The exquisite Heart Nebula captured by DMAS member Heather Johnson in early November using a Sony A7III camera and Askar 200mm lens.

The Heart Nebula is also known as IC 1805 and SH2-190. It is located 7500 light-years away in the constellation of Cassiopeia. It was first discovered by William Herschel in 1787 (also in November). It is a huge region of glowing gas (emission nebula) and dark dust lanes with a faint apparent magnitude of 18.3. It is located in the Perseus Arm of the Milky Way Galaxy.

The gas and dust are ionized and excited by a clump of large bright stars located in the nebula's center, in a region known as Melottle 15, sometimes called the "Heart of the Heart." This cluster of stars includes a few large stars that are 50 times the mass of our sun. It is these stars that create the glow in the nebula.

SAVE THESE DATES NOW!

December 14 **Annual Holiday gathering** – At Hy Vee Altoona conference room
December 14 **Membership Meeting** – At Hy Vee Altoona conference room
January 4 **Membership Meeting** – At the Drake Observatory

2024 Holiday Party

The 2024 Holiday Party will be on **Saturday, December 14** at the Altoona Hy-Vee upstairs Conference Room (108 8th street SW). We will **gather at 6:00 p.m**. with the **meal starting at 6:30 p.m**. (upstairs, just to the right of the main entrance, use elevator or stairs)

Please RSVP to Jim VandeBerg as soon as you can so we can provide the meal count to our Hy-Vee caterer. FinePineCabin@gmail.com

There will be many **door prizes** and a **gift exchange for everyone who brings a wrapped gift.**

Your portion of the meal and party is only $5. Please bring your payment to the party on December 14, **but RSVP today!**

Membership renewals for 2025 will also be available at the party.

We had great fun last year and hope to see all of you there!!!

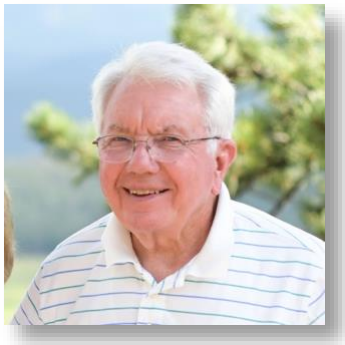
December 2024 – President's Report

A major step has been accomplished in management and future planning for our Timberline property. The tree sale bids have been opened and the high bid was $7,000 for the 30 trees listed. Although this is a little lower than we had hoped for, discussions with the District Forester reveal that it is a "reasonable" bid primarily because of the low quality of the marked trees. We have discussed next steps and have decided to accept the bid and move forward with our stewardship plans and apply for grant assistance for a forest improvement plan.

The inventory Committee has made good progress in reviewing donated property and sorting out equipment that is obsolete or no longer in usable condition. Recommendations were also prepared regarding surplus equipment that should be disposed of through sale and/or donation to other non-profit organizations. Finally, the group has prepared recommendations regarding equipment that is useable at Ashton and should be kept in our inventory. A report will be given at a brief business meeting at the Holiday Party to consider approval of the plan.

Plans are underway for our annual Holiday Party scheduled for Saturday, December 14, 2024. More details can be found in a separate article in this newsletter. Contact Jim If you are planning to attend.

We have just completed another very successful program season at Ashton. We enjoyed a full schedule of lectures on a wide variety of topics, provided viewing opportunities in our domes and outdoors, hosted many private groups, provided assistance and advice to visitors who had questions about telescopes. In addition, excellent information was made available through our excellent website, Facebook pages and Newsletters. Thanks to all who participated in making all of this possible. We look forward to doing it all over again next season!



The Globe at Night; (https://globeatnight.org/campaigns/) the constellations featured are Pegasus and Perseus, December 22,-31, 2024. Find a viewing site and give it a try!

We hope to see you at our Holiday Party!
Happy Holidays!

- Norm

The Des Moines Astronomical Society

Monthly Members' Meeting (Brief)

December 14, 2024 – 6:30 P.M. HyVee: Altoona

1. Call to order–Introductions
2. Secretary's Report - Minutes
3. Treasurer's Report: Financial Reports
4. Timberline Report
5. Inventory/ Surplus property report

- Adjourn

Observatory Committee Report December 2024 Greg Woolever, Observatory Director

The seasonal turnings have their predicable path. And so, our public season came to a close with two final classroom programs in October.

J.R. Paulson presented "Protecting the Night Sky" on Oct. 12, and Derryl Barr closed the season with his title "Was Someone Eclipsed," exploring examples of how solar eclipses have figured into dramatic stories in literature and movies.

Winter now moves in.

Jasper County naturalist, Katie Cantu, asked me to give a program in Newton to their OWLS group (Older, Wiser, Livelier, Seniors), a group that meets monthly for programs to promote learning and conservation. There was a big turnout, and energetic questions persisted afterward, with several people interested in acquiring a Seestar smart telescope.

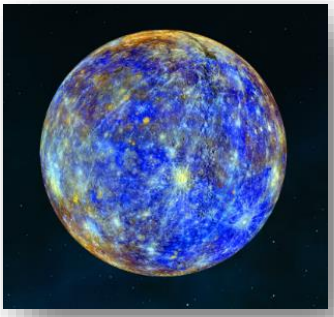
Six DMAS volunteers met at Ashton Thursday, Nov. 14, to work through the equipment donations that had accumulated in the front room. We knew that many of the items had no value. We sorted items into what we should dispose, what we can offer at a future "yard sale," and what DMAS should keep. We'll keep you posted on the date and details of a future yard sale, once plans are decided – that will probably wait for warmer weather now.

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

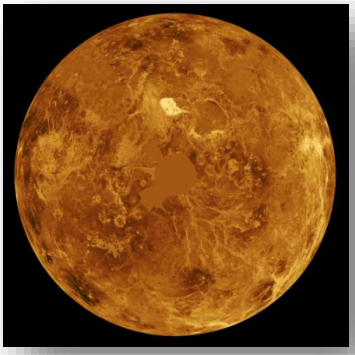
The Night Sky for December 2024

By JoAnn Cogil

Time to bundle up and enjoy our night sky as winter fast approaches!



Mercury – reappears to our viewing mid-month. On the 22nd, it will be at its highest altitude in the SE morning sky, but very close to the horizon. On the 28th, it will have its best dawn viewing of 2024.



Venus – now sets up to 3 ½ hours after sunset. On the 4th, the Moon will pass close by to the South of the planet. Take time to view this conjunction in the SW between 5 & 7:45 PM CST.

Earth – December 21st is our Winter Solstice at 3:20 AM CST. The days now begin to lengthen in daylight.

Mars – on the 7th it enters retrograde or western movement. It will sit close to the Beehive Cluster, M44, which is an open cluster found in the constellation Cancer. On the 17th/18th, Mars and the Moon rise just 20 minutes apart and stay close all night, with their closest distance at 3-4 AM.

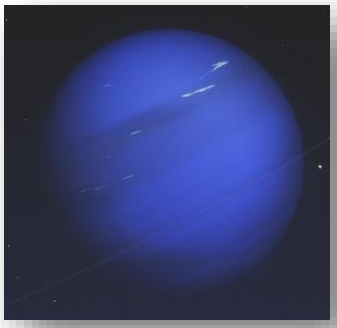
Jupiter – <u>Has reached its BEST VIEWING in a decade</u>!! The 'belted' planet rises just before sunset. On the 7th, it is at opposition and will be in the east after sunset this evening. The 4 largest moons (Io, Europa, Ganymede & Callisto) will be at their brightest as well. On the 14th, we find a line-up not to be missed with Aldebaran (brightest star in Taurus), Jupiter and the full Moon in a line across Taurus in the E-NE sky. The line-up begins just after sunset, with best viewing about 10 PM.

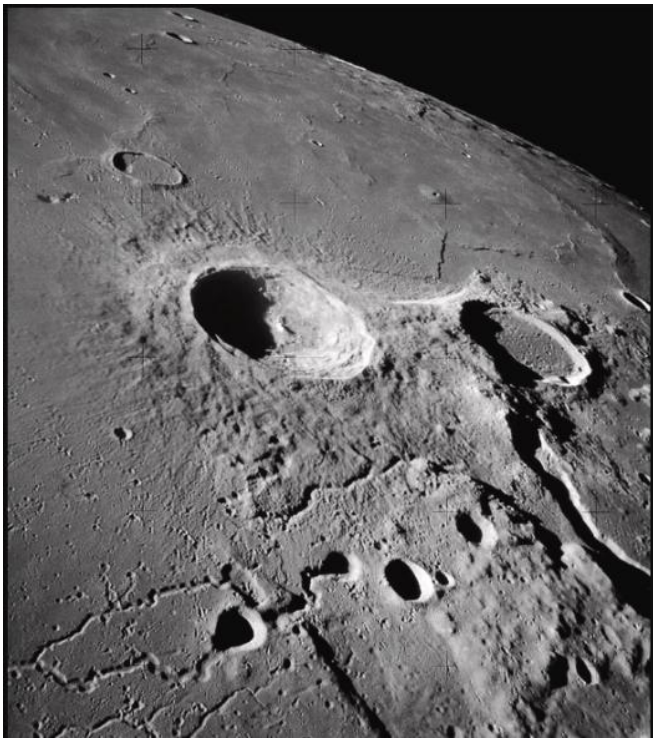
(Image courtesy Sky & Telescope magazine)

Saturn – is visible in our early evening southern sky. It sets about midnight early month to as early as 10 PM by month end. Titan, the planet's large moon, should be visible on the 5th/6th, 13th/14th, 21st/22nd and 29th/30th.

Uranus – can be seen in the evening sky as darkness begins. It stays SW of the Pleiades during this cold month.

Neptune – sets about midnight





December Moon

1st – **NEW** moon at 12:21 AM CST
8th – 1st quarter
15th – **FULL** moon at 3:01 AM CST
22nd – last quarter

The moon this month is known as the 'Cold Moon' and is the last full moon of this year. It has also been called the 'Moon Before Yule' and the 'Long Night Moon'.

Meteor Showers

Geminids – Possibly the best meteor shower of the year. Peaks on the night of the 13th but is active from the 4th through the 20th. We may see up to 120-150 meteors per hour with our best viewing after midnight. But the approaching full moon on the 15th will impact what we can see. The Geminids meteor shower can produce stunning fireballs, which are slower and may appear for a longer time across the sky.

Ursids – May be a very favorable meteor shower this year. It is active from the 17th through the 26th with peak on the 23rd. But it only provides about 5-10 meteors per hour. As the Moon rises around midnight during this time, late evening viewing is good.

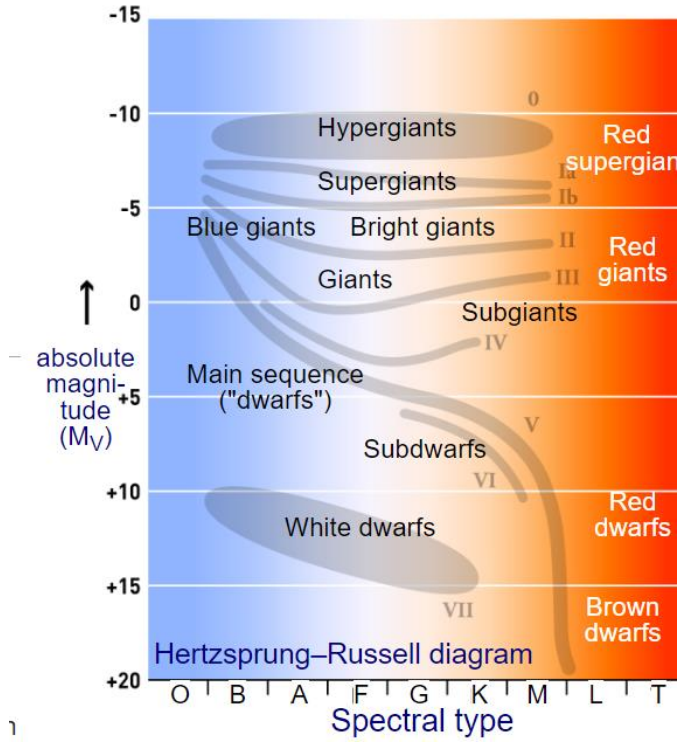
Fun Facts –

Winter is here and it is time to enjoy the return of the Winter Constellations. These are the constellations that are best observed in the evening night sky from late December to late March in our northern hemisphere. The most prominent northern winter constellations are Auriga, Canis Major, Canis Minor, Carina, Eridanus, Gemini, Monoceros, Orion and Taurus.

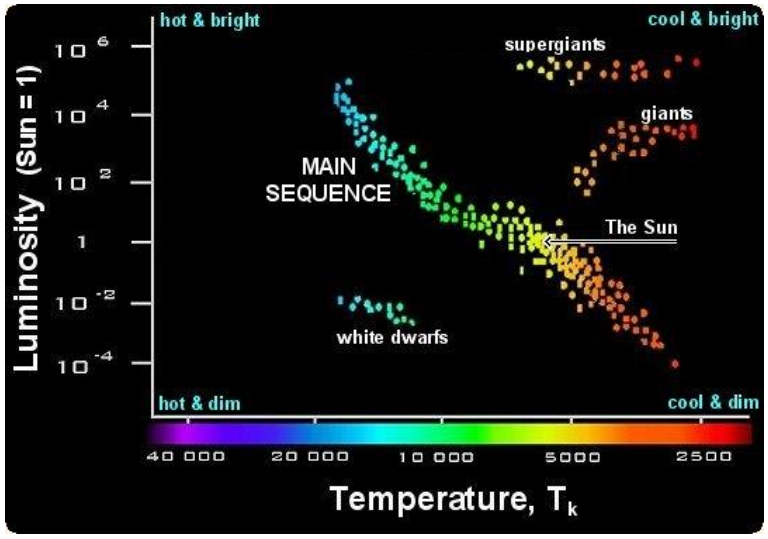
Orion is the mighty hunter constellation of the winter sky and is one of 48 constellations listed by Ptolemy, a 2nd century astronomer. Rigel and Betelgeuse are the brightest

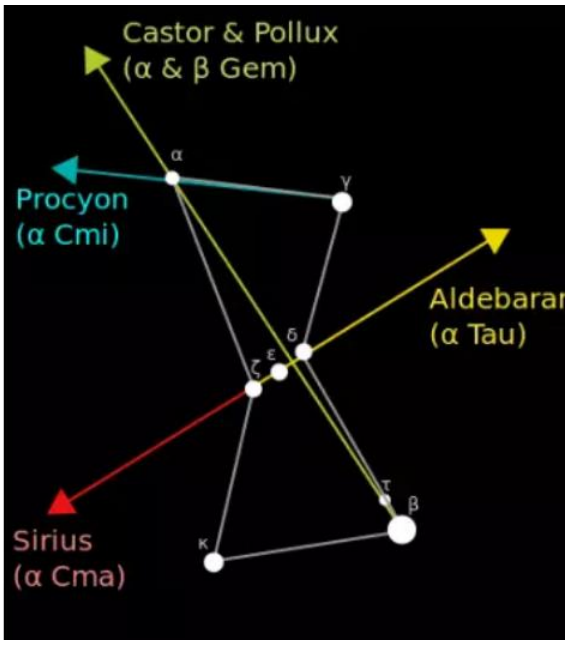
stars in the constellation and 2 of the brightest in the night sky. Both stars are supergiants, being very massive and luminous stars, and occupy the top region of the Hertzprung-Russell diagram of stars. This diagram is a plot of stars showing the relationship between a stars' magnitude or luminosity and their stellar classifications and temperature.

Here is a simple example of the H-R diagram. (Image courtesy of Wikipedia.)



This representation of the H-R diagram is courtesy of Western Washington University. For reference, our Sun lies in about the middle of this plot diagram.





Did you know – Orion's Belt can be used to find other bright stars in the vicinity. Following the line formed by the three stars to the east, one can find Sirius, the brightest star in the sky. Going in the opposite direction, the stars point toward Aldebaran, the brightest star in the constellation Taurus. The line from Rigel to Betelgeuse takes you to Pollux & Castor. The top stars which form the shoulders of Orion lead to Procyon.

(Image courtesy of Wikipedia)

The Magnificent Rings of Saturn

By Greg Woolever, Observatory Director

I don't know about you, but as the season at Ashton closed, we were eager to view Saturn and show it to our visitors. Planet availability this year was pretty scarce, so when Saturn finally arrived in our "prime time" for Saturday Public Nights, we were delighted to have that. At the same time Venus was present in the west, but still close to the Sun, therefore setting early; and being on the far side of the Sun, Venus was not showing any phase other than full – nothing as interesting as the dramatic crescent the year before. So, Saturn was the "star" of the show this year.

As I showed Saturn, I would explain that the rings are approaching an edge-on view, a dramatic difference from wide open rings several years ago. I explained the 30 year cycle of Saturn's orbit, and how the view from earth changes what we see of the rings year after year. If it takes approximately 15 years to transition from wide open tipped up to wide open tipped down, then the edge view will be midway between those two maximum tilts, or about 7.5 years after a maximum tilt.

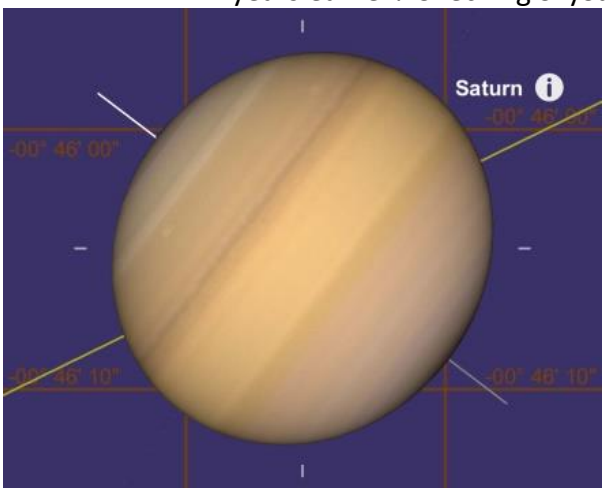
Thickness: Most of the rings are around 100 yards thick, with some rings being about 1 mile thick. At nearly 900 million miles distance, that thickness is virtually invisible. "The ring particles are made almost entirely of water ice, with a trace component of rocky material" [Wikipedia, Rings of Saturn].

But as I pondered the approaching edge-on status, I knew that I had never seen Saturn's rings edge-on. In fact, the nearly edge-on view right now seemed to be something I had never seen before. Why not? I scratched my head. I started coming to Ashton in 2007, and there would have been an edge-on view in that time frame. What happened?

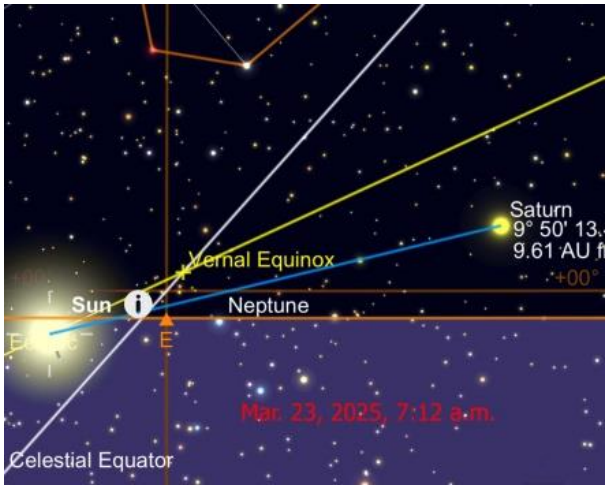
I did my usual exploring in SkySafari to see when the rings would actually be edge-on. Apparently, that will be March 22-23, 2025. Will we be able to see it? Here's the problem. At that date, Saturn will be leading the Sun by about 10 degrees. That means you might only see it before sunrise, but checking the geometry, when the Sun is hitting the horizon, Saturn is less than 2 degrees above the horizon. I don't know how anyone could see Saturn in daylight at the horizon. Not me. So, sadly, I will not be seeing Saturn's rings edge-on in 2025.

But why didn't I see the edge-on rings 15 years earlier? Checking SkySafari again, it appears edge-on came September 3, 2009. I was a clueless newbie then, so likely didn't know what to target. But there's trouble again. On that date, Saturn was trailing the Sun by about 12 degrees. As the Sun set, Saturn was only 6 degrees above the horizon. So, I wouldn't have been able to see anything then either.

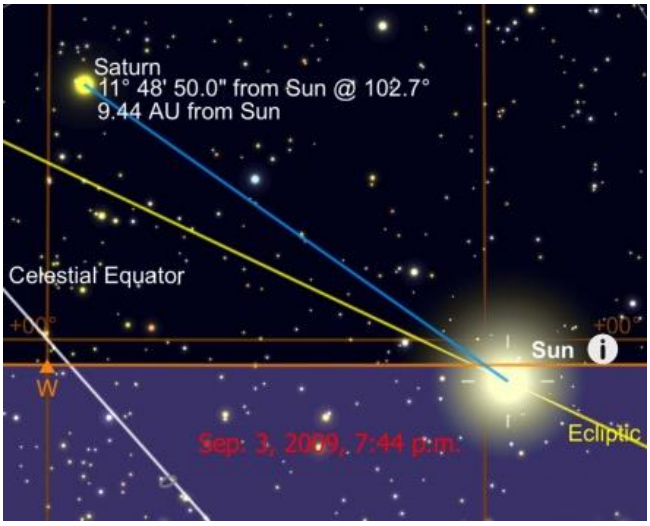
I haven't checked when Saturn might present an accessible view of edge-on rings, but I might have to leave it to some younger person to have the experience of "seeing" invisible rings. I guess I like it better when I can see the rings anyway. May your skies be clear…



March 23, 2025, rings invisible



Location 2025



Location 2009

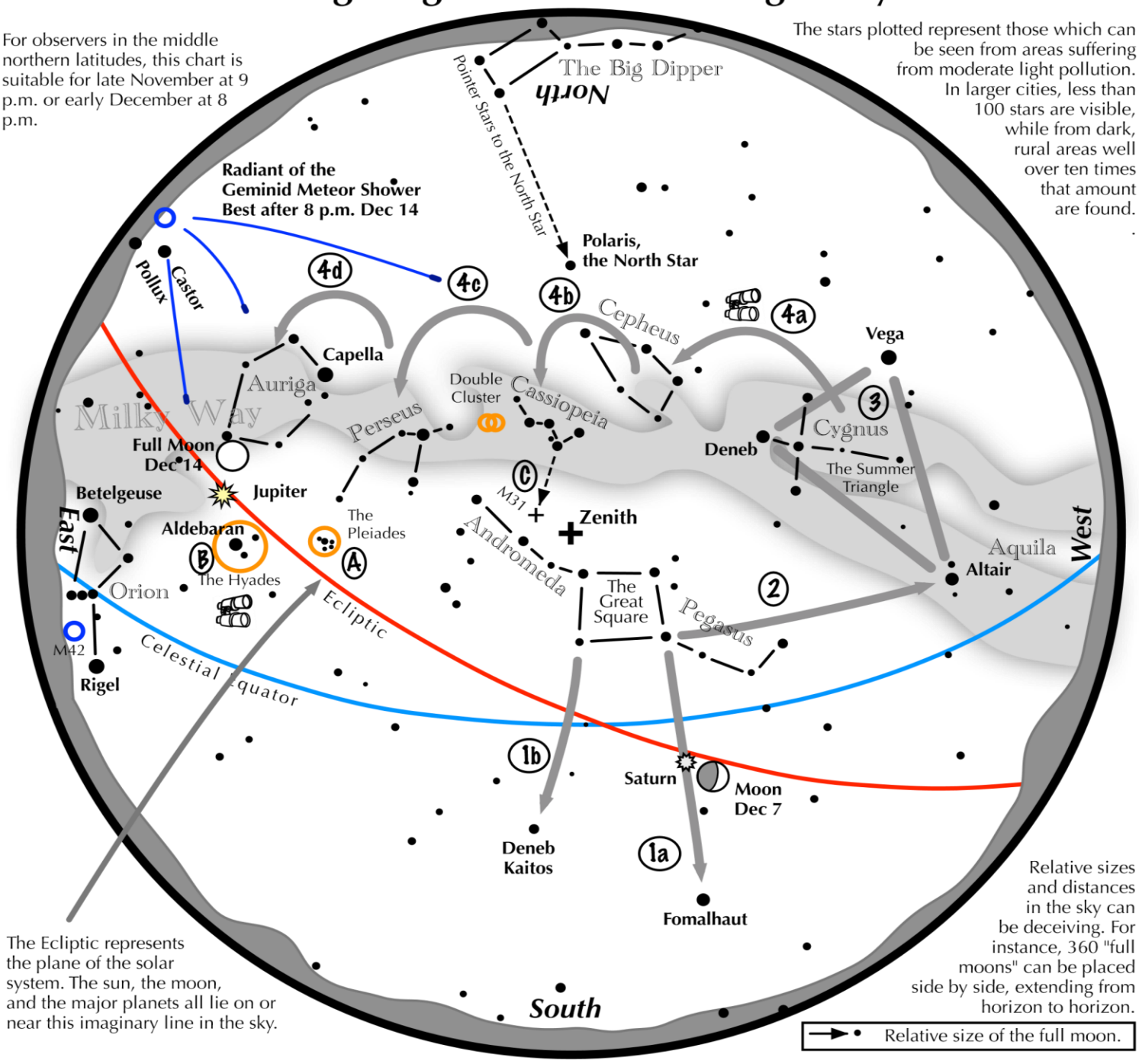
DES MOINES ASTRONOMICAL SOCIETY
PLEASE WELCOME THESE NEW MEMBERS!

January - Kyle and Catherine Bailey
January - Karen Tegtmeyer
March – Rod Williams
April – Paul Caligiuri
April – Jason Hirsch
June – Patrick McIntyre
July – Wade Johnson
July – Kerry & Philip Eganhouse
August – Nick Frisch
September – Stephen Sherrod
September – Dean Regas (Honorary Member)
October – Derrick Bennett
October – Mark Sutter
October – Jon Ouverson
October – Cole Skinner
October Isabelle Utz
November – Brandon Evans

UGC (Uppsala General Catalogue) **10043 Credit:** ESA/Hubble & NASA, R. Windhorst, W. Keel

The center of the galaxy sports a glowing, almost egg-shaped 'bulge', rising far above and below the disc. All spiral galaxies have a bulge like this one as part of their structure, containing stars that orbit the galactic center on paths above and below the whirling disc; it's a feature that isn't normally obvious in pictures of galaxies. The unusually large size of this bulge compared to the galaxy's disc is possibly thanks to UGC 10043 siphoning material from a nearby dwarf galaxy. This may also be why the disc is warped, bending up at one end and down at the other, much like our own Milky Way Galaxy

Navigating the December Night Sky



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 DMAS Facebook page.

This Month in DMAS History

From the StarLight Journal 25 Years Ago, December 1999

On the night of November 17th and the morning of November 18th Ashton Observatory was bustling with activity. TV8 News weather reporter John MacLaughlin broadcasted the 6 o'clock weather standing in front of the observatory, the channel S news did a live shot during the 10 o'clock news and showed a wonderful pre-recorded interview with Observatory Director Tom Bailey, and WHO NewsCenter 13 interviewed Bryan Butcher from inside the east dome on how the Leonid Meteor Shower relates to the common person.

Over the course of the evening at least 100 public visitors gazed at Jupiter, Saturn. The Orion Nebula, and NGC457 (Jodi's Dragonfly Cluster) through the 10- inch telescope operated by Jodi and Jim Holloway.

A group of physics students from Drake University used the back lawn as a huge sleeping bag and many DMAS members reclined in their makeshift 'meteor observing chairs.' The most notable being Tom Bailey in his soft, comfy recliner!

It was a beautiful night for meteor observing. The sky was clear. the weather not too cold for November, and the fellowship was great. There was only one thing missing. METEORS!!!

From the StarLight Journal 10 Years Ago, December 2014

Observatory Director Greg Woolever reported that a post was installed in the yard by Dave Lynch and Norm Van Klompenburg to support the radio telescope dish antenna. Park Director Jerry Ratliff had previously dug the hole for the post. Greg called attention to the new exit signs which have been placed on the doors of the observatory. He also commented that DMAS has seen many new visitors and new members of the club in this past year.

Norm Van Klompenburg said he had nothing new to report on Dark Skies. It was noted, however, that the Ashton night-time skies seem to be getting brighter due to increasing light pollution. Norm pointed out that, on the positive side, Iowa towns and cities are beginning to equip streetlights with full cut-off shielding.

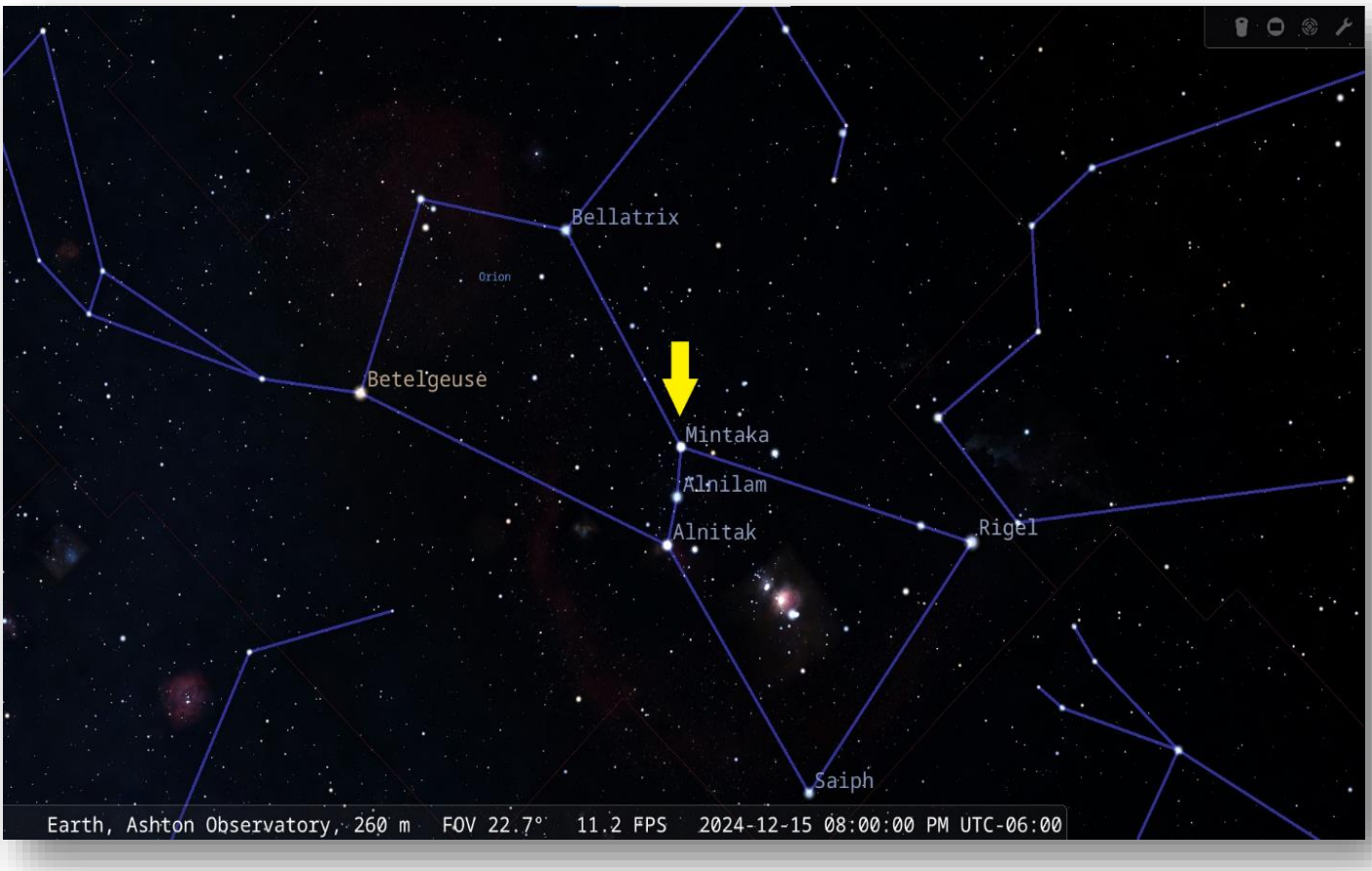
DMAS Star Search -Learn the sky one star at a time by DMAS member Bruce Mumm

December 2024 Mintaka (pronounced min·**taa**·kuh)

Mintaka (Delta (δ) Orionis) is easy to find. Shining at mag. +2.3, it marks the northwest end of Orion's Belt, the star's name deriving from the Arabic for 'belt'. Sitting 17 arcminutes south of the celestial equator, Mintaka hides a great deal of complexity. Observations made by Johannes Franz Hartmann in 1904, using photographs taken at the Potsdam Observatory in Germany, showed Mintaka was a spectroscopic binary. A spectroscopic binary shows periodic movement within its component star's spectral lines. Hartmann noticed the Calcium-K line at 393.34 nanometers didn't show the same periodicity as the Mintakan system and from this he deduced there must be a calcium cloud between us and the star. This was the first detection of what's known as the interstellar medium.

Mintaka is a complex multiple star, comprising a mag. +6.8 star 52 arcseconds to the north of the primary and a far fainter 14th magnitude star in between. The mag. +2.3 primary is designated A, the 14th magnitude star is B and the mag. +6.8 star C.

Delta (δ) Orionis A is the spectroscopic binary, an O9.5 II giant (Aa1) and B1 V main sequence star (Aa2) in a 5.73-day orbit. A BO IV subgiant (Ab) sits O.26 arcseconds from the spectroscopic pair. The 14th magnitude companion (B) is a cool star, about 70 per cent the size of our Sun and around 40 per cent as luminous. The seventh magnitude companion (C) is another spectroscopic binary comprising an A-type primary and B-type companion in a 30-day orbit.



- **The Penguin and the Egg galaxies**

Credit NASA, ESA, CSA, STci

These two galaxies are locked together with the smaller Egg Galaxy greatly distorting the Penguin Galaxy.

- The pair known as ARP 143 made their first pass about 50 million years ago causing a flood of new star formation. The Penguin is thought to be forming 100 - 200 new stars per year, compared to our own Milky Way Galaxy which is forming 6 - 7 new stars per year. It is rare for individual stars to collide when galaxies interact. Stars in our Milky Way Galaxy average about 5 light years apart which is about 30 trillion miles. However, the tremendous gravitional forces can greatly distort a galaxy's shape. Arp 142 lies about 326 million light years from Earth in the constellation Hydra.

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

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, and Jim VandeBerg

Contact us at: 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. More information and photos can be found on our Facebook page.

Article Deadline: Before the 21st of the month, please send your articles, photos, sketches, poems, cartoons, and news to Jim VandeBerg (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

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