



M35 in Gemini is high in the sky on winter nights, and is about 2,800 light-years from Earth. This is a wide-field image of the open star cluster, obtained on January 9, 2011. This image was obtained using a modified Canon T2i attached to an 8-cm refractor. This is a single 2.5-minute exposure. Photo by Gary Kronk.

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River Bend Astronomy Club is a member of the Astronomical League.



River Bend Astronomy club serves astronomy enthusiasts of the American Bottom region, the Mississippi River bluffs and beyond, fostering observation, education, and a spirit of camaraderie.

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Contacts

MAIL River Bend Astronomy Club
Jeff Menz
13721 Kayser Road
Highland, IL 62249-4619
WEB www.riverbendastro.org
EMAIL rbac@riverbendastro.org



River Bend Astronomy Club is a member of the Astronomical League, dedicated to fostering astronomical education, providing incentives for astronomical observation and research, and assisting communication among amateur astronomical societies. www.astronleague.org



River Bend Astronomy Club is a member of the NASA Night Sky Network, a nationwide coalition of amateur astronomy clubs bringing the science, technology and inspiration of NASA's missions to the general public. See our online calendar on the NASA Night Sky Network at http://nightsky.jpl.nasa.gov/

Monthly Meetings

Saturday, January 12, 2013 • 7:00 PM
Saturday, February 9, 2013 • 7:00 PM
Saturday, March 9, 2013 • 7:00 PM

For meeting locations, please see our calendar at www.riverbendastro.org.

Looked Up Lately?

Join River Bend Astronomy Club

Want to learn more about astronomy? The members of River Bend Astronomy Club invite you to join. You won't need expensive tools or special skills - just a passion for observing the natural world.

- Meetings offer learning, peeks through great telescopes, and fun under the stars.
You will receive the club newsletter, Current Astronomy, packed with news and photos.
Get connected with our member-only online discussion group.
Borrow from the club's multimedia library.
Borrow from the club's selection of solar telescopes.
And that's not all! Through club membership you also join the Astronomical League, with its special programs and colorful quarterly newsletter The Reflector to enrich your hobby.
We meet monthly, observe regularly, email news and quips constantly, and generally have a good time. Won't you join us?

Name _____
Address _____
City _____ State _____ Zip _____
Phone _____
Email address _____
Where did you hear of our club? _____

How long have you been interested in astronomy? _____
Do you have optical equipment? _____
Are you afraid of the dark? ___Yes ___No (just kidding)
I am submitted my application for:
_____Adult Membership(s) _____Youth Membership(s)
\$20/year each \$15/year each
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I enclose a check for \$_____ made out to:
Mike Veith, Treasurer, RBAC
Signature _____
Date _____

Mail to: River Bend Astronomy Club
c/o Mike Veith, 1121 St. Louis St., Edwardsville, IL 62025.

Questions? Contact us by email at rbac@riverbendastro.org.

Geminid Meteor Shower Does Not Disappoint

By Mark Brown

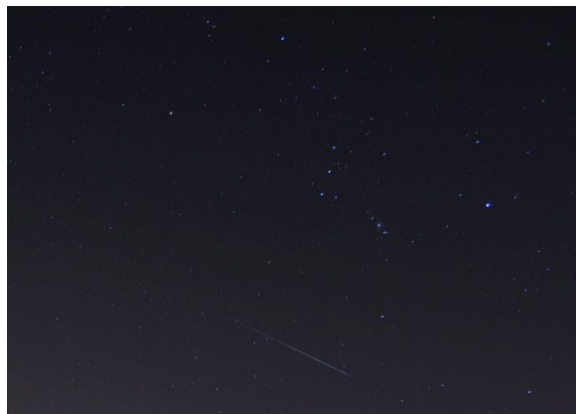
Wanted to pass along a couple of images from the Geminid Meteor shower. The meteor shower did not disappoint. This was the first meteor shower in quite some time that I'd been able to view without bad weather or clouds hampering my view. Temperatures on December 13/14 hovered around 25 degrees F with mostly clear skies. I remained at my home in Carlisle, PA to watch and image the shower. Between 10:35 and 11:35pm, I counted a total of 87 meteors....some in the range of magnitude -4 or better. Early in the evening around 7:30pm as Gemini was rising, two very nice earth-grazers streaked overhead moving generally east to west leaving long vivid trails. I took over 400 images between 9:30pm and 1:00am.

I wanted to also note that there were reports that debris from Comet 46P/Wirtanen might also produce a meteors in the early evening hours of December 13. Between 6:30 and 7:30pm I did count about ½ dozen meteors moving from south to north appearing to radiate from the constellation Pisces. The meteors I observed were dim and fast moving. Although it was an unnamed meteor shower, the possibility exists that I was seeing meteoroid debris from this comet.

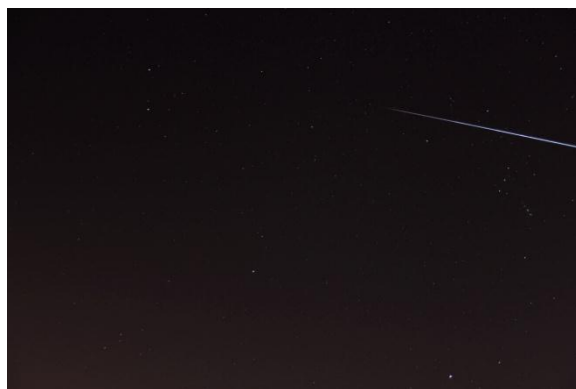
Geminid images:



Geminid meteor seen just to the SE of Orion. This image was captured on December 13th at 10:23pm local time (323UT Dec 14). Photo by Mark Brown.



Cropped version of the previous image. Photo by Mark Brown.



Bright Geminid meteor leaving the radiant and piercing Orion. The radiant near the stars Castor and Pollux is to the left of top center in the image. This image was captured on Dec. 13th at 11:53pm local time (453UT Dec 14). Photo by Mark Brown.

All images were captured with a Canon T2i DSLR, 18-55mm lens set at 24mm, f/3.5, ISO 800 with exposures lasting 25 seconds. **RBAC**

Eyepiece Wish List!

By Bill Breeden

Do you finally have all the eyepieces you have ever wanted in your eyepiece case? No? Me neither.

I have collected ten eyepieces over the past 8 ½ years, and of course, there is always *just one more* that would make my collection complete. Actually, there are many eyepieces I would like to add to my collection, or at least have the opportunity to try them out.

I started ‘collecting’ eyepieces when I bought my 8-inch LX90 SCT in 2004. It came with a 26mm Meade Super Plossl, which is actually a great match for this telescope. I can see why Meade includes it with the LX90. It provides a 52° apparent field of view (AFOV), gives me a magnification of 77x (which is just right for most objects), and it suffers from absolutely no black-outs or kidney-beaning effects.



Meade 26mm Super Plossl eyepiece.
Photo courtesy Meade Instruments.

Soon after, this eyepiece was joined by two more in the Meade Super Plossl line, the 12.4mm and the 9.7mm. These have the same 52° AFOV, but provide progressively higher magnifications.

But these are ‘just’ Plossls, and it didn’t take long for me to begin pouring over eyepiece ads in *Sky and Telescope* and *Astronomy* magazines. Of particular interest to me were

ads for wide-field eyepieces, providing AFOV’s of 66° and larger. TeleVue eyepieces were still in my distant future (expensive!) so I ordered Orion’s line of four *Expanse* eyepieces. These four eyepieces, in focal lengths of 6mm, 9mm, 15mm, and 20mm, and provide an AFOV of 66°. At about \$50 each, these are a real bargain, and they served me well for years.

I eventually dove in and purchased my first TeleVue Nagler eyepiece, providing an incredible 82° AFOV. At the time, TeleVue was having a sale, so I figured ‘why not?’ Choosing a focal length was the hardest part, as I was only going to buy one Nagler. Ultimately I chose the 13mm. TeleVue had just released a new 100° Ethos eyepiece (which was way out of my league!), and this was the first focal length they chose to manufacture. Good enough for me!



TeleVue 13mm Nagler eyepiece.
Photo courtesy TeleVue.

It was *glorious*. I set up my LX90 in the back yard and pointed it at Jupiter. The 13mm Nagler brought Jupiter and its four moons into such a view as I had never had in my telescope in my yard. The edge of the field seemed to disappear, and the planet’s realm filled my field of view and immersed me in the scene.

Terrific. Now I was hooked on TeleVue eyepieces, which are the best (and most expensive) eyepieces. I guess I would not be adding to my eyepiece case *nearly* as often.

I continued to read about eyepieces, apparent field of view, magnification, and how different

eyepieces would function in my f/10 SCT. I was beginning to finally understand a fundamental concept: Different types of eyepieces are better for different types of telescopes, and some telescope designs are more forgiving of eyepiece shortcomings. For example, an inferior eyepiece may work quite well in an f/10 SCT, but a faster f/7 Dobsonian will begin to show an inferior eyepiece's problems, such as distortions, black-outs, or kidney-beaning.

I had read that the TeleVue 24mm Panoptic eyepiece shows the maximum *true* field of view possible in an f/10 SCT. In other words, every part of the image on my telescope's mirror will be visible in the 24mm Panoptic. No wasted light, no missing information. After I read this (and research confirmed it), I just *had* to have this eyepiece.



TeleVue 24mm Panoptic eyepiece.
Photo courtesy TeleVue.

I was not disappointed. If you have never observed with a long focal length (low power) eyepiece, you are missing a real treat. Seeing everything my telescope can deliver is amazing. While still not a Dobsonian, it is incredible how much sky this baby pulls in. I can see the entire Double Cluster (NGC869 and NGC884), which is something I previously only enjoyed in other people's Dobsonians.

My latest eyepiece purchase, the 19mm Panoptic, was sort of a 'frivolous' purchase that turned out to be an outstanding decision. This eyepiece is so close to the 24mm Panoptic

that it hardly was 'necessary.' So why did I buy it? Reading online forums and reviews, any mention of the 19mm Panoptic was always incredibly positive. One review stands out in my memory. It was along the lines of 'best eyepiece ever made for an 8 inch f/10 SCT. Just get one.'



TeleVue 19mm Panoptic eyepiece.
Photo courtesy TeleVue.

This is the best eyepiece in my eyepiece case. It is my 'desert island' eyepiece. The specs are impressive: 68° AFOV, 105x magnification, and a true field of view of 39'. But what these specs do not tell you is how doggone COMFORTABLE this eyepiece is to use. Seriously. I wasn't expecting this. Just put it in, point your telescope, and look in the eyepiece. Just the way you have always thought it should be. No moving your head around. No black-outs or kidney-beaning. No distortions. No getting your eye at just the right distance from the cup. Perfect. Absolutely perfect for my telescope. This eyepiece could be permanently connected to the star diagonal and ship with this telescope. IT IS THAT GOOD.

So what eyepiece is next on my wish list? I guess it would be the TeleVue 10mm Delos. I could always use a shorter focal length, after all!

What is next on your eyepiece wish list? [RBAC](#)

South St. Louis Outreach at Francis Park in 2013

By Bill Breeden

River Bend Astronomy Club was founded in 2001 in St. Jacob, Illinois, and is still based in Highland, Illinois. According to the latest data in the Night Sky Network roster, we have 47 members, five of which live in Missouri. Several others may work in Missouri, or at least venture west of the Mississippi River now and then. In any case, my wife and I are two of River Bend's members that live in Missouri, and we host a monthly outreach in South St. Louis, in Francis Park. This event was originally a St. Louis Astronomical Society event, but since I am a member of both astronomy clubs, there is no reason that this event cannot be hosted as a dual-club outreach event. It has served both clubs in the past, so let's give it a go this year!

To that end, I have added the Francis Park Stargazing outreach events to River Bend Astronomy Club's list of Night Sky Network events for 2013. Any member of the River Bend Astronomy Club is welcome to come by to help out, or just to take a look. We usually have about 50 guests stop by to take a look through our telescopes.

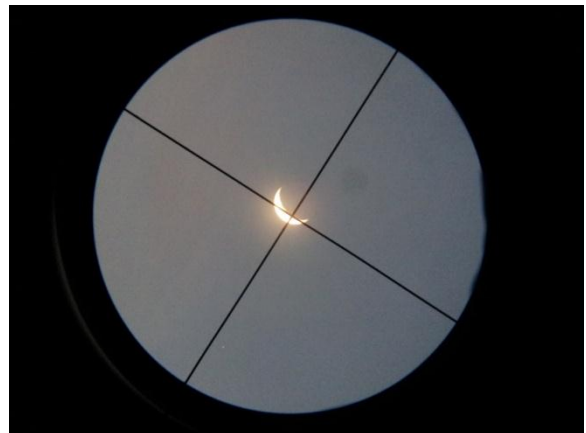
These events are scheduled one Wednesday night per month, closest to the First Quarter Moon. Events are held from 7pm to 9:30pm.

2013 SCHEDULE

January 16, 2013 (5 day old Moon)
February 13, 2013 (3 day old Moon)
March 20, 2013 (9 day old Moon)
April 17, 2013 (7 day old Moon)
May 15, 2013 (5 day old Moon)
June 12, 2013 (4 day old Moon)
July 17, 2013 (9 day old Moon)
August 14, 2013 (8 day old Moon)
September 11, 2013 (6 day old Moon)
October 9, 2013 (4 day old Moon)
November 6, 2013 (3 day old Moon)
December 11, 2013 (8 day old Moon)

DIRECTIONS: Highway 40 or 44 to Hampton Ave south. Go south on Hampton to Eichelberger Ave. Turn right on Eichelberger Ave, then turn right on Tamm Ave. We set up at Tamm & Itaska in the park. You can't miss us!

Events are canceled for clouds, inclement or extreme weather conditions. RBAC



The Moon through the finder scope of my LX90 at Francis Park during our September 19, 2012 outreach event. Photos by Bill Breeden.



My LX90 during our March 28, 2012 event at Francis Park. Photo by Bill Breeden.



Partnering to Solve Saturn's Mysteries

By Diane K. Fisher

From December 2010 through mid-summer 2011, a giant storm raged in Saturn's northern hemisphere. It was clearly visible not only to NASA's Cassini spacecraft orbiting Saturn, but also astronomers here on Earth—even those watching from their back yards. The storm came as a surprise, since it was about 10 years earlier in Saturn's seasonal cycle than expected from observations of similar storms in the past. Saturn's year is about 30 Earth years. Saturn is tilted on its axis (about 27° to Earth's 23°), causing it to have seasons as Earth does.

But even more surprising than the unseasonal storm was the related event that followed.

First, a giant bubble of very warm material broke through the clouds in the region of the now-abated storm, suddenly raising the temperature of Saturn's stratosphere over 150 °F. Accompanying this enormous "burp" was a sudden increase in ethylene gas. It took Cassini's Composite Infrared Spectrometer instrument to detect it.

According to Dr. Scott Edgington, Deputy Project Scientist for Cassini, "Ethylene [C₂H₄] is normally present in only very low concentrations in Saturn's atmosphere and has been very difficult to detect. Although it is a transitional product of the thermochemical processes that normally occur in Saturn's atmosphere, the concentrations detected concurrent with the big 'burp' were 100 times what we would expect."

So what was going on?

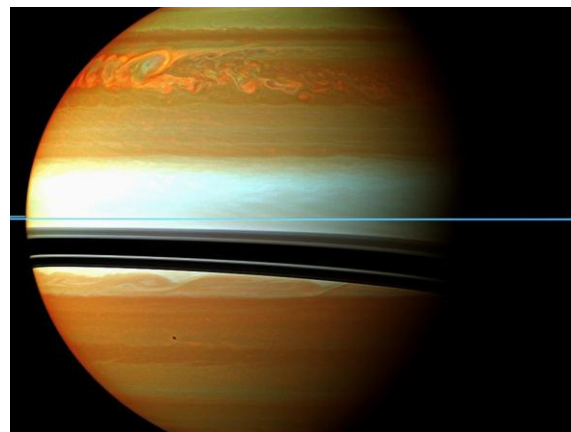
Chemical reaction rates vary greatly with the energy available for the process. Saturn's seasonal changes are exaggerated due to the effect of the rings acting as venetian blinds, throwing the northern hemisphere into shade during winter. So when the Sun again reaches the northern hemisphere, the photochemical reactions that take place in the atmosphere can speed up quickly. If not for its rings, Saturn's seasons would vary as predictably as Earth's.

But there may be another cycle going on besides the seasonal one. Computer models are based on expected reaction rates for the temperatures and pressures in Saturn's atmosphere, explains Edgington. However, it is very difficult to validate those models here on Earth. Setting up a lab to replicate conditions on Saturn is not easy!

Also contributing to the apparent mystery is the fact that haze on Saturn often obscures the view of storms below. Only once in a while do storms punch through the hazes. Astronomers may have previously missed large storms, thus failing to notice any non-seasonal patterns.

As for atmospheric events that are visible to Earth-bound telescopes, Edgington is particularly grateful for non-professional astronomers. While these astronomers are free to watch a planet continuously over long periods and record their finding in photographs, Cassini and its several science instruments must be shared with other scientists. Observation time on Cassini is planned more than six months in advance, making it difficult to immediately train it on the unexpected. That's where the volunteer astronomers come in, keeping a continuous watch on the changes taking place on Saturn.

Edgington says, "Astronomy is one of those fields of study where amateurs can contribute as much as professionals." Go to <http://saturn.jpl.nasa.gov/> to read about the latest Cassini discoveries. For kids, The space Place has lots of ways to explore Saturn at <http://spaceplace.nasa.gov/search/cassini/>.

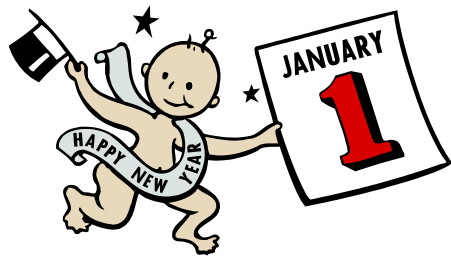


This false-colored Cassini image of Saturn was taken in near-infrared light on January 12, 2011. Red and orange show clouds deep in the atmosphere. Yellow and green are intermediate clouds. White and blue are high clouds and haze. The rings appear as a thin, blue horizontal line.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

RBAC's Monthly Observing Lists

These lists include brighter deep-sky objects that transit near 10:00 PM each month.



January Observing List

Prepared by Bill Breeden

Double Stars (Astronomical League's Double Star List)

- _____ 15. Chi Tauri SAO 76573 Const. TAU Type DS RA 04 22.6 Decl. +25° 38' Mag. 5.5 7.6
- _____ 16. 1 Camelopardalis SAO 24672 Const. CAM Type DS RA 04 32.0 Decl. +53° 55' Mag. 5.7 6.8
- _____ 17. 55 Eridani SAO 131442 Const. ERI Type DS RA 04 43.6 Decl. -08° 48' Mag. 6.7 6.8
- _____ 18. Beta Orionis SAO 131907 Rigel Const. ORI Type DS RA 05 14.5 Decl. -08° 12' Mag. 0.1 6.8
- _____ 19. 118 Tauri SAO 77201 Const. TAU Type DS RA 05 29.3 Decl. +25° 09' Mag. 5.8 6.6
- _____ 20. Delta Orionis SAO 132220 Mintaka Const. ORI Type DS RA 05 32.0 Decl. -00° 18' Mag. 2.2 6.3
- _____ 21. Struve 747 SAO 132298 - Const. Type DS RA 05 35.0 Decl. -06° 00' Mag. 4.8 5.7
- _____ 22. Lambda Orionis SAO 112921 Meissa Const. ORI Type DS RA 05 35.1 Decl. +09° 56' Mag. 3.6 5.5
- _____ 23. Theta 1 Orionis Trapezium Const. ORI Type DS RA 05 35.3 Decl. -05° 23' Mag. 6.7 7.9 5.1 6.7
- _____ 24. Iota Orionis SAO 132323 Nair al Saif Const. ORI Type DS RA 05 35.4 Decl. -05° 55' Mag. 2.8 6.9
- _____ 25. Theta 2 Orionis SAO 132322 Const. ORI Type DS RA 05 35.4 Decl. -05° 25' Mag. 5.2 6.5
- _____ 26. Sigma Orionis SAO 132406 Const. ORI Type DS RA 05 38.7 Decl. -02° 36' Mag. 4.0 7.5 6.5
- _____ 27. Zeta Orionis SAO 132444 Alnitak Const. ORI Type DS RA 05 40.8 Decl. -01° 57' Mag. 1.9 4.0 9.9
- _____ 28. Gamma Leporis SAO 170759 - Const. LEO Type DS RA 05 44.5 Decl. -22° 27' Mag. 3.7 6.3
- _____ 29. Theta Aurigae SAO 58636 - Const. AUR Type DS RA 05 59.7 Decl. +37° 13' Mag. 2.6 7.1

Carbon Stars (Astronomical League's Carbon Star List)

- _____ 16. UV Camelopardalis SAO 13009 RA 04 05 53 Decl. +61 47 39 Mag. 7.5 – 8.1 Per. 294 Class C5 (R8)
- _____ 17. XX Camelopardalis SAO 24431 RA 04 08 38 Decl. +53 21 39 Mag. 7.1 – 10.0 Per. ? Class C0 – C2 (G1)
- _____ 18. ST Camelopardalis SAO 13285 RA 04 51 13 Decl. +68 10 07 Mag. 6.7 – 8.4 Per. 300 Class C5 (N5)
- _____ 19. TT Tauri SAO 76788 RA 04 51 31 Decl. +28 31 36 Mag. 7.7 – 10.0 Per. 167 Class C4 – C7 (N3)
- _____ 20. R Leporis SAO 150058 RA 04 59 36 Decl. -14 48 22 Mag. 5.5 – 11.7 Per. 427 Class C7 (N6)
- _____ 21. EL Aurigae SAO 24981 RA 05 03 23 Decl. +50 37 58 Mag. 8.5 – 8.7 Per. Irr. Class C5 (N3)
- _____ 22. W Orionis SAO 112406 RA 05 05 23 Decl. +01 10 39 Mag. 5.8 – 10.0 Per. 212 Class C5 (N5)
- _____ 23. TX Aurigae GSC 2895:203 RA 05 09 05 Decl. +39 00 08 Mag. 8.5 – 9.2 Per. Irr. Class C5 (N3)
- _____ 24. SY Eridani SAO 131832 RA 05 09 48 Decl. -05 30 55 Mag. 8.3 – 10.0 Per. 96 Class C6 (N0)
- _____ 25. UV Aurigae SAO 57941 RA 05 21 48 Decl. +32 30 43 Mag. 7.4 – 10.6 Per. 394 Class C6 – C8 (Ne)
- _____ 26. S Aurigae GSC 2411:222 RA 05 27 07 Decl. +34 08 59 Mag. 8.2 – 13.3 Per. 590 Class C4/5 (N3)
- _____ 27. RT Orionis GSC 126:161 RA 05 33 13 Decl. +07 09 12 Mag. 8.0 – 8.9 Per. 321 Class C6 (Nb)
- _____ 28. S Camelopardalis SAO 13563 RA 05 41 02 Decl. +68 47 55 Mag. 7.7 – 11.6 Per. 327 Class C7 (R8)
- _____ 29. TU Tauri SAO 77502 RA 05 45 13 Decl. +24 25 12 Mag. 5.9 – 9.2 Per. 190 Class C5 (N3)
- _____ 30. Y Tauri SAO 77516 RA 05 45 39 Decl. +20 41 42 Mag. 6.5 – 9.2 Per. 242 Class C6.5 (N3)
- _____ 31. FU Aurigae SAO 58449 RA 05 48 08 Decl. +30 37 51 Mag. 8.3 – 8.5 Per. ? Class C7 (N0)

Messier Objects

- _____ M1 NGC1952 Crab Nebula Const. TAU Type EN RA 05 34.5 Decl. +22 01 Mag. 8.2
- _____ M36 NGC1960 Const. AUR Type OC RA 05 36.1 Decl. +34 08 Mag. 6.3
- _____ M37 NGC2099 Const. AUR Type OC RA 05 52.4 Decl. +32 33 Mag. 6.2
- _____ M38 NGC1922 Const. AUR Type OC RA 05 28.4 Decl. +35 50 Mag. 7.4
- _____ M42 NGC1976 Orion Nebula Const. ORI Type EN RA 05 35.4 Decl. -05 27 Mag. 4
- _____ M43 NGC1982 Orion Nebula Const. ORI Type EN RA 05 35.6 Decl. -05 16 Mag. 9.1
- _____ M78 NGC2068 Const. ORI Type EN RA 05 46.7 Decl. +00 03 Mag. 10.3

_____ M79 NGC1904 Const. LEP Type GC RA 05 24.5 Decl. -24 33 Mag. 8.4

Caldwell Objects

_____ C31 IC405 Flaming Star Nebula Const. AUR Type BN RA 05 16 12.00 Decl. +34 16 00.0 Mag. 6

_____ C41 Mel 25 Hyades Const. TAU Type OC RA 04 27 00.00 Decl. +16 00 00.0 Mag. 1

_____ C73 NGC1851 Const. COL Type GC RA 05 14 06.00 Decl. -40 03 00.0 Mag. 7.3

_____ C103 NGC2070 Tarantula Nebula Const. DOR Type BN RA 05 38 42.00 Decl. -69 06 00.0 Mag. 1

Royal Astronomical Society of Canada Objects

_____ 19. NGC1491 Const. PER Type EN RA 04 03.4 Decl. +51 19 Mag. -

_____ 20. NGC1501 Const. CAM Type PN RA 04 07.0 Decl. +60 55 Mag. 12

_____ 22. NGC1535 Const. ERI Type PN RA 04 14.2 Decl. -12 44 Mag. 10.4

_____ 23. NGC1514 Const. TAU Type PN RA 04 09.2 Decl. +30 47 Mag. 10.8

_____ 24. NGC1931 Const. AUR Type E/RN RA 05 31.4 Decl. +34 15 Mag.

_____ 25. NGC1788 Const. ORI Type RN RA 05 06.9 Decl. -03 21 Mag.

_____ 26. NGC1973+ Const. ORI Type E/RN RA 05 35.1 Decl. -04 44 Mag.

_____ 27. NGC2022 Const. ORI Type PN RA 05 42.1 Decl. +09 05 Mag. 12.4

_____ 28. NGC2024 Const. ORI Type EN RA 05 40.7 Decl. -02 27 Mag.



February Observing List

Prepared by Bill Breeden

Double Stars (Astronomical League's Double Star List)

- _____ 30. Epsilon Monocerotis SAO 113810 Const. MON Type DS RA 06 23.8 Decl. +04° 36' Mag. 4.5 6.5
- _____ 31. Beta Monocerotis SAO 133316 Const. MON Type DS RA 06 28.8 Decl. -07° 02' Mag. 4.7 5.2
- _____ 32. 12 Lyncis SAO 25939 - Const. LYN Type DS RA 06 46.2 Decl. +59° 27' Mag. 5.4 7.3
- _____ 33. Epsilon Canis Majoris SAO 172676 Adhara Const. CMA Type DS RA 06 58.6 Decl. -28° 58' Mag. 1.5 7.4
- _____ 34. Delta Geminorum SAO 79294 Wasat Const. GEM Type DS RA 07 20.1 Decl. +21° 59' Mag. 3.5 8.2
- _____ 35. 19 Lyncis SAO 26311 Const. LYN Type DS RA 07 22.9 Decl. +55° 17' Mag. 5.6 6.5
- _____ 36. Alpha Geminorum SAO 60198 Castor Const. GEM Type DS RA 07 34.6 Decl. +31° 53' Mag. 1.9 2.9
- _____ 37. Kappa Puppis SAO 174198 Const. PUP Type DS RA 07 38.8 Decl. -26° 48' Mag. 4.5 4.7

Carbon Stars (Astronomical League's Carbon Star List)

- _____ 32. TU Geminorum SAO 78066 RA 06 10 53 Decl. +26 00 53 Mag. 7.4 – 8.4 Per. 230 Class C6 (N3)
- _____ 33. FU Monocerotis GSC 136:183 RA 06 22 23 Decl. +03 25 27 Mag. 8.5 – 9.8 Per. 310 Class C8 (CSe)
- _____ 34. V Aurigae GSC 3380:1119 RA 06 24 02 Decl. +47 42 23 Mag. 8.5 – 13.0 Per. 353 Class C6 (N3)
- _____ 35. BL Orionis SAO 95659 RA 06 25 28 Decl. +14 43 19 Mag. 6.0 – 7.0 Per. 154 Class "C6 (Nb Tc)"
- _____ 36. UU Aurigae SAO 59280 RA 06 36 32 Decl. +38 26 43 Mag. 5.1 – 7.0 Per. 234 Class C5 – C7 (N3)
- _____ 37. VW Geminorum SAO 59383 RA 06 42 08 Decl. +31 27 17 Mag. 8.1 – 8.5 Per. Irr. Class C5 (Na)
- _____ 38. GY Monocerotis SAO 133825 RA 06 53 11 Decl. -04 34 34 Mag. 8.1 – 9.0 Per. Irr. Class C6 (N3/R8)
- _____ 39. RV Monocerotis SAO 114704 RA 06 58 21 Decl. +06 10 01 Mag. 7.0 – 8.9 Per. 132 Class C4 – C6 (Nb/R9)
- _____ 40. V614 Monocerotis SAO 134049 RA 07 01 01 Decl. -03 15 09 Mag. 7.0 – 7.4 Per. 60 Class C4 (R5)
- _____ 41. RY Monocerotis GSC 5381:403 RA 07 06 56 Decl. -07 33 26 Mag. 7.5 – 9.2 Per. 456 Class C5 – C7 (N5/R)
- _____ 42. W Canis Majoris SAO 152427 RA 07 08 03 Decl. -11 55 23 Mag. 6.4 – 7.9 Per. Irr. Class C6 (N)
- _____ 43. R Canis Minoris SAO 96548 RA 07 08 42 Decl. +10 01 26 Mag. 7.3 – 11.6 Per. 338 Class C7 (Csep)
- _____ 44. BM Geminorum GSC 1913:1170 RA 07 20 59 Decl. +24 59 58 Mag. 8.3 – 9.2 Per. 286 Class C5 (Nb)
- _____ 45. RU Camelopardalis SAO 14157 RA 07 21 44 Decl. +69 40 14 Mag. 8.1 – 9.8 Per. 22 Class C0 – C3 (K0 – R0)
- _____ 46. NQ Geminorum SAO 79474 RA 07 31 54 Decl. +24 30 12 Mag. 7.4 – 8.0 Per. 70 Class C6 (R9)
- _____ 47. RU Puppis SAO 175215 RA 08 07 29 Decl. -22 54 45 Mag. 8.1 – 11.1 Per. 425 Class C5 (N3)

Messier Objects

- _____ M35 NGC2168 Const. GEM Type OC RA 06 08.9 Decl. +24 20 Mag. 5.3
- _____ M41 NGC2287 Const. CMA Type OC RA 06 46.0 Decl. -20 44 Mag. 4.6
- _____ M46 NGC2437 Const. PUP Type OC RA 07 41.8 Decl. -14 49 Mag. 6
- _____ M47 NGC2422 Const. PUP Type OC RA 07 36.6 Decl. -14 30 Mag. 4.5
- _____ M50 NGC2323 Const. MON Type OC RA 07 03.2 Decl. -08 20 Mag. 6.3
- _____ M93 NGC2447 Const. PUP Type OC RA 07 44.6 Decl. -23 52 Mag. 6

Caldwell Objects

- _____ C7 NGC2403 Const. CAM Type SG RA 07 36 54.00 Decl. +65 36 00.0 Mag. 8.9
- _____ C25 NGC2419 Intergalactic Tramp Const. LYN Type GC RA 07 38 06.00 Decl. +38 53 00.0 Mag. 10.4
- _____ C39 NGC2392 Eskimo Nebula Const. GEM Type PN RA 07 29 12.00 Decl. +20 55 00.0 Mag. 9.9
- _____ C46 NGC2261 Hubble's Variable Nebula Const. MON Type BN RA 06 39 12.00 Decl. +08 44 00.0 Mag. 10
- _____ C49 NGC2237-9 Rosette Nebula Const. MON Type BN RA 06 32 18.00 Decl. +05 03 00.0 Mag.
- _____ C50 NGC2244 Const. MON Type OC RA 06 32 24.00 Decl. +04 52 00.0 Mag. 4.8
- _____ C58 NGC2360 Const. CMA Type OC RA 07 17 48.00 Decl. -15 37 00.0 Mag. 7.2
- _____ C64 NGC2362 Tau Cma Cluster Const. CMA Type OC RA 07 18 48.00 Decl. -24 57 00.0 Mag. 4.1

- _____ C71 NGC2477 Const. PUP Type OC RA 07 52 18.00 Decl. -38 33 00.0 Mag. 5.8
_____ C96 NGC2516 Const. CAR Type OC RA 07 58 18.00 Decl. -60 52 00.0 Mag. 3.8
Royal Astronomical Society of Canada Objects
_____ 29. NGC2194 Const. ORI Type OC RA 06 13.8 Decl. +12 48 Mag. 8.5
_____ 30. NGC2371/2 Const. GEM Type PN RA 07 25.6 Decl. +29 29 Mag. 13
_____ 31. NGC2392 Eskimo Nebula Const. GEM Type PN RA 07 29.2 Decl. +20 55 Mag. 8.3
_____ 32. NGC2237+ Const. MON Type EN RA 06 32.3 Decl. +05 03 Mag.
_____ 33. NGC2261 Hubble's Variable Nebula Const. MON Type E/RN RA 06 39.2 Decl. +08 44 Mag. var
_____ 34. NGC2359 Const. CMA Type EN RA 07 18.6 Decl. -13 12 Mag.
_____ 35. NGC2440 Const. PUP Type PN RA 07 41.9 Decl. -18 13 Mag. 10.3
_____ 37. NGC2403 Const. CAM Type G-Sc RA 07 36.9 Decl. +65 36 Mag. 8.4

Your articles and photos are always welcome.

Please send them to rbac@riverbendastro.org.