Longmont Astronomical Society

January 2026

The Raspberry Nebula: vdB 38 by M. J. Post

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Next LAS Meeting Thursday January 15 at 6 to 9 pm

LAS Annual Banquet and Elections Meeting

Note that there is no LAS meeting in December.

The next LAS meeting will be at Longmont Pinocchio's restaurant, 210 Ken Pratt Blvd., Ste. 260, Longmont, CO 80501. The meeting will be from 6 to 9 pm. Additional details will be announced in early January.

Help Wanted!

LAS has elections for every position each year. There are four elected positions and three to five board of director positions. In addition the president may appoints additional positions.

Officer positions

President - prepares agenda and conducts meetings.
Vice President - schedules speakers and conducts meeting in absence of the president
Treasurer - handles club finances and maintains roster of current members
Secretary - takes notes of meetings for publication in the newsletter

Appointed positions

Library Telescope Coordinator - Interacts with local libraries to maintain library telescopes
Newsletter editors - produce the monthly newsletter
Public Outreach Coordinator - interacts with local city and county staff to schedule public star parties
Technical support - sets up equipment for meetings
Webmaster - maintains and updates the club website

Board positions

The board may have from 3 to 5 members. The board must approve purchase of any items from $100 to $1000. They provide advice to the president and decide any changes in club policies and procedures.

If you are interested in volunteering for one of these positions you need to let someone know! Get in touch with one of the current officers (listed at the bottom of the following page); send a note to the LAS email list; or come to the banquet in January.

About LAS

The Longmont Astronomical Society Newsletter ISSN 2641-8886 (web) and ISSN 2641-8908 (print) is published monthly by the Longmont Astronomical Society, P. O. Box 806, Longmont, Colorado. Newsletter Editor is Vern Raben. Our website URL is https://www.longmontastro.org and the webmaster is Mike Hotka. The Longmont Astronomical Society is a 501 c(3), non-profit corporation which was established in 1987.

The Longmont Astronomical Society is affiliated with the Astronomical League (https://www.astroleague.org). The Astronomical League is an umbrella organization of amateur astronomy societies in the United States.

Contents

Front Cover:The Raspberry Nebula: vdb 38 + SH2-263 by M. J. Post

This little gem lies just NNW of Orion's right shoulder (Belatrix), and the complex is sometimes referred to as the Strawberry Nebula as well. Because the bright central star, HD 34898, is so powerful (mag 5.8), I took 48 short subframes (100 seconds each) to minimize halo effects. That seemed to work, and I was pleased not to have lost too much detail in the surrounding faint features. The brighter part of the nebula is about 10 l.y. across and 1300 l.y. distant. The red emission elements in this image are known as SH2-263 and are comprised of LBN 866 and 867. The blue reflection elements are labeled solely vdB 38 while the entire complex is Ced 44. Darker elements have several LDN designations.

From DSNM, CDK14 scope, ASI 6200MC color camera, luminance filter, 1.3 hours time on target, FOV about 45 x 30 arc minutes.

Back Cover: NGC 2245 Dryer's Nebula by Marty Butley

John Herschel originally observed a very faint nebulosity in the 1820s–1830s and catalogued it as h 395.

When J. L. E. Dreyer compiled the NGC in 1888, he included Herschel's faint object as NGC 2245.

Later visual and photographic observations in the 1890s (especially by Bigourdan and Barnard) revealed a much more obvious and extended reflection nebula in exactly the same position.

Dreyer added this brighter, extended nebula to the first Index Catalogue as IC 447 (1895)
Later entries (IC 446, etc., are related patches of the same complex).

Not clear to me when IC 2169 came into the mix, but if you look for it in Stellarium Web, they come up as the same object.

So I imaged all four of these at Starry Meadows last month !!

About 2.5 hours each of RGB and Ha, along with 4 hours of Luminance = 14 hours total integration with a Takahashi 130 FSQ refractor

Planets in January

Mercury

Mercury is not visible this month.

Venus

Venus is not visible this month.

Mars

Mars is not visible until next spring.

Jupiter

Best time to view Jupiter is in late evening. Opposition is on Jan 10 this month. Jupiter is -2.7 magnitude in brightness and the disk is 47 arc sec across. Some good times to view the Great Red Spot are listed in the table below.

Date	Time	Altitude	Date	Time	Altitude
Jan 1	2:41 am	61°	Jan 16	12:03 am	73°
Jan 1	10:32 pm	58°	Jan 16	7:54 pm	41°
Jan 3	4:19 am	42°	Jan 18	1:41 am	59°
Jan 4	12:10 am	73°	Jan 18	9:32 pm	61°
Jan 4	8:02 pm	32°	Jan 20	3:19 am	39°
Jan 5	5:57am	21°	Jan 20	11:11 pm	74°
Jan 6	1:48 am	66°	Jan 21	7:02 pm	36°
Jan 6	9:40 pm	53°	Jan 23	12:49 am	64°
Jan 8	3:26 am	48°	Jan 23	8:40 pm	56°
Jan 8	11:18 pm	70°	Jan 25	2:27 am	45°
Jan 9	7:09 pm	27°	Jan 25	10:18 pm	72°
Jan 10*	5:05 am	27°	Jan 26*	6:09 pm	30°
Jan 11	12:56 am	70°	Jan 27	4:05 am	24°
Jan 11	8:47 pm	47°	Jan 27	11:56 pm	69°
Jan 13	2:34 am	53°	Jan 28	7:48 pm	50°
Jan 13	10:25 pm	66°	Jan 30	1:35 am	50°
Jan 14	6:16 pn	21°	Jan 30	9:26 pm	69°
Jan 15	4:12 am	33°			

Saturn

Best time to view Saturn is early evening when it is high up near the south. It is about +1.1 magnitude in brightness and the disk is 17 arc sec across.

Uranus

Uranus is visible in the early evening in constellation Taurus. It is +5.6 magnitude in brightness and the disk is 3.7 arc sec across.

Neptune

Neptune is visible in the early evening in constellation Pisces. It is magnitude +7.9 in brightness and the disk is 2.2 arc sec across.

Lunar Phases in January

Jan 3 at 3:04 am - Full Moon
Jan 10 at 8:50 am - Third Quarter Moon
Jan 18 at 12:53 am - New Moon
Jan 25 at 9:49 pm - First Quarter Moon

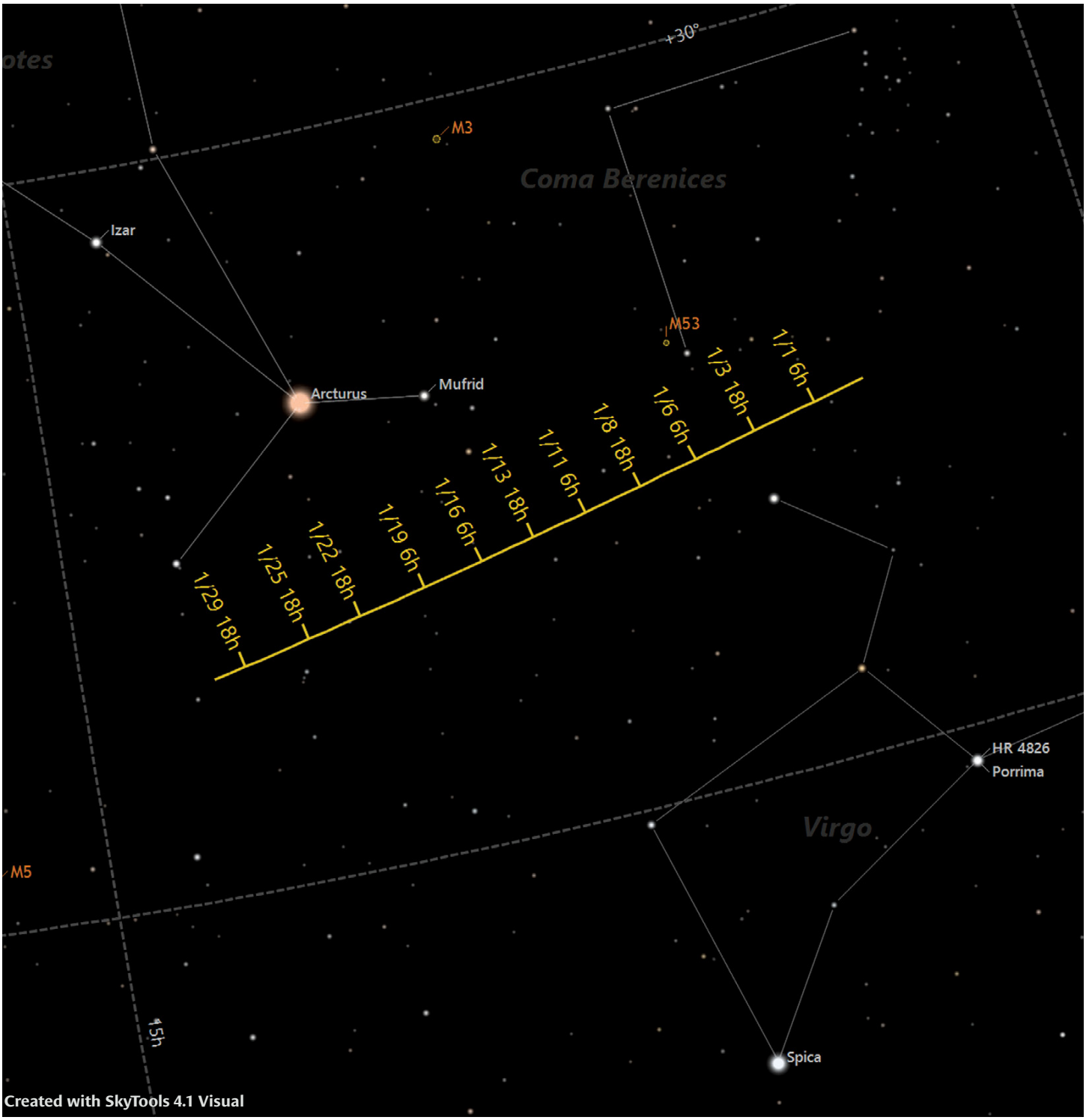
Meteor Showers in January

The annual Quadrantids meteor shower peaks on the night of January 3/4. Unfortunately there is a full moon that night. Otherwise you might see 80 per hour from a dark location. The debris causing the shower is from asteroid 203 EH1.

Early evening objects for January

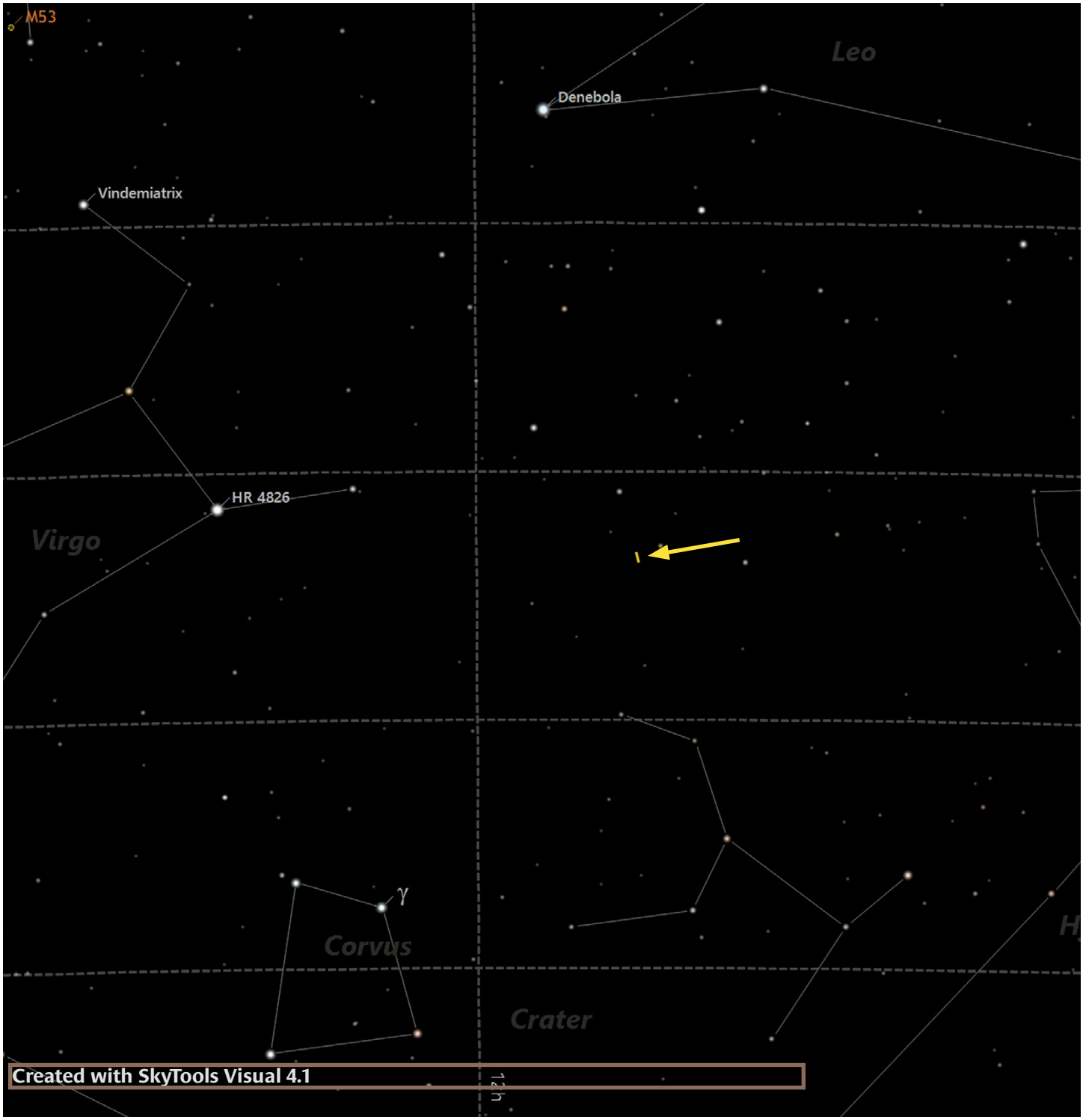
Catalogue	Name	Constellation	Mag
M 31	Andromeda Galaxy	And	4.3
NGC 7662	Blue Snowball	And	8.6
NGC 40	Bow tie Nebula	Cep	10.7
NGC 7635	Bubble Nebula	Cas	11.0
NGC 1499	California Nebula	Per	5.0
NGC 1535	Cleopatra's Eye	Eri	9.4
M 1	Crab Nebula	Tau	8.4
NGC 2024	Flame Nebula	Ori	unk
Sh 2-190	Heart Nebula	Cas	6.5
NGC 1579	Northern Trifid	Per	unk
NGC 281	Pac Man Nebula	Cas	7.4
NGC 2237	Rosette	Mon	9.0
IC 1848	Soul Nebula	Cas	6.5
IC 418	Spirograph Nebula	Lep	10.7
NGC 1909	Witch's Head Neb	Eri	unk
NGC 784	Barred spiral galaxy	Tri	12.2
NGC 891	Outer Limits Galaxy	And	10.9
NGC 1333	Embryo Nebula	Per	5.6
NGC 1360	Robin's Egg Nebula	For	9.4

Comet 24P / Schaumasse



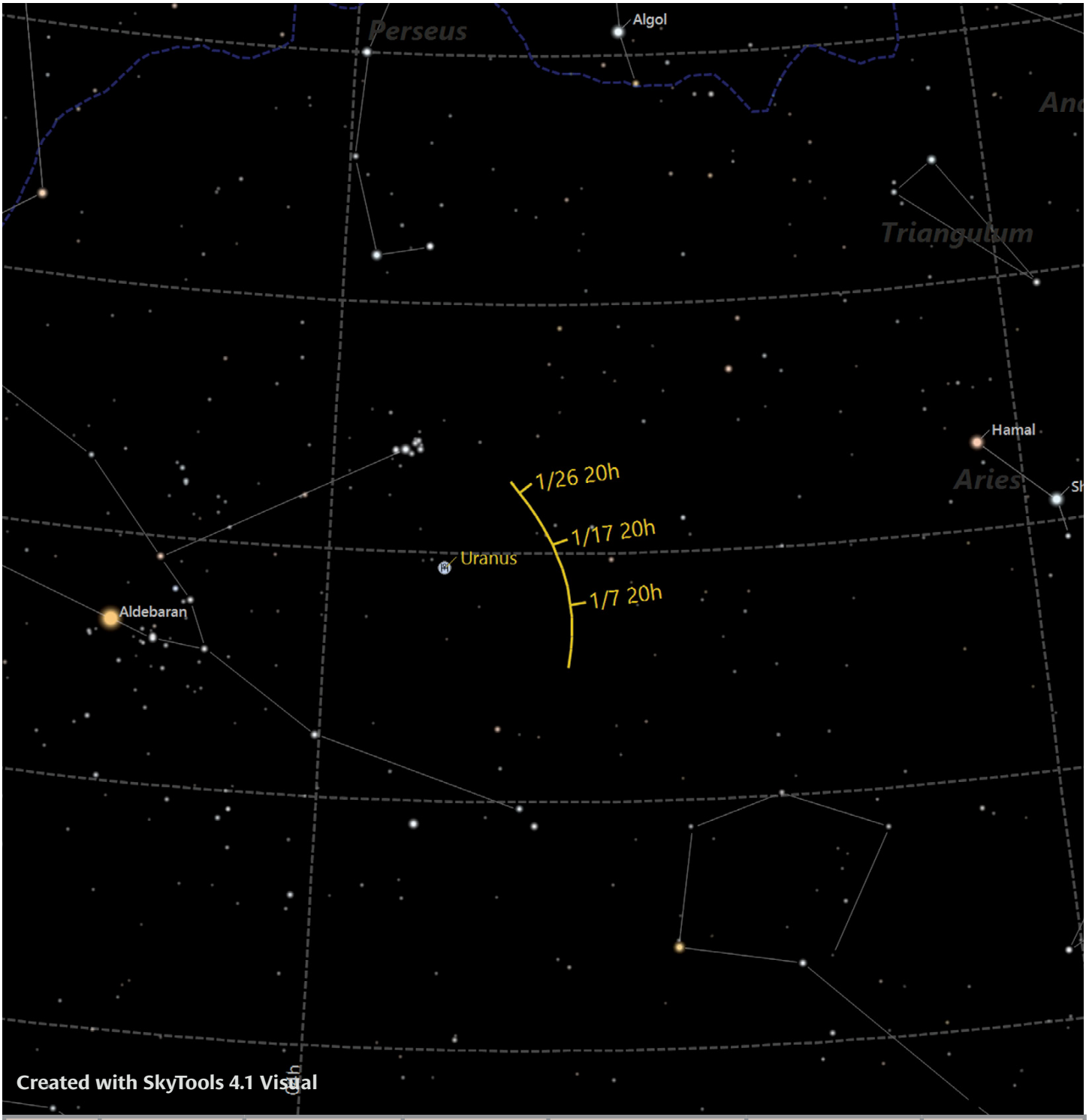
Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc min)
Jan 1	5:52 am	2h57m23.6s	+13°57'48"	Coma Berenices	10.0	3.5
Jan 7	5:40 am	13h22m30.9s	+12°45'50"	Virgo	10.0	3.5
Jan 13	5:37 am	13h45m32.5s	+11°36'14"	Bootes	10.0	3.5
Jan 19	5:34 am	14h06m18.5s	+10°31'20"	Bootes	10.1	3.4
Jan 25	5:31 am	14h24m45.2s	+09°32'27"	Bootes	10.3	3.4
Jan 31	5:41 am	14h40m54.6s	+08°40'07"	Bootes	10.5	3.3

Comet 29P/ Schwassmann-Wachmann



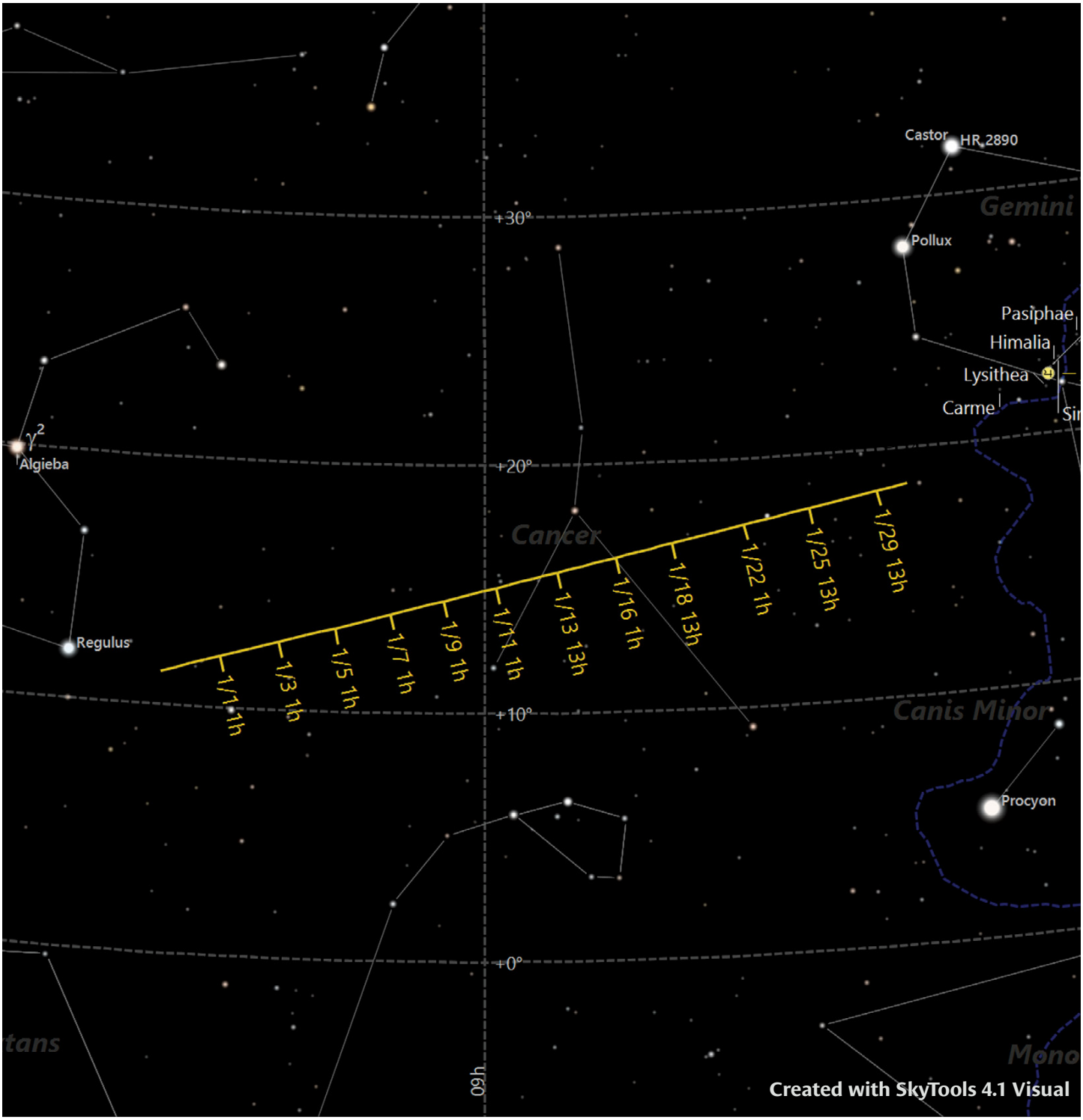
Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc min)
Jan 1	5:48 am	11h35m47.9s	-03°30'57"	Leo	12.7	0.98
Jan 7	4:48 am	11h35m44.9s	-03°39'50"	Leo	12.6	1.0
Jan 13	4:00 am	11h35m20.3s	-03°46'24"	Leo	12.6	1.0
Jan 19	3:36 am	11h34m34.0s	-03°50'36"	Leo	12.6	1.0
Jan 25	3:11 am	11h33m26.8s	-03°52'21"	Leo	12.5	1.0
Jan 31	4:27 am	11h31m58.9s	-03°51'40"	Leo	12.5	1.1

Comet 240P/NEAT



Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc sec)
Jan 1	6:23 pm	03h20m03.9s	+16°30'06"	Aries	12.6	51
Jan 7	8:09 pm	03h20m12.3s	+18°02'01"	Aries	12.7	49
Jan 13	7:47 pm	03h21m38.1s	+19°30'07"	Aries	12.8	47
Jan 19	7:26 pm	03h24m18.3s	+20°55'31"	Aries	12.9	45
Jan 25	7:00 pm	03h28m09.0s	+22°17'57"	Aries	13.0	43
Jan 31	6:49 pm	03h33m06.1s	+23°37'24"	Aries	13.1	41

Comet 3I / (ATLAS)



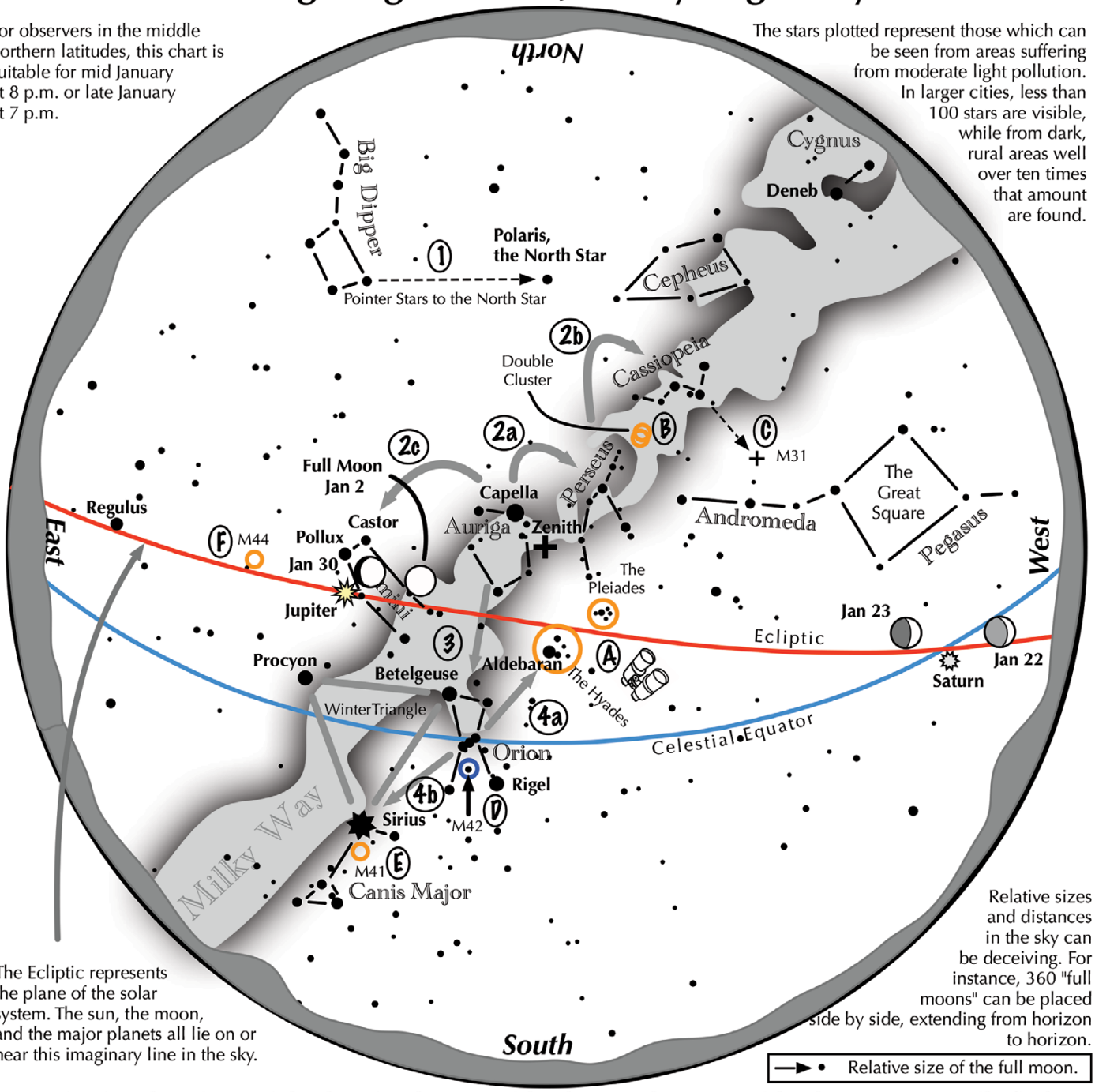
Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc min)
Jan 1	5:49 am	09h39m10.4s	+12°20'08"	Leo	12.2	1.8
Jan 7	10:22 pm	09h13m04.3s	+14°06'48"	Cancer	12.7	1.7
Jan 13	1:09 am	08h47m11.0s	+15°41'33"	Cancer	13.1	1.6
Jan 19	12:22 am	08h24m42.6s	+16°54'19"	Cancer	13.6	1.5
Jan 25	12:49 am	08h05m04.7s	+17°50'21"	Cancer	14.0	1.4
Jan 31	Not visible					

Navigating the mid January Night Sky

2026

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January at 7 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 winter night sky: Simply start with what you know or with what you can easily find.

1. Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
2. Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of Gemini.
3. Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star, Rigel.
4. Use Orion's three Belt stars to point to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius.

Binocular Highlights

A: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **B:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.

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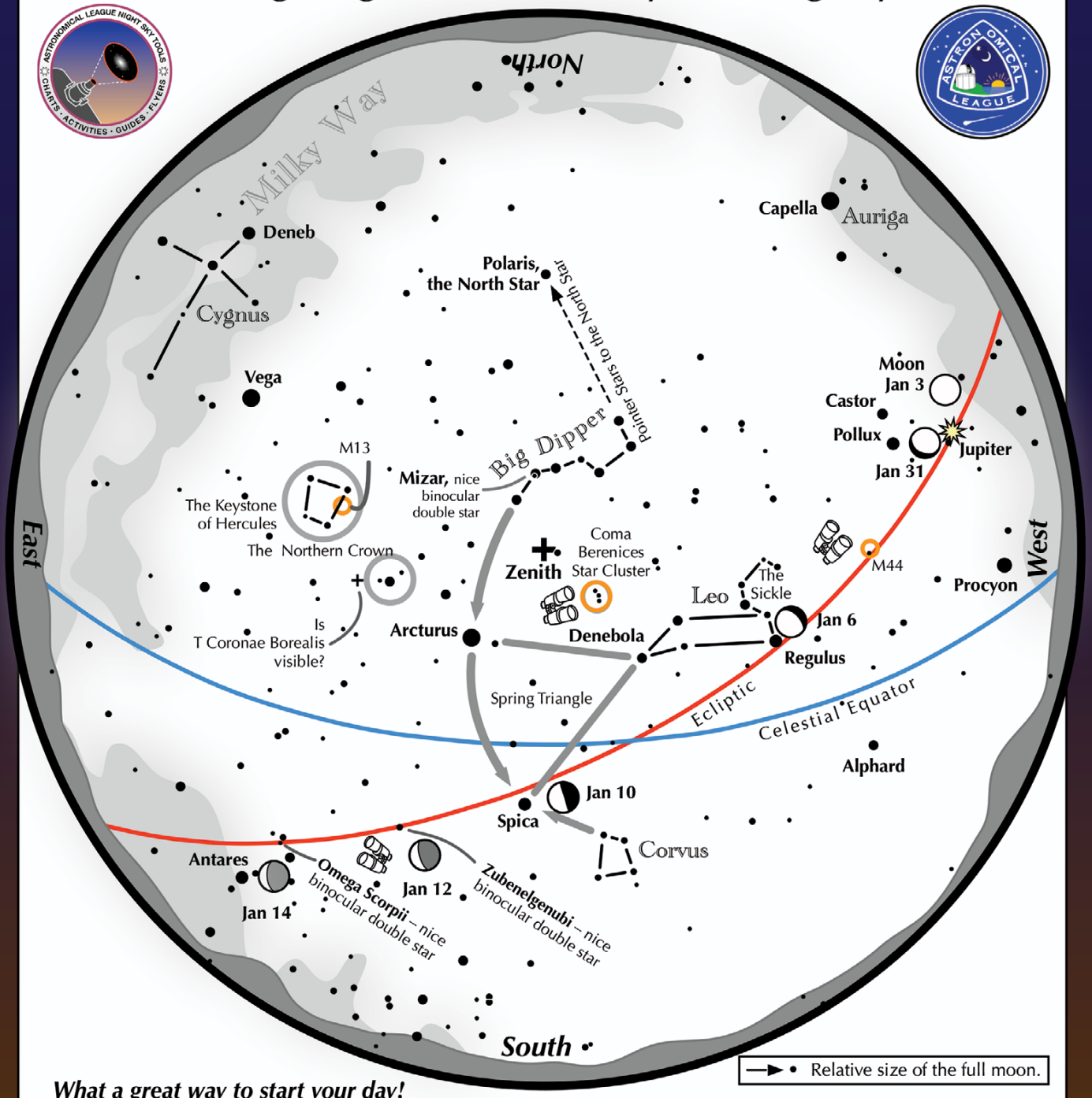
Navigating the mid January Morning Sky

2026



What a great way to start your day!

For observers in the middle northern latitudes, this chart is suitable for mid January at 5:30 a.m.

Late sunrises in January provide opportunities for early morning skywatching.

- Bright Jupiter shines in the west-northwest and moves below Pollux in Gemini.
- The third quarter moon floats near Spica on January 10.
- The waning crescent moon glows near Antares on January 14.
- Continue watching for a sudden and rapid brightening of T Coronae Borealis. When will it explode?
- A great time for viewing the Big Dipper, Leo, and Hercules. And it is time for galaxy viewing!

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R Aquarii by Marty Butley

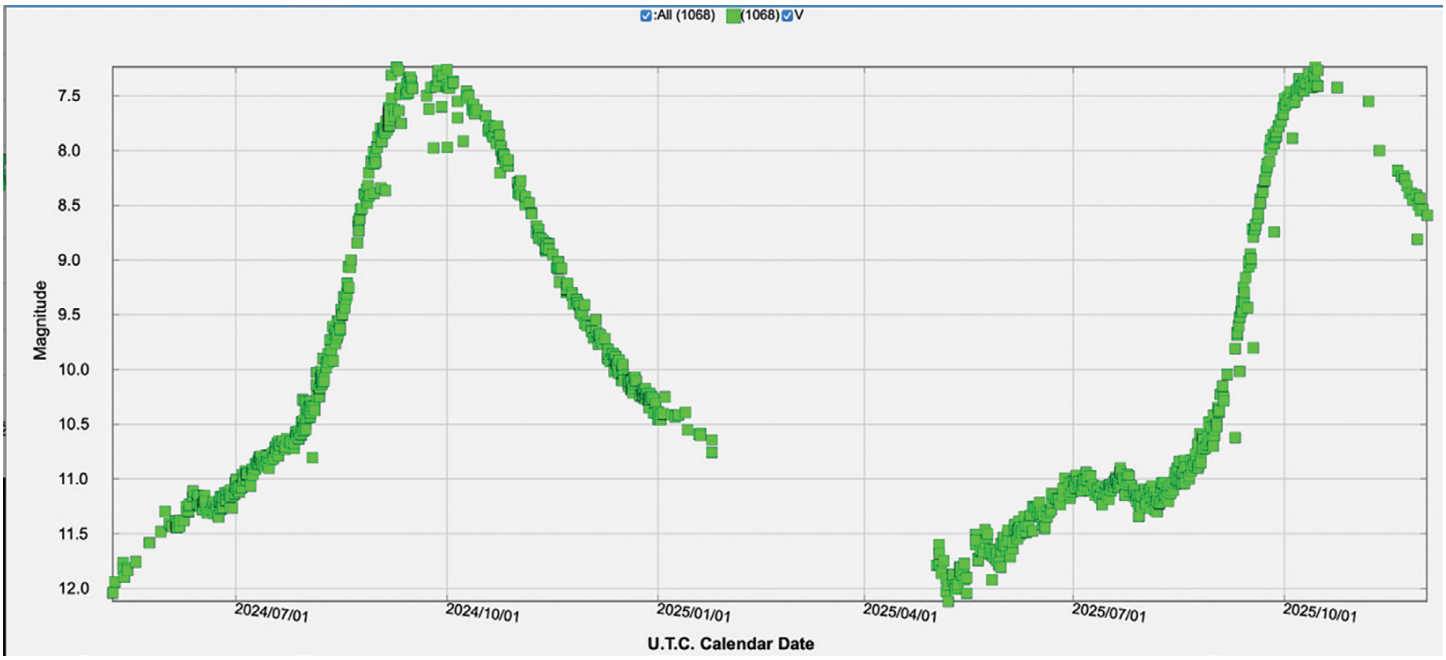
This pulsating red giant ranges from magnitude 5.2 to 12.4. This is a 750-fold variation in brightness, with a period of around 390 days. It was discovered by Karl Ludwig Harding in 1810 and has a distance of about 218 parsecs.

Of course I chose to photograph R Aqr at close to its minimum. Worse than that, it is orbited by a white dwarf which eclipses the star in 40 year cycles, which is currently further reducing its magnitude. The nebulosity around R Aqr (known as Cederblad 211) is overwhelmingly a reflection nebula powered by the Mira variable and its interactions with the orbiting white dwarf.

When R Aqr is near maximum (≈ 6th magnitude), the surrounding nebula is one of the brightest and most detailed in the sky for amateur instruments. When R Aqr is in its current deep minimum/eclipsed state (≈ 10–11th magnitude), most of the inner nebulosity essentially "turns off" for visual and narrow-band imaging purposes.

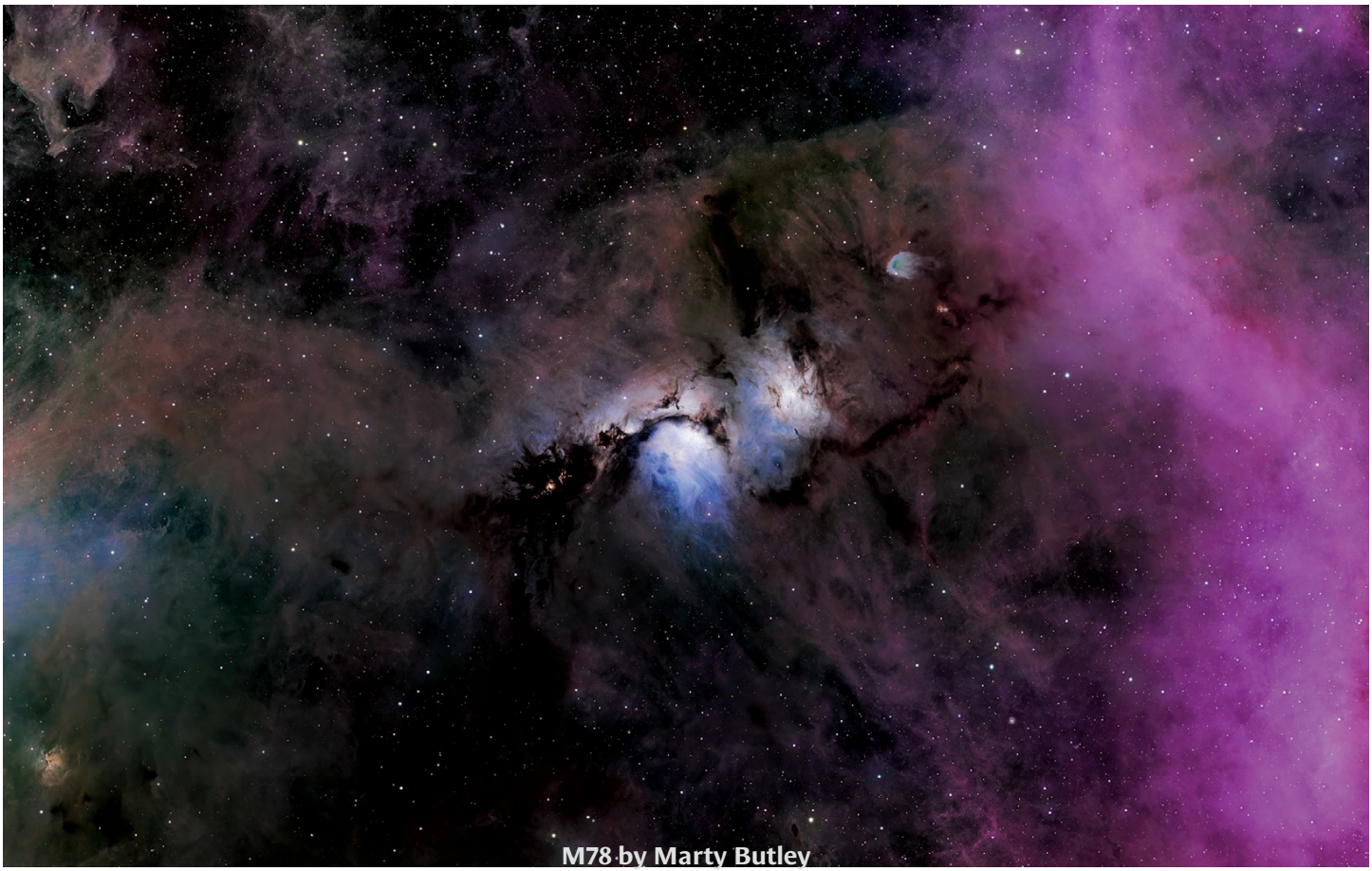
So, with a little foresight and planning, I am sure many of you astrophotographers will be able to improve on my effort. The next maximum is in June of 2026. Of course, the star has chosen to cross the meridian around noon that time of year. The prototypical Mira variable is Omicron Ceti. The variability of Omicron Ceti was first clearly documented in 1596 by the astronomer David Fabricius, and the star was later named Mira (Latin for wonderful, or astonishing) by Johannes Hevelius in 1662.

The image was taken with a Takahashi FSQ 130 refractor. 300 second subs: Ha x 53 4.41 hours; OIII x 37 3.08 hours. Total integration about 7.5 hours; Processed in Pixinsight as HOO



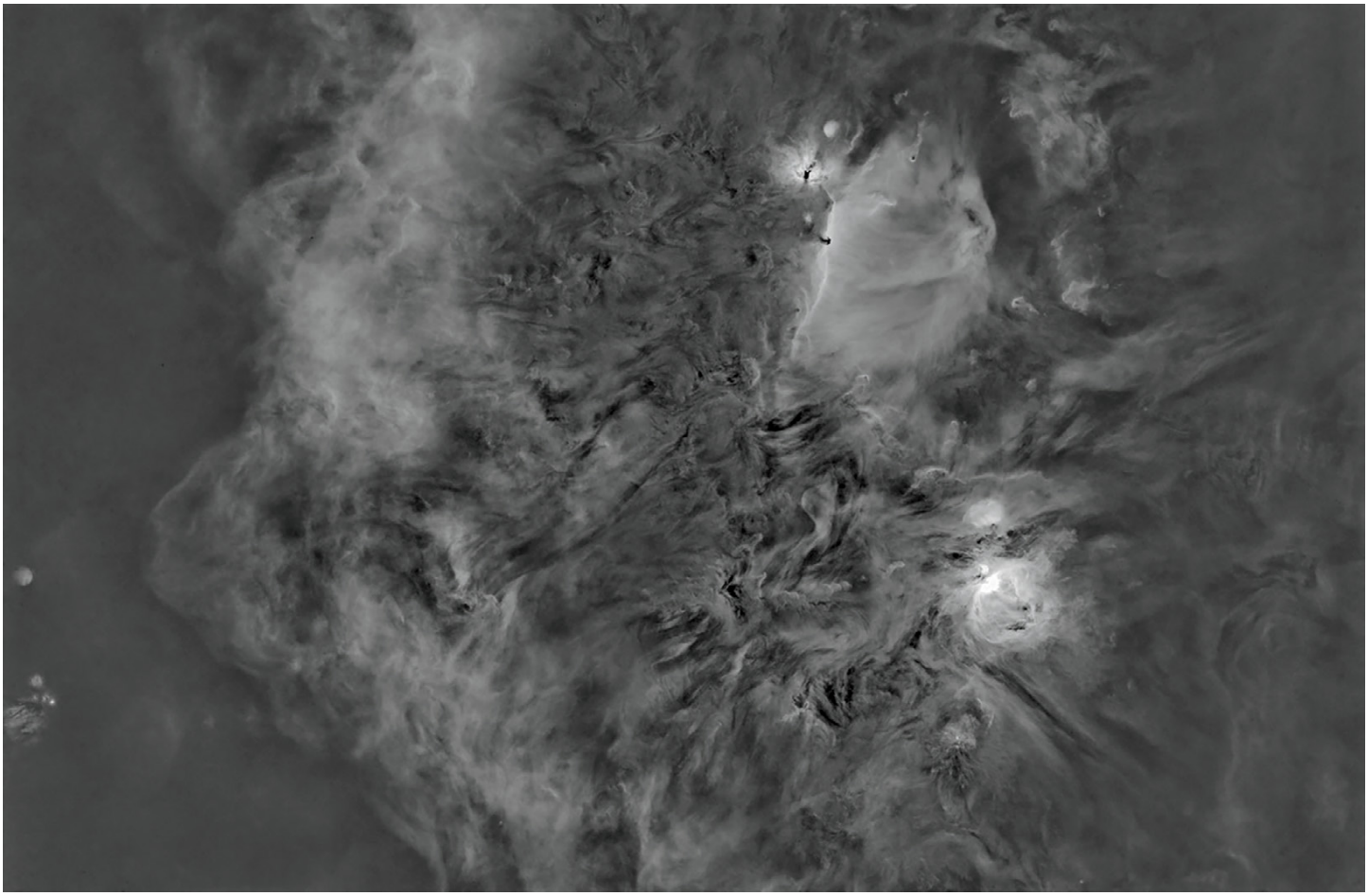
Light Curve for RR Lyrae by AAVSO members

Here is a light curve for the past 2 years collected by members on the AAVSO (American Association of Variable Star Observers).Depending on exactly when the image was taken, the star was probably around mag 8, quite a bit better than the ~12.5 minimum. The last measurement was 3 days ago when it was at 8.591. Bill Tschummy



M78 by Marty Butley

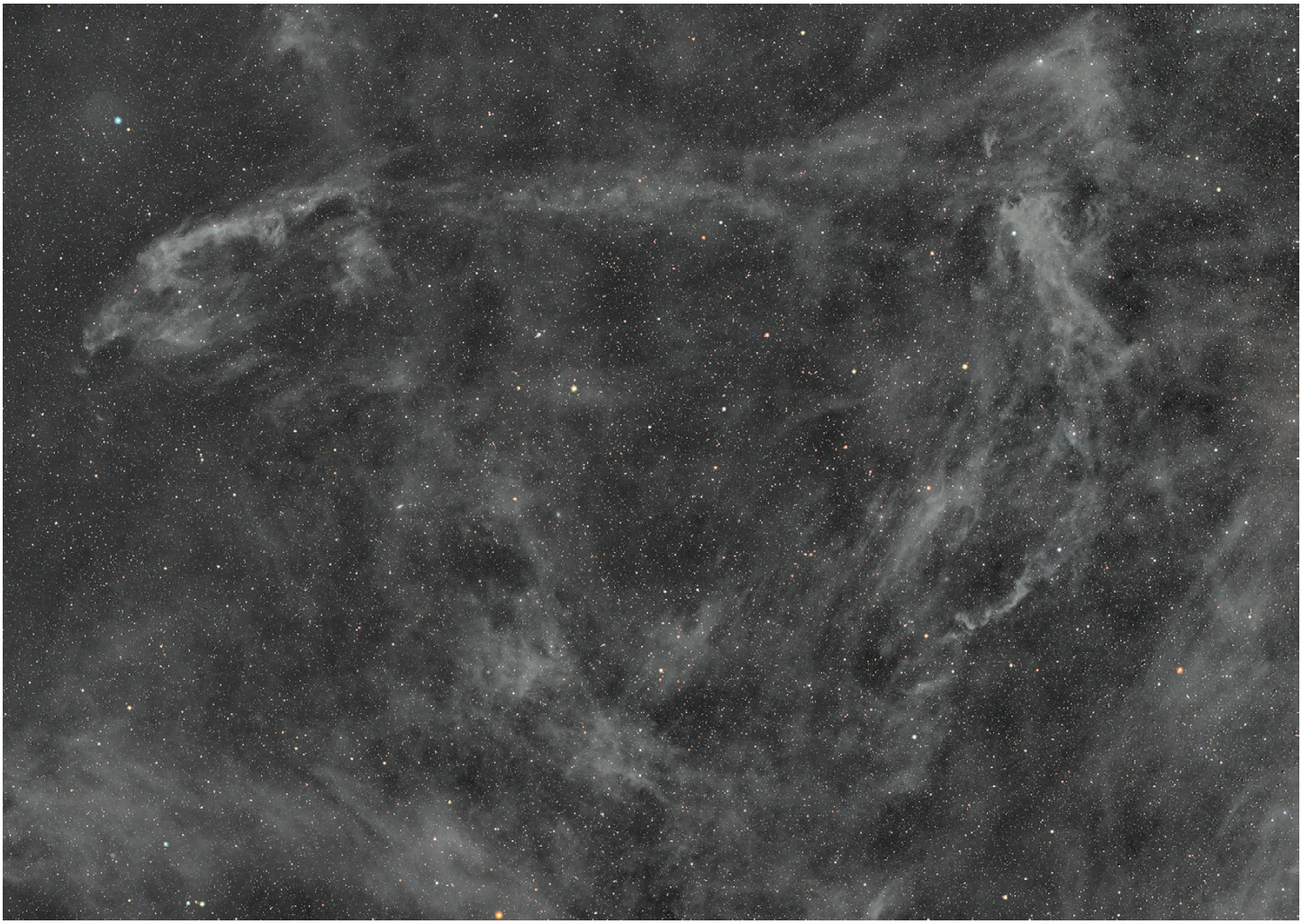
The night of December 21st promised to be clear at Starry Meadows, so I headed south for the longest night of the year. Just imaged one object - M78 the whole night. Lost 2 hours when clouds passed by. The seeing was pretty bad, and it is not the best to image when the target is so far from the Meridian but I really wanted to get a full set of LRGB to process - this is about 10 hours.



Orion in Hydrogen Alpha by David Elmore

Recently I have been working on how to bring out emission lines from dual band images and produced this one of Hydrogen Alpha along the way. I was impressed by the amazing structures and by the fact that the H-alpha is between the outlining Barnard's Loop and the main line of Orion objects, Flame, Horsehead, Running Man, and Great Orion.

William Optics Mini SpaceCat51, ASI2400MC, Antlia dual band Ha/OIII filter.

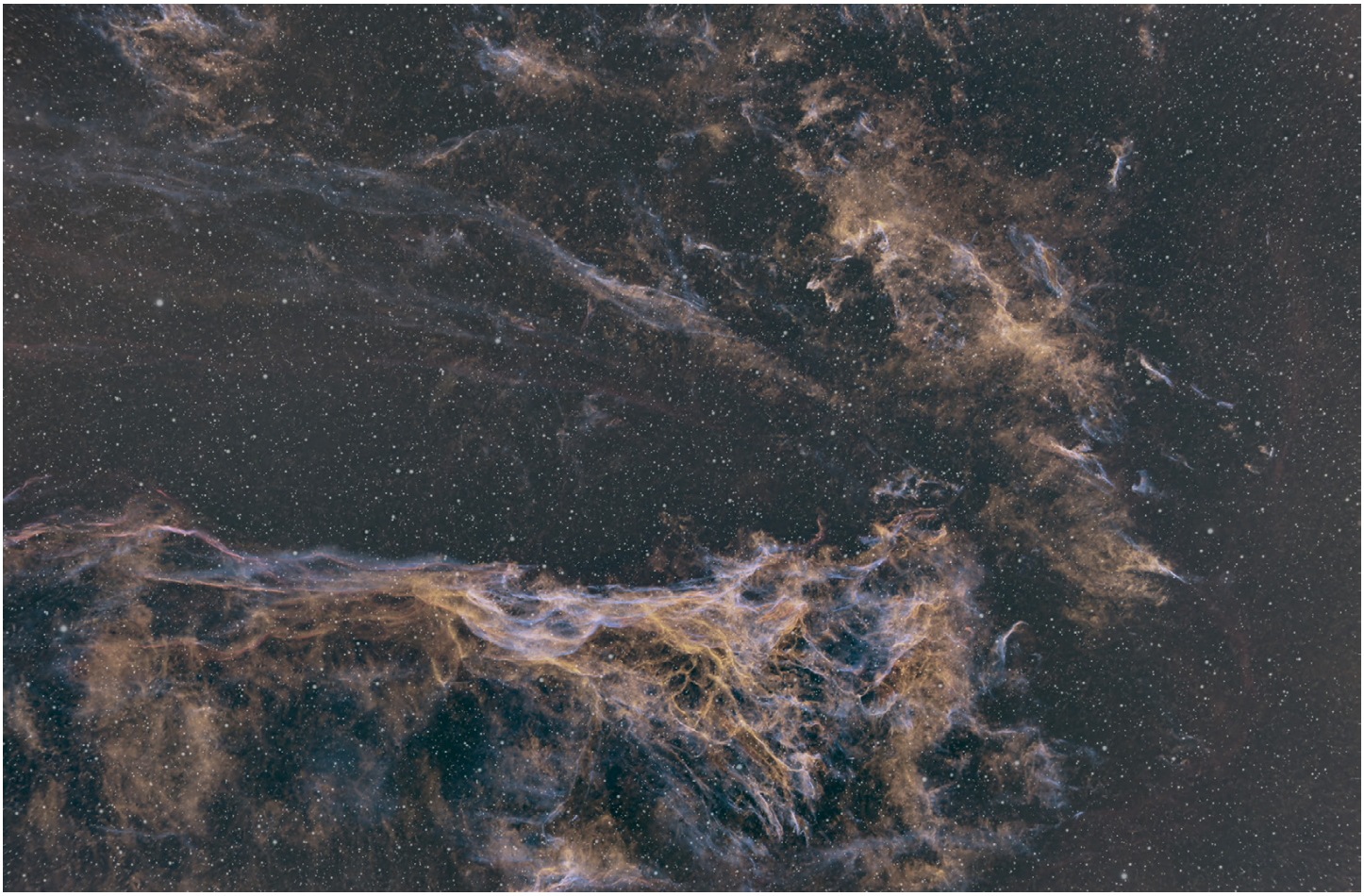


MW5 Fish Hook Nebula by David Elmore

Object 5 in the "Mandel-Wilson Catalog of Unexplored Nebulae" also called the Fish Hook Nebula.

This is an Integrated Flux Nebula (IFN). It is located above the plane of the Milky Way and illuminated by the integrated flux of stars in the galaxy below it. IFN are extremely faint. The nebulosity is not visible in a single exposure but appears after a few hours of stacked images.

RGB Image using NGS1 filter on a William Optics Mini SpaceCat 51 F/3.5 refractor and ASI2400MC camera. 30 Second exposures were used for stars in an attempt to preserve color. Nebulosity is from the 600 second exposures. Total exposure time was just under 12 hours from my little observatory at Dark Sky New Mexico.



Willamina Flemming's Triangular Wisp in Modified HOS by Stephen Garretson

In the center of the Veil Nebula is this region of the SNR. Often called Pickering's Triangle as Pickering was head of the Harvard College Observatory at the time of the discovery, it was actually found in 1905 by Willamina Flemming, a notable astronomer who studied the glass plates produced by the college's observatory. Light from the original SNR traveled from ~5000LY away to our skies. A great reference about the women astronomers who did this work is The Glass Universe by Dave Sobel.

Having imaged other parts of the Veil as well as the whole Cygnus Loop, I have never before added SII, shown in this treatment as yellow to distinguish that species from Ha. I started including SII data in SNR images recently, but this is my first time for any part of the Veil.

[11] 600s guided Ha subs
[12] 600s guided OIII subs
[10] [600s guided SII subs
Total integration: 5 hours, 30 minutes

Capture:
Dual scopes each having the following components:
William Optics FLT 132 APO Triplet, 0.8x reducer/flattener, running at f/5.6
ZWO 2600MM Pro
ZWO EFW
Chroma 3nm Ha, OIII, & SII filters
Wanderer Astro Mini V2 Rotator
MicroTouch focus motors

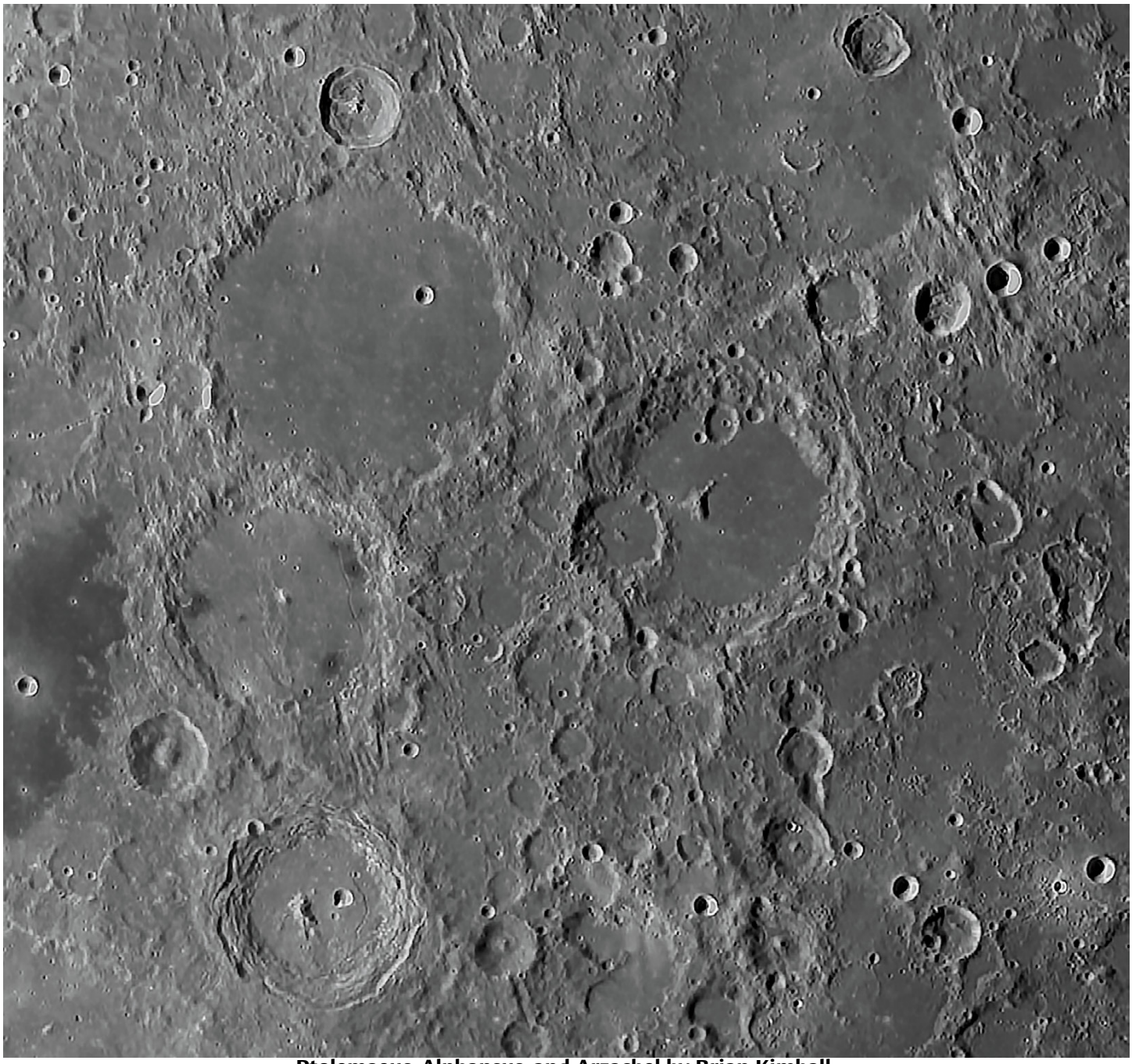
Guiding:
William Optics WhiteCat f/4.9 Astrograph
ZWO 220 Mini
Paramount MX+

From the Beevo Dome
TheSkyX, SGP, PHD2
PixInsight, MacOS Photo, Preview

C/2025 A6_by Gary Garzone

C/2025 K1 (ATLAS) by Gary Garzone

C/2025-R2_(SWANN) by Gary Garzone

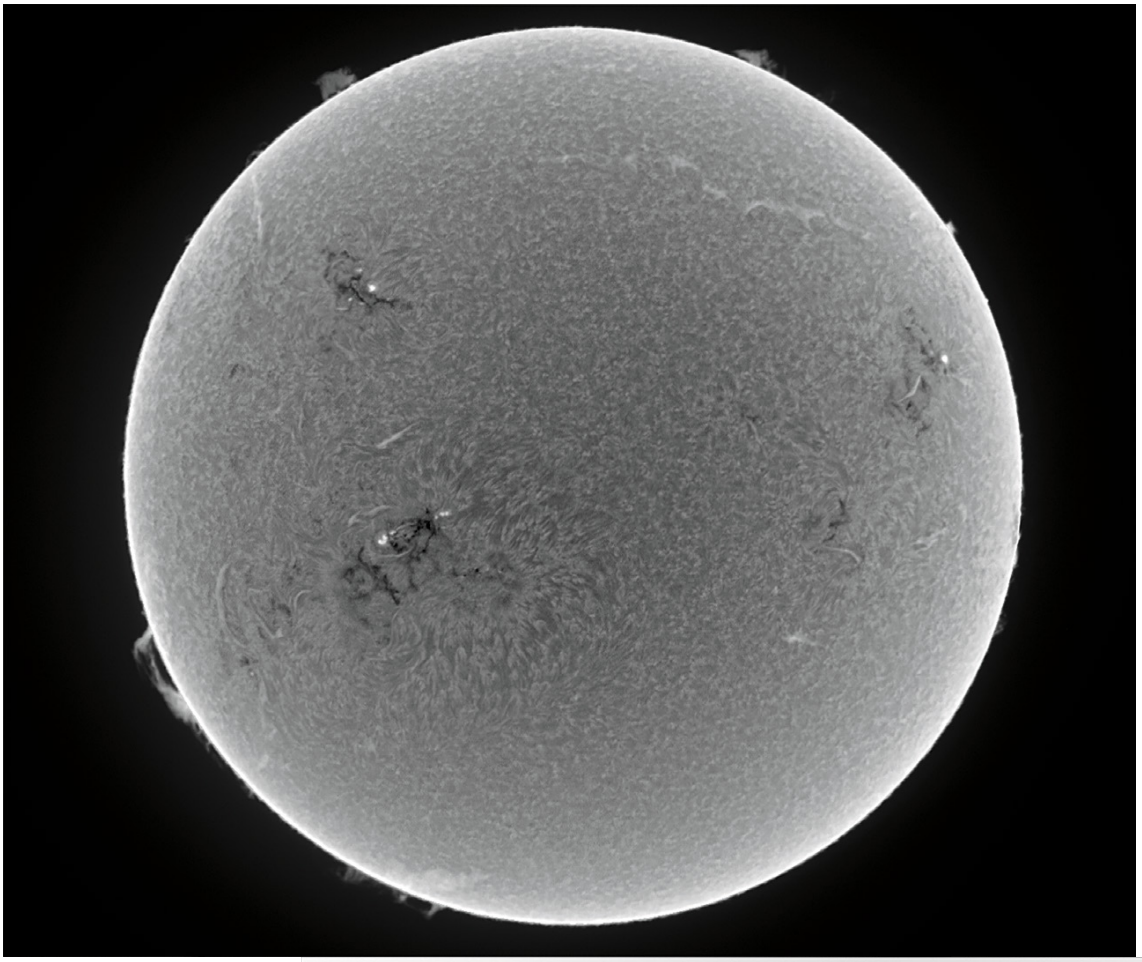


Ptolemaeus, Alphansus, and Arzachel by Brian Kimball

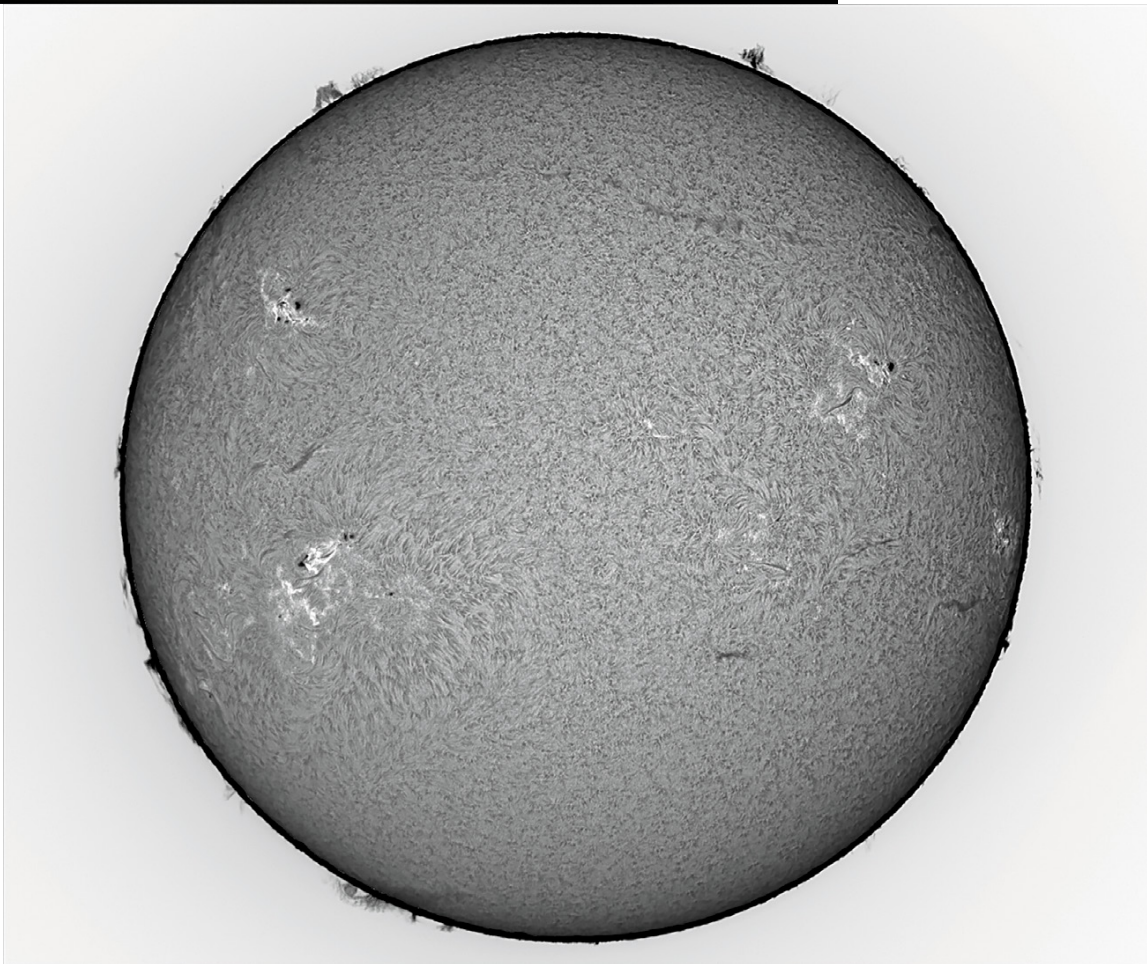
This is one of the show-stopping trios on the Moon. At 95 miles in diameter, Ptolemaeus is so large that Copernicus would fit inside its walls. If you were an astronaut standing in the middle of Ptolemaeus, you'd think you were in Kansas. The surrounding mountains would lie below the horizon.

Alphonsus, to the south, is one of the more interesting craters on the moon. Some of the craterlets inside have dark halos around them. These halos are the result of a little-known but fascinating volcanic activity called explosive pyroclastic eruptions. As magma is spewing out from volcanic vents, sometimes gases that are trapped within will suddenly expand and cause the molten rocks to explode in a shower of tiny dark glass beads. The result is that the area surrounding the source vent is covered by a dark halo of pyroclastic deposits. Arzachel is the youngest crater of the three. Arzachel is a complex crater with terraces, rilles, hills, craterlets, and a slightly off-center central mountain which rises, 4,900 ft.

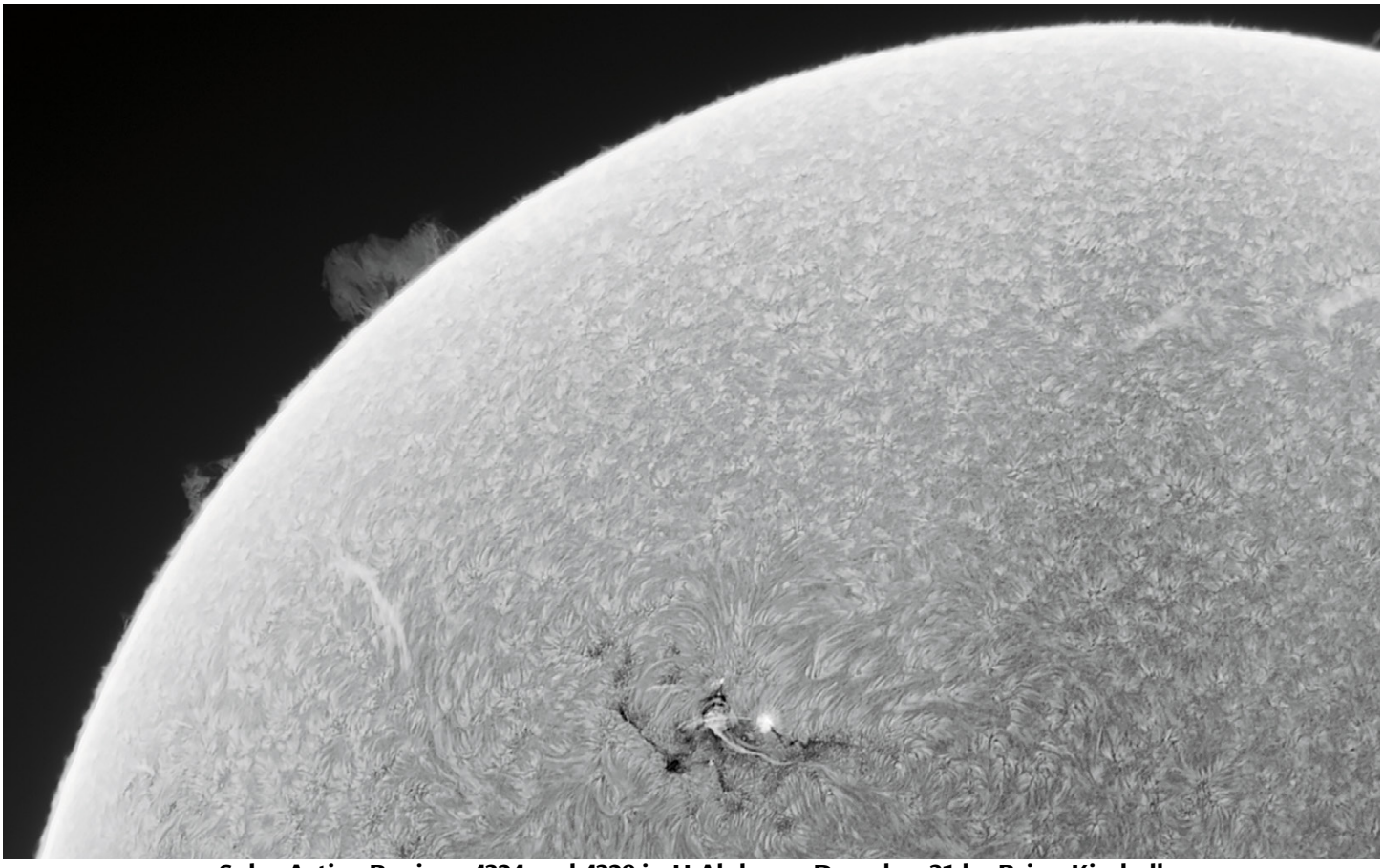
All of this information was gathered from Andrew Planck's fabulous book on the moon. "What's Hot On The Moon Tonight".



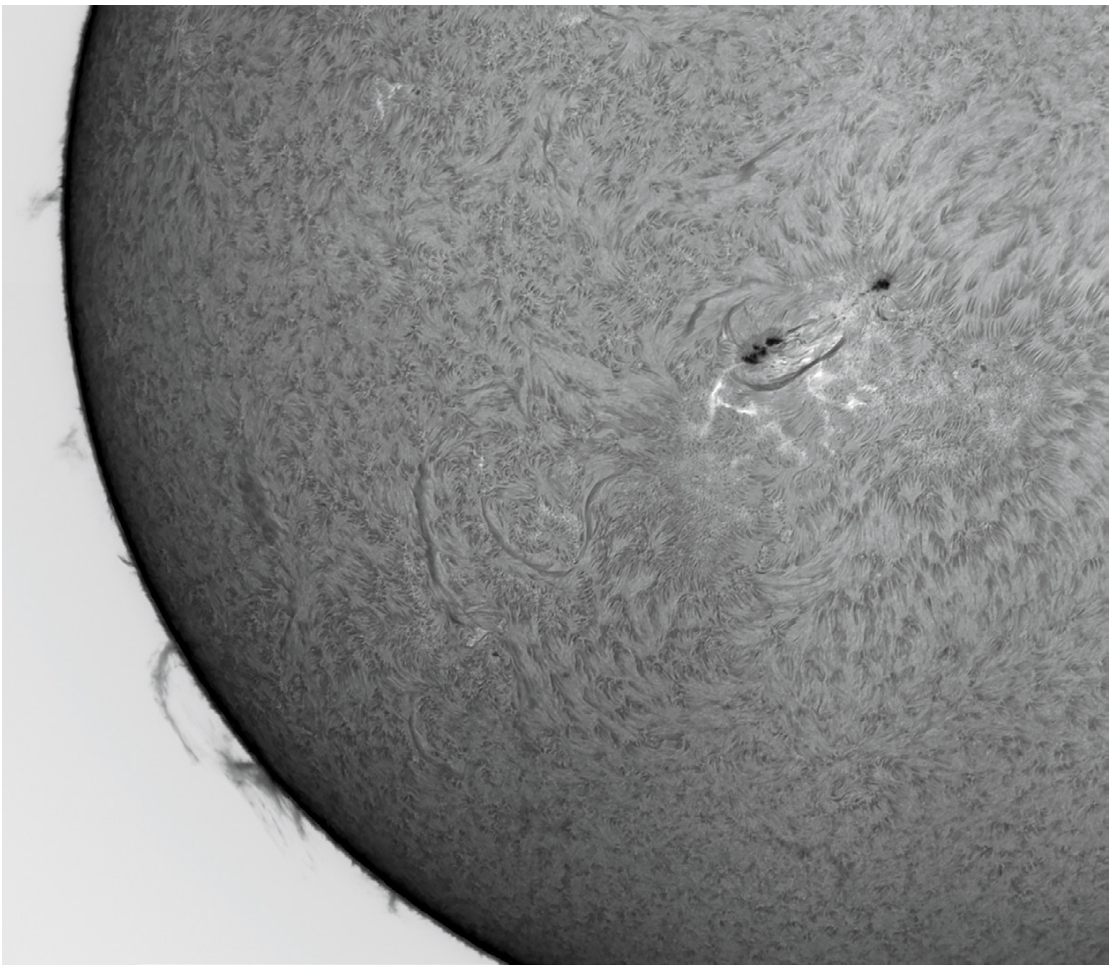
Sun in H-Alpha on December 30 by Brian Kimball



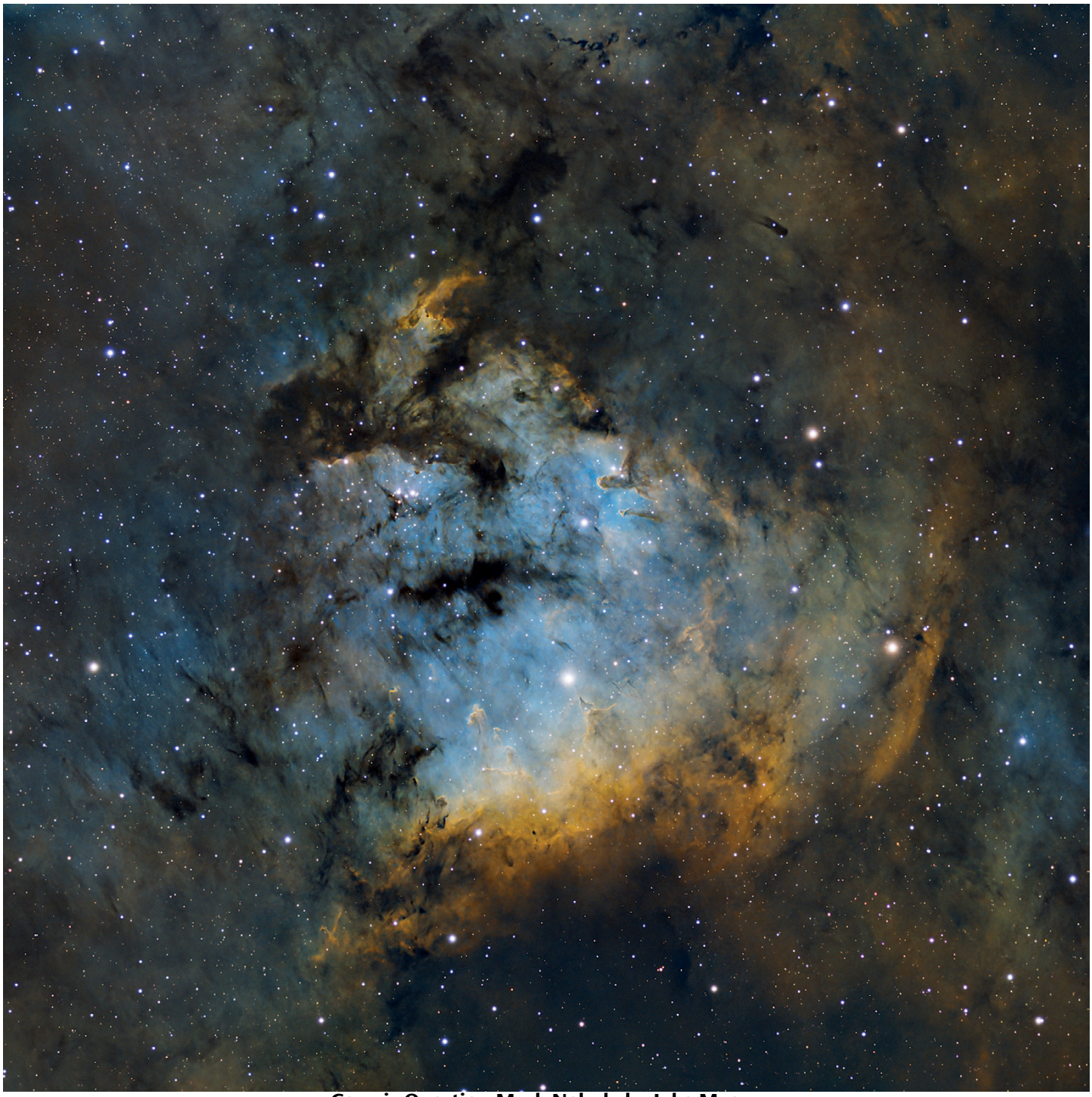
Sun in H-Alpha on December 29 by Brian Kimball



Solar Active Regions 4324 and 4329 in H-Alpha on Decmber 31 by Brian Kimball



Solar active regions 4323, 4323, 4325, and 4328 in H-Alpha on December 31 by Brian Kimball



Cosmic Question Mark Nebula by Jake Myers

The Cosmic Question Mark (aka the Question Mark Nebula), is an emission nebula located about 2900 LY away between the constellations Cassiopeia and Cepheus. The overall structure that gives the object its namesake is composed of a couple of different nebulae, NGC 7822 (the curved top part), and SH2-170 (the dot). The dot, outside the frame, is also known as the Little Rosette Nebula. Most of the nebulosity that forms the curve is outside of the frame as well. The star BD+66 1673 is responsible for a lot of the light and ionization here. It is one of the hottest stars in our neighborhood, and is over 100000 times brighter than our sun. It's also an eclipsing binary. Cool!

11 hours of integration taken from my front yard here in SW Longmont with the following:
- Stellarvue SVX80T
- 533MM
- Antlia 2.5nm SHO with RGB stars

Sh 2-135 Emission Nebula in Cepheus by Jake Myers

I decided to get myself an early Christmas present and picked up a new camera — this is the image from first light. There are still some kinks to work out in the system (vignetting, back focus tweaks), but fortunately we've had a couple of clear nights right away, and I was able to image immediately.

SH2-135 is an HII emission nebula in the constellation Cepheus. This wide framing also includes some interesting nebulae catalogued in Lynds' Catalogues of Bright and Dark Nebulae (LBN and LDN) along with a couple of Sharpless companions, SH2-138 and SH2-139.

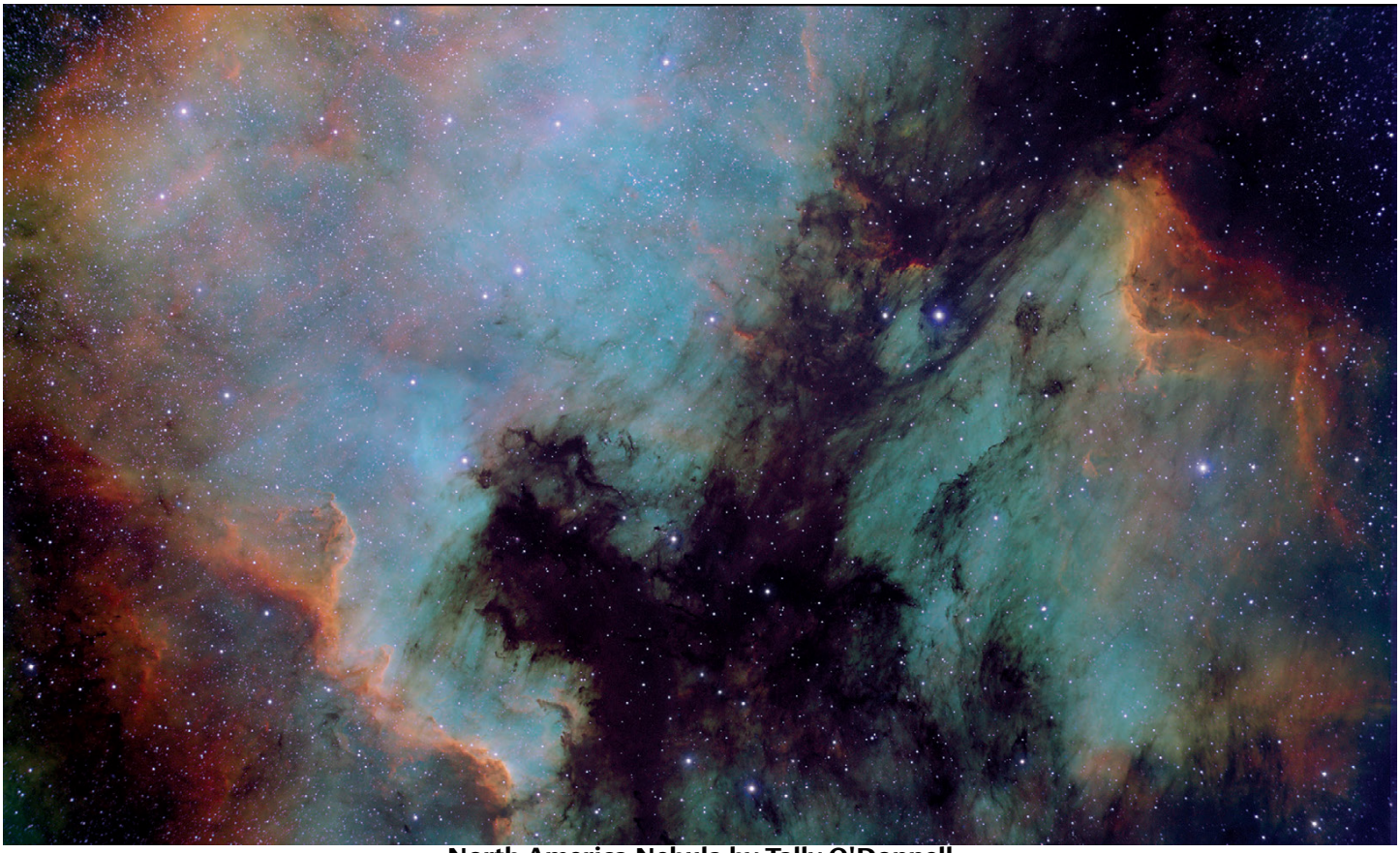
In between lies the star Delta Cephei, a notable pulsating variable star known as the prototype for Cepheid variables, crucial "standard candles" for measuring cosmic distances. This, new to me, led me down a rabbit hole about some cool astronomy history — maybe it will for you too!

Processed in HaRGB (mostly Ha) - I did shoot some OIII, but there wasn't much there...

Stellarvue SVX80T, Antlia 2.5nm + Dark RGB filters, ZWO 2600MM

Witch Head Nebula by Tally O'Donnell

This is an RGB image of the Witch Head Nebula with one hour of each filter. The artifact in the lower left corner is from Rigel,



North America Nebula by Tally O'Donnell

This is an SHO image in H-Beta, and it really brought out the blue in Sh2-117 and the Pelican Nebula.

Crescent Nebula by Jim Pollock

Horsehead and Flame Nebula by Jim Pollock

After running most of the night, here's the first full result: 3.3 hours with 40 frames of 5-minutes. Still have the HyperStar collimation issue, but so easy to cheat with BlurXterminator. (However, the nebula lose some structural detail that BlurXterminator can't fix. Still, not too shabby for a first 3-hour exposure from the "observatory for the masses"!!

- 40 frames of 5-minutes (3.3 hours)
- 9.25" EdgeHD at f/2 with Hyperstar
- ZWO ASI 2600mc Duo Color Camera
- ZWO AM5N mount
- No Filtering (20% moon illumination)
- ZWO ASIAIR controller connected to my iPad and Mac in Longmont (while drinking a margarita) via Tailscale VPN

Starfront is a new group that wants to "democratize astrophotography" with more affordable hosting coupled with 24/7 staffing for keeping your scope running without you having to do it yourself. They have 11 buildings (with 3 more nearing completion) housing over 600 telescopes ranging from SeeStars to a .7meter reflector. You pay a single monthly fee based on the size of your rig (my 9.25" EdgeHD on a ZWO AM5N mount just squeezes into the "Lite Pier" with under 48" of rotation circumference (24" radius turn). The Lite Pier costs $199/mo and includes power and fiber internet. I'm downloading 50 Mbyte images in 4 or 5 seconds. They will host SeeStars for $99/month, 32" swing diameter for $149, 48" Swing for $199, 58" for $299 and 96" swing diameter for $399/mo.

Read more at: www.Starfront.Space

Unusual NGC 1398 by M. J. Post

This galaxy in Foprnax is 65 M.l.y. distant and is unusual in several ways. It is a loner - isolated in deep space more than the vast majority of galaxies that tend to reside in local groups. It is huge - 292,000 light years across. Our Milky Way is about 110,000 l.y. in diameter. It was NOT discovered by William Herschel, but instead by Freidrich Winnecke in 1868 (very late for something so large and bright). Most notably, it is rare in displaying a bar while simultaneously being nearly ring-like in structure. Its two spiral arms are well detached from the bar and are probably evolving into one or two independent rings.

From DSNM, CDK14 scope with luminance filter, 3 hours on target. ASI 6200MC camera.

Kemble's Cascade of Stars by M. J. Post

This asterism in Camelopardalis was named after Father Lucien Kemble (1922-1999), a Canadian Franciscan friar, not our famous club member. Kemble was an avid amateur astronomer who often observed only with binoculars. Apparently he wrote to Walter Scott Houston, who managed the Deep Sky Wonders column for Sky and Telescope, about "a beautiful cascade of stars tumbling from the northwest down to the open cluster NGC 1502." Houston published his finding in 1980 and named it "Kemble's Cascade." Father Kemble also has two other asterisms named after him, one in Draco that resembles a miniature Cassiopeia, and another in Camelopardalis that mimics a kite with tail. An asteroid, 78431 Kemble, also bears his name.

This image is from my backyard in south Boulder - 12 one-minute subframes for each R, G, and B filter through an 11" RASA telescope and onto an ASI 6200 monochrome camera. FOV is 3 x 2 degrees.

Arp 31 Galaxy Cluster by M. J. Post

This cluster of six galaxies in Aries is missing one off-frame high, namely NGC 697. It would not fit onto my horizontally-oriented camera frame. Still, the remaining ones comprise a decent group. From left to right, they are IC167, NGC 694, NGC 691, IC 1730, NGC 680, and NGC 678.

- From DSNM, 3 hours exposure time onto the ASI 6200MC color camera. FOV is about 36 x 24 arc min.

NGC 2099 Salt and Pepper Open Cluster by M. J. Post

This beauty in Auriga was discovered by Italian astronomer Giovanni Hodierna in 1654, more than 100 years before Messier "rediscovered" it in 1764 and entered it on his "non-comet" list as M37. It is also known as NGC 2099. It contains more than 500 stars and is about 400 million years old. Its distance is estimated to be 4500 l.y.

This was a "quickie" project - only twelve 100-sec-long subframes and very little post-processing. Bright stars are easy to image, and interesting when they are colorful! 48 x 32 arc minutes (full frame on CDK14 scope with ASI 6200MC camera).

NGC 660 by M. J. Post

Apparently this is the only galaxy of its type - a polar-ring galaxy - most likely caused by the merger of two galaxies about 1 billion years ago. The central core is lenticular in nature, probably evolved from a normal spiral galaxy. But it is encircled by several rotating rings of stars and dust that are inclined at about 45 degrees to the disc-like core. All this is about 45 million light years away in Pisces

In 2012 a huge outburst was observed from the central core, about ten times the output of a supernova explosion. Its cause is unknown. NGC 660's central bulge is off-kilter and apparently harbors exceptionally large amounts of dark matter. The outburst is thought to be caused by a massive jet shooting out from the galaxy's supermassive black hole, perhaps interacting with dark matter there.

Three hours total exposure time, CDK 14 telescope, 32 x 21 arc minutes FOV.

vdB16 Reflection Nebula by M. J. Post

This reflection nebula is south of popular NGC1333 and it is nestled in the Perseus Molecular Cloud that provides its dark framing and material for reflection. However, the central star here is HIP 16170 which is 2500 light years distant. But the molecular cloud is only 900-1000 l.y. away. The blue star above center is HIP 16164, which is 1050 l.y. away. So is the actual illuminating star for vdB16 HIP 16164, and HIP 16170 is a background imposter? The "creature" on the right side (west) of vdB 16 looks to me to be the head of a Velociraptor!

From DSNM, CDK14 scope, ASI 6200MC color camera, 3 hour time on target, FOV about 30 x 20 arc minutes.

NGC 1721 Galaxy Group by M. J. Post

This grouping in Eridanus is 200 M/l.y distant and low in the sky. I had a devil of a time imaging it over two nights - mostly because of bad seeing - and down-selected the best 36 five-minute subframes for the final stack. The top-most of the four largest galaxies is NGC 1723. It almost looks ring-like with detached spiral arms. The triplet near frame center is (left to right) NGCs 1728,1725, and 1721. Why the NGC boys didn't name these consecutively is a mystery to me! Edward Emerson Barnad discovered this group in 1885.

The center galaxy of this triplet certainly appears to be an elliptical, but it is listed as lenticular. There are also a number of background galaxies spread around the frame. I almost gave up on this object but decided to post it any-way because of all the time I put into "cleaning up" the stack.

From DSNM, CDK14 scope, ASI 6200MC camera, luminance filter, 22 x 24 arc minute FOV

NGC 1365 Galaxy by M. J. Post

Nearly two-thirds of spiral galaxies that we observe are barred, but very few display two bars like this one. The shorter bar that is more N-S oriented is rotating faster than the longer E-W bar. This most likely is what causes the central dust lane to be distorted instead of linear.

And this galaxy is huge - 300,000 l.y. in diameter - so it appears large even though it is about 60 M.l.y. distant. It was not discovered until 1826 because it lies so far south (-36 deg declination), and then by Scottish astronomer James Dunlop, famous for his Southern Hemisphere work at the Parramatta Observatory, 25 km west of Sydney, Australia.

At DSNM this target appeared over my observatory walls for only a few hours each night, and it never rose higher than 22 degrees. I hope you enjoy this look at a galaxy seldom imaged from the continental U.S.

Total exposure 3 hours. CDK14 telescope. ASI 6200MC camera. Luminance filter.

30 Years Ago – 1996 Vol 10

December Meeting Notes:

- President, Thom Peck open with discussions regarding the upcoming star party at DSES on Dec. 16th. The attending members thanked Fred Lacy for his tour of LASP at last month's meeting. Elections for 1996 officers were held, results are in Club News. We then talked about upcoming star parties for 1996- watch for details in your LAS Journal.
- Our guest presentation by Steve Lee was about Martian imaging with the Hubble Space Telescope. Steve has a Ph.D. in Planetary Geology and has been studying the surface & atmosphere of Mars for many years. Steve and his team were actually some of the first production users of the HST and have been watching ever visible opposition of Mars since 1990. The study is focused on "surface albedo variations". Their HST goals are to monitor seasonal and inter-annual variability of regional albedo features. They are also comparing HST albedo feature images to Viking spacecraft images from 1976-1980. Steve showed us some awesome photographs of mars both from Viking and the HST and he presented his recent findings regarding his studies.
- Call for Hale-Bopp Images
  FRASC would like to help provide the local print and broadcast media with locally generated HB images during the coming 12 months. Once HB emerges from solar glare later this winter, if you have any especially nice images that you would be willing to share, please contact Dr. Bob Stencel at 871-2238 to arrange getting these into print/on the air as part of a local "HB Watch" effort to raise awareness of astronomy, light pollution and other good things. Thanks, Gary.

20 Years Ago – 2006 Vol 19

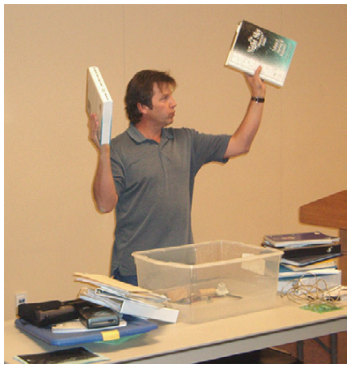
The Home Planet Stellar Views:

Hello Saturn watchers!

- It has been a pretty good month for The Home Planet Stellar Views again this month. Despite the cold weather at night, I have been watching and taking pictures of Saturn every chance I can from the yard. The winds and poor seeing had me down some, and then wham! You get an awesome night in. I really have been watching the Clear sky clocks for hints on better seeing nights for Saturn views and pictures. I have found my best pictures are on those rare good seeing nights. Mars is still up and bright but all views of surface details are history now.
- Moon was up for Friday 13th, almost full. I had a very good seeing night for a change. The Moon is still an awesome object too and I still love to view and do pictures of moon at different phases. Saturn is at opposition on the 27th of January. Best views of Saturn are still to be had, keep up the watch, you will be glad you took the time to view
- Sterling Star party may need some thought. It will be spring before we know it and we need to make a decision to continue or find a new spot. I am game to continue using Sterling reservoir again, but so early in year we always gamble on the weather. I am not one to give up, dark skies are us. Keeping it Cosmic as Tom Teters always says, bye, Gary

Mike Hotka – How do I do what I do?

- At the December LAS meeting, I gave a presentation on "How I Do What I Do". It was a mini presentation about my personal preferences in our hobby of astronomy. I talked very fast and shared a ton of information to the membership in attendance that night.
- To sum up what I choose to observe is pretty easy. I like lists. Some people have these lists in their heads those objects that they love to visit each and every time they go out. Others, like myself, like them printed on a piece of paper, where I can check them off once I've seen them.
- If you visit the web site www.astroleague.org and click the Observing Clubs link, you will be taken to a page of observing clubs that are sponsored by the Astronomical League. And each of these clubs has a list.
- So, whether you are a beginner or an advanced observer, the AL Observing Clubs offers something to everyone. But the real prize of doing these clubs is not the certif-



icate. It's not the award pin. It's seeing some of the most breath taking objects the heavens has to offer. It's learning how to navigate the nighttime skies. It's about being outside, being with friends and having a good time. Our hobby has sometime to offer to almost anyone. The Astronomical League and their Observing Clubs makes our hobby more fun.

10 Years Ago – 2016

Cover Jan 2016 by Tally O'Donnell, IC434

Upcoming Events

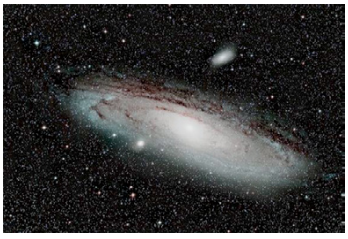
• "Under the Night Sky" indoor and outdoor (weather permitting) presentation on January 16th from 6:30 to 8 pm sponsored by City of Longmont Recreation. Event will be at the old farm house which is now the Sandstone Ranch Visitor and Learning Center. This historic property was first homesteaded in the 1860s by the Coffin family. It includes displays of early Longmont history, and environmental features of the area.

• "Recent Observations of Orion with ALMA, Gemini, and HST" presentation by Dr. John Bally, Dept. of Astrophysics and Planetary Science University of Colorado at the February 18th LAS meeting. Presentation: Show and Tell by LAS members: Equipment and Methodology

- Gary Garzone talked about his C14 Hyperstar lens and showed his F7 focal reducer and Celestron camera

- Jim Elkins showed his Coronado solar scope, sample photos and video, and shared his experiences where the scope excels (portability, ease of use) and where it does not (narrow field of view, stock eyepiece)

- Jim Pollack gave an excellent short talk, "Guide to Quick and Dirty Photography" He uses DSLR and captures no more than 30 second images, does not track and uses alt-azimuth mount. He stacks 30-50 images. He gave a demonstration of using a Photoshop plugin called "GradientXTerminator" by Russel Croman.



- Talley O'Donnell show us his Hutech modified Sony A7S DSLR (9um pixels) very sensitive, very red, have to manage when processing…a real treat under dark skies, too sensitive for town use/light polluted skies

- Glen Frank "How to stay really warm" Glen showed the group his Techniche brand "Ion Gear" battery heated vest, down jacket, something to keep head warm, fold back gloves from REI that expose fingers and thumb, ski pants and insulated boots, chemical heaters for gloves and boots, Fire-Fly Dew Heaters, Dew-Not heaters, 12v blow dryer
- David Elmore is looking for someone to share expense for a trip to the Atacama desert in Chile over April Fool's day in 2016, amazing dark location and telescope may be rented

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NGC 2245, Dreyer's Nebula by Marty Butley