THE FOCUS

NEWSLETTER OF THE DELAWARE ASTRONOMICAL SOCIETY

VOLUME 67 ISSUE 4

APRIL, 2025

ON THE MERIDIAN

- Thanks to a favorable libration we can peer over the Western limb of the Moon this month.
- **4/24—25—Grouping of the Moon and three planets**
- **4/30—Jupiter and crescent Moon**
- **4/27—New Moon**

INSIDE THIS ISSUE:

Keep Looking Up!

Winter is coming to an end and most of us are looking forward to observing in more civilized conditions, just in time to see Comet C/2025 F2 (SWAN) in the morning sky. To see the comet, look toward the east-northeastern horizon just before sunrise. Although the comet is gradually brightening, at the moment you'll still need binoculars or a small telescope to see it. If my guess is right, our members who have Seestars will have a good target to capture. Catch it now before it gets too close to the Sun.

Beside the new comet, we are in galaxy season. I've seen some excellent Seestar galaxy photos that have been shared with me and look forward to the day when I become a Seestar owner.

Those of us who are visual galaxy observers can attest that the description "faint fuzzies" is spot on.

For an excellent view of one of the most spectacular galaxy sights see Ron Worden's astrophoto of the Leo Triplet (M66 Group). If you choose to become a galaxy observer you will most likely need to utilize astrophotography gear and you can take advantage of the experience of the DAS Astrophotography group (AP-SIG). Members of the AP-SIG are happy to help DASers learn the intricacies of AP from basic introduction to advanced level Astro photo work.

Of note, please use this link to access the Book Club calendar

Due to efforts to get this issue online to provide notice to members regarding the format for the April monthly meeting, I had to use the DAS web site for the Book Club announcement.

Also, this will be my last issue of the FOCUS. We are transitioning to a new editor in May. I've thoroughly enjoyed my time as editor and I wish our new Publications chair the best of luck. With his enthusiasm, he will bring to the FOCUS and to the Club a great new perspective.

Clear skies,

Mark

Monthly Meeting—Please Read

This month, we will handle the General Meeting a bit differently – it will be a two-parter!

On Tuesday, April 15th, we will hold an abbreviated Board Meeting and General Meeting (part 1). These will be held over Zoom only (not in-person). The board meeting will start at 7:30, and then the General Meeting will begin at 8:00pm. After the usual announcements, we will discuss the upcoming election and the slate of candidates will be finalized. Fred DeLucia will share some of his favorite Spring observing objects. The Zoom link will be emailed to members a few days before.

For the 2nd part of the General Meeting, we strongly encourage members to attend the Vernon Lecture on Wednesday, April 16th to hear Dr. Konstantin Batygin give his talk on "The Planet 9 Hypothesis". For more information and to register, please click here.

Message from the President

Dear DAS Members,

As the weather warms, it has become extremely pleasant to spend time outside. We have had numerous good clear nights at the Sawin so far this year, but the weather has not always cooperated, such as with the recent lunar eclipse. However, even the nights that are somewhat cloudy have been pleasant due to the warm weather, and so far, the lack of biting insects. I hope you get a chance to get outside this month and enjoy the nice weather during Galaxy Season. In addition, we have the upcoming Vernon Lecture on April 16th where Dr. Konstantin Batygin will speak about "The Planet 9 Hypothesis." I would strongly encourage everyone to attend. In fact, since it is the day after our normal meeting date, we are foregoing our normal Monthly Meeting plans to make sure everyone is well rested and ready to attend. If you want to go, please visit this link and register.

I hope everyone got a chance to attend our March meeting, where we had numerous club members present Member Mni Talks. Mike Cimorosi talked about an upcoming Laser Event on May 17th. Rob Lancaster talked about the upcoming NEAF Conference. Bill McKibben talked about a trip to St. Croix. Dave Sewell talked about building telescopes like Galileo. Andy Rokita talked about Upcoming Astronomical Events. Thank you to everyone who presented, it was great! If you missed the meeting, would like to watch it again, or would like to go back to watch some of our previous meetings, remember that you can access them on our club YouTube Channel. This month, we will have an abbreviated Board Meeting and short Monthly Meeting over ZOOM ONLY. As usual, a Zoom link will be sent before the meeting and the board meeting will be at 7:30 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 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. As we move forward into the new year we will have a number of outreach events. 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 any time it is clear and people want to observe. 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

AT-LARGE BOARD MEMBERS ELECTION

As announced in previous editions of the Focus, The DAS will hold the 2025 Election for the three Board Members at Large in May of this year. Each of the Board Members at Large will then serve a term of two years starting July 1st. The Board Members at Large serve to represent the interests of the membership on the board, attend board meetings, and vote on any motions the board is considering. So far, Terry Lisansky, Dave Groski, and Sidney Ocampo have all announced that they will again be running for the positions, but nobody else has declared they are running. All of these candidates are currently serving in that role and we have greatly appreciated their service to the club thus far. If you are interested in running for one of these positions, we would greatly appreciate your service to your club. Any member in good standing interested in running for any of these offices should contact me, Rob Lancaster (rlancaste < at > gmail.com), prior to the April DAS meeting. If you think a person should run for a particular office and that person has not submitted his or her name by the April meeting, I will be opening the floor to such nominations at that time. Please contact me with any questions and please consider running for one of these offices.

The ballots will be sent out on May 1st using a service called Election Buddy and must be completed/returned by May 31st. If you wish to vote in the election, please verify that the email address that the club has on file for you is correct prior to May 1st. Please contact Bob Trebilcock if there are any issues with that. In order to better inform the membership, any statements from the current candidates for the Board Members at Large are presented below.

Robert Lancaster
2025 DAS Election Chair

CANDIDATES' STATEMENTS

Sidney Ocampo:

Greetings All!

I'm Sid Ocampo, currently a Board Member at Large for the Delaware Astronomical Society. I have been a member of the Society for more than five (5) years now. I have helped a good amount of members with their concerns with their telescopes, cameras, 3d printing requests and others. I'm also an avid Astrophotographer and member of AP-SIG (Astro Photography-Special interest group). I have also served in previous years in the Elections Chair. However, at this time I would really appreciate it if you would elect me for another term as a Board member at Large.

Cordially,

Sid O.

Terry Lisansky:

I am grateful for the opportunity to continue serving as a Board Member at Large of the DAS. Being a DAS member for 40 years, I believe in our mission and want to help support its success. Working with my fellow board members has been rewarding, and I believe my experience and insights can contribute to the ongoing success of our club.

Terry

AP-SIG Meeting Report for March 2025

by Bill Hanagan, AP-SIG Founder

Elephant Trunk detail by Mark Mitchell

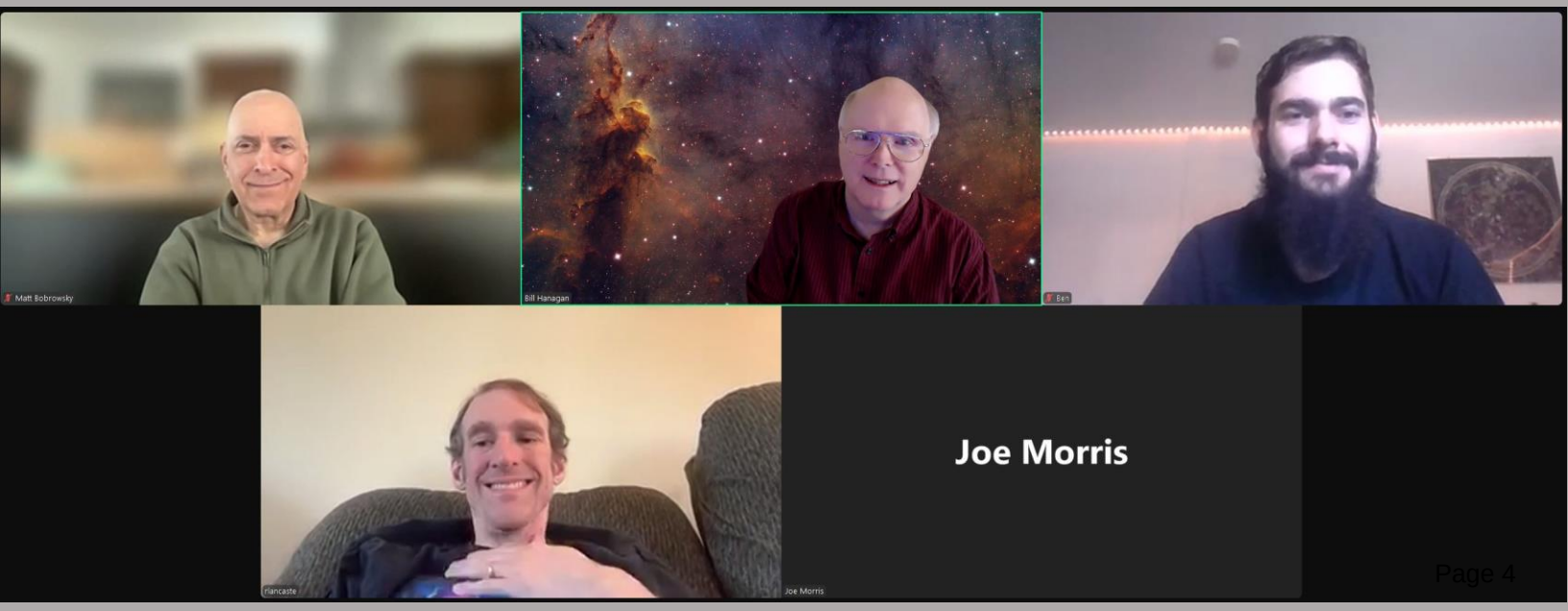
At 1 PM on Saturday, March 8, the AP-SIG met on-line via Zoom in lieu of the planned February meeting, which was postponed to March due to illness.

We began by acquiring the group photo below. Unfortunately, Joe Morris's webcam was not working.

We proceeded with the Special Topic Presentation on the subject of Imaging Total Lunar Eclipses, which was presented by yours truly. In addition to discussing the technical requirements associated with photographing a total lunar eclipse, I showed photos from 3 previous lunar eclipses that I've captured over the years to illustrate the principles involved. Rob Lancaster also showed a total lunar eclipse video that he assembled after the 2019 eclipse.

We continued with the Presentation of Astrophotos. I showed wide-field RGB and SHO images of the North America Nebula that I produced using a Takahashi FSQ-85. Both of my North America Nebula images appear elsewhere in this issue of the FOCUS. I also briefly reviewed the FSQ-85 wide-field refractor that I used to produce my images. Ben Frederick continued by showing his recent versions of the Fish Head Nebula, M81 & M82, and the Whirlpool Galaxy (M51).

The next meeting of the Astrophotography Special Interest Group (AP-SIG) is tentatively scheduled for Saturday, April 19.



Astrophotos by AP-SIG & DAS Members

The North America Nebula (NGC 7000) in RGB and SHO, with an "Easter Egg" (Planetary Nebula PN Ra 5)—by Bill Hanagan

My RGB and SHO versions of the North America nebula appear on the next two pages. North is up in the images and in the imagined outline of the North American continent. The feature-rich part of the nebula that makes up "Mexico" is known as the "Cygnus Wall". Slightly above center and a short distance in from the east coast is a large open cluster that is often much easier to see visually, which is designated NGC 6997.

Lynd's Dark Nebula # 935 (L935 or LDN935) sprawls across the bottom right corner of the image, where it masks stars and nebulosity to give the bright part of the nebula its "North America" shape. In 1922, Edwin Hubble suggested that Deneb (out of the FOV far to the right) might be powering the nebula. Though Deneb is a supergiant, spectral analysis has since shown Deneb to be a type A2Ia star and too cool (<10,000K) to be emitting the necessary amount of ionizing UV radiation. The star that is currently thought to be ionizing the gases of the nebula is J205551.3+435225, nicknamed the "Bajamar" star. It is visible in both images and identified by a blue arrow in the right hand margin. However, its apparent brightness is diminished by about 10 magnitudes because it's situated behind L935. The Bajamar star has a spectral type of O3.5 and a surface temperature in excess of 40,000K, making it a real powerhouse. It is currently thought to be powering the entire nebula complex including the nearby Pelican nebula (outside the field of view) as well as the nebulosity below the Pelican.

If you compare the RGB and the SHO images, you'll find that you can see a lot more of the nebula's details in the SHO version, especially in the darker areas. The detailed features of the dark nebula L935 are also easier to see in the SHO version.

Hidden in the North America Nebula there is an "Easter Egg" for you to hunt: a **very small** planetary nebula designated PN Ra 5. You might not be able to find PN Ra 5 by directly zooming in on either full-sized image because it is quite small and some resolution may be lost in transmission. Instead, search the two crops of the SHO image that follow using a very high zoom level. One of the crops includes PN Ra 5. **Spoiler alert!** The location of PN Ra 5 is revealed after the image acquisition and processing details, so don't go beyond until you've tried your best to find PN Ra 5 on your own. Happy hunting!

Data Acquisition for the North America Nebula (NGC 7000, NGC 6997, L935, and PN Ra 5)

- The data were acquired from Rick Spencer's observatory.
- Scope: 85 mm Takahashi FSQ-85 Petzval refractor with 1.01x field flattener, at an effective focal length of 458.7 mm and f/5.3.
- Mount: Astro-Physics 1100GTO with CP4.
- Imaging Camera: QSI-683wsg8, a monochrome CCD camera with filter wheel and OAG, cooled to -20C.
- Guide Cam: SX Ultrastar (a monochrome CCD guide camera).
- Computer: Self-built Windows 10 Small Form Factor (SFF) desktop.
- Windows Software: ASCOM, APCC Pro, Stellarium, Sequence Generator Pro (SGP), and PHD2.
- Sub-exposures: 5 minutes x 19 Red, 21 Green, and 18 Blue, plus 10 minutes x 54 Ha, 53 OIII, and 61 SII, all binned 1x1.
- Total exposure time for 4 hours 50 min. (RGB) and for 28 hours (SHO).

PixInsight Image Processing for the North America Nebula

- A 2X DrizzleIntegration workflow was used to double the number of pixels in each dimension.
- ImageCalibration, CosmeticCorrection, SubframeSelector, StarAlignment, ImageIntegration, DrizzleIntegration, & Crop were used to produce R, G, B, H-alpha, OIII, and SII Masters.
- ChannelCombination was used to produce the initial RGB and SHO Masters.
- The ImageSolver script and SpectroPhotometricColorCalibration (SPCC) were used to color calibrate the RGB image.
- BlurXTerminator and NoiseXTerminator were used for deconvolution and noise reduction on both the RGB and SHO images.
- StarXTerminator was applied to a copy of the linear RGB image to produce an RGB "stars-only" image.
- HistogramTransformation and CurvesTransformation were used in a color neutral fashion to provide the initial and final stretches of the RGB image.
- The RGB stars-only image was given a low stretch using HistogramTransformation.
- StarXTerminator was applied to the SHO image to create a "no-stars" SHO image.
- HistogramTransformation and CurvesTransformation were applied to the no-stars SHO image to give it both its initial and final stretches and its color balance.
- The no-stars SHO image was combined with the RGB stars-only image using PixelMath to produce the final SHO image.

MARCH 2025 TOTAL LUNAR ECLIPSE by Ben Frederick

The Wilmington forecast looked great leading up to the eclipse, but soon changed to almost full cloud coverage. I last minute decided to drive northwest into PA to escape the clouds, and was lucky enough to get clear skies up until the start of totality. While the clouds mostly won over the night, I still managed to capture the moon in a multiple phases of the eclipse!

This image is a composite of 4 phases of the eclipse. The original image used in the composite is the total lunar eclipse, with the 3 phases. I also included an image of the just total lunar eclipse itself.

Equipment:
Canon Rebel T7
Canon EF 75-300mm lens (@255mm)
Intervalometer

Acquisition:
Full Moon - 1/100th sec, F/5.6 @ ISO 100
Partial Eclipse 1 - 1/100th sec, F/5.6 @ ISO 100
Partial Eclipse 2 - 1/50th sec, F.5.6 @ ISO 200
Total Eclipse - 1 sec exp, F/3.5 ISO 1600

M66 Group—Leo Triplet by Ron Worden

Technical Information:
Target : M66 Group
Constellation: Leo
Right Ascension: 11h 17m
Declination: +13° 25’
Distance: ~35million ly
Apparent magnitude 8.9
Date: 01/30/2025
Location: Snobie Observatory/Lincoln Control Center.
Bear, Delaware W75* 40' 43.04"   N39* 34' 39.7"
Telescope: Sharpstar SCA260 260mm f/5 "Super" Aspherical Cassegrain Astrograph FL 1300mm
Mount: Losmandy G11, Guided with Dithering
Cameras: : ZWO ASI071MCPro
Temperature: 35*F cooled to 0*C
Filters: OneShotColor
Exposure: 11LFs 300sec(55min)
Software: PixInsight, PaintshopPro
Frame: 19.4x25.8 arcmin
Calibration with: Master Dark
Observer: Ron Worden

SEESTAR GALLERY

By Jeff Miller

Messier 99 or M99, also known as NGC 4254 or St. Catherine's Wheel, is a grand design spiral galaxy in the northern constellation Coma Berenices approximately 15,000,000 parsecs (49,000,000 light-years) from the Milky Way

BOARD MEETING AGENDA

4/15/2025

- Review of Minutes from Last Meeting – Bill McKibben
- Treasurer's Report – Bob Trebilcock
- DAS Publications Chair Nomination - Rob Lancaster

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