star system is about 3,000 light-years from Earth.

It is found in the Northern Crown, the constellation Corona Borealis, which is a curved or crown shape of stars west of the Hercules constellation.

To find T CrB, locate the 2 brightest stars in the Northern Hemisphere, Arcturus and Vega. Track a straight line between these 2 stars as it leads past Corona Borealis. T CrB is about  $2.2^\circ$  east of the Delta star in the constellation. It is not visible to the naked eye; one must use binoculars or telescope. Current magnitude is 10, which makes it fainter than Neptune. But when it explodes, its magnitude will be about 2.5, making it about to join the top 100 list of brightest stars in our night sky. Its magnitude will be comparable to Polaris.

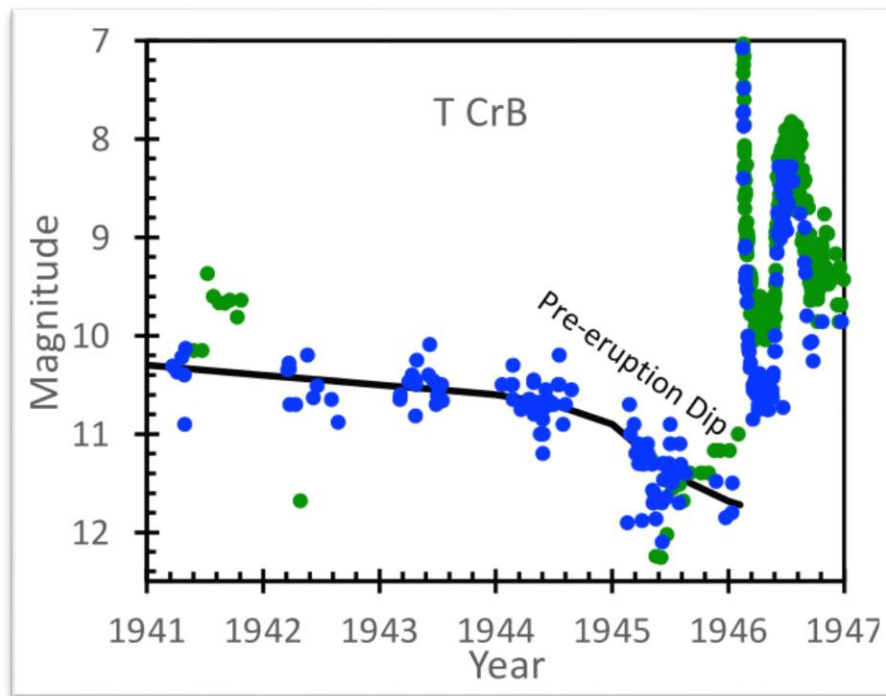


T CrB is a recurrent Nova with an 80-year cycle. It was discovered in 1866 by John Birmingham and was observed as early as 1217 A.D. by Abbot Burchard of Ursberg, Germany.

So, what occurs with a recurrent nova? Matter is pulled from the red giant star and collects on the white dwarf star, in a process called accretion. As the material piles onto the white dwarf, pressure and temperature increases on the surface until it reaches hydrogen ignition temperature and goes off like a Hydrogen bomb. Recurrent Novas are rare with maybe only 12 in the Milky Way galaxy. The other recurrent Novas can take thousands to hundreds of thousands of years to explode.

The blast generated by the white dwarf blasts away the accumulated material and the cycle starts again. The outburst will be brief and possibly only visible for less than a week. This type of stellar event is known as a Nova. Unlike the larger and more known well supernova, in which the entire star is destroyed in a final colossal explosion. In a Nova event both stars remain intact.

After the well-documented eruption of 1866, astronomers were able to calculate its next eruption to be in 1946. Leslie C. Peltier, a famous amateur astronomer, noticed the telltale dip in the star's brightness before the 1946 eruption. Now 80 years later, we are preparing for the next eruption. How do we know? The graph below shows the “pre-eruption dip” in brightness. The spike after the dip is the star going into its eruption phase. Research of past events have shown the star dims for about a year before it goes nova. Current astronomers have determined T CrB started dimming in March 2023 and is now through its pre-eruption dip and headed upwards to eruption point. Scientists predict this current nova blast to occur between now and September of this year, probably closer to September.



Start checking out the night sky, locate the area where T CrB is and be ready to notice when the Blaze star brightens!!

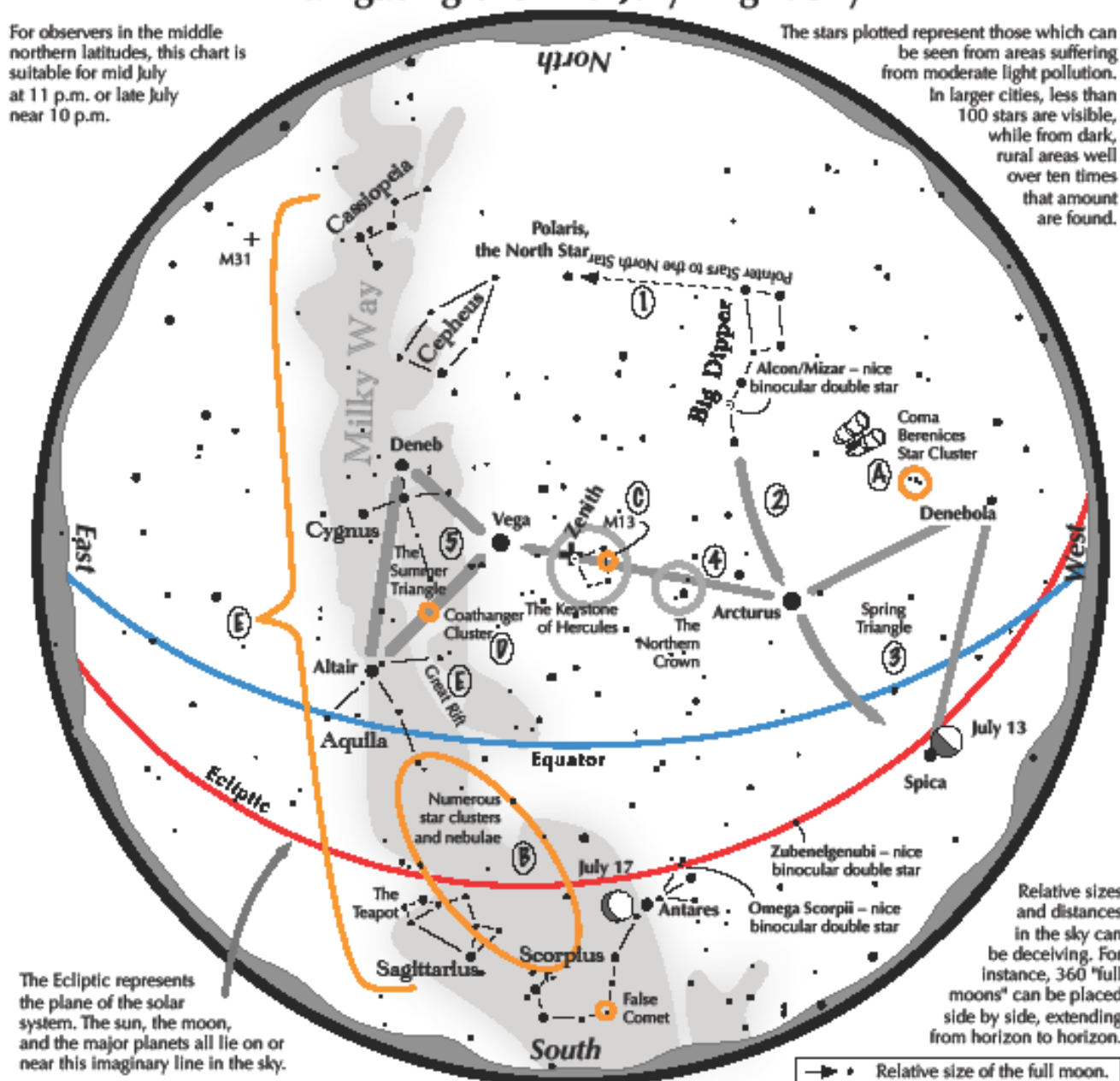


Remember our annual picnic at the observatory at 6:00 p.m. on  
Saturday July 13!

## Navigating the mid July Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid July at 11 p.m. or late July near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



**Navigating the mid July night sky: Simply start with what you know or with what you can easily find.**

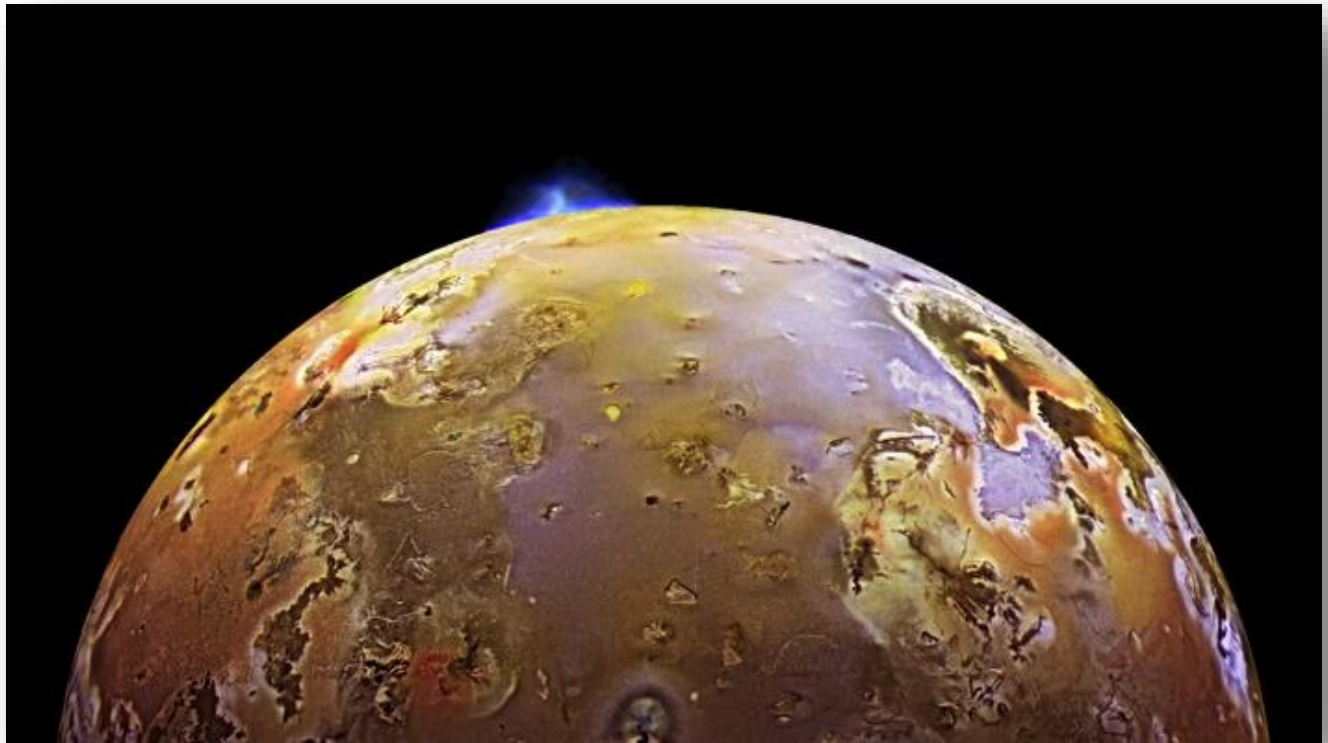
- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the July evening sky, then continues to Spica. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 3 To the northeast of Arcturus shines another star of similar brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4
- 5 High in the East lies the Summer Triangle stars of Vega, Altair, and Deneb.

### Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: On the western side of the Keystone glows the Great Hercules Cluster, containing nearly 1 million stars.
- D: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- E: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.

Astronomical League [www.astroleague.org/](http://www.astroleague.org/); duplication is allowed and encouraged for all free distribution.





A volcanic plume erupts from the surface of Io, Jupiter's third largest moon. Io is the most geologically active body in our solar system. Io's elliptical orbit oscillates in and out of Jupiter's fierce gravitational field creating frictional tidal forces that heat the moon. Lava oozes from volcanic fissures creating new floodplains and hundreds of volcanos spew sulfur and sulfur dioxide.

### **RADIO TELESCOPE UPDATE** by Vern Naffier

Norm Van Klompenburg, Dave Lynch, and I have been working most recently on the dish antenna. Larry Musselman, who passed away in May, was also an active co-worker on the RT dish. Ken Young was actively involved in the past regarding the feed horn function and computer operation, and we remain in touch with each other. Otherwise, more recently, Karl Lewis and new members Devin McGuire, Keith McGuire and Ken Cox have expressed an interest in working with the project and have attended a work session with the dish antenna. Norm has produced a tool for centering the feed horn on the dish and positioning it at the focal point. Dave has built and installed a rod attachment to the dish to accommodate a laser pointer and a deck to hold a cell phone loaded

with an app to help visually point the dish to areas of the sky. Members of the team will be meeting soon to position and center the feed horn. Next step after that will be to turn on the radio telescope and find H1 sources of radio energy which will register on a computer readout. That will take some advance mapping of sources and experimenting with aiming the dish. The strongest and easiest H1 source to point at is the center of the Milky Way galaxy in Sagittarius, which will become more conveniently located later this summer and into the fall of the year. But we hope to find other sources as well, perhaps sooner. A constraint under which we will be working is the dish antenna's relatively fixed position in altitude and azimuth, so that we will have to depend on

the earth's rotation (called drift scanning) for limited accessibility to the sky. Someday, maybe, acquisition of an equatorial mount for the dish will provide greater pointing capability.

That would be a costly undertaking, however. First, we will have to get the radio telescope in operating order and develop some programming for its use.

### **Update to the update!**

Joyce and I went to Ashton today to remove the feedhorn, so that you can attach angle brackets to the rim, as we had talked about earlier this week. I was going to leave the feed horn in the observatory for you to pick up but decided that some touch-up work needed to be done on it, so I brought it back to my home bench, temporarily.

Once the feed horn assembly was totally removed we were able to look into it from the open end and found it to be crammed with the makings of a bird's nest. We started pulling the tightly woven strands of grass out of the feed horn (the "can"), and to our surprise six baby birds, that had been buried deep down in the mesh, fell out to the ground! We put them into the nearby brush, all the while the mother bird kept screeching at us. We hope she could tend to them after we left. This finding alerted us to the need to attach a coarse nylon or fiberglass mesh over the open end of the feed horn to keep it cleared of birds and hornets.



Zwo SeeStar Telescope at Ashton Observatory with the full moon above.

## Spotlight on the New SeeStar S50 Telescope

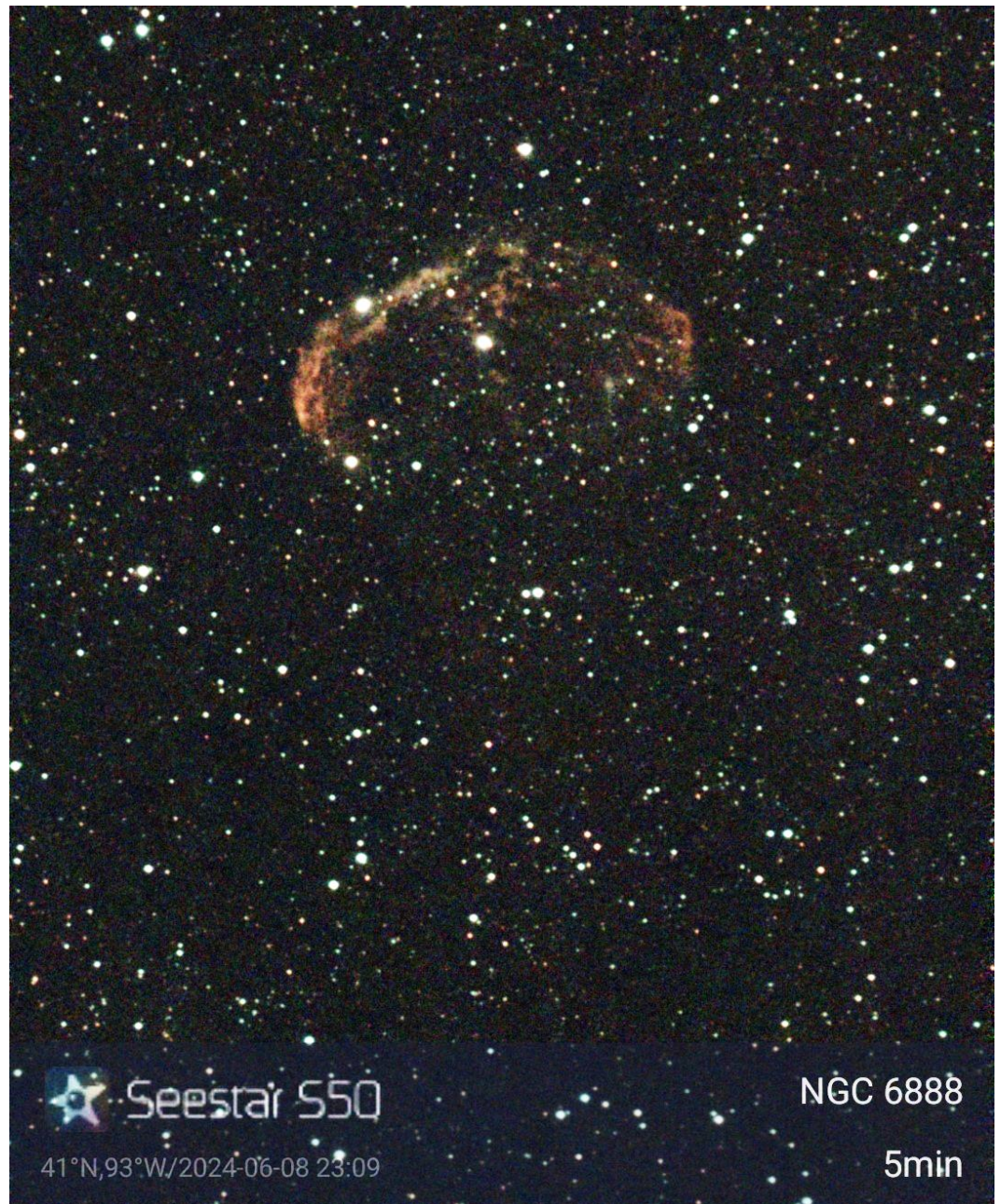
The automated telescope recently purchased by the Des Moines Astronomical Society has taken some remarkable images and has helped to introduce the night sky to many of our observatory guests and visitors. The two images below taken by JoAnn Cogil, demonstrate how impressive images can be stacked together in just 5 minutes.

**NGC 6888** - is the Crescent Nebula, an emission nebula, also known as a Cosmic Bubble. This image was taken over 5 minutes using the DMAS SeeStar telescope on June 8, 2024.

- ✧ Is found in the constellation Cygnus

- ✧ 5000 LY from Earth, about 25 lightyears across

- ✧ The central star is shedding its outer envelope in strong stellar winds, ejecting the equivalent of our Sun's mass every 10,000 years.



**M 57** - is the Ring Nebula, a planetary nebula. This image was taken over 5 minutes using the DMAS SeeStar telescope on June 8, 2024.

✳ found in the constellation Lyra

✳ formed when a star, during its last stages of its evolution, before becoming a white dwarf

✳ about 2300 LY from Earth, central ring structure about 1 LY across

✳ it is expelling a vast luminous envelope of ionized gas into interstellar space



**The Des Moines Astronomical Society is on Facebook**

Recent notices, articles and images are posted on our Facebook page. Be sure to like us when you visit our Facebook page.



### **Drake Observatory Lecture series**

Visitors can expect an Astronomy lesson followed by stargazing with expert guidance. **Lectures begin at 8 PM**, regardless of weather. **Sky Viewing begins at dark if clear conditions.** Children 15 and younger must be accompanied by an adult. **Admission is free and open to all!**

**June 28<sup>th</sup>** Copernicus: What Did He Do, Why Did He Do It

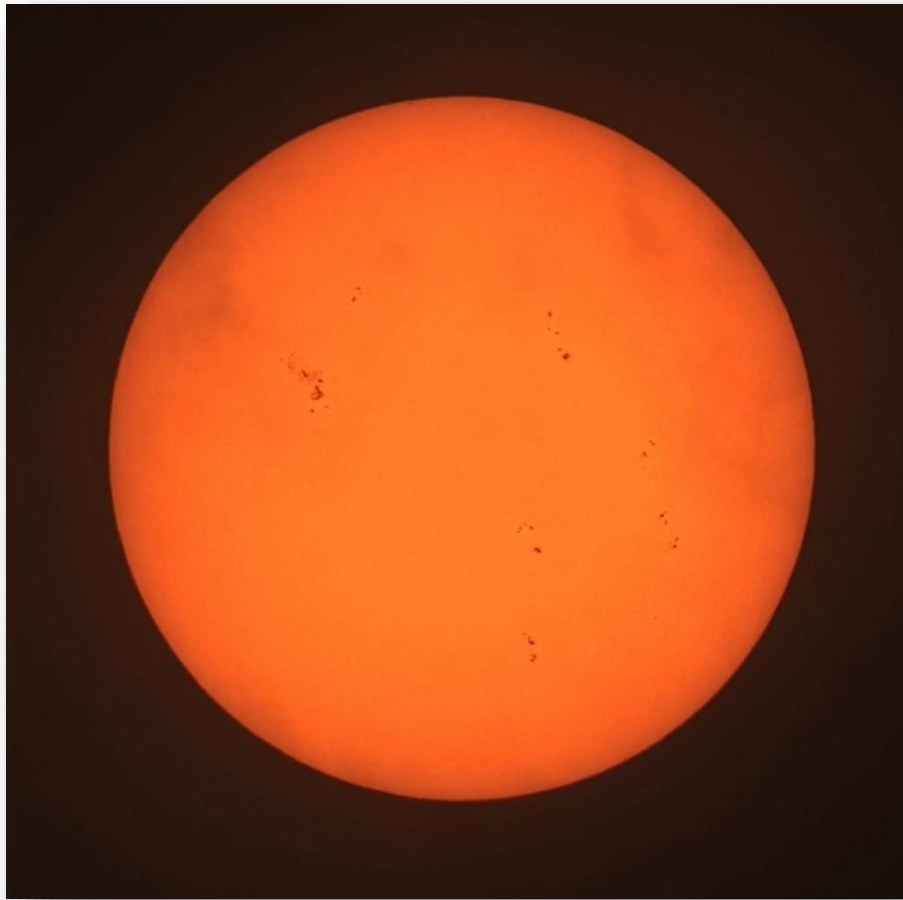
**July 5<sup>th</sup>** All You Ever Wanted to Know About the Drake Observatory and the Universe, But Were Afraid to Ask (accompanied by Guitars Under the Summer Stars]

**July 12<sup>th</sup>** Touring the Universe: You Are Here

**July 19<sup>th</sup>** Planet 9: The Lost Lecture



The Sun on 5/17/24 at 10:10 am by observatory Director Greg Woolever.  
Over a dozen sunspots are easily seen!



This image of the sun was taken the afternoon of Saturday, June 1<sup>st</sup> at Ashton Observatory using a ZWO SeeStar S50 telescope. The grey areas around the edges of the sun are clouds floating by.

The first couple days of June this year saw many solar 'X' flares. On June 1<sup>st</sup>, 2 solar flares from the active solar region known as AR 3697 created high solar activity and were classified as "X1.18" and "X1.4" flares. This solar activity produced the two X flares, one M flare and six C flares.

On May 14<sup>th</sup> of this year, an "X8.8" flare occurred during this current solar cycle known as 'Solar Cycle 25'. Sunspot region AR 3697 has been the biggest flare producer so far. The frequency of solar flares waxes and wanes in an 11-year cycle. The peak of the current cycle is now being predicted for this year, 2024. So, we expect many more flares this year.

What is an 'X' flare? Flares are classified by their strength, with the smallest flares labeled as 'B' flares, followed by 'C' and 'M'. And the largest flares are classified as 'X' flares. B and C flares are mostly too weak to affect us here on Earth. But M and X flares can cause brief radio blackouts and release CMEs, coronal mass ejections. We know that when CMEs strike our Earth, the magnetic field is disturbed and will cause auroral displays, commonly called "Northern Lights". But X flares can also cause planet-wide radio blackouts and radiation storms.

Flares on the sun often happen in places where there are dark areas, which we call sunspots. This is where the sun's magnetic fields are strongest and most complex. As of June 3<sup>rd</sup>, the sun currently has 8 labeled sunspot regions on its earth-facing side.

## [This Month in DMAS History](#)

### *From the StarLight Journal 25 Years Ago, July 1999*

Tomas [Forester-Gonzalez], Keith Jamison and Bill [Zeilstra] have been observing at the boat ramp on the North shore of Lake Red Rock; good location and accessible for the Knoxville, Monroe and Pella people. This group has been there a few times. West of there is the Cordova Observation Tower recently opened up; 106' high; 169 or 170 steps to the tower; nice cabins are for rent. Caretaker's name is John Mertz. John's wife has been looking for star gazers for 5 years to help educate the public about the sky; Bill gave her Tomas and Keith's names; DMAS will do a public night (Friday) in September. May use the 10" Dobsonian. Bryan [Butcher] asked Bill to include Bob Waters from Kellogg in this group. John's wife will handle all the publicity.

### *From the StarLight Journal 10 Years Ago, July 2014*

Radio Telescope: Vern Naffier ready to proceed with construction next month. Jasper County has approved tentative plans and site, targeting the wildflower area to the east of the observatory location. Vern has contacts in Ames for a large antenna disk (6-8 foot for example) at no cost. Will need a solid concrete footing and/or pad to mount.

Former member, and DMAS founding member, Phil Francke, was present and indicated his intention to rejoin now that he's back in the area.

## DMAS Star Search Learn the sky one star at a time by DMAS member Bruce Mumm June 2024

### Antares

Scorpius is one of the best constellations in the night sky, a large and recognizable depiction of the scorpion that mortally wounded Orion, the Hunter. At its heart is the supergiant star **Antares**, Alpha( $\alpha$ ) Scorpii. The 15th brightest star in the night sky, it stands out like a beacon during the darkness-challenged months of June and July, skirting east to west, low in the southern sky.

Antares has a spectral type M1.5Iab-Ib. 'M1.5' indicates where it sits on the temperature scale, Antares measures 3,387°C, a cool value that gives the star its orange hue. 'Iab' is the designation of an intermediate-size luminous supergiant, 'Ib' being a less luminous supergiant. Antares is between these designations.

Antares is 553 lightyears away and shines at mag. +1.05, with variability between +0.6 and +1.6. It's about 76,000 times more luminous than our Sun.

The name Antares comes from the visual appearance of the star. Being relatively bright to the naked eye and having an orange hue, it appears similar to how the planet Mars looks to the naked eye. Its name means 'rival to Ares', Ares being the Greek name for Mars, itself referencing the god of war.

Antares is a binary star, the secondary shining at mag. +5.5 and separated from the primary by 2.6 arc seconds. While its spectral type of B.25V suggests a blue-white color, its close proximity to orange Antares creates a color contrast that causes it to appear blue-green.

## Antares

Type: **double star, pulsating variable star (LC)**  
 Magnitude: **1.05**  
 RA/Dec (on date): 16h30m55.58s/-26°29'13.1"  
 Az./Alt.: +146°00'11.5"/+13°26'35.6"  
 IAU Constellation: Sco  
 Distance: 553.75±80.37 ly



Original artwork inspired by nebulae realities by Christopher Ehlert, grandson of Greg and Mary Woolever. Christopher just graduated from University of Wisconsin - Eau Claire with a BA in Fine Art. The artwork was a gift as a thank you for support given over the years to Christopher by Greg and Mary.

## Your Des Moines Astronomical Society Officers, Directors & Observatory Committee – 2024

**President:** Norm Van Klompenburg

**Vice-President:** JoAnn Cogil

**Secretary/ALCor:** Jim VandeBerg

**Treasurer:** Bruce Mumm

**Observatory Director:** Greg Woolever

**At Large Director:** Derryl Barr

**At Large Director:** Jessica Weinreich

**At Large Director:** Brennan Jontz

**Observatory Committee:** Greg Woolever, Norm Van Klompenburg, Dave Heck, Dan Mortensen and Jim VandeBerg

### Contact us at: [info@DMastronomy.com](mailto:info@DMastronomy.com)

The *Starlight Journal* is the monthly newsletter of the **Des Moines Astronomical Society, Inc.** P.O. Box 111, Des Moines Iowa 50301-0111. Our Observatory is located in Ashton Wildwood Park, 8717 West 122nd Street North. Founded in 1970, we are a non-profit, 501(c)(3) organization. Our website is [DMastronomy.com](http://DMastronomy.com). More information and photos can be found on our Facebook page.

**Article Deadline:** Before the 21<sup>st</sup> of the month, please send your articles, photos, sketches, poems, cartoons, and news to Jim VandeBerg ([FinePineCabin@gmail.com](mailto:FinePineCabin@gmail.com)). Articles may be edited to fit the allotted newsletter space. Copyrighted material must have permission from the copyright holder. Views and opinions expressed within submissions are that of the author and not necessarily those of the Des Moines Astronomical Society, Inc.

### The Purpose of our Society

- Secure the pleasure and benefits of an association of persons interested in amateur astronomy
- Promote the science of astronomy
- Encourage and promote activities of an astronomical nature
- Foster observational, computational, technical, and creative skills in various fields of astronomy
- Pursue activities with other amateurs and professionals
- Educate the public

Des Moines Astronomical Society  
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Des Moines, Iowa 50301-0111

