



THE FOCUS

NEWSLETTER OF THE DELAWARE ASTRONOMICAL SOCIETY

VOLUME 66 ISSUE 4

APRIL 2024

ON THE MERIDIAN

This is a word of Thanks to all who have contributed to the FOCUS effort recently:

- Jarrold Beiber
- Aaron Berner
- Mike Cimorosi
- Fred De Lucia
- Ryan Gilbert
- Dave Groski
- Bill Hanagan
- Kathy Koons
- Sebastian Krauthauser
- Rob Lancaster
- Jeff Lawrence
- Jeff Miller
- Mark Mitchell
- Chris Myers
- Sid Ocampo
- Rick Spencer
- Mary Webb
- Ron Worden

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This Month's Issue

Rain, rain, go away....

It seems that, at least from what view I have from SW Florida, the monsoon mode in the Delaware, SE PA area is in full swing. Now that the big events of 2024, the 4/8 Solar eclipse and Comet Pons Brooks are behind us, we can start to get ready for warmer weather observing and also can come out for Tuesday night workshops or planned outreach evenings.

Of note, the recent solar filter workshop was a well-timed success due to the efforts of Chris Myers and several other DASers. Thanks to all who put on the workshop and to those who attended and left with a one of the most useful astro accessories that we can own.

Just as a reminder, if you would like to see a workshop devoted



12P/Pons Brooks imaged with Seestar

to a subject of special interest to you, please let any Board member know, and we will do our

best to help with your need.

For the near future we are planning an introductory class on SkySafari, a widely-used planetarium app that is used to drive go-to scopes, and can be adapted to the push-to environment.

In the nearer future, please mark your calendars for the Annual DAS Dinner in May (info [HERE](#)).

Outreach dates for Woodside Farms have been confirmed and can be found [HERE](#).

The DAS officer election will be held in May. Candidate profiles can be found [HERE](#).

Here's hoping Clear Skies will return soon.

Mark

May Club Meeting—5/16

The topic this month will be members sharing their eclipse stories. Please consider sharing your eclipse adventures with the club. The experience of the eclipse itself, but also adventures you may have had around the eclipse. A 5-10 minute talk would be appreciated. Sharing photos (of the eclipse, or the trip in general) would be great.

Also, I would like to start the



meeting by showing a map of where all DAS members were during the Eclipse. So please email me off-thread (jef.law76@gmail) with your name and the city & state from where you enjoyed the eclipse. Please note - this is not restricted to people that were in the path - even if you just enjoyed that partial eclipse locally or elsewhere, it would be fun to know where members were.

-JEFF LAWRENCE

MESSAGE FROM THE PRESIDENT

Dear DAS Members,

This month features the Main Event, what we have all been waiting for, the Great 2024 Solar Eclipse! As of right now, while I am writing this column, we are still getting ready to leave for Texas to see the Eclipse. When you read this, the eclipse has already happened. So you know much better than I do how well the weather cooperates on April 8th and whether the DAS members who are traveling all the way to the path of totality will have any luck at seeing the eclipse. Right now I have my fingers crossed and we are working on getting everything ready so that we can leave next week. At this month's meeting, we will find out all about how well it went for our various members who are traveling to all sorts of different places. We might even hear from you if you would like to share your experience.

I hope everyone got a chance to attend our last meeting in person or over Zoom. Thank you to Roxanne Kamin for an excellent presentation about occultation timing. The topic is very interesting because not only is it a great example of citizen science, but our club used to participate in the observing runs many years ago. During the presentation, James Kauer, one of our founding members, shared his experiences participating with Roxanne Kamin's colleagues. It would be really exciting if some club members decided to start this up again. This month will feature our very own club members sharing their experiences of the April 8th Solar Eclipse. If the weather cooperates for most of our members, this could be really exciting. If you would like to share some photos, stories, or experiences from the Eclipse, please be sure to contact Jeff Lawrence to get in the schedule. As usual, a Zoom link will be sent before the meeting and the board meeting will be at 7 pm while the main meeting will start at 8 pm. You can attend both meetings if you like, since our board meetings are open meetings, or you can show up (or log in) a little before 8 pm to attend the main meeting.

Remember that we are still holding DAS Astronomy Workshops every Tuesday, working on projects, and doing observations. All of you are welcome to attend and if you have any questions about astronomy, need help with a telescope, need help with an astronomy project, want to observe with club telescopes, or just want to talk with your DAS friends, these meetings are a great place to do all of that. We also have monthly AP-SIG meetings and Book Club meetings, please watch for announcements on Groups.io. We have several outreach events coming up as well. Please consider bringing a telescope out to help at one of the events, since it is a lot of fun! We are also planning on having more member star parties and deep sky sessions this winter and spring. Please stay tuned for details for more of these sessions or events via groups.io. I hope to see you at some of our events!

Thank you,
Rob Lancaster
DAS President

2024 DAS DINNER MEETING



**The 2024 Dinner Meeting will be held at
St. Thomas Episcopal Church.**

**It's on Tuesday, May 21, 2024
And the price is still only \$20.00!!!**

6:00pm - Social Hour

7:00pm - Dinner served

8:30pm - Awards presentations and guest speaker

The Menu:

- Bread & butter
- Salad
- Meat or Vegan Lasagna Bolognese served with a vegetable
- Dessert
- Water & soda
- Beer & wine by free will donation

** note -please contact [Jeff \(jef.law76@gmail.com\)](mailto:jef.law76@gmail.com) for any allergy concerns

2024 ANNUAL DINNER

The easiest way to register is via PayPal. Please select your main course choice. Note, if you are registering more than one person, please add all meal choices to the cart prior to checking out. When you add the first guest to the cart, a PayPal tab will open that shows the number of guests and their menu choice. If you are making more than one menu choice, you will have to return to the original "ADD TO CART" box to add your other meal choice(s). **Registration will close Wednesday, May 15th at 1:30 pm.** Register [HERE](#). You will be taken to the DAS web site to complete your registration. If you prefer, you can mail a check along with a note indicating your meal choices to: Bob Trebilcock DAS Treasurer 3823 Rotherfield Lane Chadds Ford PA 19317

PARKING DIRECTIONS CAN BE FOUND ON THE DAS WEB SITE ON THE SAME PAGE AS THE SHOPPING CART.



2023 DAS ANNUAL DINNER



2024 ANNUAL DINNER GUEST SPEAKER

Dr. Jessica Noviello

The Mysteries of Cryovolcanism

Many icy moons and dwarf planets in the Solar System show evidence of at least partial resurfacing possibly due to **cryovolcanism**, which is the eruption of water, ice, and dissolved volatiles onto a body's surface. Details about how cryovolcanism works and how it might be expressed on different bodies, however, are open questions in planetary science. The New Horizons mission to the Pluto system returned the first images of Pluto and its moons, the largest of which is Charon. Charon's surface shows evidence of cryovolcanic resurfacing, but the presence of discrepancies between the estimated surface age from crater counts and the estimated start time of cryovolcanism raise major questions about the moon's history. In this talk, Dr. Noviello will lead you on a tour of cryovolcanoes of the Solar System, explain the basics of cryovolcanism, and present on why Charon might provide the best opportunity to study a major geological process that we know little about.

Bio:

Dr. Jessica Noviello is an assistant research scientist at the University of Maryland Baltimore County Center for Space Science and Technology. On a daily basis, she works at NASA Goddard Space Flight Center in Greenbelt, MD on a variety of projects ranging from cryovolcanism in the outer solar system to running a professional



development workshop series for early career scientists to modeling the interior structure of exoplanets. She earned her PhD in planetary geology from the School of Earth and Space Exploration at Arizona State University in 2019 studying Europa's geomorphology. In her spare time, she enjoys running, baking treats for her friends' birthdays, and doing embroidery.

Woodside Farm Creamery Outreach



THIS YEAR'S
DATES FOR
WOODSIDE OUT-
REACH SESSIONS
ARE:

April 19 7:30
May 17 7:30
June 14 8:00
July 19 8:00
August 16 7:30
September 13 7:00
October 11 6:00

3/12 Workshop Recap



A large group gathered at the March 12th Tuesday night workshop, and, with good weather there was enthusiasm to uncover all telescopes for an evening of observing. With the 17.5" Dobsonian, Rob Lancaster took visitors on a tour around the constellations and observers were treated to an excellent view of the moon's crisp terminal line, Jupiter's bands, and many Messier objects. We watched as the ISS crossed the sky then disappeared into the earth's shadow.

Dave Groski opened the Schmidt Cassegrain and quickly located comet Pons Brooks, which appeared as a soft, blue bit of puff. Several viewers used binoculars to locate the comet.

Jeff Miiller introduced his new SQO Seestar S50, surprising those present with how quick and easy it is to use and capture quality images.

New members Bogdan Pazera and Robert Tuttle were welcomed by Fred DeLucia,

Bob Trebilcock, Dave Groski, Greg Lee, Jeff Miller, Rob Lancaster, Jeff Lawrence, Jeff Miller, Chris Horrocks, Wayne Ferrante, Amy Hornberger, Jack Goodwin, Little Jack and Kathy Koons.

Jack Goodwin and Amy Hornberger revealed **the brightest evening object by introducing Little Jack, the youngest DAS member.** (photo right)

-Kathy Koons

It's About the Moon

... though not about the eclipse.

"A map of the moon... should be in every geological lecture room; for no where can we have a more complete or more magnificent illustration of volcanic operations. Our sublimest volcanoes would rank among the smaller lunar eminences; and our Etnas are but spitting furnaces". -[James Dwight Dana](#)



ELECTIONS FOR DAS OFFICERS COMING UP IN MAY

Ballots will be sent out via email to each qualified DAS member from Election Buddy beginning May 2024.

Ballots will close at the end of May

FOR THE POSITION OF SECRETARY



Greetings fellow astronomers,

I have been a member of the DAS since 2004, shortly after the opposition of Mars and the amazing images from Hubble conspired to set me off on a new obsession. Since then, I have been involved in countless DAS events, activities and star parties. I have viewed all 110 Messier objects (+ M109B) without the aid of Go-To or setting circles. And, I have participated in mirror and telescope making and astrophotography.

I served as the Treasurer from 2008 through 2015 where I brought the management of the Treasury into the digital age.

I took over the position of DAS Secretary in 2016 and have been serving actively ever since. As a voting member of the board, I have advocated for and supported initiatives to expand and modernize our observatories and equipment inventories. And, I am proud to have taken part in the tremendous expansion we have seen over the last few years.

With your support for the position of Secretary, I look forward to more great things to come.

Thanks,
Bill McKibben

FOR THE POSITION OF TREASURER



Family: Wife, Beth, three children and two grand children

Employment: Retired, formerly a Chemical Engineer at DuPont for 38 years

Interest in astronomy began in high school when I ground a 6 inch mirror and used it for observing and to take some astro photos using Tri X film. Became a member of DAS 9 years ago. Have served as DAS treasurer for the past 6 years. I have provided support at several of the club's outreach activities. I am also involved in the club's Astrophotography Special Interest Group trying to learn how to take astro photos in the digital age.

If re-elected as treasurer, I would continue to manage the club's expenses and be involved in club activities including DAS board meetings.

Robert Trebilcock

FOR THE POSITION OF PRESIDENT



As many of you know I am passionate about astronomy, and have been since I was in elementary school. I didn't have lots of equipment then, nor the astrophotography cameras I have today, but I did have a passion for the stars. When I first learned to read, I tried to read every book I could find about astronomy. Then my involvement in the hobby developed. From the department store refractor my mom bought me as a small child, to the ETX telescope I got in high school, to the astrophotography research I did in college I have been advancing steadily in the hobby over the years. However, it is during the time I have been an active member of the Delaware Astronomical Society that I have really advanced in this hobby. The DAS has helped me to build my own telescope, greatly improve my astrophotography, hone my maker skills, develop astrophotography software, and share my love for astronomy with the world.

As I have advanced in this hobby, however, I have not forgotten the excitement that I had when I was first starting out. Since I joined the DAS board of directors, I have strived to ensure that the DAS provides a haven for those just getting started in astronomy, a welcoming community, a place where they can pursue their dreams the way this club has helped me to pursue mine. I have really tried to support and build the Astronomy Workshops into a place that could fulfill that vision. During the pandemic of the past two years, I have worked hard to keep that dream alive, despite the remote environment. We have also been working hard over the last several years to enhance and streamline both our loaner telescopes and our observatory so that they can become an efficient vehicle for sharing the joys of the night sky. The pandemic did interrupt that work, but we have started working on it again with a vengeance and have made great progress in the last few months. We also just recently started putting together some beginner astrophotography gear to complement the observatory work we are doing. It is my belief that if we cultivate our relationships with our newest club members and give them the support they need to get started, that we can build our core group of active club members. I hope to continue serving as your president to carry out this duty, and welcome your advice to advance this vision for our future.

Thank you,
Rob Lancaster
DAS President

FOR THE POSITION OF VICE-PRESIDENT



Hi All, here is my blurb:

I have served on the board of DAS for 12 years, and for 8 of those as Vice-President. I would be honored to continue to serve in this capacity.

Jeff Lawrence

DAS Book Club 2024 Calendar

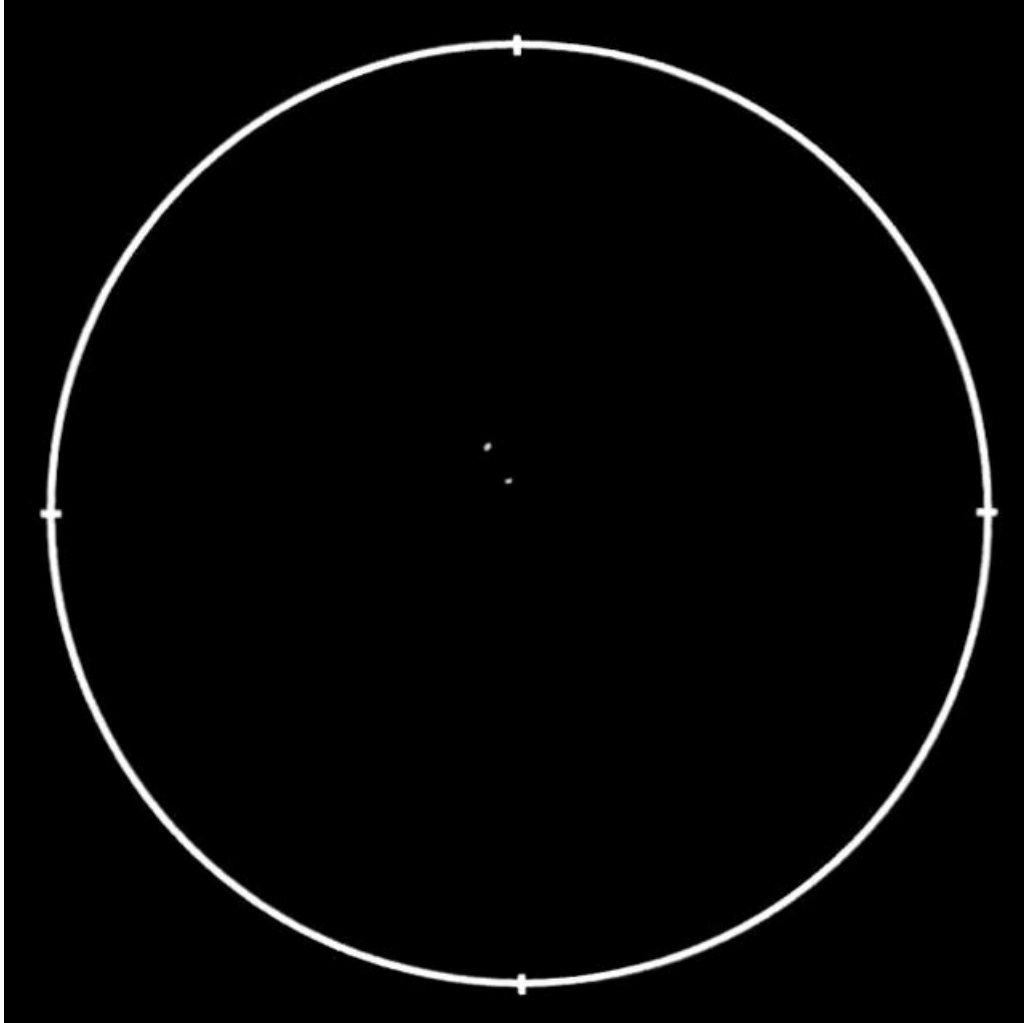
All Meetings are held via Zoom at 7 PM ET
Guests are welcome to attend.

Questions? email librarian@delastro.org

January 25	<i>Ormsby Macknight Mitchel, Astronomer and General: A Biographical Narrative</i> (1887) By Frederick Augustus Mitchel	Philip S. Shoemaker PhD, author of <i>Ormsby Macknight Mitchel and Astronomy in Antebellum America</i> and Trudy E. Bell, contributing editor for <i>Sky & Telescope</i> joined us. Brad Wolvin led the meeting.
February 29	<i>How William Huggins Shaped Astrophysics</i> by Barbara J. Becker	Celebration of the bicentenary of the birth of English astronomer William Huggins (1824–1910), best known for his pioneering work in astronomical spectroscopy together with his wife, Margaret. Barbara J. Becker Ph.D., the leading expert in the life & work of Huggins joined us. DAS member, Jim Barkley, led the meeting.
March 28	<i>Amazing Stories - Armageddon 2419 A.D.</i> by Philip Francis Nowlan	Philip Francis Nowlan's granddaughter, Diane McDevitt, joined us. DAS members, Matt and Marie Brobowsky, led the meeting.
April 25	<i>The Globemakers: The Curious Story of an Ancient Craft</i> by Peter Bellerby	Author and globemaker, Peter Bellerby, will join us. DAS Member, Greg McNiff, will lead the meeting. Greg serves on the Board of Directors of the Amateur Astronomers Association. Members of the Astronomical League and the Amateur Astronomers Association have been invited to join us for our discussion.
May 30	<i>Catchers of the Light</i> by Stefan Hughes	Nico Carver will lead our discussion. The Delaware Photographic Society has been invited to join us.
June 27	<i>The Day We Found the Universe</i> by Marcia Bartusiak	Marcia Bartusiak will join us. David Ives Brown, DAS Book Club member and Rittenhouse Astronomical Society Board Member, will lead our discussion
July 25	<i>Nathaniel Bowditch and the Power of Numbers</i> by Tamara Plakins Thornton	Tamara Plakins Thornton will join us.
August 29	<i>Accidental Astronomy: How Random Discoveries Shape the Science of Space</i> by Chris Lintott	Oxford and Gresham Professor Chris Lintott will join us.
September 26	<i>The Sirens of Mars: Searching for Life on Another World</i> by Sarah Stewart Johnson	Professor Johnson will join us. Jim Kerschen will lead the meeting.
October 24	<i>Lenape Astronomy</i> by Professor Emeritus Roslyn Frank	Professor Roslyn Franklin and Chief Dennis J. Coker and Citizens of the Lenape Indian Tribe of Delaware will join us
November 28	<i>Origin of the American Astronomical Society</i> by David DeVorkin PhD	Professor DeVorkin and members of the AAS will join us to celebrate the 125th anniversary of the founding of the AAS.
December 19	<i>What an Owl Knows: The New Science of the World's Most Enigmatic Birds</i> by Jennifer Ackerman	Ian Stewart, ornithologist, and members of the Delaware Nature Society will join us

If you would like to purchase books, please contact Dr. Claire van den Broek, Founding Partner, at Huxley and Hiro Books, a Delaware Public Benefit LLC, at 419 N. Market Street Wilmington, Delaware 19801 Store: (302) 439-0805 Mobile: (971) 386-8294 Email: claire@huxleyandhiro.com If you would like to purchase books, please contact Dr. Claire van den Broek, Founding Partner, at [Huxley and Hiro Books](https://www.huxleyandhiro.com), a Delaware Public Benefit LLC, at 419 N. Market Street Wilmington, Delaware 19801 Store: (302) 439-0805 Mobile: (971) 386-8294 Email: claire@huxleyandhiro.com

M40 SKETCH—BY CHRIS MYERS



I finally got a chance to observe this magnificent object and knew that I needed to sketch it. It took about 45 minutes to make sure all of the fine details were captured accurately. Truly awe-inspiring, I hope you enjoy.

Equipment:

- Celestron 8SE
- 6.3x focal reducer
- 8mm Starguider
- 160x magnification
- 0.37° FOV

Sketching Tools:

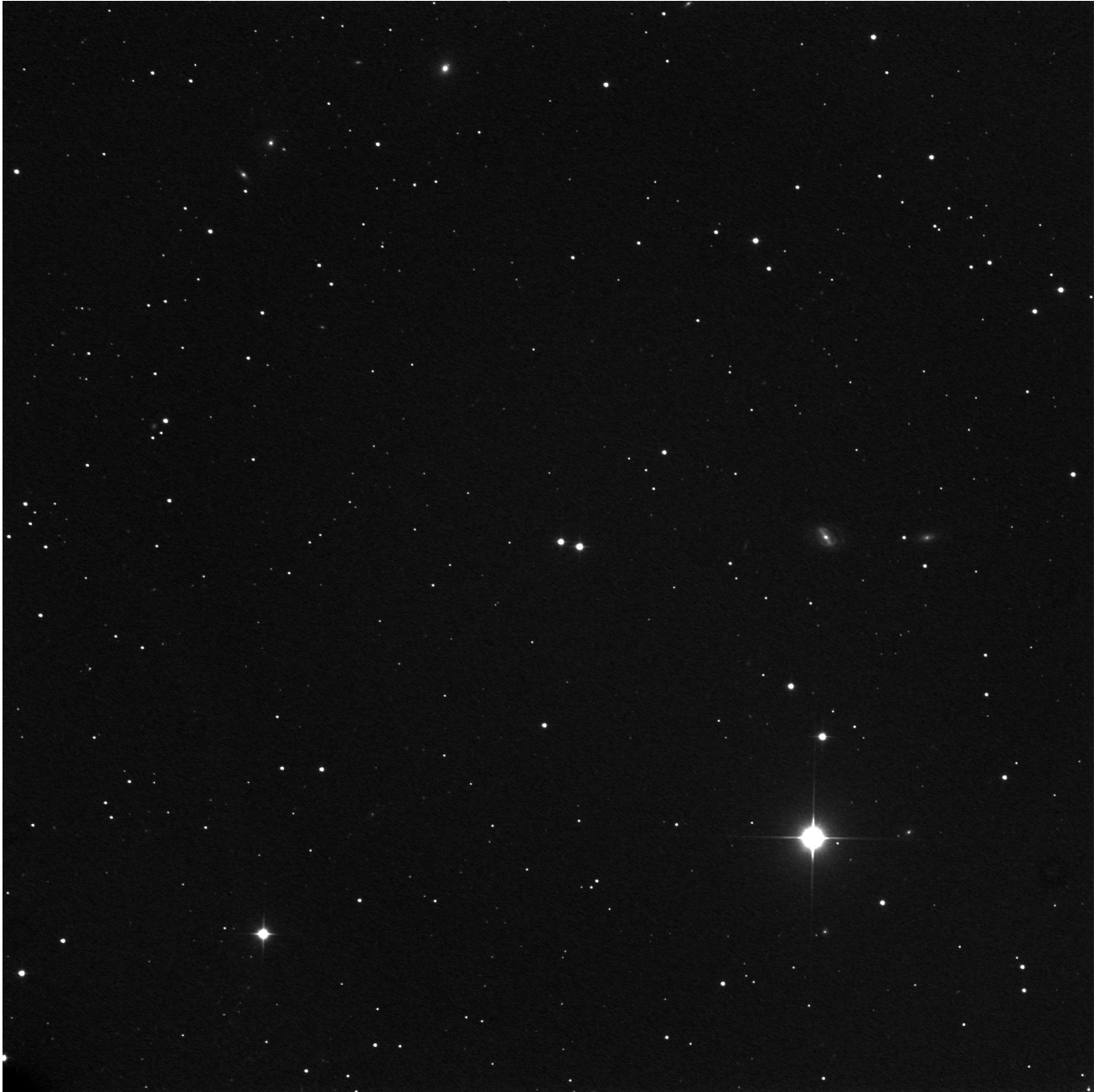
- white printer paper
- mechanical pencil
- blending stump

Process:

- sketched at the eyepiece
- after sketching, I traced it onto a new sheet of paper and made sure star placements were correct, shading looked good, and stars were nice pinpoints
- scanned as a JPEG
- inverted in SnapSeed app

-Chris Myers

M40—by Dick Steinberg



Astrophotos by AP- SIG & DAS Members

The Galaxies of the Deerlick Group and Stephan's Quintet in LRGB—by Bill Hanagan

These two visual groupings of galaxies are separated by a relatively small angle, so I opted to capture both of these galaxy groups in the single image you see below.

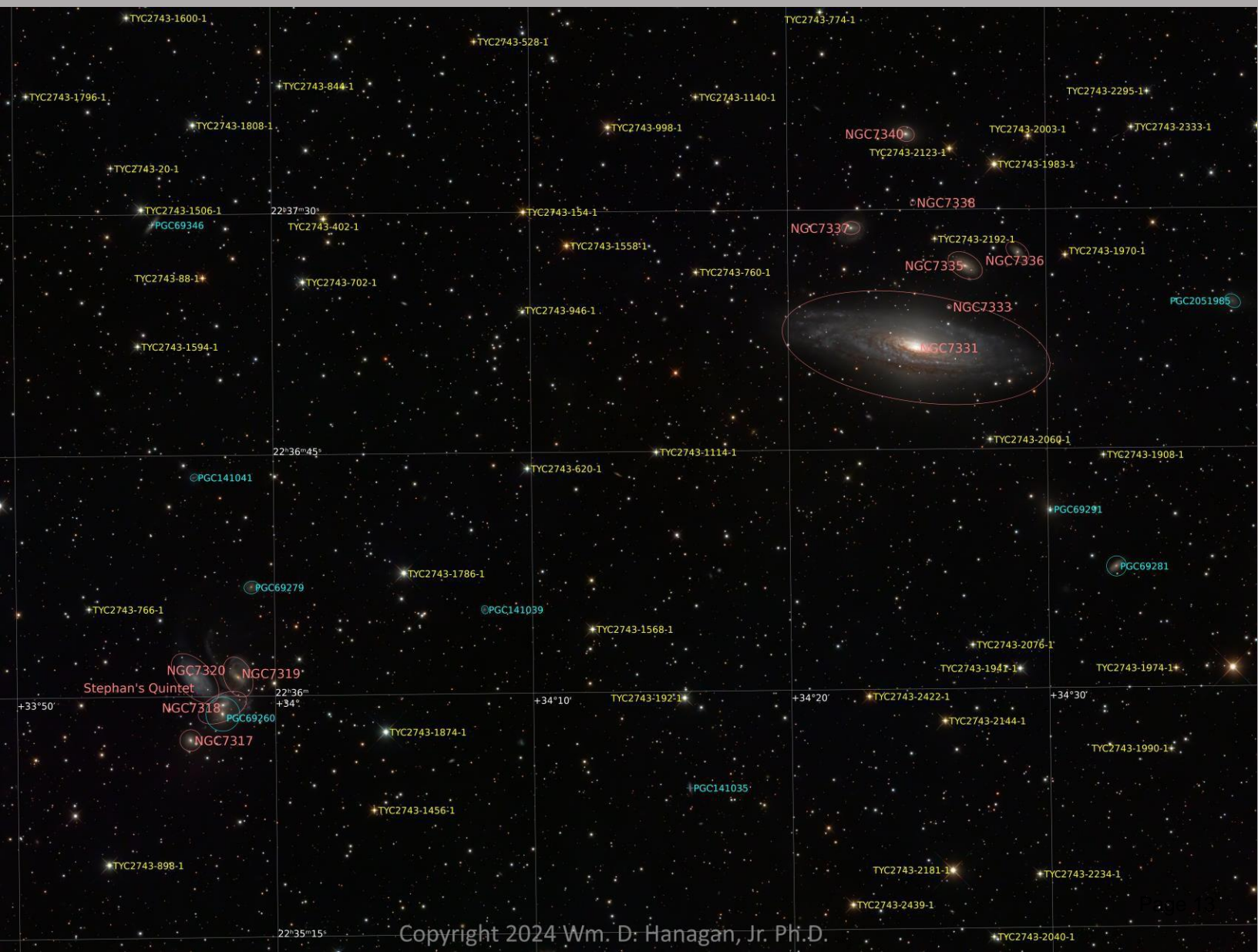
Copyright 2024 Wm. D. Hanagan, Jr. Ph.D.



Stephan's Quintet is in the lower left corner and the Deerlick galaxy group is in the upper right corner. Be sure to zoom in and pan around for that spacewalk feeling! In case you can't easily zoom in, crops of each galaxy group appear later.

The galaxies that are members of these two groups are identified in red in the annotated version of the image below. Not all of the galaxies in these two groups are gravitationally bound. The largest, NGC 7331, is about 40 MLY away, while the other members of the Deerlick group (NGC 7335, 7336, 7337 and 7340) are roughly 7x farther out. In Stephan's Quintet, NGC 7320 (the light blue galaxy at the upper left of the group) is also about 40 MLY away and much closer to us than the other galaxies of Stephan's Quintet (NGC 7317, NGC 7318, and NGC 7319). The light captured from those farther galaxies was not even halfway to us when the large Dinosaurs went extinct!

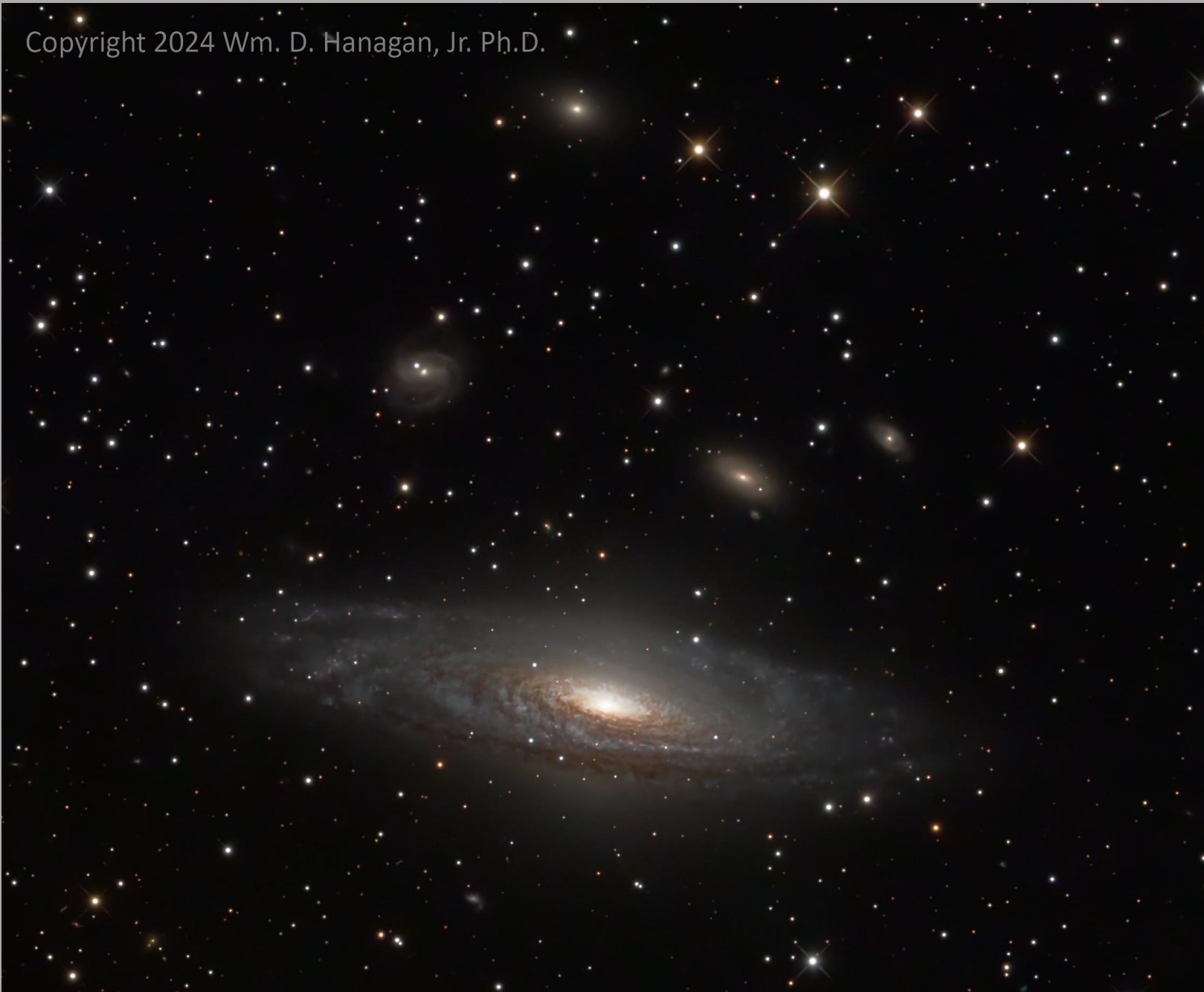
A tight crop of the Deerlick Group appears on the next page. The largest member of that group, NGC 7331, was once said to be "The Milky Way's Twin". The Milky Way is now



thought to have a central “bar” which NGC 7331 lacks. There’s another difference that I think might be important: the core of NGC 7331 rotates in the opposite direction to its outer disk, much like the Black Eye Galaxy (M64). As with M64, the counter-rotating galactic core suggests that NGC 7331 is the product of colliding galaxies.

The *color balance* of this image was achieved using PixInsight “Spectrophotometric Color Calibration” process and I kept that balance intact while processing the image. However, I chose to boost the *color saturation* of the image to make it easier to see the color variations between galaxies and across individual galaxies.

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A crop which includes Stephan's Quintet appears below. The blue-gray galaxy on the left side (NGC 7320) is much closer to us than the others. NGC 7318, in the center of the group, includes two colliding galaxies. Note also the extremely long bar at the center of NGC 7319 on the right side of the group.



Deerlick Group and Stephan's Quintet Image Acquisition Details

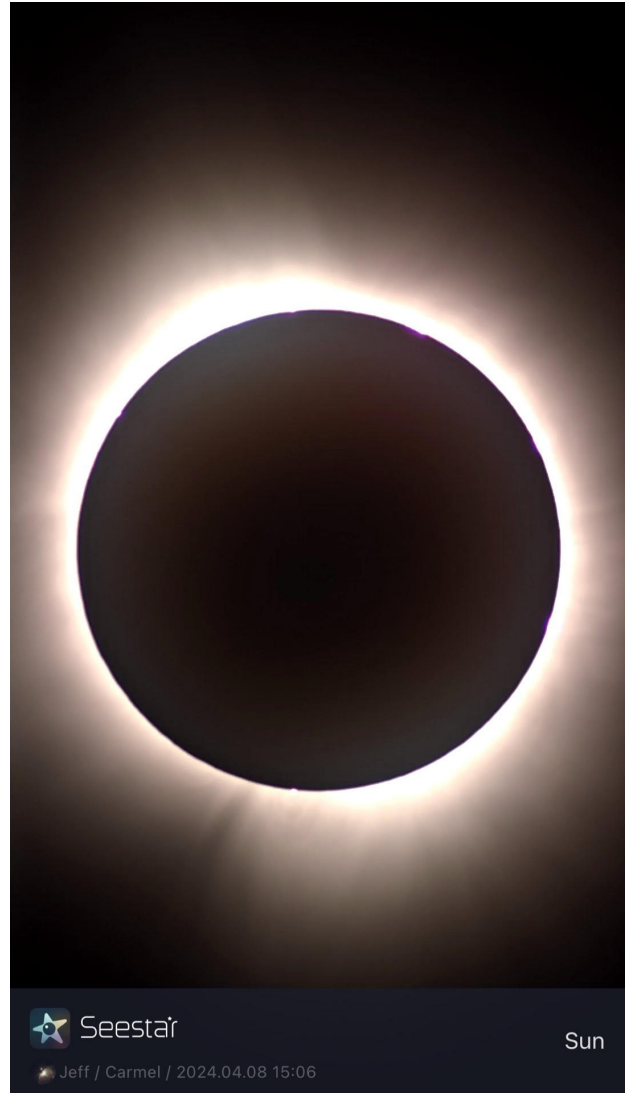
- The data were acquired in the Spencer observatory.
- Scope: 10" Takahashi CCA-250 in NATIVE mode, at 1250 mm and f/5 (unobstructed equivalent = f/6.11).
- Mount: Astro-Physics 1100GTO with CP4.
- Imaging Camera: QSI-683wsg8, w OAG, @ -20C.
- Guide Cam: SX Ultrastar (monochrome).
- Computer: Self-built Windows 10 Small Form Factor desktop.
- Windows Software: ASCOM, APCC Pro, Stellarium, Sequence Generator Pro (SGP), and PHD2.
- Sub-exposures: 5 minutes x 64 Luminance, 21 Blue, 23 Green, and 22 Red.
- Total integration time: 10 hours 50 minutes.

PixInsight Image Processing for the Deerlick Group and Stephan's Quintet

- A 2X Drizzle workflow was used both to improve the resolution and to quadruple the number of pixels to keep the pixel boundaries from becoming visible after BlurXTerminator was applied.
- ImageCalibration, CosmeticCorrection, and StarAlignment were used to prepare the sub-frames for integration. SubframeSelector was used to choose the specific sub-frames to be integrated. ImageIntegration, DrizzleIntegration, and Crop were then used to produce the Luminance, Red, Green, and Blue masters.
- ChannelCombination was used to produce an RGB Master.
- DBE was used to remove very slight gradients in the RGB and Luminance Masters.
- BlurXTerminator and NoiseXTerminator were used on both the Luminance and RGB Masters.
- HistogramTransformation was used on both the Luminance and RGB Masters to prepare them for LRGBCombination, which was used to produce the LRGB Master.
- CurvesTransformation was used for the final stretch and to increase color saturation.
- The Annotation Script was used to render the annotated version of the image.
- DynamicCrop was used to produce the two crops.

ECLIPSE FROM CARMEL, INDIANA

BY JEFF MILLER



NGC-2170

By Mark Mitchell

NGC-2170 is a reflection nebula in the constellation Monoceros. It is sometimes called the Angel nebula. NGC-2170 is in the giant molecular cloud Monoceros R2 that is between the Orion A and Orion B molecular clouds. This is a star forming region and we see it as a string of reflection nebulae (blue areas) with areas of red light emission from hydrogen and with dark lanes of dust. The molecular clouds in this area are about 2700 light years away and they are thought to be in the wall of adjacent voids created by past supernovae. This is about an 8 hour exposure.



NGC-2170 | Monoceros
ED127 ... QHY268M ... 7h 57m LRGB+Ha

NGC 2264

By Ron Worden

From the Snobie Observatory at the Lincoln Control Center in Bear, DE NGC 2264 is the location where the Cone Nebula, the Stellar Snowflake Cluster and the Christmas Tree Cluster have formed in this emission nebula in the constellation Monoceros

Technical Information:

Target: NGC 2264
Constellation: Monoceros
Right Ascension: 6h 41m
Declination: +9° 53'
Distance: ~2350 ly
Apparent magnitude: 3.9
Apparent size: 20'
Date: 2/16/2024
Location: Snobie Observatory/Lincoln Control Center.
Bear, Delaware W75° 40' 43.04" N39° 34' 39.7"
Telescope: Sharpstar SCA260 260mm f/5 "Super" Ahspherical
Cassegrain Astrograph FL 1300mm

Mount: Losmandy G11 Guided w Dithering
Camera: ZWO ASI071MCP Pro
Filters: OneShotColor
Guider: 60mm PrimeLuce Lab F4 240mm FL w ZWO174 as
autoguider(+/-1arcsec)
Temperature: 37°F Ambient cooled to 0°F
Exposure: 21LF's 300sec subs(1.75hrs)
Software: PixInsight, PaintshopPro
Frame: 41.5' x 62.4' arcmin
Calibration with: Master Dark



Copyright Ron Worden

BOARD MEETING AGENDA 4/16

- Review of Minutes from Last Meeting – Bill McKibben
- Treasurer’s Report – Bob Trebilcock
- Any updates on the Dinner Meeting or DAS Election? – Jeff or Sidney
- Training members to use the Sawin Observatory - Jeff and Rob



DAS CONTACTS

OFFICERS:

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Secretary: Bill McKibben, [BillMcK21921 AT gmail DOT com](mailto:BillMcK21921@gmail.com)
Treasurer: Bob Trebilcock, [trebilcock AT aol DOT com](mailto:trebilcock@aol.com)

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Sidney Ocampo, [sidastronomy AT yahoo DOT com](mailto:sidastronomy@yahoo.com)

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Library: Mary Webb, [librarian AT delastro DOT org](mailto:librarian@delastro.org)
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Publications: Mark Jacobini 484 643-2162 [focus AT delastro DOT org](mailto:focus@delastro.org)

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Amateur Telescope Making Special Interest Group: Bill Hanagan, [hanaganw AT verizon DOT net](mailto:hanaganw@verizon.net)
Astronomical League Coordinator: K Lynn King, [klynnking AT verizon DOT net](mailto:klynnking@verizon.net)
Astro-Photography Special Interest Group (AP-SIG): Bill Hanagan, [hanaganw AT verizon DOT net](mailto:hanaganw@verizon.net)
Awards Chair: Chris Horrocks [bettysmithers AT verizon DOT net](mailto:bettysmithers@verizon.net)
DAS Book Club Leader: Mary Webb, [librarian AT delastro DOT org](mailto:librarian@delastro.org)
Elections Chair: Sidney Ocampo, [gegocampo AT gmail DOT com](mailto:gegocampo@gmail.com)
Programs Chair: Jeff Lawrence, [Jeff AT DelAstro DOT org](mailto:Jeff@DelAstro.org)
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