



July 2024

Grand Strand Astronomers
Monthly Events

General Membership Meeting:
Thursday July 18 @ 7:00 pm
Meeting: VIA Zoom.

Please see email or Facebook for link

Observing Session: July 6, 2024 @ 8:00 pm
Location: Hampton Plantation
Gates open @ 6:00 pm



ASTROGATOR

Grand Strand Astronomers

An Astronomical Journal of the Grand Strand Astronomers of the Greater Myrtle Beach Area
GSA Founded on September 24, 2020



Lagoon Nebula

Photography by Ken Legal

Grand Strand Astronomer's Social Media

Grand Strand Astronomer's Website



Grand Strand Astronomer's Facebook



GSA Leadership



Executive Officer
Ian Hewitt

Treasurer
John Defreitas

Photograph
not available
at this time



Secretary
Gerald Drake

**Social Media
Corrodinator**
Denise Wright

Photograph
not available
at this time



**Newsletter
Coordinator**
Tim Kelly

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Photograph of the Month

By Ken Lega

Details:

6" f/5.9 Newtonian reflector on AVX mount
Canon 60Da camera, unguided
Astronomik UHC filter
80 minutes total exposure, 30-sec subs
ISO 2000
DeepSkyStacker
GIMP for post-processing

I actually had more than 100 minutes of frames, but occasional gusts of surprisingly strong wind ruined 50 of them (25 minutes worth).

Call For Volunteers

Tim Kelly

Grand Strand Astronomers are looking for volunteers to help with the social media platforms such as Facebook, YouTube and Twitter if the need arises. Presently Facebook needs a new face lift and be brought up to present time activities. Our website can also use some TLC and someone responsible to keep it updated with club activities and astronomy related items. If anyone would like to help in these categories, please contact Ian Hewitt at the email address below.

We are looking for new and older club members to help contribute articles for the GSA Newsletter. You can be a novice level, medium level, or a experienced level astronomer. Knowledge such as types and location of numerous stars, nebula or galaxies to share with other club members. GSA would like to provide topics for all level of members and non-members that are both hands-on projects and educational sharing. You can either write you own or use one already written and published. See Megan's, Chris' and Gerald's contributions for self written articles. See Tim's contributions for an example of non-written subject matter or from a written artical from another person. Please provide the title, name of the originator and website link that the original article can be found. You will not be required to submit articles every month, however every second or third month would be nice and a benifit to all members and non-members. Please send articles to t.m.kelly349@outlook.com

Grand Strand Astronomers - Membership

Grand Strard Astronomer's welcomes new members: Laurie Flynn and Bob Perry

GSA June Meeeting Re-Cap

The regular indoor meeting scheduled for June 20 was is canceled by Ian.

GSA Telescope Loaner Program

Did you know our club has telescopes available for loan? They are Dobsonians that were donated to the club when we first started. These are available for club members to use at no charge. All you have to do is take care of them and return them if someone else wants to borrow one. The first one is an Orion XT 8. It's in great shape. It gives beautiful views of the moon, planets, and galaxies. Comes with accessories that include a 2X Barlow, 25mm eyepiece, 9mm eyepiece, and laser collimator tool. The other one is an Orion Skyquest XT 10 with Orion's IntelliScope computerized object locator. It includes more than 14,000 objects in its database so you'll be able to locate those dim galaxies. Should be hours of fun. Accessories are included. Both of these are begging to be used. Send us an email if you're interested in borrowing one.

GSA Monthly Newsletter Articles

Tim Kelly

This is our club and our newsletter. Lets help each topic to continue to grow.

Grand Strand Astronomer's is looking for individuals who would like to participate in submitting newsletter articles dealing with anything astronomy. We can not rely on the same four (4) members to write and send in articles month after month. New thoughts and ideas make for good reading and beneficial growth for the club and the public of the Greater Myrtle Beach area.

One member's simple advancement could just be what a newbie is looking for to get over a hurdle that has been impeding their progress forward. The expertise by many members can be a form of mentoring.

Examples of articles to submit are:

- How did you get interested in astronomy
- What was or is your first telescope
- What is your favorite go-to objects
- Astrophotography
 - When did you start photographing
 - What lessons did you experience during your learning process
 - Submit older photographs taken along with equipment settings
 - Older pictures can be sent in for the first page "Photograph of the Month"
- What is your goal to achieve astronomically
- Explain your personal growth, and journey through this beautiful hobby
- Favorite internet reading stop-off. Send in articles with originator's name and the website hyperlink
- How do you find a galaxy, a nebula, asteroid or comet in the vast reigns of the universe.

I am asking all members to contribute to the expanding of knowledge, enthusiasm, and love of amateur astronomy to new members within our club, and to other who are not members yet, but contemplating in joining Grand Strand Astronomer's. I would rather have too many articles than not enough to make a great newsletter.

Please submit all articles and photographs by the **15 of the month** prior to the next newsletter. Send to t.m.kelly349@gmail.com

Thoughts From the Secretary

Hope you've had some time for stargazing, I know summer can be busy for many. Even though we did not have our monthly meeting for June, there is still some club business we need to do. According to our Bylaws, the officers of our club serve for one year beginning July 1. The officers include: Executive Officer (Ian Hewitt), Secretary (Gerald Drake), and Treasure (John DeFreitas).

We typically hold elections for these officers in June, but are behind; so, we need to begin the process by submitting nominations from the membership. Any member can submit a nomination for any officer by sending an email to info@gsastro.org. Hopefully, we can complete the election of officers at our next meeting.

Our Bylaws were officially completed in July of 2020. We have had many new members since then, so if anyone would like a copy it can be sent to you as a PDF file. Just send a request to the email address noted above.

Our membership is up to 27 now. That is great! We are still not a big club, but we are continuing to grow. Looking forward to meeting all of our new members at the next meeting our outing.

Gerald

Comets

Vito Technologies, Inc
Tim Kelly

Comet C/2023 A3 (Tsuchinshan-ATLAS)

Comet C/2023 A3 (Tsuchinshan-ATLAS) promises to be a highlight of autumn 2024. Discovered in early 2023, it's been called a potential "comet of the century". The comet is already visible in both hemispheres — you can spot C/2023 A3 using the free astronomy app Sky Tonight. Let's see if the comet lives up to the hype and when it will be visible to the naked eye.

What makes C/2023 A3 (Tsuchinshan-ATLAS) special?

The quote above, which belongs to David H. Levy, a Canadian astronomer and discoverer of many comets, is perfect for C/2023 A3 (Tsuchinshan-ATLAS). First of all, C/2023 A3 (Tsuchinshan-ATLAS) is expected to grow a beautiful cometary tail; fainter comets usually don't have prominent tails at all. After passing by the Sun at a distance similar to Mercury's orbit, C/2023 A3's coma of dust and ice will heat up considerably. As the ice particles evaporate, they will quickly escape into space, taking with them a large amount of dust that will extend into a long, bright tail. As history shows, comets that pass close to the Sun have the most impressive tails, formed soon after being "roasted" by the Sun's heat. And this is the case with comet C/2023 A3!

Also, the brightness of C/2023 A3 (Tsuchinshan-ATLAS) is unpredictable and depends heavily on its activity in the coming months. However, most sources agree on one thing: C/2023 A3 (Tsuchinshan-ATLAS) is likely to be visible to the naked eye. If we're lucky, it could become exceptionally bright and even outshine C/2020 F3 (NEOWISE) from summer 2020. It's been a long time since we've seen such a bright comet, so observers are very excited about C/2023 A3.

Here are some predictions for 2024 monthly visibility:

May: 10-11 magnitude, visible in the evening;

June: 9-10 magnitude, favors the Southern Hemisphere. Bad observing conditions in the Northern Hemisphere due to bright summer nights and lower declination from the Sun;

July: 8-9 magnitude, still favoring Southern Hemisphere, evening visibility;

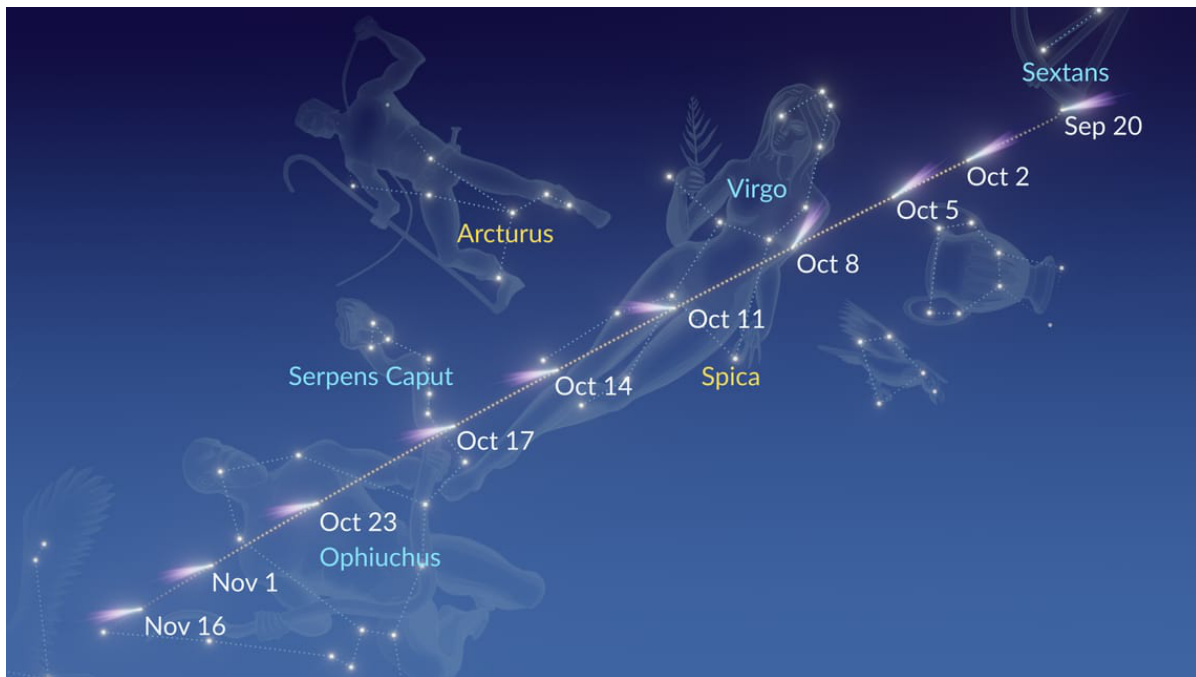
August: 4 magnitude by the end of the month, but too close to the Sun;

September: 3-4 magnitude, moves away from the Sun and begins to appear in the morning sky in the Southern Hemisphere. Short observation window, a good opportunity for capturing the comet's tail. From September 27 to October 2, it appears in the morning in the Northern Hemisphere.

October: the best month for observations in the Northern Hemisphere. Around its closest approach to Earth on October 12, the comet will be at its brightest (magnitude about 0-1). It will be located relatively high above the horizon in the evening sky.

November: 4.5-8 magnitude, visible in the evening. Rises higher in the Northern Hemisphere after sunset.

December: 8-10 magnitude. Gradually moves closer to the Sun in our sky, rising lower above the horizon. Not visible from the Southern Hemisphere.



Will C/2023 A3 (Tsuchinshan-ATLAS) become the next great comet?

C/2023 A3 (Tsuchinshan-ATLAS) may well be the next great comet. Although there is no official definition of the term, great comets are usually exceptionally bright. So bright, in fact, that even a casual observer who isn't intentionally looking for a comet will notice it. Such comets also become well-known outside the astronomical community. The comets Hale-Bopp in 1997 and McNaught in 2007 were among the last comets to be called great. Again, comets are very unpredictable bodies, and there is always room for a surprise. For now, all we have to do is wait patiently for C/2023 A3's performance in autumn 2024

Comet Tsuchinshan-ATLAS: Bottom line

The comet C/2023 A3 (Tsuchinshan-ATLAS) has great potential and may become visible to the naked eye by October 2024. According to some forecasts, it could reach 0-1 magnitude or brighter. For now, it is only visible through a telescope. Use the Sky Tonight app to locate C/2023 A3 (Tsuchinshan-ATLAS) in the sky. The app's Time Machine feature will allow you to see the comet's position in your sky in the future. Watch our [video tutorial](#) and learn how to use this feature.

Another Comet

Vito Technologies, Inc
Tim Kelly

Mark Your Calendars

In January 2025, comet C/2024 G3 (ATLAS) will get closest to the Sun and might reach naked-eye visibility. According to some estimates, it may even become visible during the daytime! But don't get your hopes too high yet. Read on to learn whether you'll be able to see the comet.

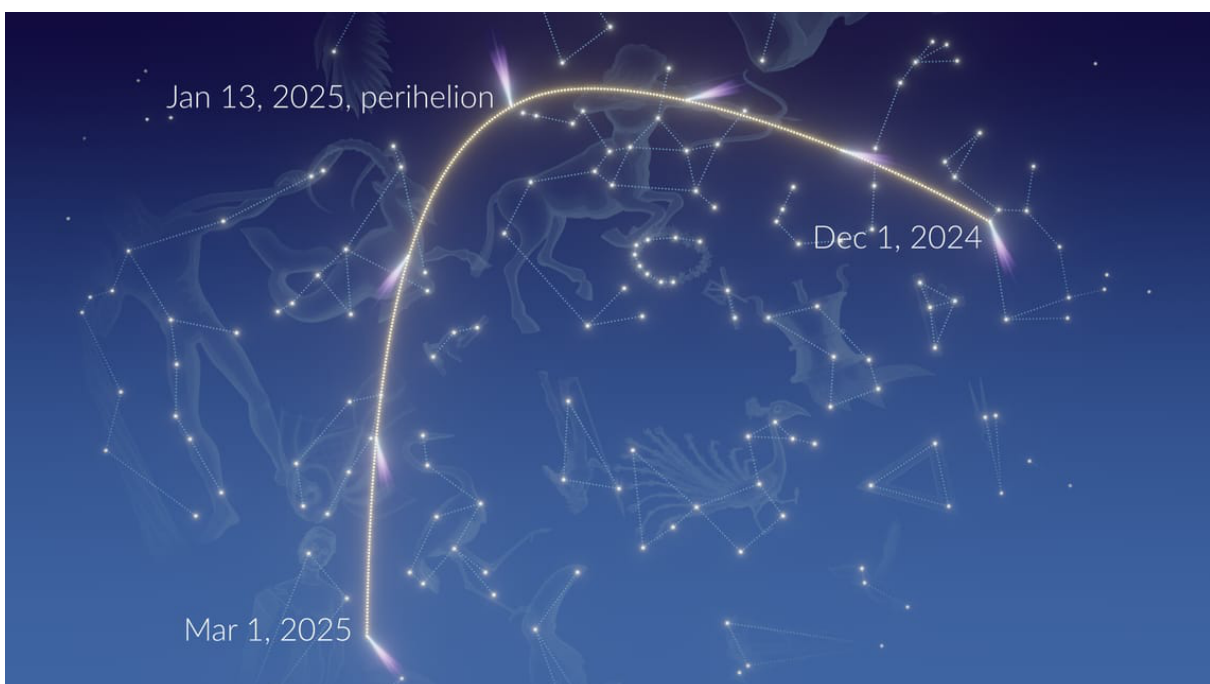
Comet C/2024 G3 (ATLAS) was discovered on April 5, 2024, by the ATLAS astronomical survey. Judging by its orbit, it might be a dynamically new comet, which means it enters the inner Solar System for the first time.

The name of the comet contains data about its type, date of discovery, and discoverer:

- The letter "C" denotes a non-periodic comet. Such comets either pass through the Solar System only once or take more than 200 years to complete an orbit around the Sun.
- The designation "2024 G3" indicates that the comet was discovered in the first half of April 2024 and was the third comet discovered during that period.
- "ATLAS" signifies that the discovery was made by the astronomical survey called Asteroid Terrestrial-impact Last Alert System (ATLAS).

When and how to observe C/2024 G3 (ATLAS)

Comets are typically brightest at perihelion when they are closest to the Sun. Comet C/2024 G3 will reach perihelion on January 13, 2025 (it will be located in the constellation Sagittarius). At that moment, it will be passing at a distance of only 0.094 AU from the Sun and could brighten to a magnitude of 0.6. This means it might become visible to the naked eye, like the famous comet NEOWISE in 2020. However, astronomers are skeptical about this perspective at the moment.



Will we be able to see Comet C/2024 G3 (ATLAS)?

Here are a few factors that may prevent us from observing the comet.

- The comet might not survive perihelion. First, C/2024 G3 is a sungrazing comet: it will pass extremely close to the Sun at perihelion and might fragment or completely evaporate. Second, its absolute magnitude (about 9.0) is below the Bortle limit for the survival of a comet after approaching the Sun. Third, as we mentioned before, comet C/2024 G3 (ATLAS) might be visiting the inner Solar System for the first time, and such comets typically have a higher risk of disintegrating.
- Even if C/2024 G3 survives perihelion, it will have a solar elongation of only about 5 degrees at the time. This means the comet will be positioned near the Sun in the sky and will be hard to observe.

Comet C/2024 G3 (ATLAS): Bottom line

While Comet C/2024 G3 (ATLAS) has the potential to become a spectacular sight in January 2025, its fate remains uncertain. The comet's close approach to the Sun might result in it brightening to naked-eye visibility or disintegrating completely. Regardless of the final outcome, C/2024 G3 offers an exciting opportunity for astronomers and stargazers alike to witness a new comet making its first journey through the inner Solar System. We'll keep you updated with the latest observations and forecasts as the comet approaches the Sun.

Types of Constellations

Sarah Hoffschwelle

StarLust

Since ancient times, humans have not just gazed at the stars above them, but actually used their movements across the night sky to track time, navigate, and tell stories. From ancient times to today, we've grouped stars to create pictures called constellations.

Constellations help us group the numerous stars into recognizable shapes, but what are the different types of constellations and how can we segment them into easier groups? Let's review the different types of constellations that help us segment the stars in the sky.

Constellation: Definition & Background

A constellation is a group of stars that can be connected to form a recognized shape. These shapes in the night sky have been used since ancient times as a way to navigate, track time and seasons, and pass down our myths, legends, and history. Each culture had its own constellations, but as an international community grew, communicating about the night sky across cultures became difficult.

In 1922, the International Astronomical Union created an international system of 88 official constellations, designated with Latin names. These constellations help us map the night sky, providing locations easily understood by anyone around the world for not just stars but also other astronomical objects.

An aphorism is a group of stars that creates a shape, but is not one of the 88 official constellations. They are often either part of an official constellation or parts of multiple constellations and do not have the same names throughout the world as they are often based on the original cultural constellations.

The Big Dipper is an aphorism, not a constellation. It is part of the constellation Ursa Major (Big Bear) comprising its tail and body, but is often called the Plow in England. The Summer Triangle is made up of the three brightest stars in three separate constellations: Vega in Lyra, Altair in Aquila, and Albireo in Cygnus.

In general, constellations represent either a human, an animal, or an object

Human shaped constellations

There are many people depicted in our constellations, most from mythology (typically Greek or Roman), including:

Northern Human Constellations: Perseus, Hercules, Medusa, Auriga (the Charioteer)

Southern Human Constellations: Orion (the Hunter), Sagittarius (the Archer), Virgo (the Maiden), Indus (the Indian)

There is one constellation that is actually named after a real, historical figure: Cassiopeia, the Queen. While most of our constellations draw from Greek or Roman mythology, European knowledge of the night sky was actually heavily influenced by scholars in the Middle East, particularly Egypt. One of their constellations was named after an ancient Queen and we later found her tomb, proving that she was a real Queen in an ancient African kingdom, not a myth.

Animal shaped constellations

We also have many constellations that depict animals, both real and mythological. Some of these animal constellations include:

Northern Animal Constellations: Draco (the Dragon), Camelopardalis (the Giraffe), Ursa Major (Big Bear), Ursa Minor (Little Bear), Lacerta (the Lizard), Pegasus (the Winged Horse), Cygnus (the Swan)

Southern Animal Constellations: Cetus (the Whale/ Sea Monster), Centaurus (the Centaur), Canis Major (Big Dog), Lepus (The Hare), Lupus (The wolf), Monoceros (the Unicorn), Tucana (the Toucan), Corvus (the Crow)

Object shaped constellations

Finally, constellations can represent objects/ places. There are many objects depicted in the night sky ranging from simple to complicated:

Northern Object Constellations: Corona Borealis (Northern Crown), Triangulum (the Triangle), Sagitta (the Arrow)

Southern Object Constellations: Corona Australis (the Southern Crown), Crater (the Cup), Microscopium (the Microscope), Horologium (the Clock), Eridanus (the River), Mensa (the Table Mountain)

In general, while animals seem to be scattered throughout both, the Northern Hemisphere has more people constellations while the Southern Hemisphere has more object constellations.

Types of constellations

Northern and Southern Constellations: Your view of the night sky is primarily impacted by which hemisphere you are located in: Northern or Southern as that is the area of space you are looking at from your location here on Earth.

Below are the 88 constellations grouped by their location in the night sky in each hemisphere. Many can be viewed from either hemisphere though, especially around the equator.

36 Northern Hemisphere Constellations

Andromeda, Aries, Cassiopeia, Orion, Perseus, Pisces, Taurus, Triangulum
Auriga, Camelopardalis, Cancer, Canis Minor, Gemini, Leo, Leo Minor
Lynx, Monoceros, Ursa Major, Boötes, Canes Venatici, Coma Berenices
Corona Borealis, Draco, Hercules, Serpens, Ursa Minor, Aquila, Cepheus,
Cygnus, Delphinus, Equuleus, Lacerta, Lyra, Pegasus, Sagitta, Vulpecula

52 Southern Hemisphere Constellations

Caelum, Cetus, Columba, Dorado, Fornax, Horologium, Hydrus, Lepus
Mensa, Phoenix, Pictor, Reticulum, Sculptor, Antlia, Canis Major, Carina, Chamaeleon
Crater, Hydra, Puppis, Pyxis, Sextans, Vela, Volans, Apus, Ara, Centaurus, Circinus, Corvus
Crux, Libra, Lupus, Musca, Norma, Ophiuchus, Scorpius, Triangulum Australe, Virgo
Aquarius, Capricornus, Corona Australis, Grus, Indus, Microscopium, Octans, Pavo
Piscis Austrinus, Sagittarius, Scutum, Telescopium, Tucana

Circumpolar Constellations

These are around either our North or South poles and will appear to rotate around the pole. They are mostly visible all year long (though at different locations in their circle) for those in their hemisphere. Spying a circumpolar constellation in the opposite hemisphere is impossible and at the equator, you don't see any circumpolar stars.

Northern Circumpolar Constellations: Ursa Major (Big Bear), Ursa Minor (Little Bear), Draco (the Dragon), Cepheus (the King), Cassiopeia (the Queen)

Southern Circumpolar Constellations: Crux (the Southern Cross), Carina (the Keel), Centaurus (the Centaur)

Seasonal Constellations

In addition to their circumpolar constellations, each hemisphere has seasonal constellations which rotate through the sky through the year. In the Northern Hemisphere, look to the south to find your seasonal constellations and in the Southern Hemisphere, look to the North.

Constellations will rise in the east, make their way slowly across the night sky, and then set in the west, providing a view of the last of the past season's constellations at the beginning of the evening, this season's constellations throughout most of the night, and a sneak peek of the next season in the final hours before sunrise.

Many seasonal constellations can be seen in either hemisphere depending on the time of year and location, especially if you are closer to the equator.

Constellation Families

Especially since many constellations were used to tell stories in ancient times, we often group nearby constellations that tell a story together, but we also have more scientific groupings as well. In 1975, the director of the Harvard Observatory, Donald H. Menzel, separated all 88 constellations into groups in his *A Field Guide to the Stars and Planets*.

Zodiacal / Ecliptic constellations

The twelve constellations lie upon the ecliptic line where we see the Sun, Moon, and planets. These are fairly well-known due to their use in astrology which is the belief that the location of stars and planets impacts what a person is like and can predict their future. (Astronomy on the other hand is the scientific study of outer space including planets, stars, galaxies, and more.)

The zodiac constellations are seen around the world though they will be closer to the horizon the further you are away from the equator.

They include: Capricornus (the Sea-Goat), Aquarius (the Water Bearer), Pisces (the Fish), Aries (the Ram), Taurus (the Bull), Gemini (the Twins), Cancer (the Crab), Leo (the Lion), Virgo (the Virgin/Maiden), Libra (the Scales), Scorpius (the Scorpion), Sagittarius (the Archer)

The astrology signs are based on when the sun is in the constellation, meaning that it will actually not be up in the night sky during its astrological season.

Note: Ophiuchus (the Serpent Bearer) also lies on the ecliptic, but has not historically been considered one of the zodiac signs in astrology and is therefore often not designated as a zodiac constellation. Menzel lists it under the Hercules Family.

Perseus/ Andromeda Family

One of the most famous families is based on the Perseus and Andromeda myth, boasting 7 constellations. A King (Cepheus) and a Queen (Cassiopeia) ruled over an ancient kingdom. They had a daughter (Andromeda) who was very beautiful, so beautiful that they boasted she was the most beautiful being ever created.

The sea nymphs didn't like this and they commanded Zeus to intervene. He sent the Sea Monster (Cetus) to take Andromeda or destroy the kingdom. Faced with two terrible options, the king and queen decided to save their kingdom by chaining their daughter to the rocks for Cetus to take. Luckily, a hero (Perseus) was flying by on his winged horse (Pegasus).

He cut Andromeda from the rocks and then used the head of the Gorgon (Medusa) whom he had just slain to turn the sea monster into stone. Menzel also included neighboring Auriga (the Charioteer), Lacerta (the Lizard), and Triangulum (the Triangle) to complete the group.

Ursa Major Family

With the importance of the pole star in navigation, it makes sense to create a family of constellations around Ursa Major.

This family includes Ursa Major (Greater/ Big Bear), Ursa Minor (Little/ Lesser Bear), Draco (the Dragon), Canes Venatici (the Hunting Dogs), Boötes (the Herdsman), Coma Berenices (the Hair of Berenice), Corona Borealis (the Northern Crown), Camelopardalis (the Giraffe), Lynx, and Leo Minor (the Lesser/ Little Lion).

Orion Family

As one of the most recognizable constellations around the world, Orion definitely needed his own family to tell a story of a hunt: the hunter (Orion) and his two dogs (Canis Major and Canis Minor) chasing the hare (Lepus). Menzel also included neighboring Monoceros (the Unicorn) so it wouldn't be left out.

Bayer Family

This family of southern constellations around the southern pole includes those that were named mostly for exotic animals reported in the travel journals and were listed in Johann Bayer's 1603 celestial atlas Uranometria.

These constellations are Hydrus (the Male Water Snake), Dorado (the Swordfish), Volans (the Flying Fish), Apus (the Bird of Paradise), Pavo (the Peacock), Grus (the Crane), Phoenix (the mythical firebird), Tucana (the Toucan), Indus (the Indian), Chamaeleon, and Musca (the Fly).

Lacaille Family

This family contains most of the constellations introduced by Nicolas-Louis de Lacaille in 1756, representing scientific instruments, together with Mensa, commemorating Table Mountain ("Mons Mensa") in South Africa, where his observations were recorded.

The Lacaille Family includes Norma (the Carpenter's Square), Circinus (the Drawing Compass), Telescopium (Telescope), Microscopium (Microscope), Sculptor (the Sculptor's Tools), Fornax (the Furnace), Caelum (the Engraving Tool), Horologium (the Clock), Octans (the Octant), Mensa (the Table Mountain), Reticulum (the Reticule), Pictor (the Painter's Easel), and Antlia (the Air Pump).

Heavenly Waters Family

Ancient Mesopotamian tradition depicted the god Ea and the Waters of the Abyss in the part of the night sky between Sagittarius and Orion so Menzel grouped all of the nearby constellations associated with water in this area (minus those in the Zodiac Family).

These include Delphinus (the Dolphin), Equuleus (the Little Horse), Eridanus (the River), Piscis Austrinus (the Southern Fish), Pyxis (the Mariner's Compass), Columba (the Dove), Carina (the Keel), Puppis (the Stern), and Vela (the Sails).

The last three were all historically a part of the now-defunct Argo Navis constellation representing the Greek Ship Jason.

Hercules Family

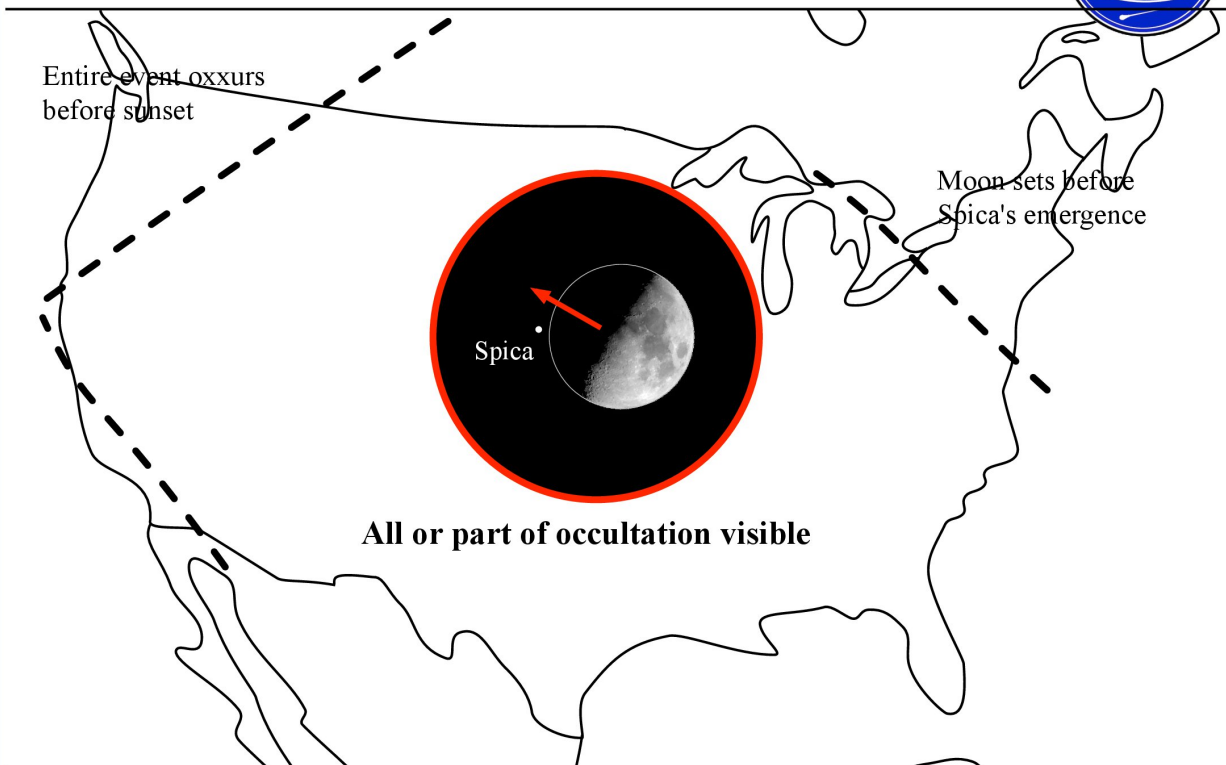
Menzel's largest grouping, primarily based on their location.

This includes Hercules, Sagitta (the Arrow), Aquila (the Eagle), Lyra (the Lyre/ Harp), Cygnus (the Swan), Vulpecula (the Fox), Hydra (the Female Water Snake), Sextans (the Sextant), Crater (the Cup), Corvus (the Crow), Ophiuchus (the Serpent Bearer), Serpens (the Serpent), Scutum (the Shield), Centaurus (the Centaur), Lupus (the Wolf), Corona Australis (the Southern Crown), Ara (the Altar), Triangulum Australe (the Southern Triangle), and Crux (the Southern Cross).

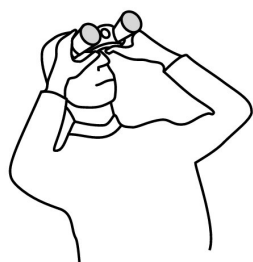
Conclusion

Constellations group stars into recognizable shapes, making it easier for us to navigate the night sky full of stars. The different types of constellations further help segment the sky and aid in our discovery of the night sky, providing stories and cyclical context. We hope this has helped you better understand the constellations and the night sky.

If you can see only one celestial event this month, see this one. The first quarter moon occults Spica on July 13.



Occultation of Spica occurs in the evening hours for most of the US. The moon sets before Spica's emergence for viewers in the northeast. Viewers in the northwest see the event before sunset.

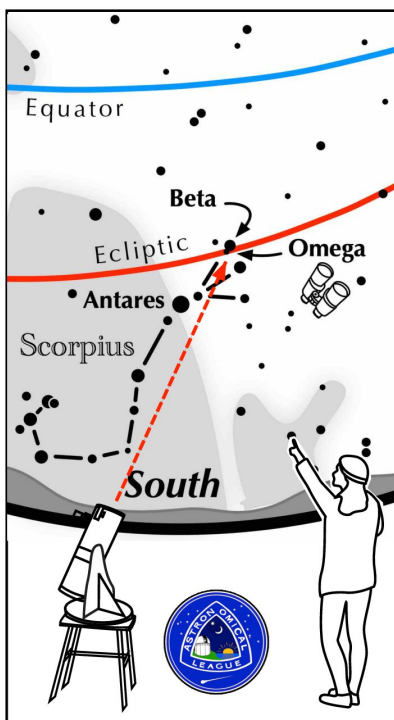


A great binocular event



City	Start	Altitude	End	Altitude	Notes
Boston	11:24	6°	-----	----	12:03 moonset
Washington	11:26	11°	12:34	----	12:32 moonset
Atlanta	11:28	19°	12:41	5°	1:08 moonset
Miami	11:48	15°	12:54	1°	12:59 moonset
Chicago	10:10	19 ^a	11:23	8°	8:24 sunset
St Louis	10:12	23°	11:28	10°	12:25 moonset
New Orleans	10:29	24°	11:44	10°	
Minneapolis	9:57	22°	11:13	12°	
Kansas City	10:05	26°	11:23	14°	8:44 sunset
San Antonio	10:18	33°	11:37	18°	
Denver	8:48	33°	10:11	22°	8:27 sunset
Albuquerque	8:54	37°	10:17	25°	8:21 sunset
Tucson	7:54	41°	9:15	30°	7:31 sunset
Seattle	7:13	31°	8:33	28°	9:03 sunset
San Francisco	7:28	41°	8:44	36°	8:32 sunset
San Diego	7:44	44°	9:02	35°	7:57 sunset

ASTRONOMICAL LEAGUE Double Star Challenge



Other Suns: Beta Scorpii

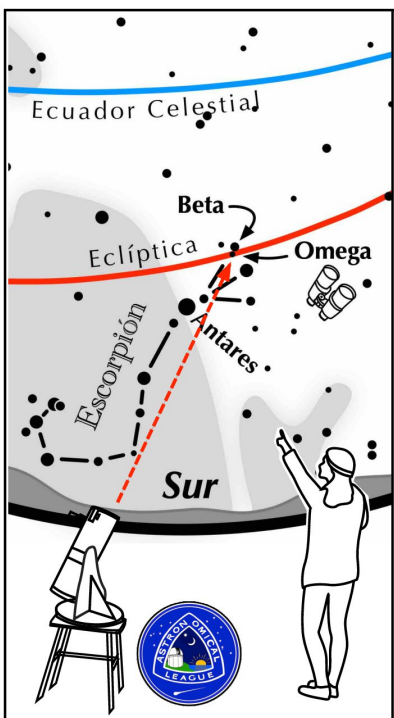
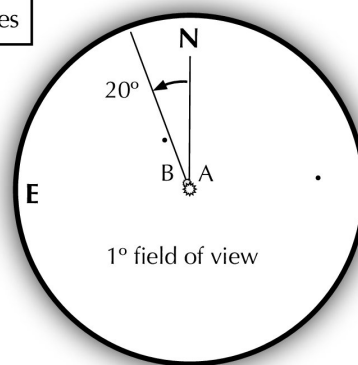
How to find Beta Scorpii on a July evening

Find the bright red star Antares low in the south. To its west shine three stars representing the claws of Scorpius. The northern star is Beta Scorpii. Immediately below Beta lies Omega, a very wide optical double star, easily separated in binoculars.

Suggested magnification: >40x
Suggested aperture: >3 inches

Beta Scorpii

A-B separation: 14 sec
A magnitude: 2.6
B magnitude: 4.5
Position Angle: 20°
A & B colors: white & blue



Otros Soles: Beta Scorpii

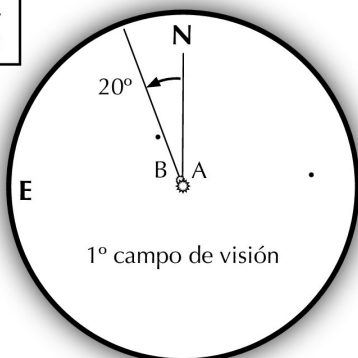
Cómo encontrar Beta Scorpii en una tarde de julio

Encuentra la brillante estrella roja Antares baja en el sur. Al oeste brillan tres estrellas que representan las garras de Escorpión. La estrella del norte es Beta Scorpii. Inmediatamente debajo de Beta se encuentra Omega, una estrella doble óptica muy ancha, que se puede distinguir fácilmente con binoculares.

Ampliación sugerida: >40x,
Apertura sugerida: >75 mm

Beta Scorpii

A-B separación: 14 sec
A magnitud: 2.6
B magnitud: 4.5
PA: 20°
A & B colores: blanca & azul



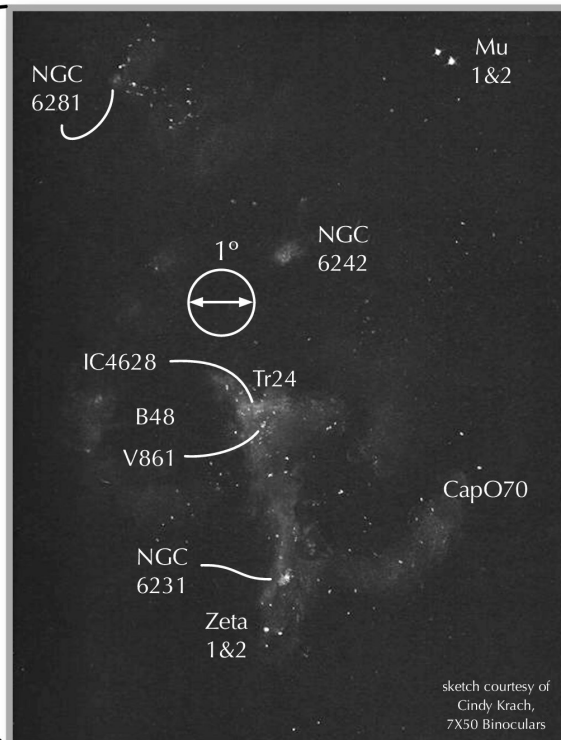
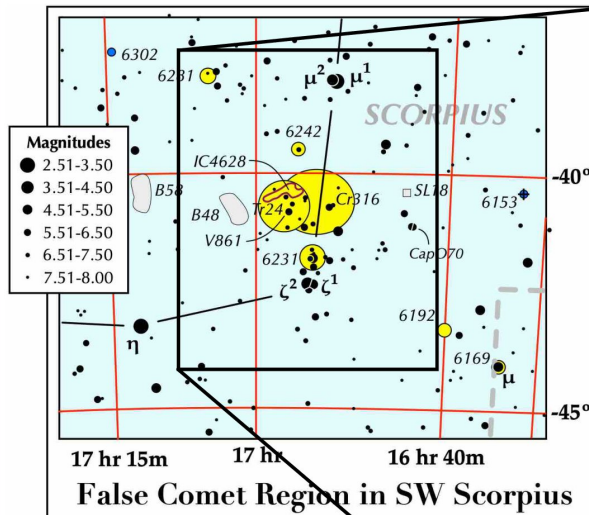


Often ignored because of its southerly declination,
this is a great region for binocular observers and telescope users!



False Comet, a closer look

Take your time and explore what this area offers: Open clusters, double stars, variable stars, dark nebulae, emission nebula, & planetary nebulae.



Features to Identify

- Zeta 1 & 2, and Mu 1 & 2, binocular double stars.
- NGC 6231 (Caldwell 76), open cluster.
- Trumpler 24: open cluster, 8.6 mag., 60'
- Collinder 316: Large open cluster.
- B 48 & B 58: dark nebulae
- NGC 6242: open cluster, 6.5 mag., 40'
- NGC 6281: open cluster, 5.4 mag., 8'
- NGC 6302: planetary nebula, "Bug," 9.2 mag., 50".
- V861: eclipsing binary with period of 7.85 days, 6.1 to 6.4 mag.
- IC 4628: emission nebula, the "Prawn."
- CapO70: binocular double star, 6.1 & 6.2 mag., 97" sep.

A great region for binoculars!

- 7x50 and 10x50 work nicely.
- Best when mounted on a tripod for steady viewing.
- Best to have high contrast, dark skies.



See more detail:

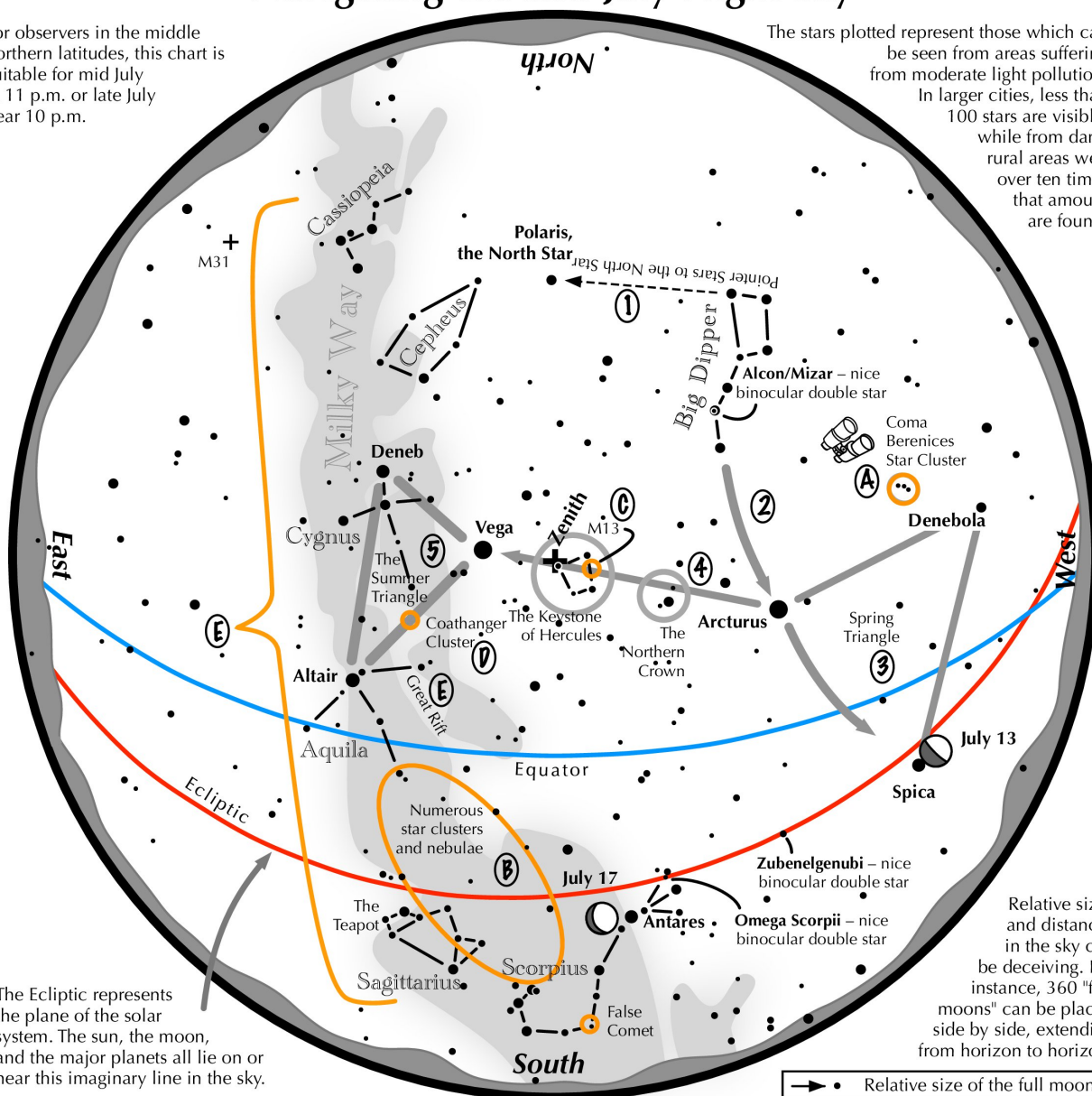
- Use a high contrast or deep sky nebula filter.
- Don't forget to try high magnification, >200.

Try your hand at sketching: Lay down the bright stars first to set relative distances, lightly outline bright nebula next, then fill in cluster stars and dimmer field stars. Add shading. Note dark areas. The more you look, the more you see!

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.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

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.



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And remember to always look up!