Longmont Astronomical Society

May 2025

Moon
by Brian Kimball

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Next LAS Meeting Thursday May 15

Open Forum

The next Longmont Astronomical Society's club meeting will be on Thursday, May 15, 2025, starting at 7:00 pm. No speaker has been scheduled so we'll have open forum member presentations. LAS members are invited to give a 5 to 10 minute presentation on an astronomy related topic.

Tell everyone about:

- An observing or imaging project that you are doing
- Good things and bad things about some equipment you have purchased
- Talk about an image you have taken - what is in it, equipment used, how you processed it
- Interesting techniques you have learned about
- Just about anything astronomy related that interests you will probably interest others as well

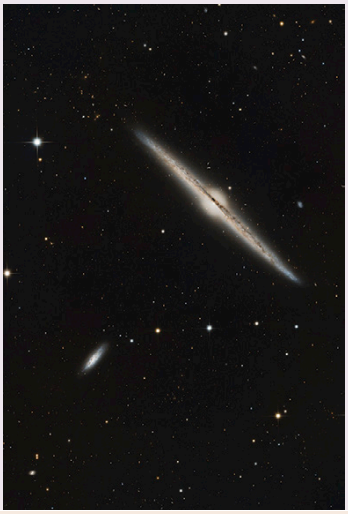
You may present in-person or via Zoom. Not mandatory but it would be helpful if you email Vern that you are interested in presenting and the topic before the meeting.

The meeting will be at the First Evangelical Lutheran Church, 803 Third Avenue, Longmont, CO 80501. If you cannot attend the in-person meeting, it will be available on Zoom. Video of the meeting will be available on the LAS member portal website https://members.longmontastro.org on Friday after the presentation.

Front Cover
Moon by Brian Kimball

Image of the Moon taken Thursday night (April 10 at 8:42 pm) with good seeing. 127mm f7.5 APO with a Astro-Physics 2x Barcon. Canon EOS R. Processed in Lightroom and Photoshop.

Back Cover
NGC 4565 by M. J. Post



This nearly perfect edge-on spiral sports two satellite galaxies, the larger being NGC 4562 to its southwest and the smaller being IC 3571 to the north of the central bulge.

From DSNM, 3 hours exposure through CDK14 and Lum filter onto ASI 6200 color camera. FOV is about 36 x 24 arc minutes.

About LAS

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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.

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Planets in May

Mercury

Mercury is not visible this month.

Venus

Venus is visible very low in the East shortly before sunrise; it gets higher each day. It is bright at about magnitude -4.5; the apparent disk decreases from 36 arc sec to 24 arc sec across during the month.

Mars

Mars is high in the west after sunset. It is magnitude +1.0 magnitude on the 1st and dims to 1.3 magnitude by the 31st. The disc decreases from 6.5 arc to 5.5 arc sec in apparent size.

Jupiter

Jupiter is getting lower in the west after sunset each day this month. It is -2.0 magnitude in brightness and the disc decreases from 34 to 32 arc sec across this month. Last good chance to view the Great Red Spot this apparition is when it crosses the middle of the planet on May 2nd at 9:07 pm.

Saturn

Saturn re-appears very low in the eastern sky after the 6th. It is near Venus toward the south. It is magnitude 1.1 in brightness and about 17 arc sec across.

Uranus

Uranus is not visible this month.

Neptune

Neptune is not visible this month. It re-appears in the morning sky in early June.

Lunar Phases in May

- First Quarter May 4 at7:53 am
- Full Moon May 12 at 10:57 am
- Third Quarter on May 20 at 6:00 am
- New Moon May 26 at 9:03 pm

Comets in May

There aren't any comets brighter than magnitude 12 this month.

Meteor Showers in May

The Eta Aquarids meteor shower peaks on the night of May 5/6. Expect to see about 10 to 30 per hour from a dark location. Moon sets just before 3 am so best to view is after that. It is caused by debris from comet 1P/Halley.

- M 64, "Black Eye" galaxy in Com, mag 9.8
- M 81, "Bode's Galaxy" galaxy in UMa, mag 7.8
- M 82, "Cigar Galaxy" galaxy in UMa, mag 9.0
- NGC 4490, "Cocoon" galaxy in CVn, mag 9.8
- NGC 4657, "Hockey Stick" galaxy in CVn, mag 9.8
- M 86 elliptical galaxy in Vir, mag 9.8
- M 87 elliptical galaxy in Vir, mag 9.6
- M 88 spiral galaxy in Com, mag 10.2
- M 95 galaxy in Vir, mag 10.6
- M 96 galaxy in Leo, mag 10.1
- M 106 spiral galaxy in CVn, mag 9.1
- M 108 spiral galaxy in UMa, mag 10.7
- NGC 3190 spiral galaxy in Leo, mag 11.9
- NGC 4236 barred spiral galaxy in Dra, mag 10.1
- NGC 4565 spiral galaxy in Com, mag 10.1
- M 97, "Owl" planetary nebula in UMa, mag 9.7
- M 101, "Pinwheel" galaxy in UMa, mag 8.4
- NGC 4568 "Siamese Twins" galaxy in Vir, mag 11.7
- NGC 4244, "Silver Needle" galaxy Sex, mag 10.0
- NGC 3115 "Spindle Galaxy" in Sex, mag 10.0
- M104 "Sombrero" Galaxy in Vir, mag 9.1
- M 63, "Sunflower" galaxy in CVn, mag 9.3
- NGC 2683, "UFO" galaxy in Lyn, mag 10.0
- NGC 4631, "Whale" galaxy in CVn, mag 9.5
- M 51, "Whirlpool" galaxy in CVn, mag 8.7

Mars on April 10 by Vern Raben

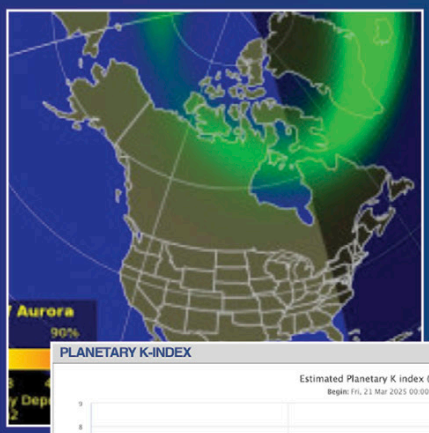
Space Weather Observing Program

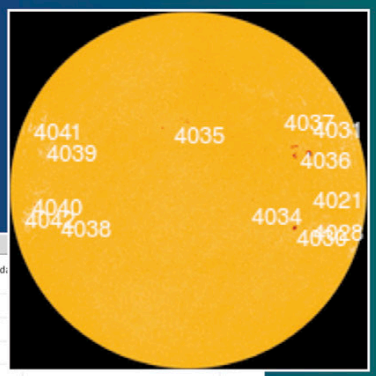
The solar wind greatly affects Earth's magnetic field and those effects can be measured using an inexpensive home-made magnetometer.

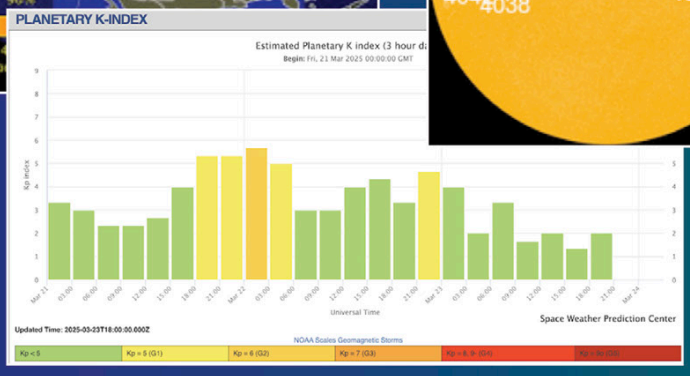
Space Weather Observing Program

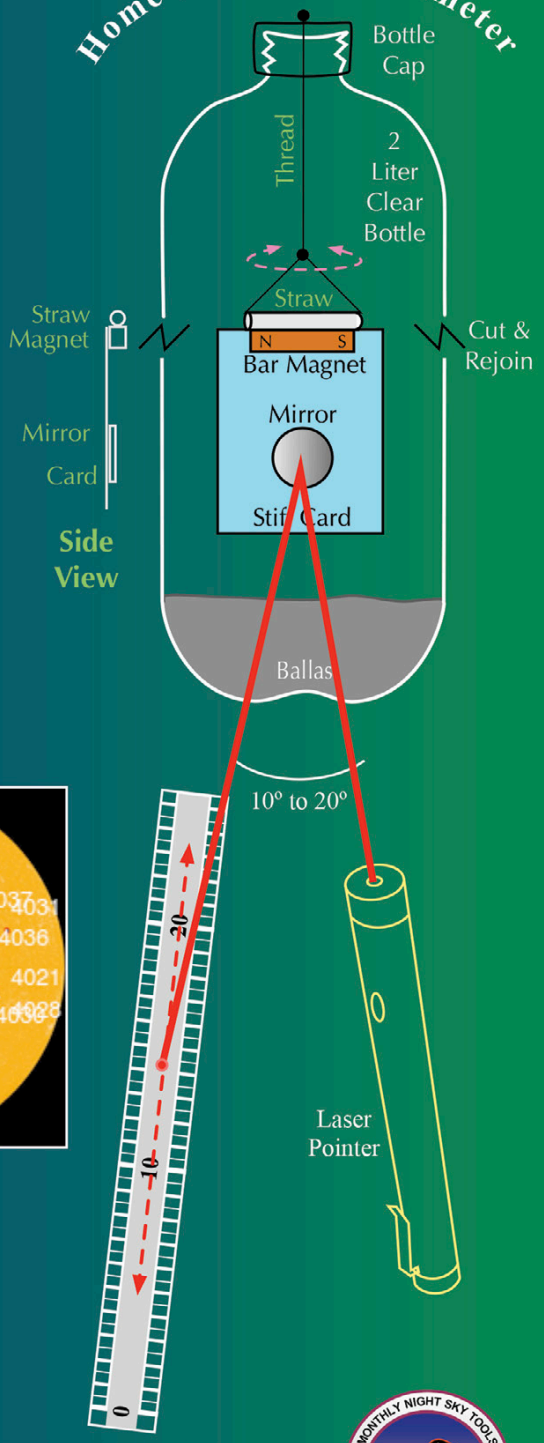
- Construct and use your own magnetometer.
- Do a minimum of 100 observations on at least 100 different days.
- Note the location on the meter (or yard) stick where the reflected laser spot is located.
- The 2 liter magnetometer, the laser, and the measuring stick must be located where they will not be disturbed during the program.

- Compare your data with NASA's Planetary K-Index.
- Note sunspot activity as found on Spaceweather.com.
- Note auroral activity as found on Spaceweather.com.









For complete details on this fascinating program:
https://www.astroleague.org/space-weather-observing-program/

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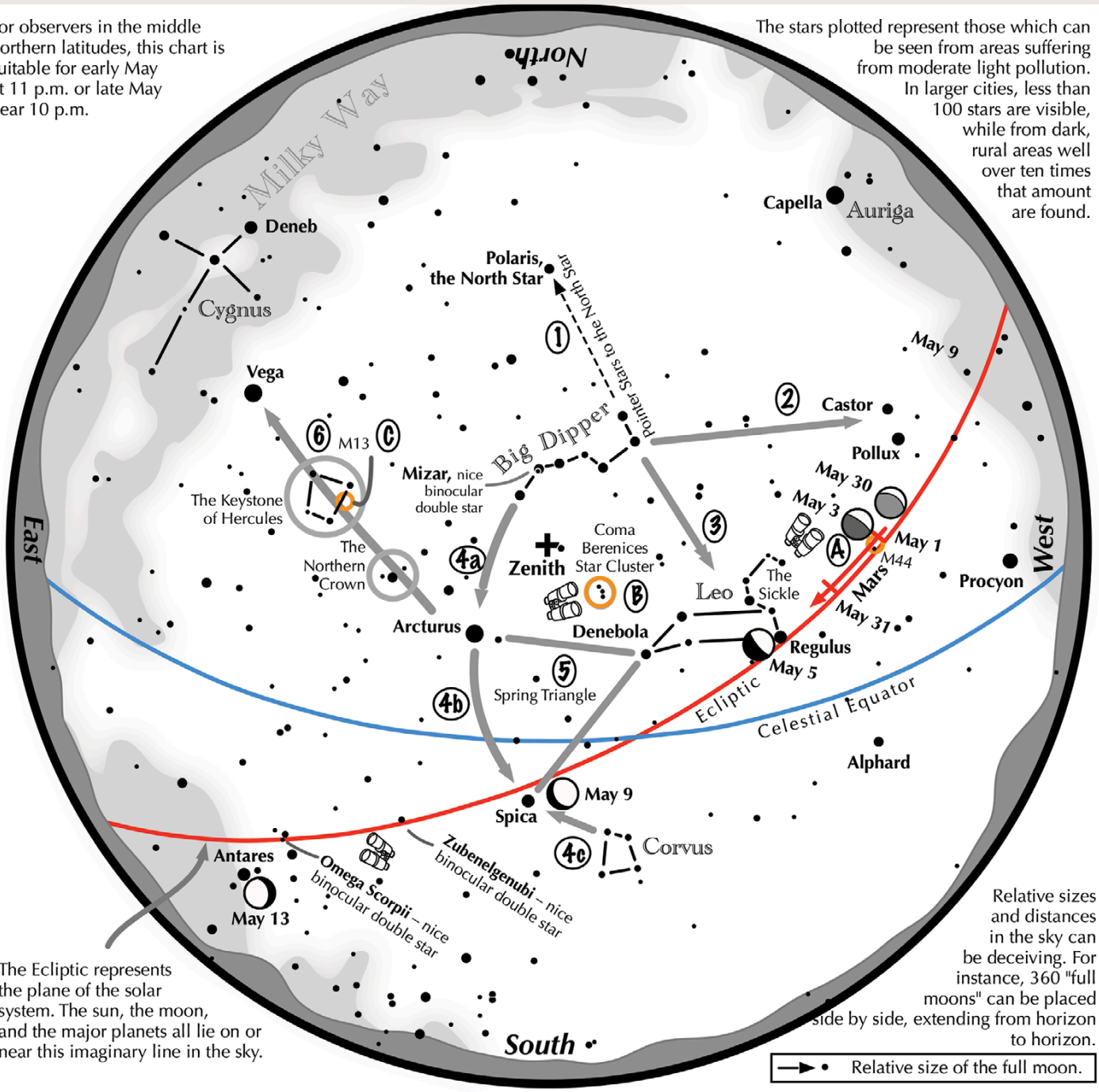
Moon on March 21 by Vern Raben

Navigating the mid-May Night Sky by John Goss



Navigating the May night sky: Simply start with what you know or with what you can easily find.

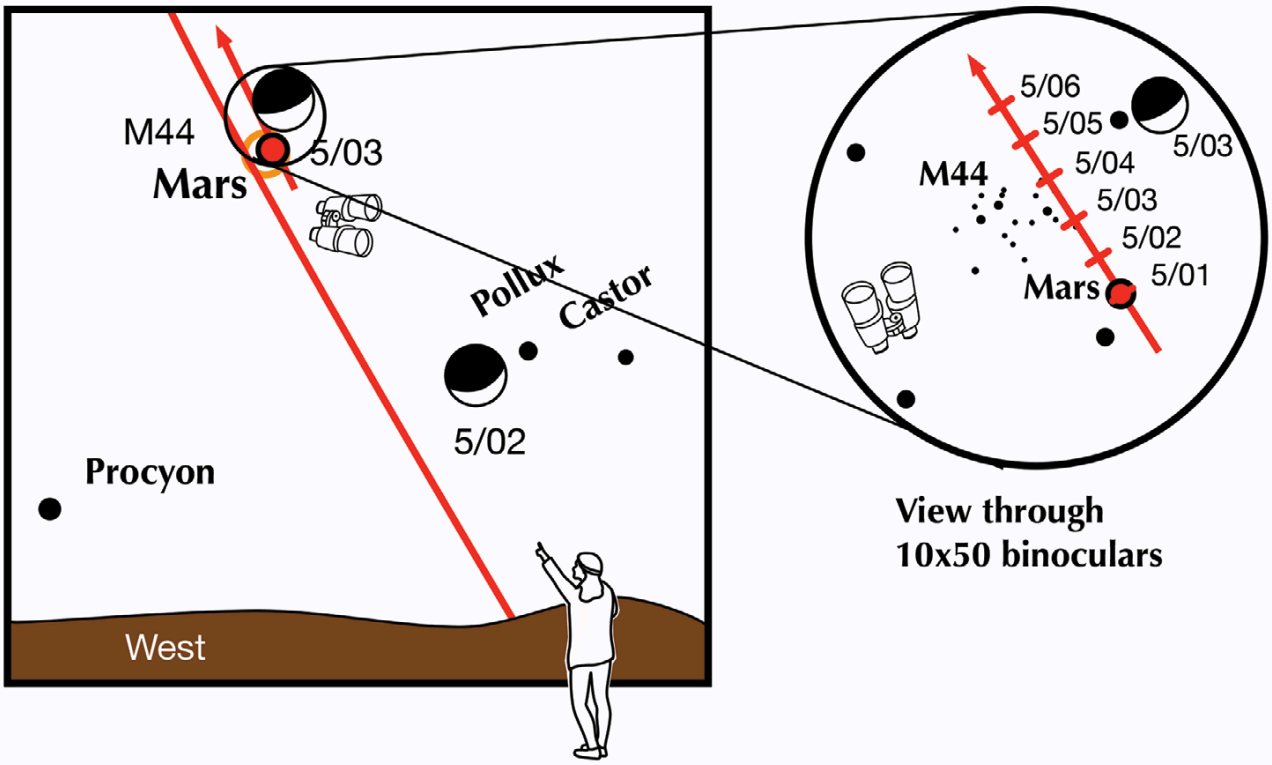
1. Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
3. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
4. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
   Confirm Spica by noting that two moderately bright stars just to its southwest form a straight line with it.
5. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
6. Draw a line from Arcturus to Vega. One-third of the way sits "The Northern Crown." Two-thirds of the way hides the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.

Binocular Highlights

A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **B:** Look near the zenith for the loose star cluster of Coma Berenices. **C:** M13, a round glow from a cluster of over 500,000 stars.

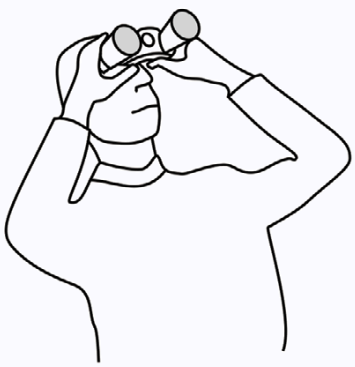
Astronomical League *www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.*

If you can see only one celestial event this month, see this one.



Beginning on May 1, look to the west-northwest 90 minutes after sunset.

- The twin stars of Gemini, Castor and Pollux, will be found forming a horizontal bar low above the horizon.
- On the following evening, the crescent moon moves near Pollux, almost forming a straight line with it and Castor.



- Red Mars slides toward M44, aka the Beehive Star cluster. Use binoculars to find Mars inching closer to the many stellar bees.
- On May 3, the thick crescent moon joins Mars sitting to the upper left of the red planet and above the bees.
- Over the next few evenings, the Red Planet moves past M44, leaving it on May 5.

LAS Meeting Notes for April 24 by Eileen Hall-McKim

I. Introduction

The April LAS monthly meeting was held in-person and by zoom on April 24th at the Longmont Lutheran Church, 803 Third Ave. President, Vern Raben began the meeting with self-introductions of members attending in person and on-line. Fourteen members attended in person, 8 attended on-line.

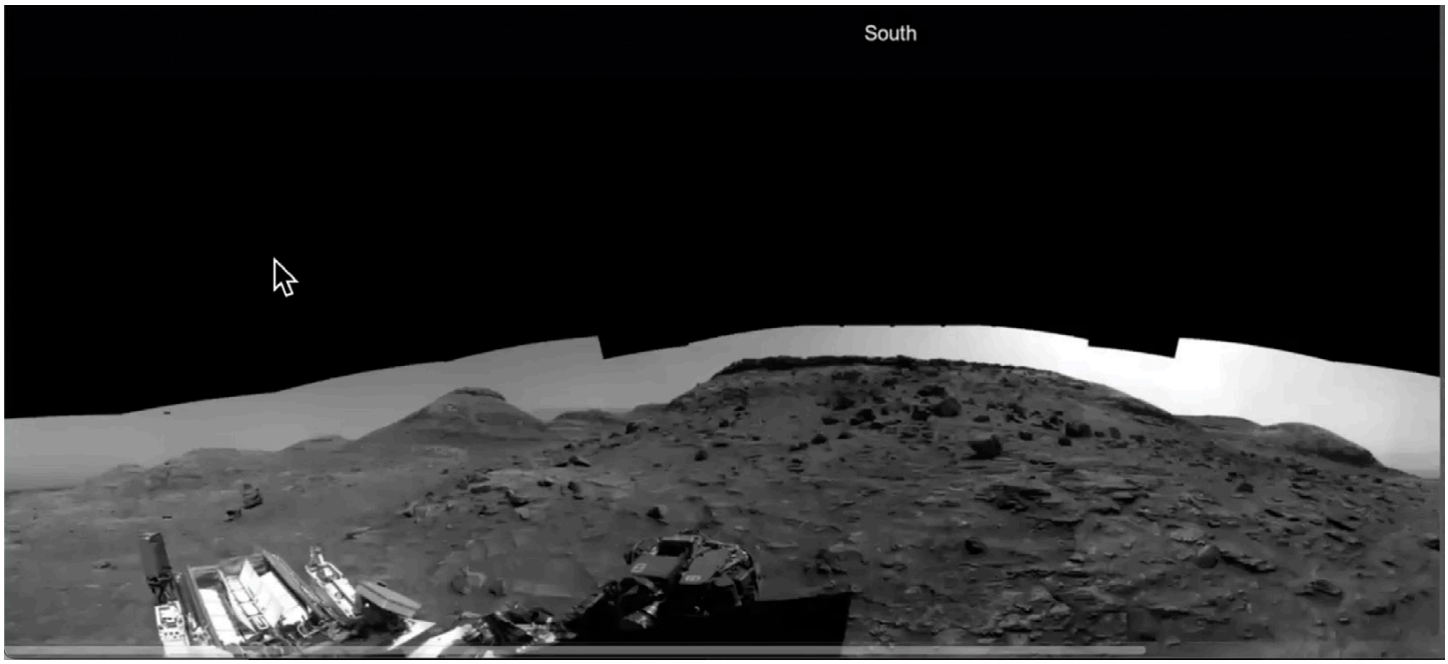
II. Main Presentation

Our meeting tonight is a forum for LAS members to discuss topics, make presentations of astronomy subjects they find of interest or projects they are currently working on. Tonight longtime LAS member, Steve Albers presents an overview of a long-term project he has worked on for the last several years; analyzing mosaic images of Martian landscape as they are projected over time by Martian Rovers, Curiosity and Perseverance. Steve also presents some of his more recent work on Lunar Eclipse Simulations, also a long-term ongoing project.

Mars Rovers

Each day or two, the rover does a drive to another location, ~ 50 meters or so called sols, as it moves can see the perspective of the hills change, with scenic fascinating terrain. Steve ultimately wants to make a registered movie to put us all in the driver's seat so we can see what it is like to watch the hills and mountains go by as the rover drives – over days, months and even years.

- The Curiosity Rover – The mosaics are already prepared but are registered in different azimuths, so must precisely register them together to make a 360° panorama that we can go through
- The Perseverance Rover – Nine individual navigation camera images he has to mosaic from scratch get image data as to where the camera is pointing and where the rover is pointing to put it together all aligned directional



Mosaic movie starting from 2-3 years ago to present

To view movie, visit Steve Albers website at https://stevealbers.net s web and locate and click on the Curiosity Mars Rover animation link.

Curiosity Rover

- Curiosity Rover was the largest and most capable rover ever sent to Mars when it launched in 2011, landing in August 2012 in the Gale Crater, a large impact crater with a massive, layered mountain in the middle

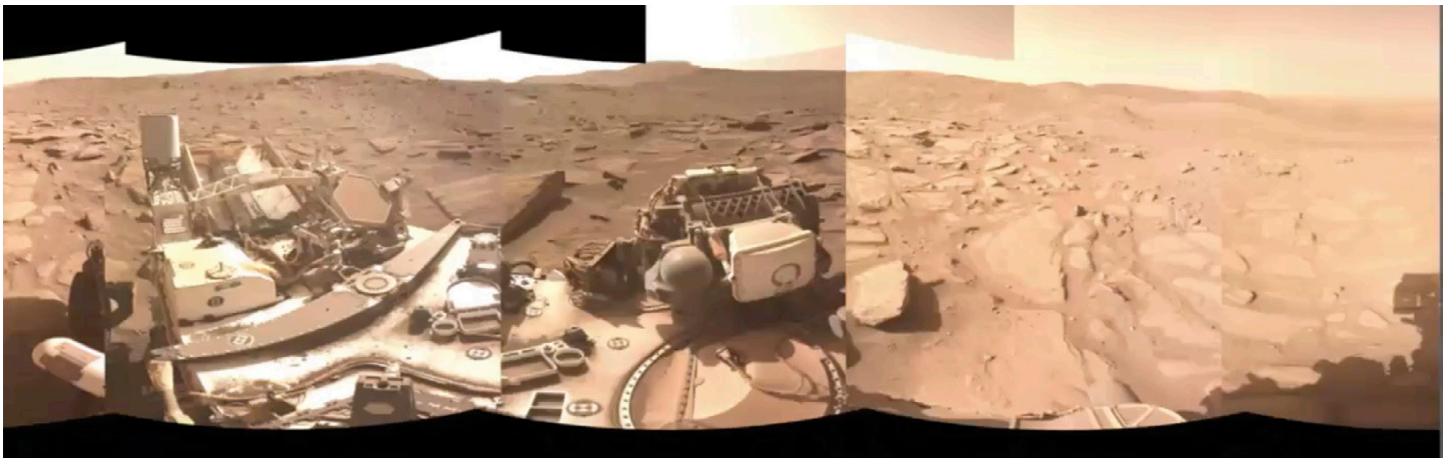
- Scenic, complex terrain, lot of geology is being studied
- Inside the Gale Crater, many buttes, landscapes much like what we see in Utah
- Big mountain called Mount Sharp in the middle of Gale Crater, with many rock layers brings up questions, sedimentary such as on Earth? Was this formed by water, wind?
- Steve labels early preliminary names of some of the features in the mosaics

Kukenan- name of large butte

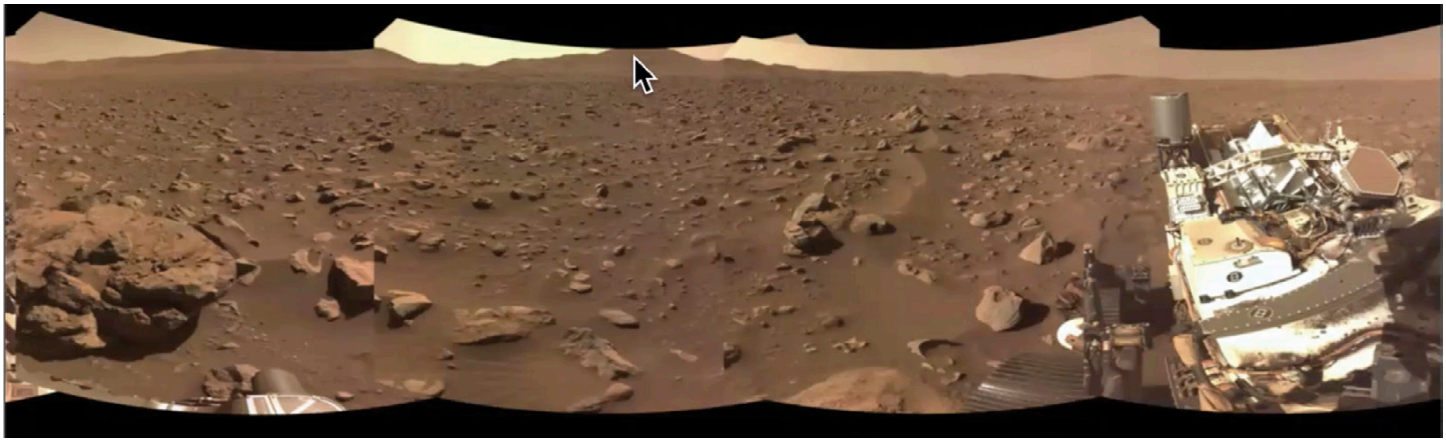
- Question remain over which rocks have been modified by water, others by windblown sand, some geological features formed by the impact that formed the crater
- Worry about rovers getting stuck, sharp rocks can cut the wheels, puncture the metal, can get stuck in sand, must choose route very carefully, look for smooth bedrock
- Will move into more polygonal shaped rocks, almost square shaped

Perseverance Rover

- Perseverance is a robotic explorer, launched in July, 2020, that searches for signs of past life on Mars and collects samples for future return to Earth. Perseverance Rover was designed to explore a different area; and landed in the Jezero Crater, a former lake bed; most strikingly, the area around Jezero Crater appears to be carved by rivers
- Landed in flat area, beginning to climb toward western rim of the crater, if you look at these buttes from space, clearly looks like a river delta, likely built by processes as on Earth, running water
- There are buttes along the edge of that delta, the rover is going to explore around the delta, up to the rim and then back down



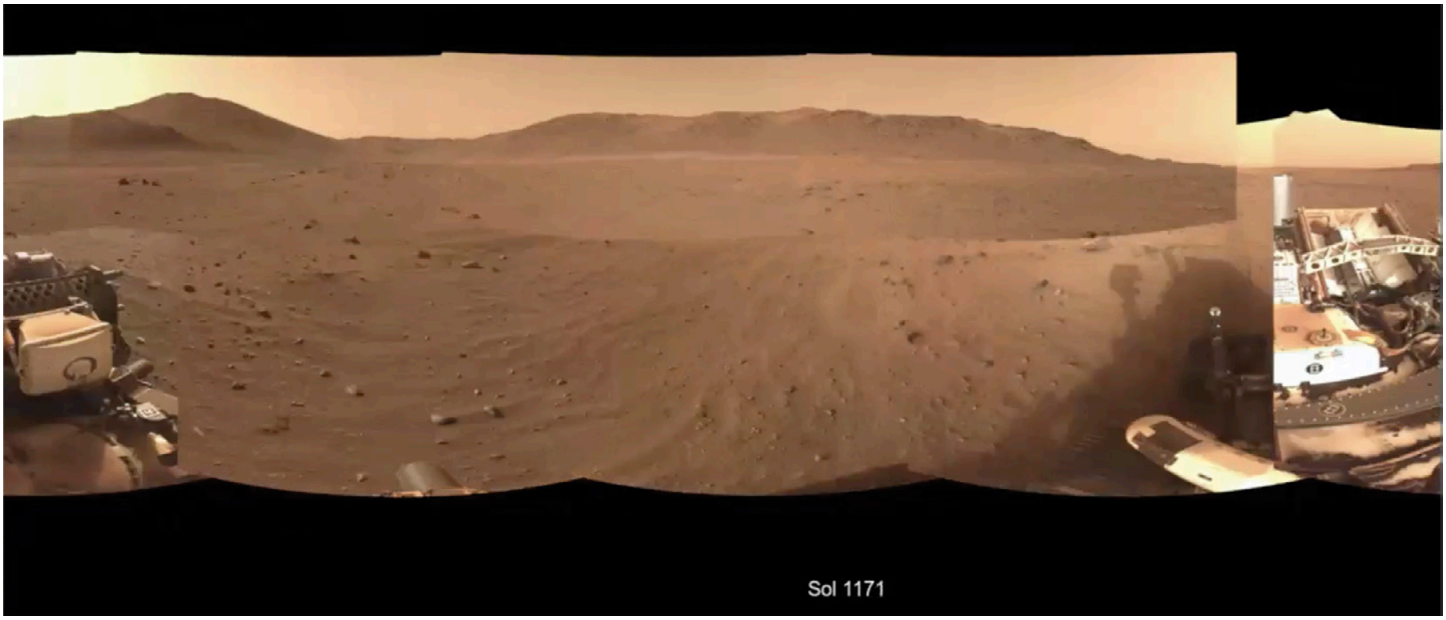
Direction of Perseverance generally headed to the northwest; as we go along each day eventually we will go up onto the Delta, a land form much like the Mississippi Delta on Earth and likely formed in the same way, the mission planners call this the Delta Campaign.



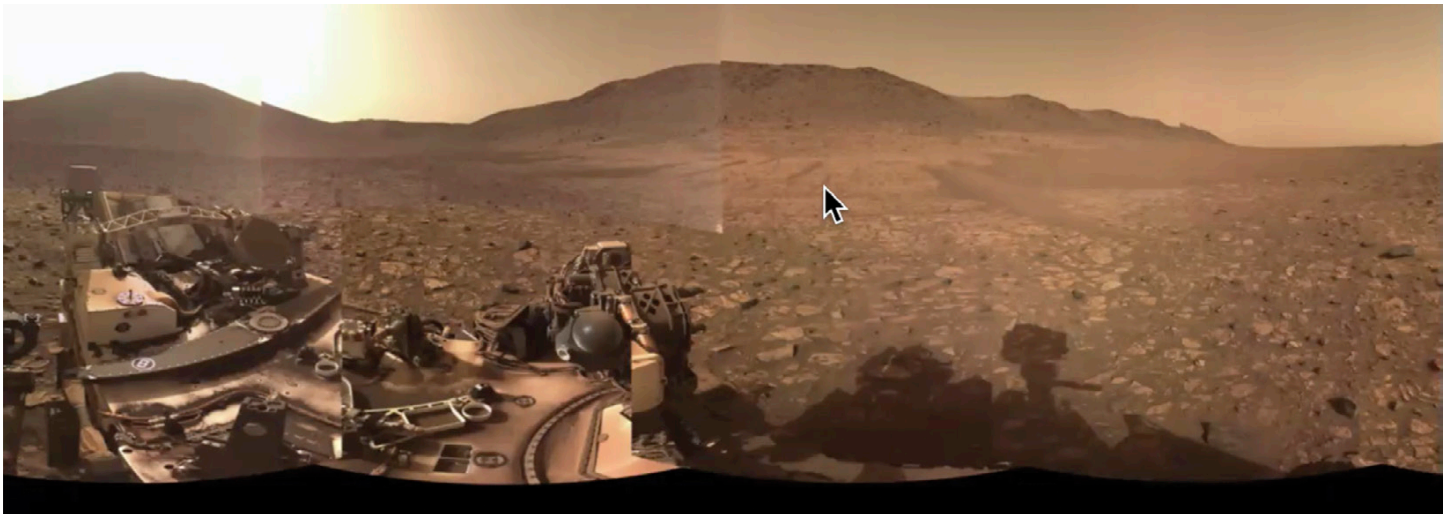
Now up on the Delta, two hills on the rim of the Jezero crater, so we are inside the crater climbing out towards the rim, here there is a pronounced river valley called the Neretva Vallis.

- Hills on the rim are getting larger so we are making progress on our way

- We are going up to the left rim, the hill on the rim we are headed for; on the banks of river valley (Rim Campaign)



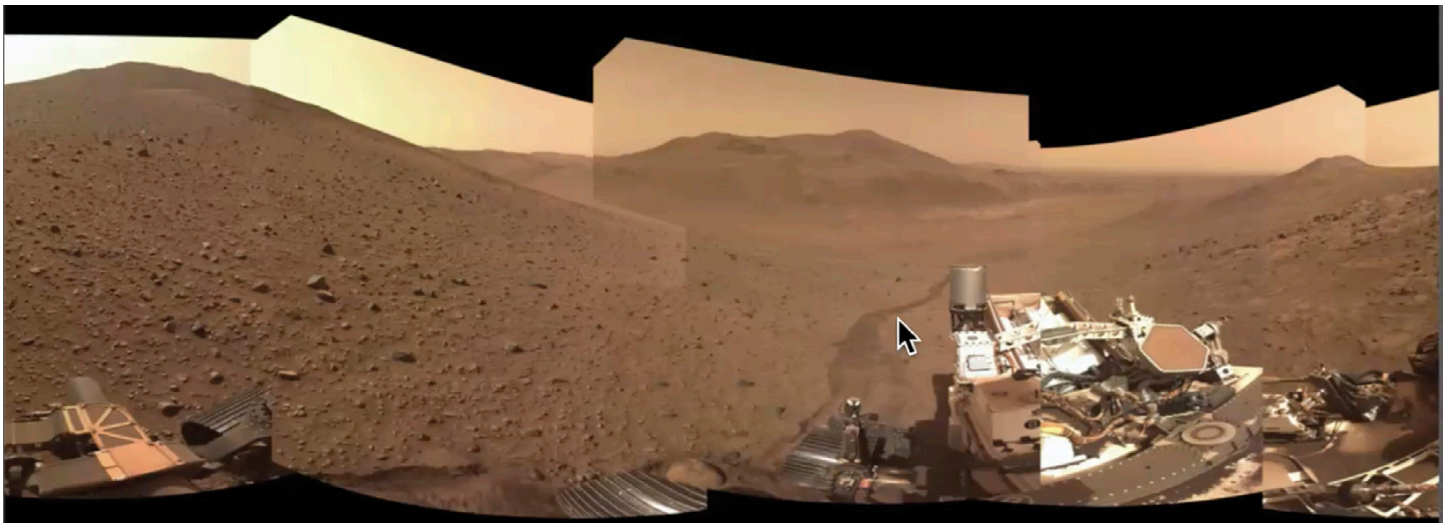
- Maneuvering around the southern edge, here we are on the river bed



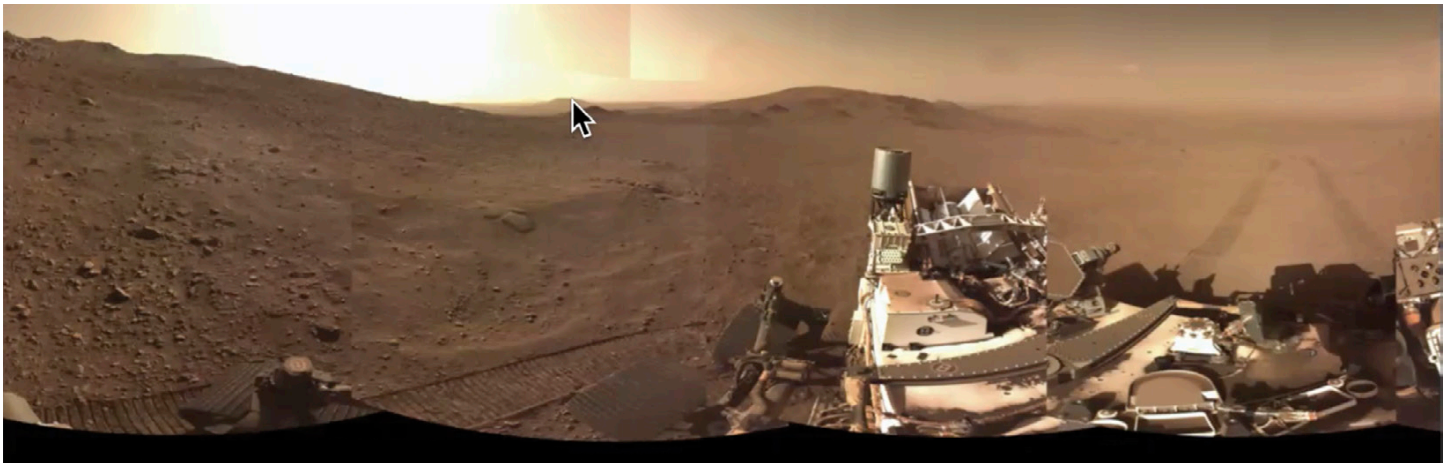
Now on the north side of the river bed where we find important rock samples, good bedrock samples to collect for chemical samples.

- White rocks have serrated edge to this region, very distinctive looking, spent a lot of time drilling and doing chemical sampling

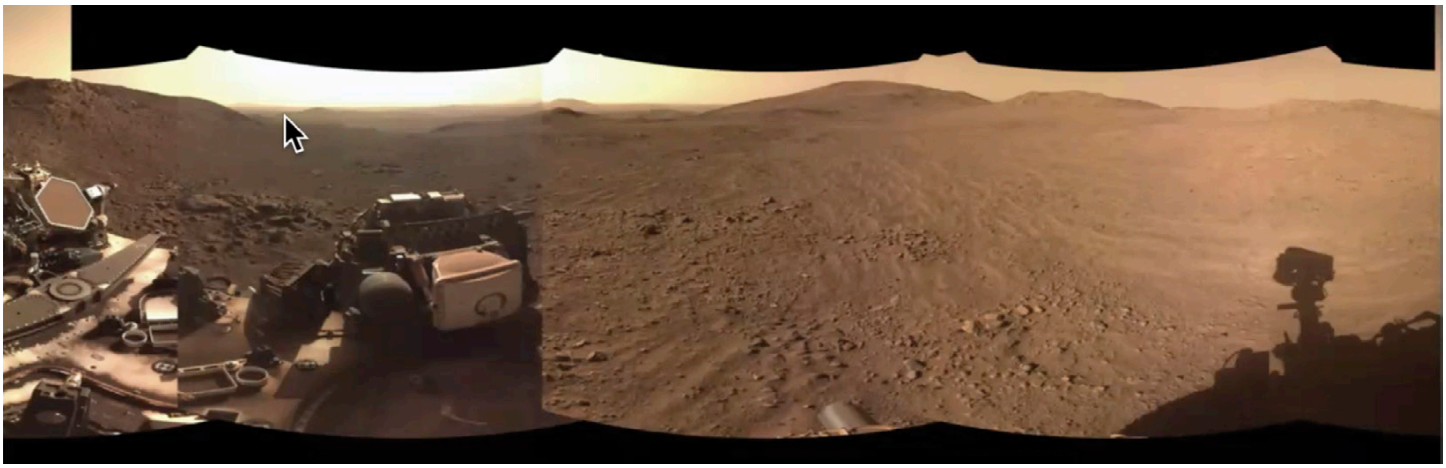
- Now looking west, this is where the river valley comes out of the crater rim, a sort of pass on the rim of the crater, so a river was able to carve its way through the crater rim at some earlier time



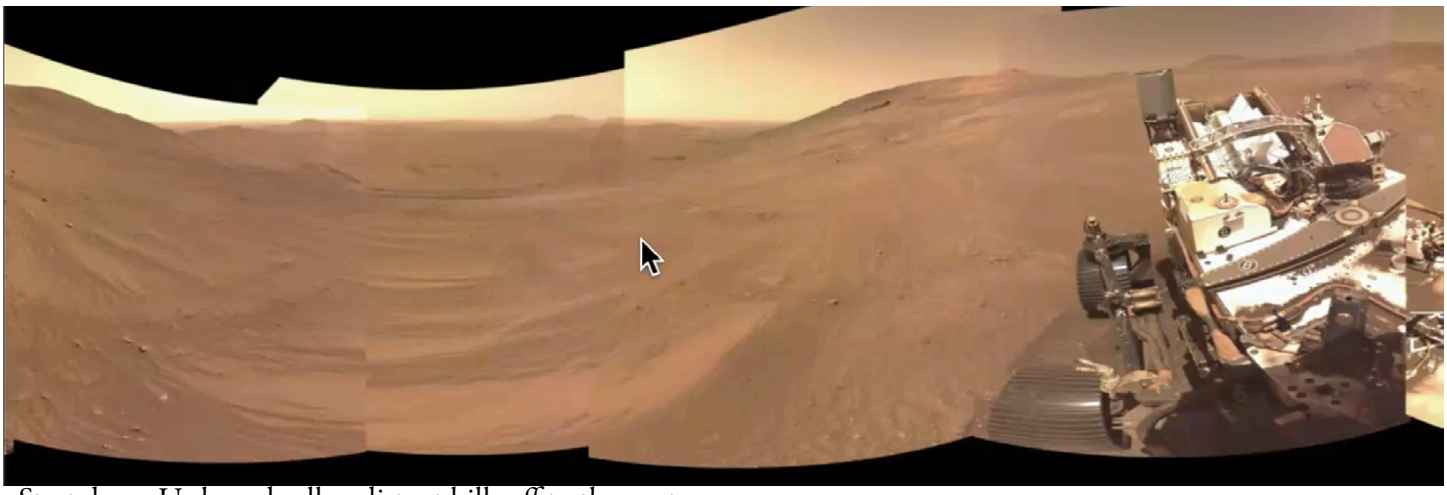
- Going backwards now, and then back up behind the hill to the south, can see the wheel tracks from where we came from, going back up to rim in another area



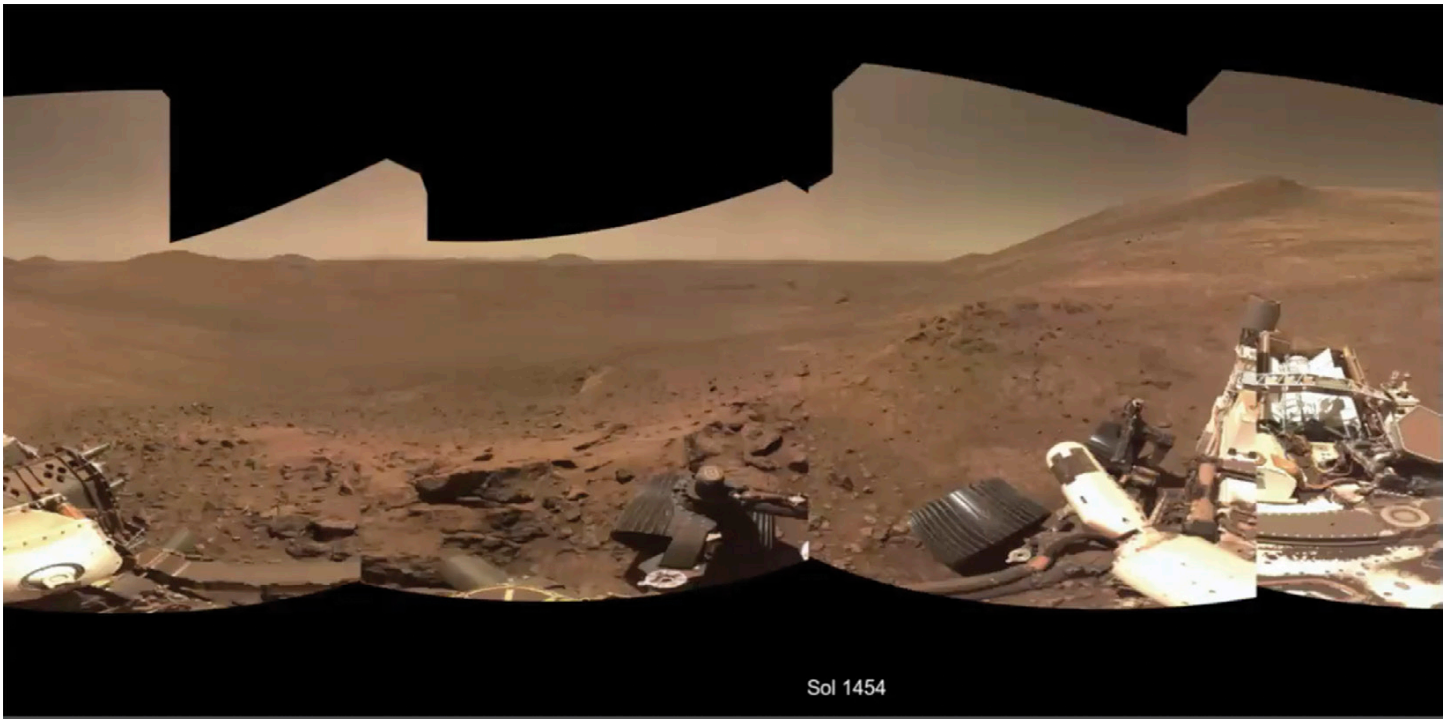
- Up at rim we start to see vista of buttes in the farther distance, discovery of a new vista much like in the U.S. Southwest



- Now on the crater rim can see far in the distance, buttes in distance



- Start down U-shaped valley, distant hills off to the west
- Now going down, getting close to the present time, mission planners want to go back, retrieve the samples, some samples stored in the rover, others left in strategic locations to retrieve later, so need to collect and stay in general area of crater rim



- Current time now, about half way down the hills on the rim
- Steve is unofficially naming landforms that are not officially named yet

Perseverance Rover

- Perseverance Mars Rover Drive Animation (each set of NavCam images mosaiced onto a common reference frame)

Large versions of individual mosaics

Annotated Maps

Map 1

Map 2

Map 3

Annotated Mosaics

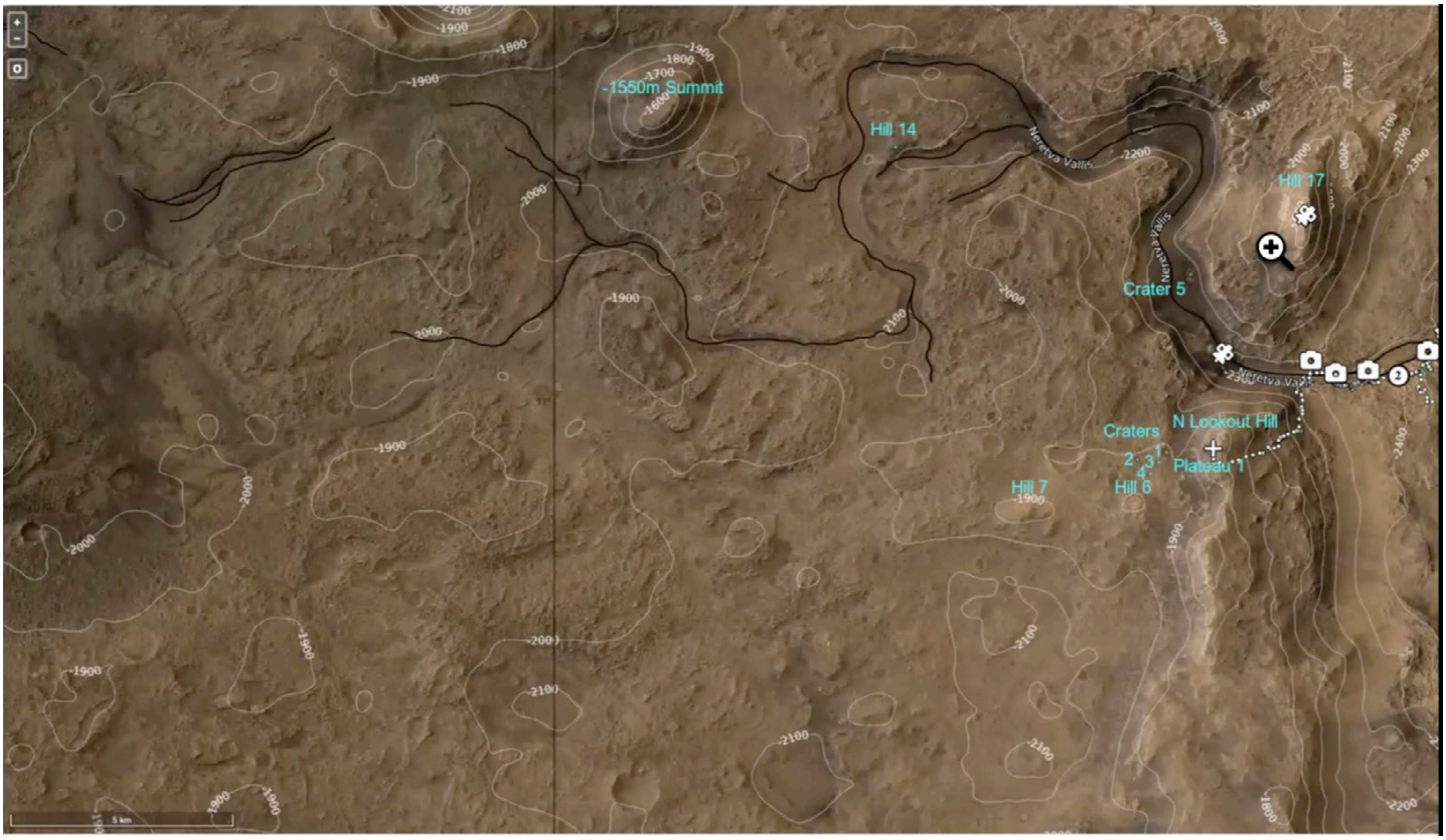
Sol 1380

Sol 1431

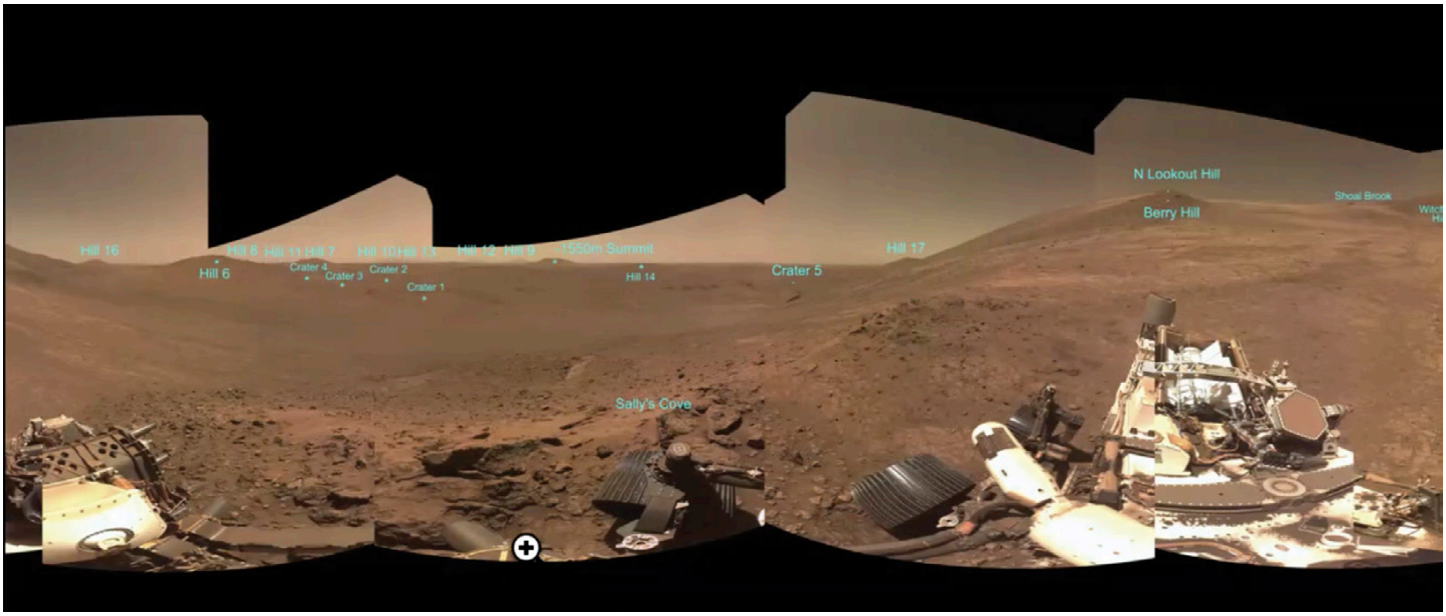
Sol 1454

On Steve's website; See Annotated Maps, Annotated Mosaics
Can go to annotated maps can get an idea of where we are with Perseverance

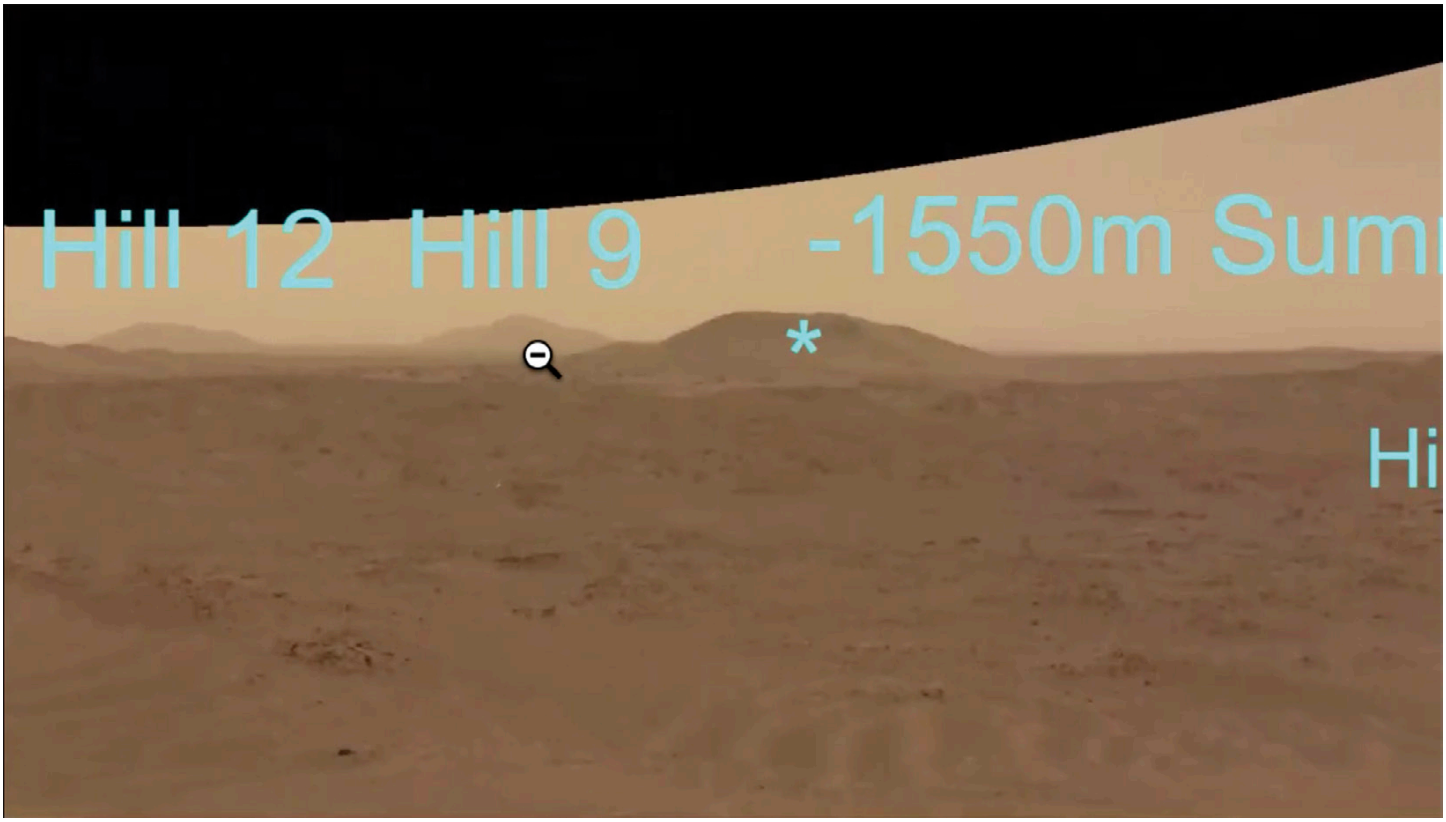
Map 1
These are officially named locations, crater rim on the right we went between Witch Hazel Hill and Sally's Cove



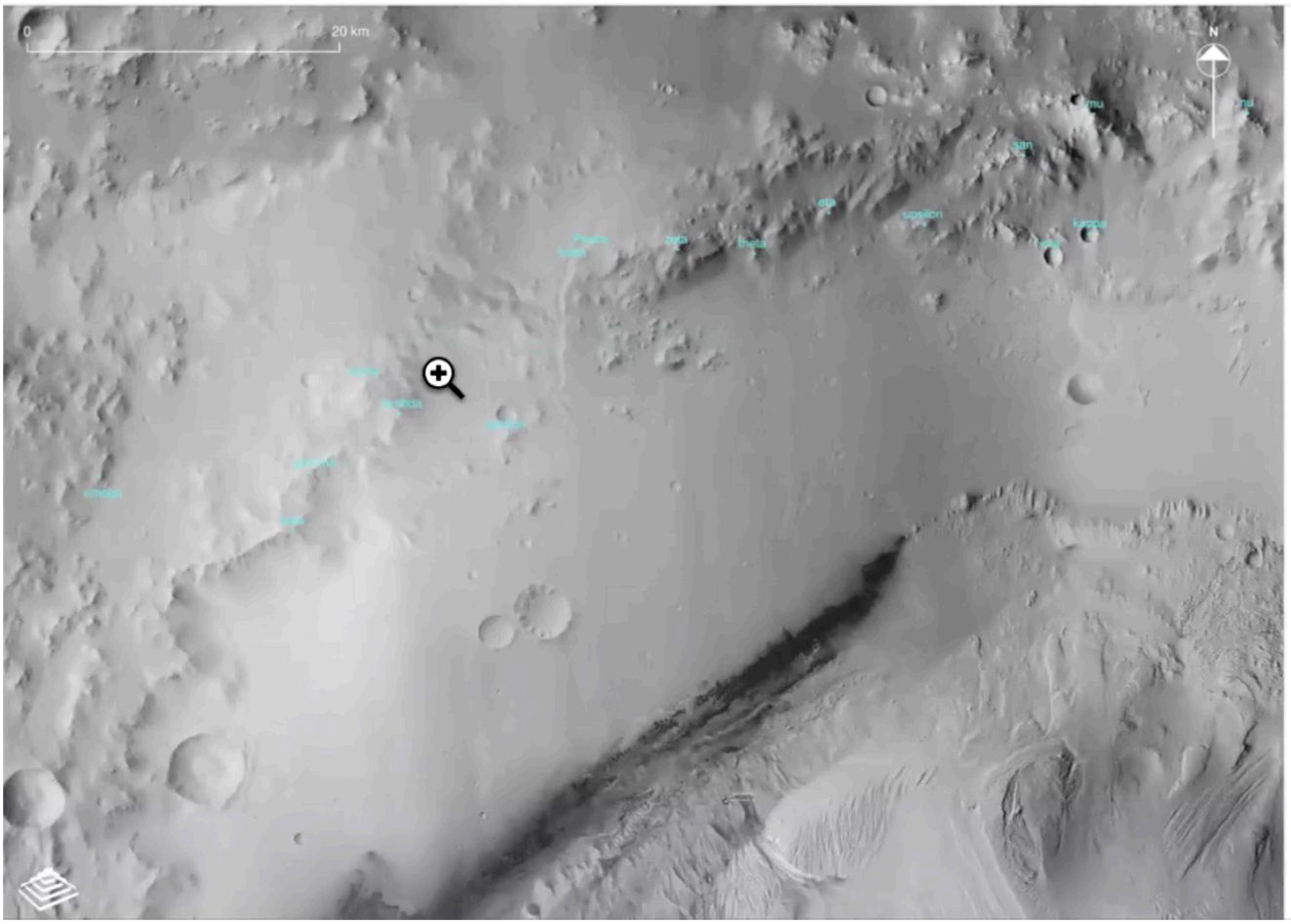
Map 2
Zoomed out- this is the crater floor, can see the two hills we saw way in distance earlier on the right, this is the crater floor where we were



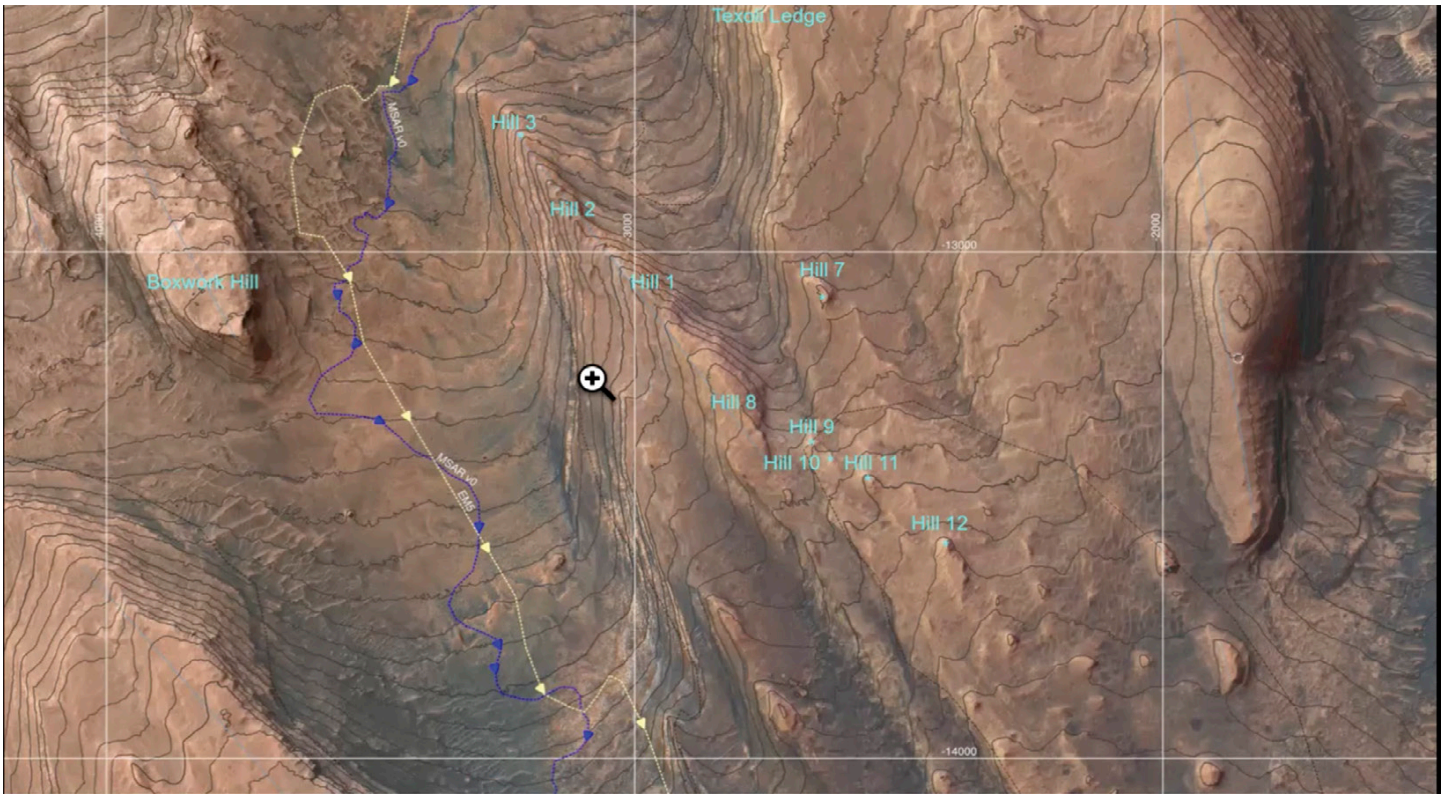
Annotated Mosaic- this is last frame we saw in the Perseverance animation with names

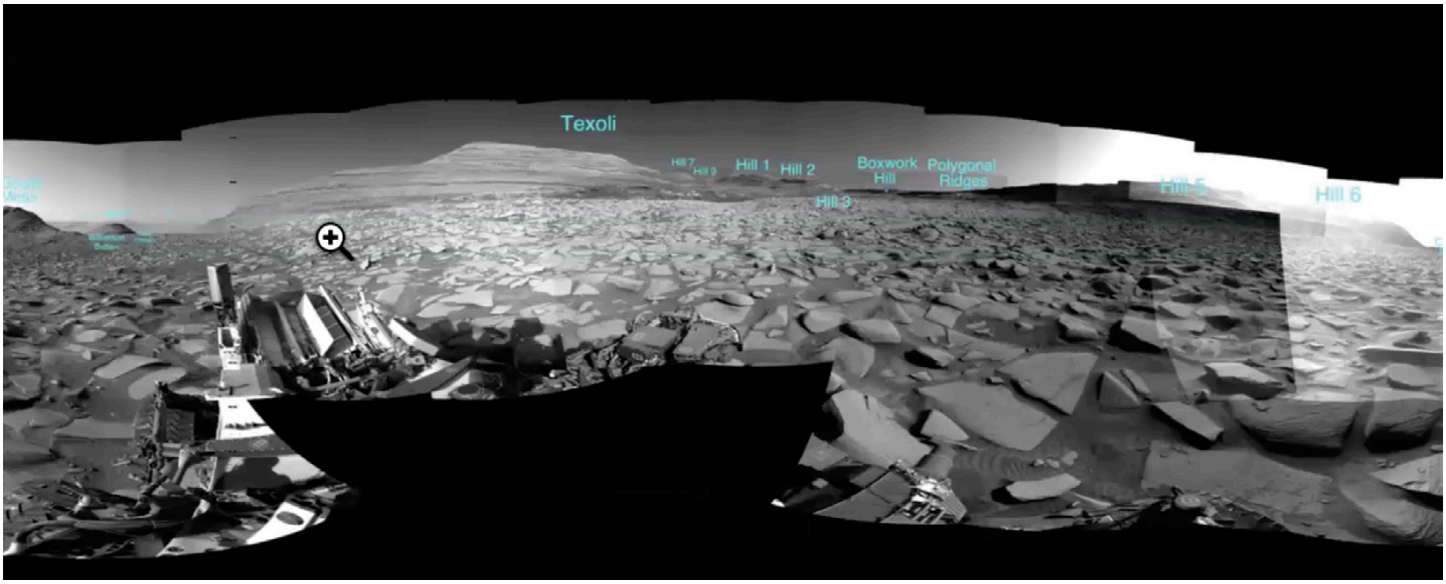


- Zoomed in, go way to the horizon and gaze into distance 50k or more
- Tiny craters and far away hills – numbered by Steve, he will be continuing to track these



- Curiosity annotated maps 1 & 2
- Curiosity rover route, overview of area
- Fun to correlate what we see from orbit to what we see on the ground





- Most recent annotated – can see Texoli, Hills 1,2,3,5,6,7,& 9
- Polygonal Ridges
- Official names give to Gould mesa, Wilkerson Butte, Twin Craters, Boxworth Hill, Polygonal Ridges, have given some features Greek letter provisional names
- Exciting new discoveries are sure to be made investigating Boxworth Hill, Polygonal Ridges, will see many much closer up images of this new area

Soon going to go up the next valley to see what we can see! – and with half their staff cut, this is an heroic journey that we can enjoy in our lawn chairs, both with dealing with the geology of Mars and the geology of the nation. Stay Tuned!!

Steve Albers website: www.stevealbers.net

Presentation 2 by Steve Albers - Lunar Eclipse- Simulated Eclipse Imagery

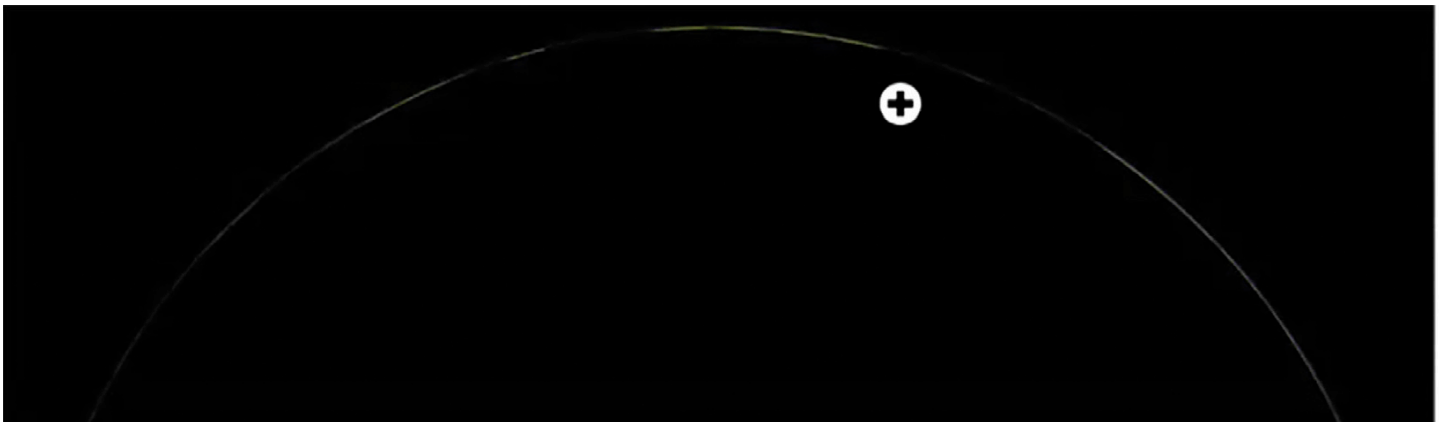
Steve in interested in weather and atmospheres both on the Earth and other planetary bodies. Back in 1994, he developed a ray-tracing program that refracts rays from the sun through the Earth's atmosphere to illuminate the moon during a lunar eclipse. Images of the moon can be produced in this way. In 2015 he picked up on this project to further test and develop this software.

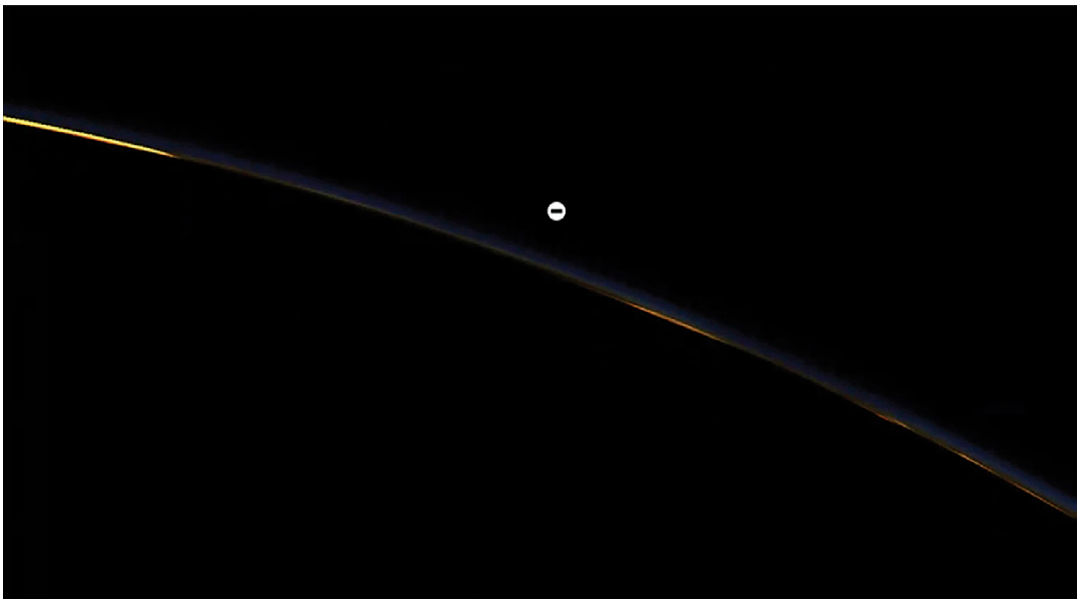
- These images are simulated designed to look like what the actual event will look like
- The animation shows the moon during various ties for the Sept 27-28 2015 total lunar eclipse. The first eight frames and 3rd contact (using a constant brightness setting). The last two are after 3rd contact and have the brightness lowered to prevent image saturation North is up
- Lunar eclipse is perfect example of the interaction of sunlight going through the atmosphere and the moon is like a giant projections screen in the sky that literally mirrors processes going on within the atmosphere on the Earth, these images are all simulated, manufactured, designed to be as realistic as possible
- Edges are actually a bluish color, related to the amount of ozone in the stratosphere on the Earth, overall brightness dependent on aerosols, red dependent on sunlight that goes between the clouds

- Umbral Enlargement
- The Umbra is the innermost and darkest part of a shadow where the light is completely blocked. It is generally considered that the umbra is about 2% larger than the theoretical value for an airless Earth

View from the Moon

- Steve is starting to work on animations of how things look from a vantage point on the lunar surface
- Slight bluish tint about 30k high, much from stratospheric ozone
- Even in totality can still see a sort of diamond ring effect

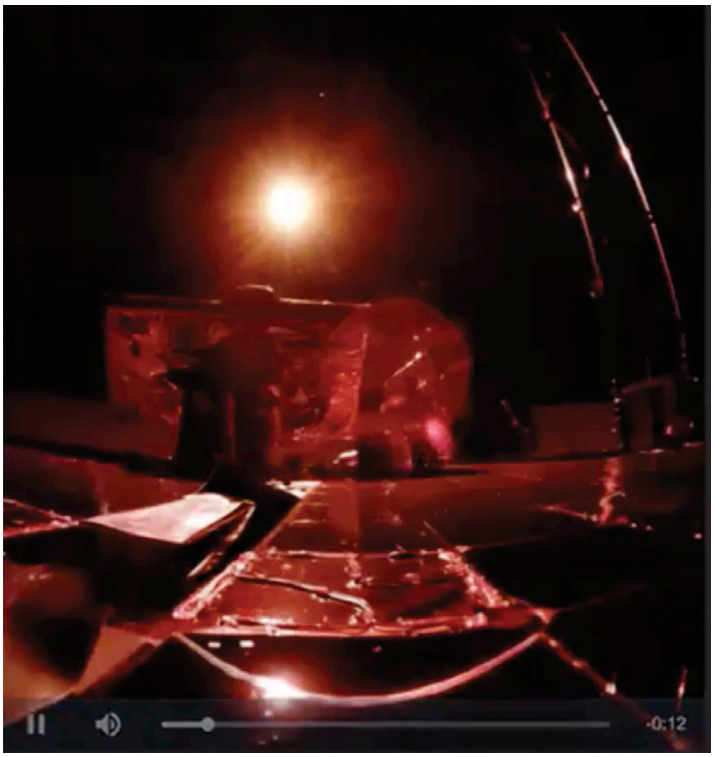




- Arcs are what would see in the eyepiece of a large telescope, arcs are where the Sun is setting on the Earth and where the clouds are, blue sky is from slight amount of dust in the atmosphere

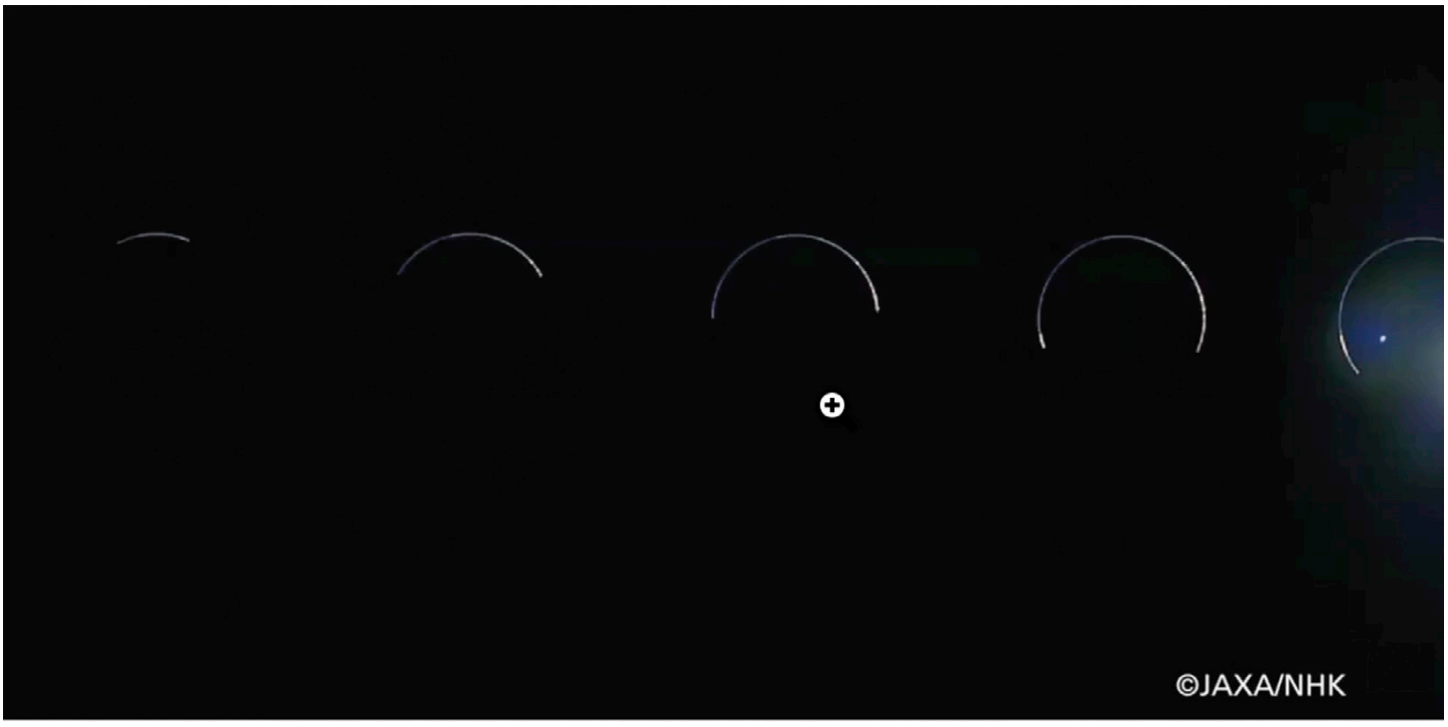
Blue Ghost Lander on the Moon

- From the March 2025 eclipse we can see two images from the Firefly Blue Ghost lander near mid-eclipse and 7-8 minutes near the end of totality.



- Firefly Blue Ghost image zoomed in

- Diamond ring effect – seven minutes before end



From JAXA – Japan's Space Agency

III. Business Report by Treasurer Bruce Lamoreaux

Longmont
Astronomical Society

P.O. Box 806
Longmont, CO 80502-0806

LAS Treasurer's Report - Bruce Lamoreaux **4/17/2025**

Main Checking Account (xxx-1587)

Begin Balance:	$ 6,770.00	**3/4/2025**
Deposits:	$ 25.00	Membership
Expenses:	$ (210.00)	Bank Charges, Library Scopes
Current Balance:	**$ 6,585.00**	**4/2/2025**

2-Year Savings Account (xxx-1478) (matures 10/23/23)

Past Balance:	$ 8,260.00	**12/31/2024**
Interest:	$ 15.00	
Balance:	**$ 8,275.00**	**3/31/2025**

Telescope Fund (xxx-0165)

Past Balance:	$ 1,100.00	**2/27/2025**
Deposits:	$ -	
Expenses:	$ -	
Balance	**$ 1,100.00**	**3/30/2025**

Petty Cash

Past Balance:	$ 50.00
Deposits:	$ -
Expenses:	$ -
Balance	**$ 50.00**

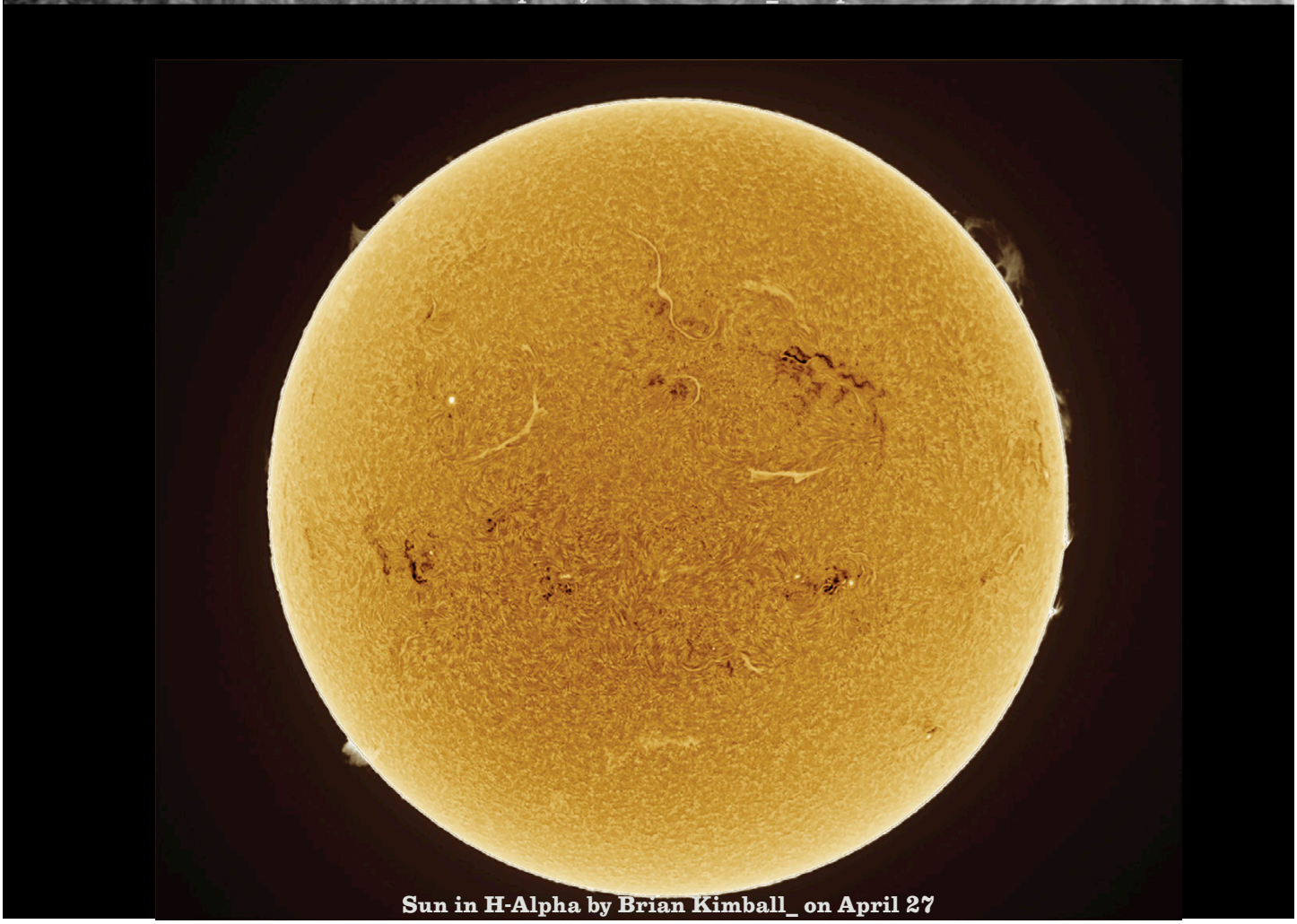
Total Assets	**$ 16,010.00**	$16,180.00	$ (170.00) Down from February

Active Membership:	**96**	
Student Membership:	**2**	
Total	**98**	Active

IV. Upcoming Events

- Next LAS meeting, Thursday, May 15th, at the Longmont 1st Evangelical Lutheran Church at 7:00 pm
- Boulder Parks and Open Space Rabbit Mountain Star Party – Friday, May 23rd at 8:15 pm
- Discussion of use of email for comments to posted images, sizes of images

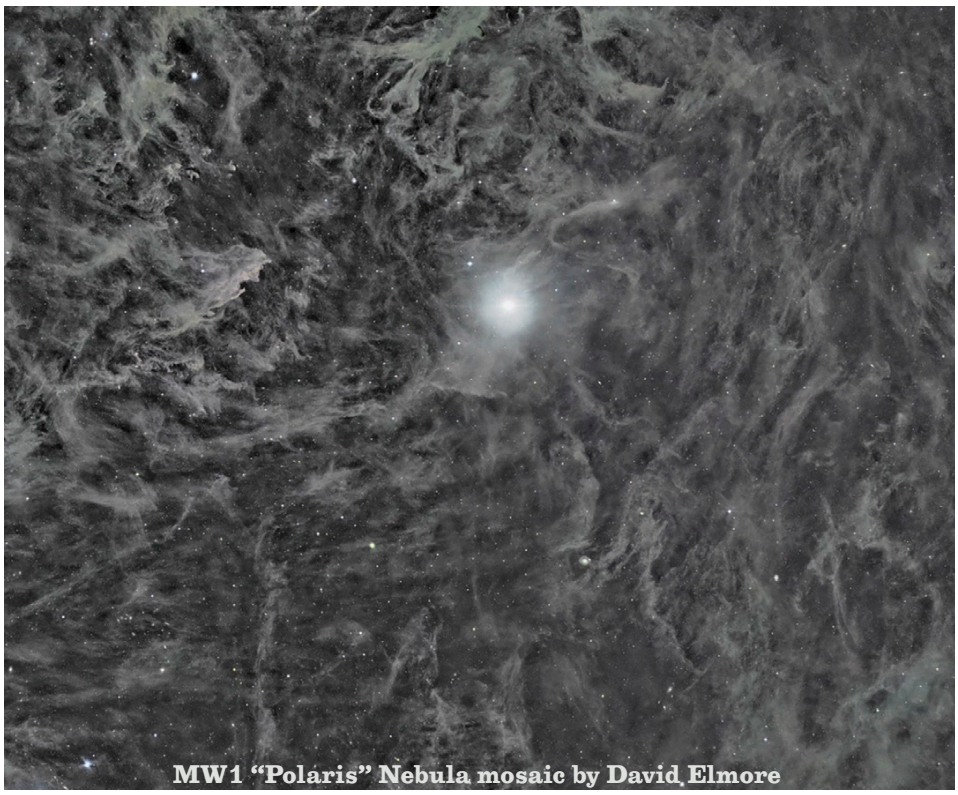
Sun in H-Alpha by Brian Kimball_ on April 27



Sun in H-Alpha by Brian Kimball_ on April 27

"Volcano" Nebula by David Elmore on April 24

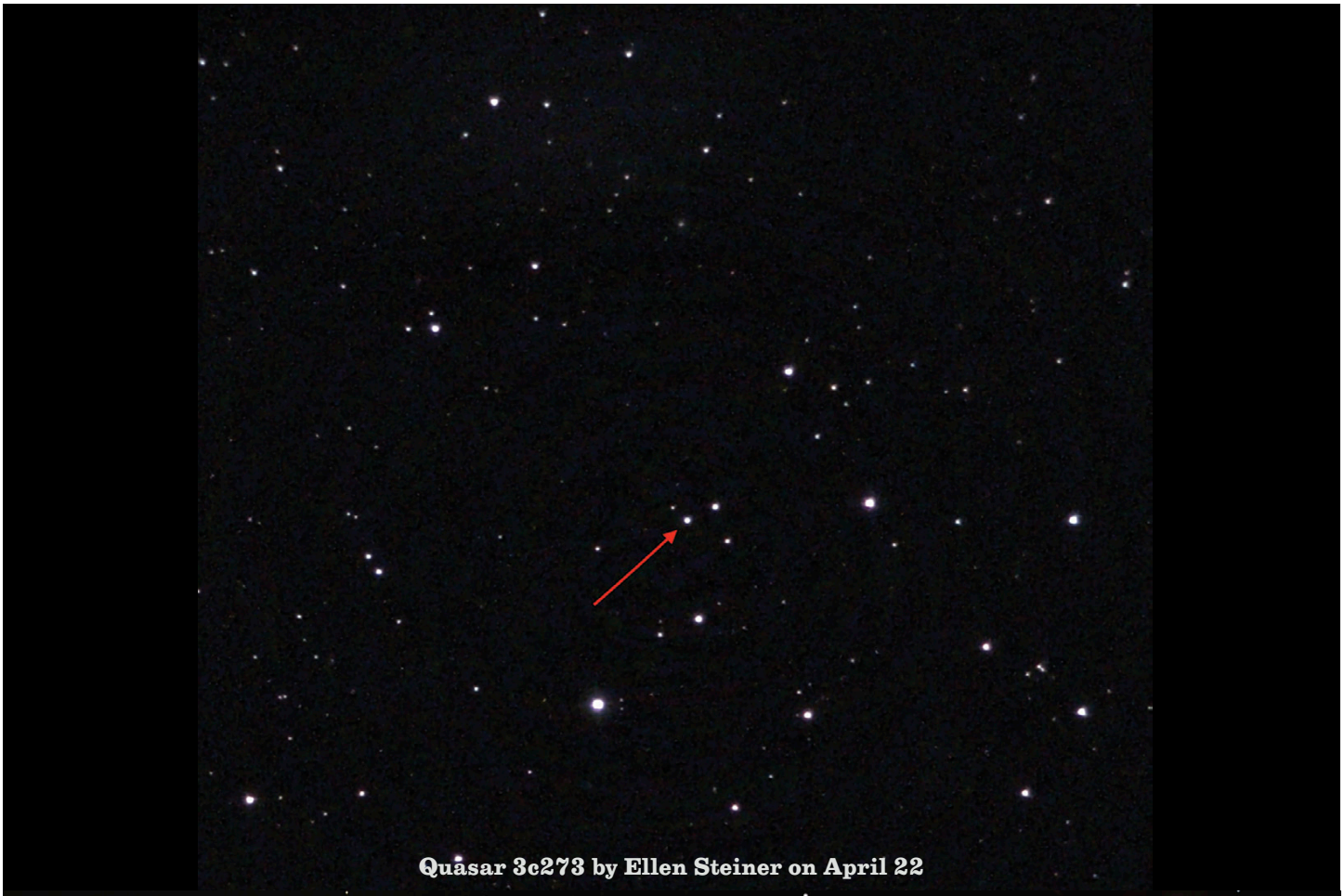
The Volcano Nebula is an example of an integrated flux nebula. This is a cloud of extremely cold gas located above the plane of the Milky Way and illuminated by the integrated starlight from the galaxy.
This is LRGB with a total of 7h 36m of shutter open time. M81 and M82 are blown out from the relatively long for broad band 4 minute exposures. Borg107FL, Chroma filters, ASI6200MM Pro, iOptron GEM45EC.



MW1 "Polaris" Nebula mosaic by David Elmore

Here is the center portion of the expansive Polaris Nebula, MW1. This is a deep broadband exposure looking due north. Actually it is a mosaic of two LRGB fields. Polaris is the way overexposed star. Integrated flux nebulae (IFN) are clouds of dust and gas above the plane of the galaxy. Their temperature is only a few degrees above absolute zero.
IFN shine by reflecting the integrated flux of starlight from the galaxy. This is similar to a cloud over an urban environment that appears bright due to illumination by city lights below.

Borg107FL refractor, ASI6200MM Pro camera, Chroma Luminance, Red, Green, and Blue filters. Total exposure time 11hours 40 minutes. Taken the nights of 28 and 29 April 2025 from Dark Sky New Mexico. This is huge image see https://app.astrobin.com/i/5km2sc for detail.



Quasar 3c273 by Ellen Steiner on April 22

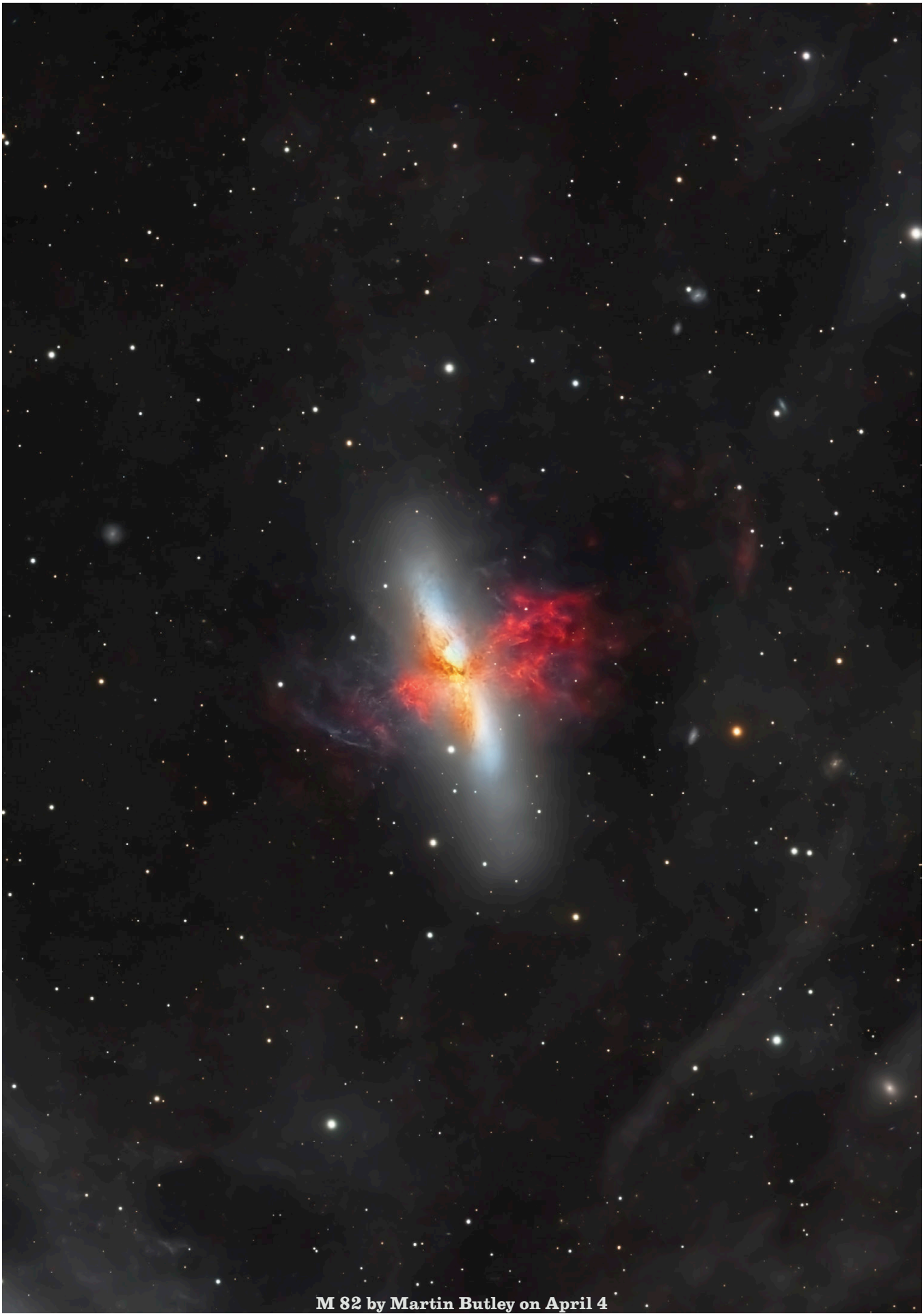
M 51 "Whirlpool" Galaxy by Jim Pollock on April 23

M 63 "Sunflower" Galaxy by Jim Pollock on April 23

M 104 "Sombrero" Galaxy by Jim Pollock on April 23

Omega Centauri- by Jim Pollock on April 23

"North America" and "Pelican" Nebulae by Jim Pollock on April 25



M 82 by Martin Butley on April 4

This small face-on galaxy lies in Ursa Major about 40 M.l.y. away. This is a true color rendition with H-alpha accents added to highlight the HII (star-forming) regions.

DSNM, CDK14, 3 hours luminance, 1.3 hours H-alpha. FOV is about 12x12 arc minutes.

IC 1396 South Side in H-Alpha by Stephen Garretson on April 27

This image focuses on the south ~1/3 of IC 1396, with the Elephant Trunk column out of the frame on the left. I'm interested here in the dark structures and then balancing that business with the calm star field on the right. Taken early this morning [April 27], the target had to first clear the pinon tree on that side of the Dome, and be done by ~0500 when it was too light to continue.

[17] 600s, [1] 300s guided Ha subs
total integration: 2 hours, 55 minutes

Borg FL 107 6 element f/3.9 APO
Primalucelab Esatto Robotic Focuser
ZWO EFW
Chroma 3nm filters
Wanderer Astro V2 Rotator
WandererBox Lite V3
Bahtinov mask modified Wanderer Astro Eclipse

William Optics Star 71 Gen II f/4.9 Petzval Astrograph
Optec TCF Leo robotic focuser
ZWO EFW
Chroma 3nm filters
Baader H-Beta filter
Wanderer Astro V2 Rotator
WandererBox Lite V3
Bahtinov mask modified Wanderer Astro Eclipse

Paramount MX+

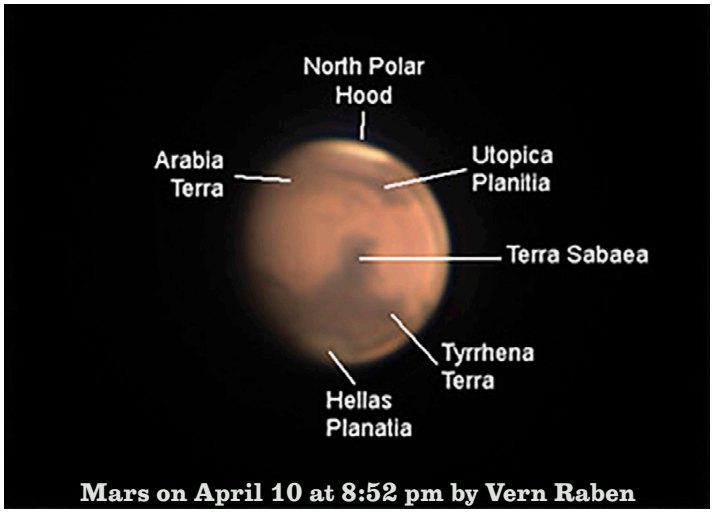
TheSkyX, SGP, Wanderer Empire, PHD2
PixInsight, Mac OS Photos, Preview

from the Beevo Dome

LBN 947 by Stephen Garretson on Apr 18

LBN 947 is an emission nebula in Monoceros, south of the Cone and east of the Rosette, creating the apex of a slightly flattened isosceles triangle with those two nebulae on the sides. I caught a good part of this target in the SNR 205... area posted image. Unfortunately it's so late in the season for this part of the Milky Way that I will have to wait until next year to revisit it. The target warrants much more data than I was able to collect, especially in OIII and SII. Thus, this image is a starter, to be continued. Image is somewhat cropped to concentrate on the main structures.

Jupiter on Apr 10 at 8:42 pm by Vern Raben



Mars on April 10 at 8:52 pm by Vern Raben

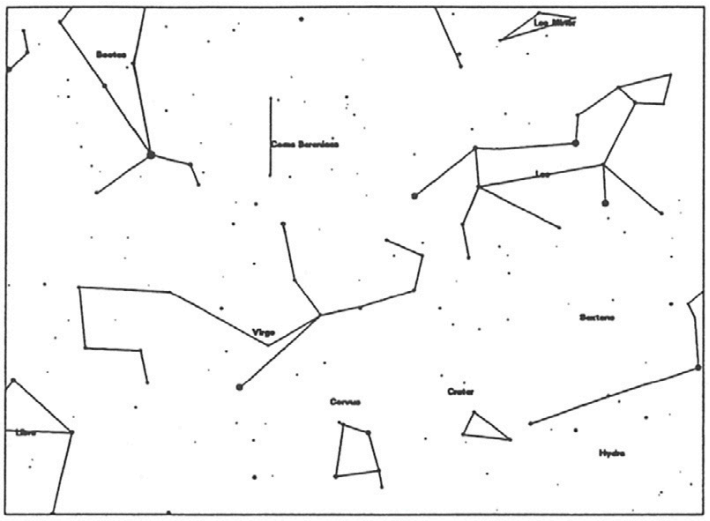
Jupiter and Mars from last night (Apr 10) just before 9 pm. My usual planetary setup C14HD, Televue 2X Barlow; Baader UV/IR filter; Zwo ASI 462 MC camera. Aligned/stacked with AutoStakkert; wavelet sharpened with Registax

Newsletter Archives by Eileen Hall-McKim

30 Years Ago: May 1995

Thom Peck, president, opened the meeting with general discussion

- FRASC meeting on Saturday, April 22. Everyone is encouraged to attend the Timothy Ferris presentation and get the update around the astronomical region.
- If the LAS disbands what will happen to the organizations assets? Attending members agreed that our property should go to another not-for-profit amateur astronomy organization. Thom is going to draft the constitution change for vote next month.
- We are still looking for a home to conduct LAS business and store our equipment. Kevin Brose agreed to check with Hewlett-Packard for opportunities.
- Jerry Wilkinson gave notice as ALCOR, he has evening commitments and can no longer perform ALCOR responsibilities. Bob Spohn agreed to assume the role.
- Andrew Planck mentioned a May 5th star party at a Boulder middle school, call Bob Ross for details.
- We are conducting a star party for the city of Lyons on May 6th at 8:00pm. Contact Bob Spohn for details.
- Rich Keen was our guest speaker, he gave a fascinating presentation of colorful slides, astronomical information and trip stories.



Corvus, the Crow (CORE-Vuss, Cvr, Corvi)
Rising in the southeast skies of April and setting in the southwest skies of June the flight of the raven is short for northern star gazers. Corvus has interesting stars and wonderful objects for study and gazing. Although there are no Messier objects within the borders of Corvus many fine NGC objects are present. If you are working on observing the Herschel 400, NGC4038, NGC4027, NGC4361 are in the list.

10 Years Ago: May 2015

Aurora movie by Paul Robinson

Paul assembled a fascinating collection of aurora images he made north of Ault, Colorado on the evenings of April 9 and 10. Paul had noticed the ACE satellite Real Time Solar Wind was showing the MAG Bz at -10. The MAG Bz is a measure of the Z- component of the Sun's magnetic field and is an important indicator. When it is negative the solar wind can strongly couple to the Earth's magnetosphere. The more negative it is, the more energy can be transmitted, and the better the aurora.

Paul drove to Ault, took a couple sample images, and then proceeded to manually collect 30 second exposures for the next hour using a Nikon at ASA 3200 and an 18mm lens. The resulting video clip clearly showed the vertical waves of aurora on the horizon, but stretching almost halfway to Polaris. The next night, ACE MAG was showing near minus 10 again but the aurora were very faint and low on the horizon, with none of the elevation or density in color of the previous night. The video clip was very warmly received.

Pluto Safari presentation by Bill Tschumy

Bill is with Simulation Curriculum, makers of Starry Night, and he gave a demonstration of a free app called 'Pluto Safari', written specifically for the New Horizons mission to Pluto. The closest encounter comes this summer on July 14, and the app provides a wealth of mission background and current tracking information using Simulation Curriculum's SkySafari4 as the underlying engine.

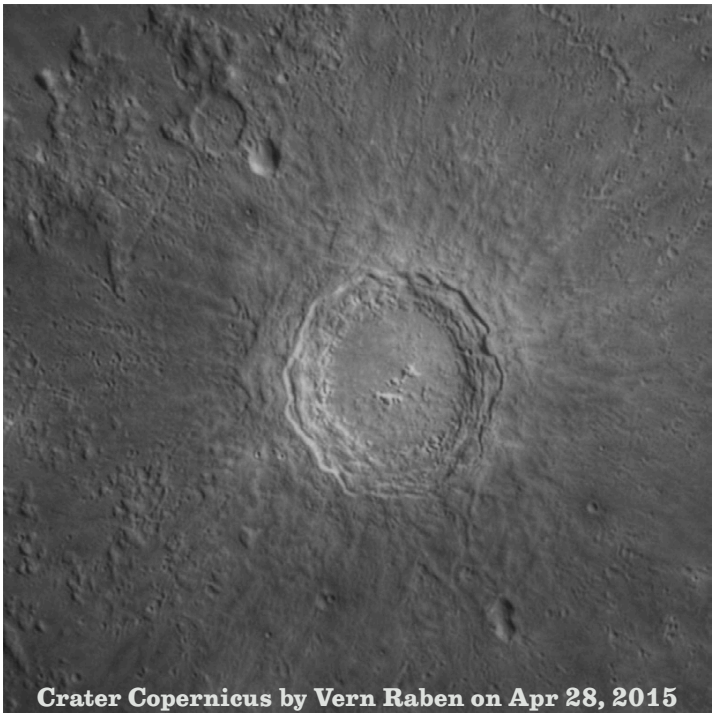
Pluto Safari can be found for free at http://www.plutosafari.com and contains 5 separate sections:

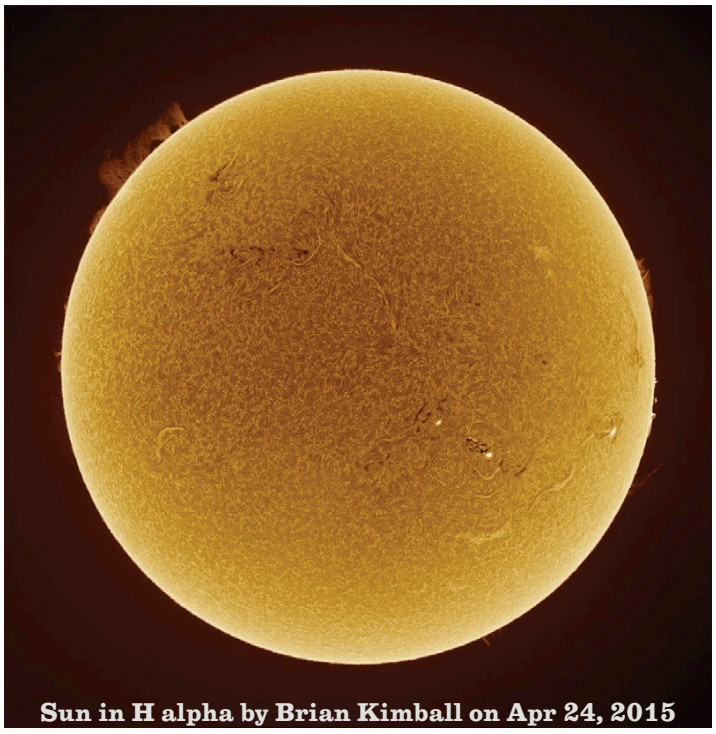
- "Timeline" of the mission from launch to flyby and beyond
- "Location" which gives different perspectives and views of the craft and its position among the planets

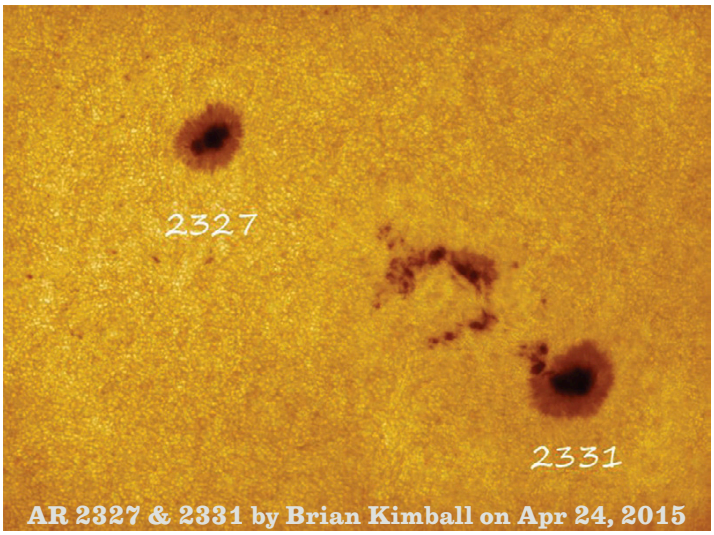
- "Guide" which is the library mission information
- "News" is for what it says... whether mission updates, findings, and announcements
- "Poll" is (yet one more) open question on whether Pluto should be considered a planet or not

M97 "Owl" Nebula by Gary Garzone on Apr. 16, 2015


Jupiter by Chris Fauble on Apr 28, 2015


Crater Copernicus by Vern Raben on Apr 28, 2015


Sun in H alpha by Brian Kimball on Apr 24, 2015



AR 2327 & 2331 by Brian Kimball on Apr 24, 2015

Longmont Astronomical Society
P. O. Box 806
Longmont, CO 80506

NGC 4565 by M. J. Post