The Lunar Observer

A Publication of the Lunar Section of ALPO

David Teske, editor

Coordinator, Lunar Topographic Studies Section Program

OCTOBER 2024

In This Issue

Lunar Reflections

A warm greeting to all readers. Hoping that this issue of *The Lunar Observer* finds you doing well. I find putting this newsletter together so amazing. Like you readers, I have spent many years looking at, observing, drawing, imaging and studying the Moon. I know that I have always pushed to see ever tinier lunar details. But would you believe there are huge lunar features just hiding in very plain sight. Check out the articles by Marcelo Mojica Gundlach about Copernicus and Alberto Anunziato's article about Schröeter's Bright Horn on Mare Crisium. Giant features are there that I had never known existed!

Along with that, there are great articles about the partial lunar eclipse by Greg Shanos and Marcelo Mojica Gundlach, lunar features by Rik Hill, topographic forays by Alberto Anunziato and Marcelo Mojica Gundlach, and another great article and images by Robert Reeves. Along with this, Tony Cook brought us thorough articles on Lunar Geologic Change and several people contributed great drawings and images of the lunar surface in the Recent Topographic Studies. Thank you to each for all who contributed!

Many thanks to Jim Tomney, who has updated the ALPO website. With this, there are a few things we must follow on your images. **Please keep images to 400 kB or less**. Also, PLEASE be careful on dates! **A date of 10/12/2023 means October 12, 2023 to me, not December 10, 2023.** If there is reason for doubt, PLEASE write out the date (October 12, 2023). Observations with incorrect data is pretty worthless.

Please remember to follow the future Focus-On topics and gather observations of these features. Next up is the very interesting Archimedes. Observations are due to Alberto and myself by October 20, 2024.

Clear skies,
-David Teske

Online readers, click on images for hyperlinks

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Lunar Topographic Studies

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Observations Received

Name	Location and Organization	Image/Article
Alberto Anunziato	Paraná, Argentina	Article and drawing *The Dawes Plateau, The Wrinkle Ridge that Crosses Puiseux D* and *Schröeter's Bright Horn On Mare Crisium.*
Sergio, Babino	Montevideo, Uruguay	Image of Mare Crisium.
Francisco Alsina Cardinalli	Oro Verde, Argentina	Image of Mare Crisium.
Wendy Mae Chambers	Scarborough, Maine, USA	Image of the Partial Lunar Eclipse.
Jairo Chavez	Popayán, Colombia	Images of Mare Nectaris, Waxing Crescent Moon, 31%, Waxing Gibbous Moon, 60%, 79%, 94%, 98%, the Full Moon and partial lunar eclipse montage.
Massimo Dionisi	Sassari, Italy	Images of Aristoteles (3), Arago, Atlas, Dorsa Aldrovandi, Clavius, Gutenberg (2), Lacus Mortis, Taruntius, Montes Caucasus, Posidonius, Piccolomini, Theophilus and Vitruvius.
István Zoltán Földvári	Budapest, Hungary	Drawings of Montes Pyrenaeus, Rimae Janssen and Carrel.
Desiré Godoy	Oro Verde, Argentina	Image of Mare Crisium.
Marcelo Mojica Gundlach	Cochabamba, Bolivia, SLA	Article and images *Linné: A Crater of Scientific Interest, Copernicus Under Different Illumination and Processing* and *Partial Lunar Eclipse of September 17, 2024.*
Richard Hill	Loudon Observatory, Tucson, Arizona, USA	Articles and images *No BULLialdus, On the Plains of Ptolemy*, image of the Moon on International Observe the Moon Night.

Lunar Topographic Studies

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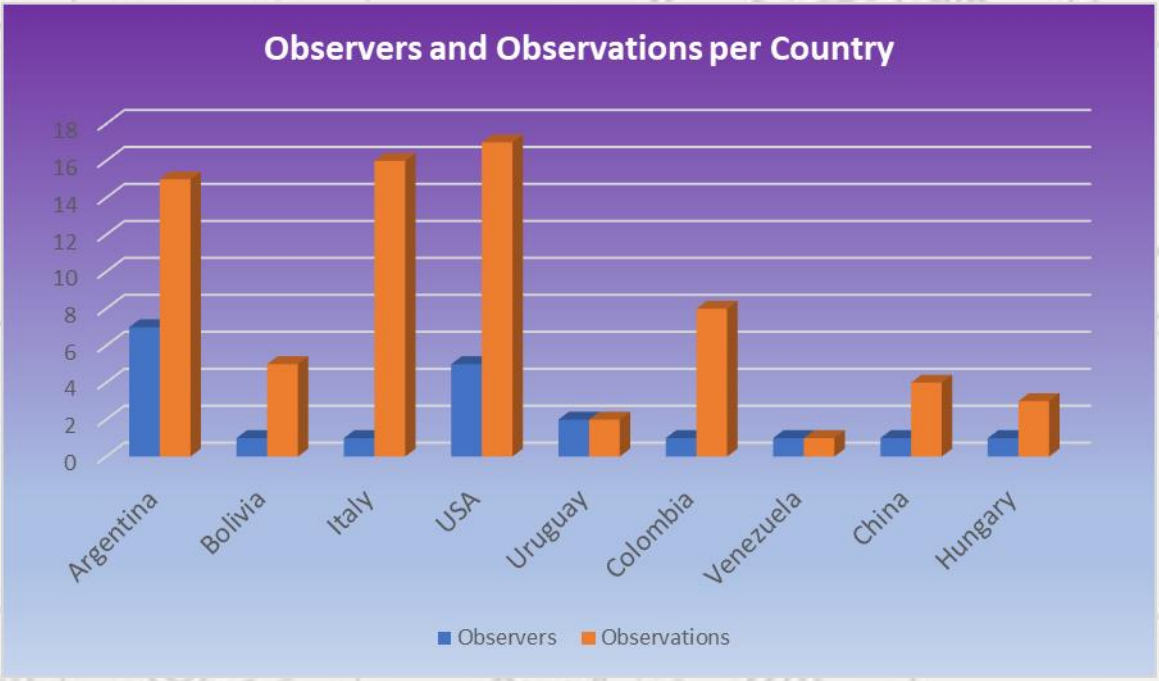
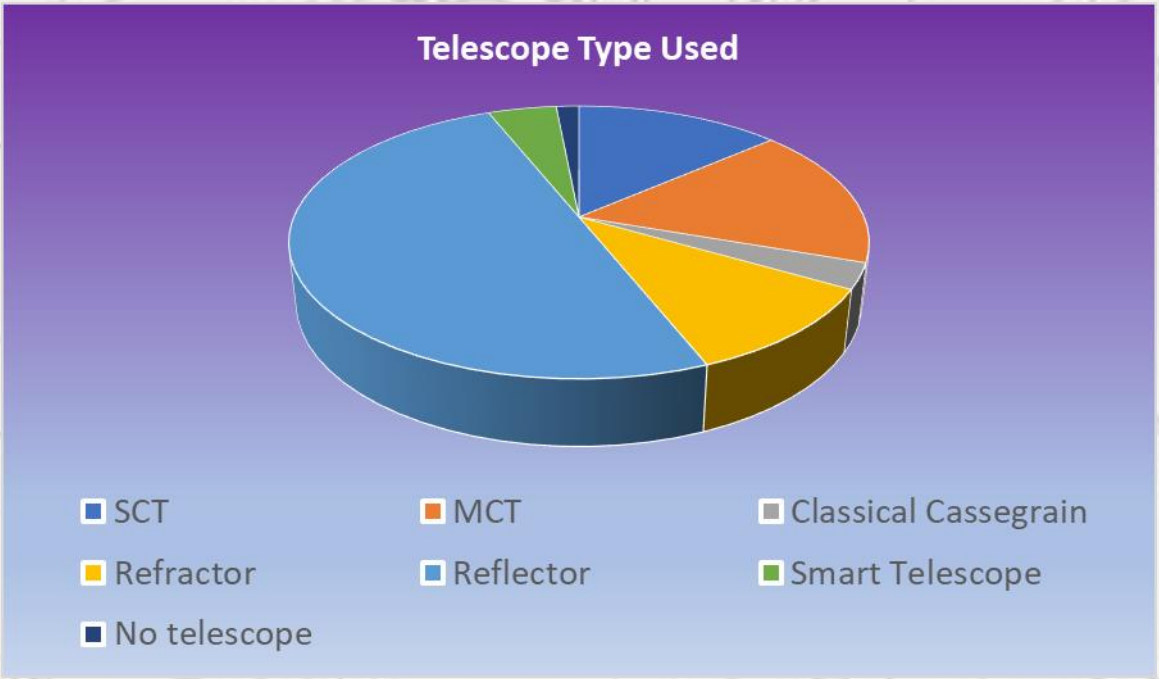
Observations Received

Name	Location and Organization	Image/Article
Richard Martin	Canelones, Uruguay	Image of Mare Crisium.
Leus Monsalve	Villa Libertador San Martín, Argentina	Image of Gassendi.
KC Pau	Hong Kong, China	Images of Copernicus (2) and Wilhelm (2)
Jesús Piñeiro	San Antonio de los Altos, Venezuela	Image of Mare Crisium
Raúl Roberto Podestá	Formosa, Argentina	Images of Cleomedes, Mare Crisium, Langrenus and Petavius.
Robert Reeves	San Antonio, Texas, USA	Article and images *Observing the Full*
Gregory T. Shanos	Sarasota, Florida, USA	Articles and images *The Moon on International Observe the Moon Night* and *Partial Lunar Eclipse of the Super Har-*
Leandro Sid	Oro Verde, Argentina, AEA	Images of the Partial Lunar Eclipse (3).
Michael Sweetman	Sky Crest Observatory, Tucson, Arizonia, USA	Images of Tycho and Deslandres.
Alan Trumper	Paraná, Argentina	Images of Proclus, Copernicus, Partial lunar eclipse and Mare Imbrium.

October 2024 *The Lunar Observer*
By the Numbers

This month there were 71 observations by 20 contributors in 9 countries.





Lunar X Predictions for 2024

40°N-75°W, Eastern Time Zone

Date, 2024	358° Colongitude	Altitude/Azimuth	Cloudy Nights
January 18	5:15 am	–37° / 345°	4:05 am
February 16	7:40 pm	+66° / 236°	6:49 pm
March 17	10:22 am	–11° / 38°	10:10 am
April 15	11:08 pm	+43° / 268°	11:41 pm
May 15	11:01 am	–16° / 53°	12:13 pm
June 13	10:15 pm	+34° / 244°	11:49 pm
July 13	9:11 am	–43° / 58°	10:48 am
August 11	8:15 pm	+24° / 212°	9:31 pm
September 10	7:49 am	–65° / 65°	8:29 am
October 9	8:12 pm	+16° / 206°	8:09 pm
November 8	8:33 am	–49° / 79°	7:49 am
December 7	10:43 pm	+4° / 253°	9:36 pm

Note: The Lunar X is not an instantaneous phenomenon; rather, it appears and evolves over several hours, so the times above are fundamentally approximate and serve only as a guide. The ardent observer should look a little early to catch the initial visible illumination. A less-dramatic Lunar X against a fully illuminated background can still be seen at least several days later. Because of the Moon's nominal 29.5-day synodic period (phase-to-phase), favorable dates for a given location tend to occur on alternate months (unfavorable dates for 40°N-75°W are shaded gray in this table). The 358° colongitude value for the terminator reaching the Lunar X and making it visible (see this RASC paper) and the corresponding lunar altitude/azimuth for 40°N-75°W were determined with WinJUPOS, which is freeware linked from the WinJUPOS download page.

The Cloudy Nights comparative data, derived by a different method, was presented in this post.

Daylight Saving Time for 2024 begins on March 10 and ends on November 3. The listed times are EST/EDT as appropriate for the date.

Submitted by Greg Shanos.

Lunar X Predictions for 2024-2028

5 Year Lunar "X" and "V" Schedule * **

	2024	2025	2026	2027	2028
Jan	18: 0830	6: 1645	25: 1630	15: 0015	4: 0830
Feb	16: 2345	5: 0800	24: 0730	13: 1530	3: 0015
Mar	17: 1400	6: 2300	25: 2145	15: 0600	3: 1500
Apr	16: 0300	5: 1300	24: 1100	13: 1930	2: 0430
					1: 1700
May	15: 1600	5: 0130	23: 2245	13: 0730	31: 0400
Jun	14: 0400	3: 1330	22: 0945	11: 1830	29: 1430
Jul	13: 1430	3: 0015	21: 2000	11: 0500	29: 0030
		1: 1100			
Aug	12: 0130	30: 2130	20: 0630	9: 1530	27: 1100
Sep	10: 1230	29: 0900	18: 1730	8: 0200	25: 2245
Oct	10: 0015	28: 2115	18: 0530	7: 1400	25: 1130
Nov	8: 1245	27: 1045	16: 1900	6: 0300	24: 0145
Dec	8: 0230	27: 0115	16: 0930	5: 1730	23: 1645

* All times are listed as the day of the month and then the hour in **UT**

** All times are approximations based on LTVT calculations. They are accurate to ± 1 hour.

Submitted by Greg Shanos.

Photographic Atlas of the Moon: A Comprehensive Guide for the Amateur Astronomer, Robert Reeves, Hardcover – September 1, 2024

Written by a dedicated selenophile (a person who loves the Moon), this guide to Earth's celestial companion is a non-technical narrative that quickly elevates the lunar novice to lunar authority.

Photographic Atlas of the Moon explains how the Earth and the Moon are locked together in a co-dependent embrace, each affecting the other in ways that impact our lives. The reader will learn in comprehensible, jargon-free language about the Moon we see, its orbit, its creation and the differing geologic details of the Moon, some of which can be seen with the naked eye. All the photographs in this lavishly illustrated book were taken by the author, an internationally recognized authority on celestial photography. Reeves has perfected image processing techniques that allow the amateur astronomer, using modest equipment, to exceed the quality of Earth-based professional lunar photographs taken during the Apollo era.

Although Reeves is an accomplished deep-sky photographer, his current passion is re-popularizing the Moon within the amateur astronomy community. Momentum is building for a manned return to the Moon to continue the exploration started over half a century ago. Photographic Atlas of the Moon will provide even the most novice reader with an understanding of the Moon and its allure so they can appreciate the upcoming explorations by NASA's Artemis lunar program.

https://www.amazon.com/Photographic-Atlas-Moon-Comprehensive-Astronomer/dp/022810498X/ref=rvi_d_sccl_1/136-6077595-9611424?pd_rd_w=NTjEa&content-id=amzn1.sym.f5690a4d-f2bb-45d9-9d1b-736fee412437&pf_rd_p=f5690a4d-f2bb-45d9-9d1b-736fee412437&pf_rd_r=7XZ4992GTVJKS0K7P4F5&pd_rd_wg=WEmPb&pd_rd_r=310acd54-2b8b-4d1c-a84a-abe0a3d2034f&pd_rd_i=022810498X&psc=1

The Moon on International Observe the Moon Night

Gregory T. Shanos

International Observe the Moon night is an annual global public event designed to encourage the observation, appreciation and understanding of our moon and its connection to planetary science and space exploration. This year the event occurred on September 14, 2024. Last year, almost a million people participated in 123 countries and all 7 continents. There are several ways of participating which include looking up at the moon, using binoculars, a telescope or by watching an internet live-streaming video.

Astronomy clubs everywhere held outreach events so that the public could observe the moon visually through a telescope. This may have been the first time many individuals would have seen the moon or any other celestial object through a telescope. Hopefully this may inspire the youth of our planet to become future scientists.

So, don't wait until the next International Observe the Moon night- the moon is visible every month throughout the year. Get out there and observe the moon- there is always something new to see! *Source: Wikipedia*

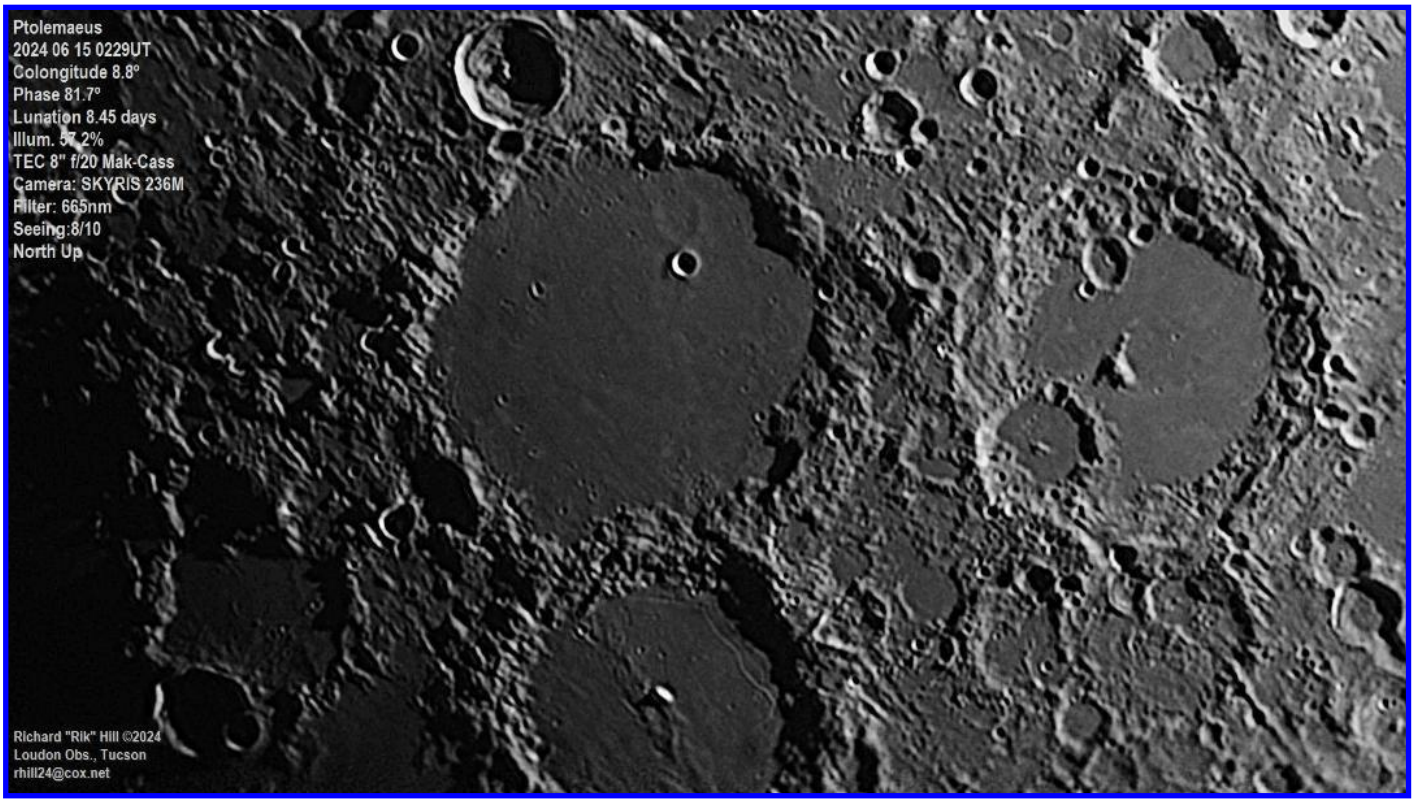
Moon on International Observe the Moon Night, *Gregory T. Shanos, Sarasota, Florida, USA. 2024 September 15 01:32 UT. SeeStar50 smart telescope.*

On the Plains of Ptolemy

Rik Hill

The ringed plain in the middle of this image is the well-known magnificent Ptolemaeus (154km dia.) very near the center of the visible lunar disk. Many, younger than me, have reported spotting this huge formation naked eye around quarter moon when it can form a small bulge in the terminator. To the left we see another large and interesting crater, Albategnius (136km) with Klein (45km) on its lower right wall and the curious crescent central mountain. The terrain all over this image is scarred with parallel scratches aligned from the upper left to the lower right. This is the scaring from the Imbrium impact one field width further to the upper left. These were made by mountain sized rocks that were thrown out at thousands of kilometers per hour speeds and carved these valleys in solid lunar crust! Below Ptolemaeus is the crater Alphonsus with the nice rima running inside the eastern crater rim and the shining central peak catching the morning sunlight. To its left is a crater just coming out of the darkness, the oddly shaped crater Davy.

On the upper floor of Ptolemaeus can be seen the much younger crater Ammonius (8km). Opposite this you can see three craters in a diagonal line the smallest of which, at the bottom of the line, is Ptolemaeus C is only 2km in diameter. At this lighting many shallow features can be see like the one above Ammonius. This Ptolemaeus B only visible at the lowest sun angle. I wondered when looking at these features, what would I see if I stood in the middle of Ptolemaeus? The answer may surprise you. The crater wall ridge near the aforementioned 2km crater has a maximum height of 2.9 km, the highest point on the crater wall of Ptolemaeus. Well, using the online Distance to Horizon Calculator a mountain of that height would just be visible above the horizon from the middle of the crater, only the top 0.8km would be seen. All the rest of the wall would not be seen at all! In other words, if you were standing in the center of Ptolemaeus, you would have no sensation of being in a crater at all!!



Ptolemaeus, *Richard Hill, Loudon Observatory, Tucson, Arizona, USA. 2024 June 15 02:29 UT, colongitude 8.8˚. TEC 8 inch f/20 Maksutov-Cassegrain telescope, 665 nm filter, SKYRIS 236M camera. Seeing 8/10.*

Partial Lunar Eclipse of the Harvest Supermoon

Gregory T. Shanos

A partial lunar eclipse occurred on September 17-18, 2024 which was visible from most of North and South America (except for Alaska), Europe, most of Africa, western Asia, and parts of Antarctica. For the United States, the eclipse occurred "prime time" just after moonrise. Less than 10% of the moon entered the umbral shadow at maximum therefore the eclipse was only partial.

Since this is the closest full moon to the autumnal equinox on September 22, 2024 this moon is known as the Harvest Moon. The term, which dates back to at least 1706, where farmers relied on moonlight to harvest ripening autumn crops after sunset.

This partial lunar eclipse is extra special since it occurs during a supermoon. A supermoon is when the full moon is within 90% of its closest approach to earth. The moon will be 7% to 14% larger and 30% brighter during this time. Therefore, we have a very rare event- a Harvest Supermoon which will be partially eclipsed!

My impression of the eclipse was that it was very bright. The southernmost part of the moon hear the crater Tycho appeared overexposed to the naked eye! As you neared the northernmost part that was eclipsed, maria and craters became visible.

At maximum eclipse which occurred on Sept. 18, 2024 at 2h 44m Universal Time only 8.7% of the moon's uppermost limb entered the Earth's umbral shadow. Although minimal by eclipse standards, this event was incredibly spectacular!

Figure 1: Photograph during maximum eclipse by Wendy Mae Chambers of Scarborough, Maine. Wendy is member of the Southern Maine Astronomers and took this photo using a tripod mounted Nikon DX (D7500) with a 300mm DX lens giving an effective focal length of 450mm. This photograph most accurately captures how the eclipse appeared

Figure 2: This Harvest Supermoon image was taken two minutes after maximum eclipse (8.7%) on September 17, 2024 at 10:46pm local time or September 18, 2024 2h 46m UT by the author. The eclipsed supermoon was only 38 degrees above the horizon. The skies were perfectly clear with very good seeing conditions. A Meade 60mm refractor 250mm fl at f/4 was piggybacked on a tracking 8-inch Meade LX6 Schmidt-Cassegrain equatorial mounted telescope. A ZWO ASI178MM monochrome camera using Firecapture v2.7.14 captured the SER video with an MSI GF65 laptop computer. Autostakkert 3.1.4 was used to align and stack the images while Registax v6.0.1 provided the sharpening. Slight post- processing in Photoshop CS4. Image by Gregory T. Shanos Longboat Key, Sarasota, Florida.

Figure 3: Sequence of Seestar S50 images as the harvest supermoon approaches and leaves the umbra. Dates are for September 17, 2024 local time. Left: Moon touches the umbra 10:12 pm, Middle: Maximum eclipse 10:44pm (photo is 10:41pm), Right: Moon leaves the umbra 11:16pm. Color corrected in Photoshop CS4 since the Seestar give a blueish hue to a full moon.

References:

A partial lunar eclipse of the Harvest Moon Supermoon is coming this month. Here's everything you need to know by Brett Tingley Space.com published Sept 6, 2024

Partial Eclipse of the Harvest Moon: Everything you need to Know by Joe Rao Space .com published Sept 10, 2024

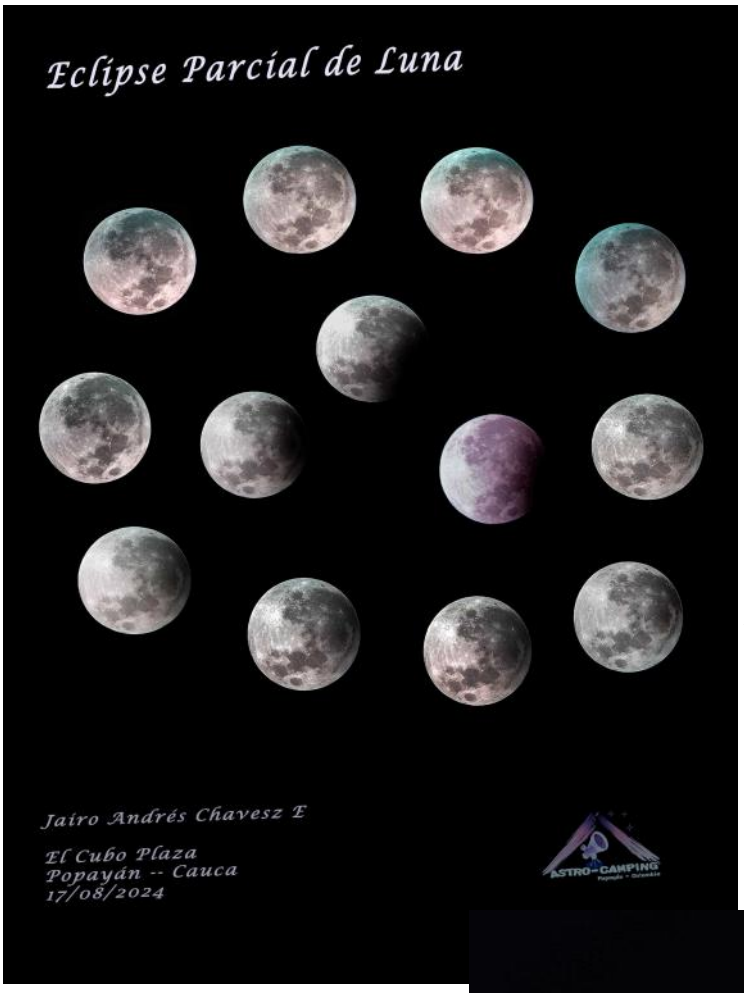
Don't miss the Harvest Moon Supermoon lunar eclipse tonight! Here's what to expect. by Daisy Dobrijevic Space.com published Sept 17, 2024

The Partial Lunar Eclipse, *Leandro Sid, Oro Verde, Argentina, AEA. 2024 September 18 at times listed.* ***Braun Binocular*** *12x50 Blue Bak 7, Motorola Fusion One cell phone camera.*

0241 UT

0242

0248



Partial lunar eclipse, *Jairo Chavez, Popayán, Colombia.*

Partial lunar eclipse, *Alan Trumper, Paraná, Argentina. 2024 September 18 02:59 UT. Heritage 130 mm reflector telescope, ZWO 224MC camera.*

Partial Lunar Eclipse of September 17, 2024

Marcelo Mojica Gundlach

On September 17, 2024, from 22:15 TL in Bolivia (02:15 on the 18th in TU), astronomy lovers had the opportunity to observe a partial lunar eclipse that, although marked by environmental difficulties, became a memorable spectacle. The presence of forest fires in several regions of the country significantly affected the quality of the sky, creating a dense atmosphere that made it difficult to view this natural phenomenon. However, nature, always surprising, offered relief in the form of a light rain that helped clean up some of the pollution in the atmosphere, allowing us to enjoy this astronomical event. Many Bolivian observers only enjoyed the event visually, while others dedicated themselves to obtaining as many images as possible.

A Partial Eclipse: What Is It?

A partial lunar eclipse occurs when only part of the Moon passes through the Earth's shadow, resulting in only part of the natural satellite being obscured. On this occasion, astronomy enthusiasts prepared to capture this phenomenon, which was expected to be especially attractive due to the reddish hue that the Moon takes on at the moment when the Moon is entering the umbra. In Fig. 1 we can see the calculations made by Moisés Montero for Bolivia. [1]

Our friend Moisés also pointed out to many Bolivian amateurs that, from the South, the perspective is different than in the North and therefore we must become more familiar with these concepts, as well as with regard to percentages of eclipsed surfaces.

CIRCUNSTANCIAS LOCALES DEL ECLIPSE PARCIAL DE LUNA DEL 17 DE SEPTIEMBRE DE 2024 PARA LAS CAPITALES DE LOS DEPARTAMENTOS DE BOLIVIA

CIUDAD	INICIO FASE PARCIAL (U1) HH:MM HORA LOCAL	ALTITUD DE LA LUNA	MITAD DEL ECLIPSE HH:MM HORA LOCAL	ALTITUD DE LA LUNA	FINAL FASE PARCIAL (U4) HH:MM HORA LOCAL	ALTITUD DE LA LUNA
COBIJA	22:13	54°	22:45	62°	23:17	69°
TRINIDAD		57°		64°		70°
LA PAZ		54°		60°		67°
SANTA CRUZ		58°		64°		69°
COCHABAMBA		55°		62°		68°
POTOSI		55°		61°		66°
ORURO		54°		60°		66°
SUCRE		55°		61°		67°
TARIJA		55°		60°		65°

La magnitud umbral del eclipse será de 0.091, entendiéndose por magnitud a la fracción del diámetro lunar oscurecida por la sombra de la Tierra en la fase máxima del eclipse

Fig. 1 The present calculations made by Moisés Montero of the ASO group in Cochabamba, who shared them with all the country.

Challenges due to Forest Fires

The forest fire season was intense in many areas of our country, resulting in a sky often covered by smoke. This not only darkened the sky, but also raised concerns about air quality. Many astronomy enthusiasts feared that these conditions would prevent any meaningful observation. However, as the day of the eclipse approached, the weather began to show signs of improvement. A light rain, unexpected but welcome, helped to clear the air and the sky, offering an opportunity for observers to appreciate the celestial phenomenon. The moniCA network, which monitors air quality in our city, tells us in a report published in the newspaper "Opinion": "…The figures corroborate this since according to the Air Quality Monitoring Network (Red MoniCA), this Monday Cochabamba woke up with an Air Quality Index (AQI) of 164 micrograms of particles per cubic meter (µg/m3), which indicates a "very poor" air quality." [2]

Observation Tools

To capture the beauty of the eclipse, two observation instruments were used. The first was a 72mm aperture APO refractor telescope plus 2X barlow, known for its ability to provide sharp and bright images. Coupled with a Nikon D3100 camera, this rig allowed me to obtain the photographs of the event, and piggybacked a Canon S40 with digital zoom to obtain some other photographs. The combination of the telescope's optical quality and the camera's sensitivity made it easy to capture details that I had not expected to achieve. Fig. 2 shows us the configuration used.

In addition, a ZWO Seestar S50 robotic telescope was used, which offered a more automated and precise observing experience. This telescope, known for its tracking and adjustment capabilities, allowed users to focus on the moon without the need for constant manual adjustments, resulting in more stable and detailed images during the eclipse. The combination of these two telescopes proved to be an effective strategy to overcome the adversities of sky quality and to be an optimal set of equipment to observe and photograph a lunar or solar eclipse if one is working alone.

Fig. 2 If you observe the APO Skay Watcher with the Nikon at primary focus and Canon.

The Eclipse Experience

As the night progressed, observers from all over the country, and from the city of Cochabamba, gathered at different points in the city, armed with their telescopes and cameras. With the eclipse at its peak, the atmosphere was filled with enthusiasm and camaraderie and even though we only saw a small part of the Moon darken, the excitement of the people was noticeable. In the WhatsApp groups, they sent us videos, images and comments in which it was clear that the eclipse was causing a sensation, because along with the photos taken with cell phones, comments such as: "…it can be seen with the naked eye…" were read. Murmurs of amazement resounded as each one took turns to observe through the telescopes and capture the image of the partially covered satellite, trying to attach their cell phone to take a better memory.

The results were surprising. Considering the adverse conditions, the photographs obtained were good. The mixture of colors and shadows on the Moon, caused by the Earth's atmosphere, created a visual landscape that delighted all present. Each shared image, each commentary about the event, enriches the collective experience. Although it is not noticeable in the images, you can observe a red area at the end of the screen. In Fig.3 we can appreciate the images obtained and processed by me. If 10 rounds were obtained each time, Registax 5 was used to obtain the final result.

Conclusion

The partial lunar eclipse of September 17, 2024, considering the disasters presented by forest fires and the beauty of the sky, became a celebration of the resilience and beauty of astronomy. Thanks to the help of the rain and the use of suitable equipment, observers could enjoy and capture a unique moment in the night sky. This event not only strengthened the passion for astronomy, but also raised the importance of the community in the appreciation of natural phenomena. Without a doubt, one night will remain in the memory of those we were lucky enough to experience it.

Fig.3 If you observe the Moon eclipsed at the maximum at night, 10:45pm and when the Moon was rising from the umbra at 11:17pm TL. 72mm APO refractor with 2X barlow and Nikon D3100 camera with s=6/10 and t=3/6, thanks to a little rain that cleared a little the smoke from our skies.

References:

1) Moises Montero. Astronomía Signa Octante, septiembre, 2024

2) https://www.opinion.com.bo/articulo/cochabamba/presa-humo-llajta-toco-nivel-mas-alto-contaminacion-2024-lunes/20240909123533955185.html

Schröeter's Bright Horn On Mare Crisium

Alberto Anunziato

As a visual observer of the Moon, I have enormous admiration for all the visual selenographers of the past. I am fascinated by the adventure of remote observation that underpins lunar cartography. And among these great astronomers and adventurers, Johan Hieronymus Schröeter occupies a special place. As an adventurer, his life story is incredible. His adventure consisted of devoting his entire life to lunar observation and cartography, with enormous results, while earning a living as a government official, as well as setting up his Lilienthal Observatory in his native Saxony. Schröeter occupies a prominent place among the great selenographers of the 18th century because he changed the direction of lunar studies, by studying in detail limited areas of the visible face, while the focus until then (late 18th century) was the study of the entire lunar map. It must be said that there are precursors, such as Bianchini, in the production of detailed maps of specific areas, but Schröeter was the first to do so systematically, allowing the discovery of selenographic features that were overlooked (or not recorded) by earlier selenographers such as the wrinkle ridges.

Johan Schröeter is commonly criticized for two reasons: his belief in the possibility of life on the Moon and his poor draughtsmanship. Personally, I think the first criticism is irrelevant: Schröeter's observations are not influenced by a belief that was not so eccentric in his time. The second could be a little unfair (no one is to blame for not having a good hand for drawing) and a little fair, since his drawings tend towards simplification and lack of detail, and the proportions sometimes seem strange. This last observation was what determined my judgment when I observed the drawing of Mare Crisium (IMAGE 1) that belongs to his most famous lunar work, the Selenographic Fragments. I was intrigued by this bright horn-shaped area. I did not remember having seen it either visually or in photographs. That is why on September 7, between 22:30 and 22:50 UT in the first quarter (colongitude 328.8, 21% illumination) I looked for it in Mare Crisium. Indeed, it was visible, although very, very faint. However, the horn seemed to emerge from the promontory that extends into Mare Crisium, northwest of Condorcet, while in IMAGE 1 it is located west of said promontory.

Image 1, Mare Crisium, *Selenotopographische Fragmente zur genauern Kenntniss der Mondfläche. North is down, west is to the right.*

I made a sketch of the location of “Schröeter's Horn”, but I do not present it here, because I was able to locate it in images that members of the Sociedad Lunar Argentina sent more than two years ago for the dossier on Mare Crisium that was the Focus On section of January 2022. In IMAGE 2 we marked the area with an arrow, although visually it seems to be wider. In IMAGE 3 this horn-shaped area can be seen better due to the perspective. Schröeter's map does not depend on lighting, since details are seen on the west shore that are not visually visible when Mare Crisium is fully illuminated. But the area that Schröeter marked with a “G” can be seen with frontal lighting when the relief details inside are not visible. Unfortunately, Schröeter's book is only available, and not very easily, on the web in German (which I cannot read), and Schröeter's German is not only more than 200 years old but also famous for its obscurity, so running the text through an automatic translator is not an option. Unfortunately, we do not know what the textual references are to this image, particularly the horn-shaped area noted as "g".

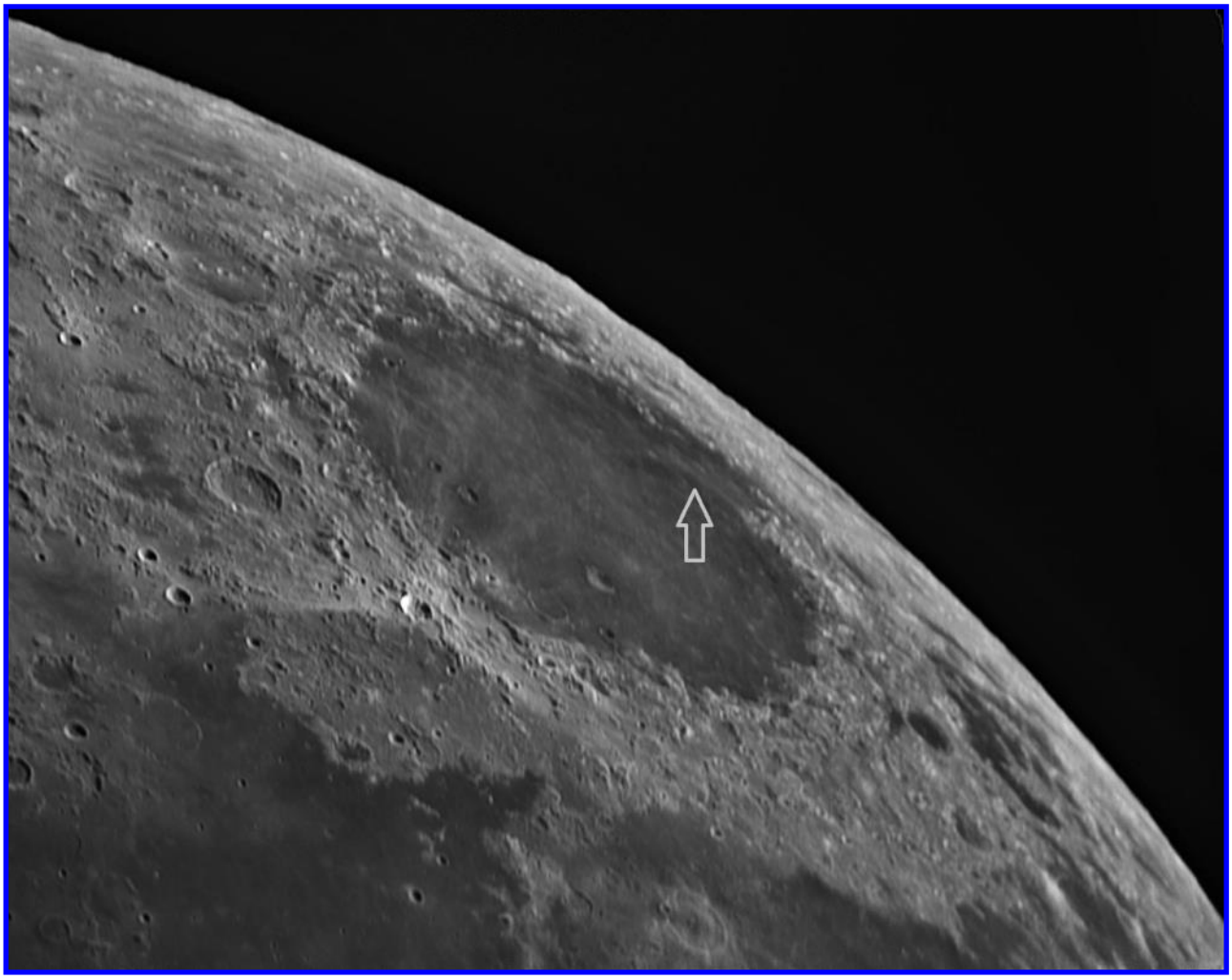


Image 2, Mare Crisium, *Sergio Babino, Montevideo, Uruguay. 2020 April 30 00:16 UT. 203 mm catadrioptic telescope, ZWO ASI 174MM camera.*

Image 3, Mare Crisium, *Francisco Alsina Cardinalli, Oro Verde, Argentina. 2016 January 16 00:28 UT. Meade LX200 Schmidt-Cassegrain telescope, Canon Digital Rebel XS camera.*

The next day, September 8th between 23:15 and 23:20 (colongitude 341.0) it looked much better (IMAGE 4) with its edges more marked, with what appears to be a shadow on the western edge and a slightly darker tone on the eastern edge. This is the panorama illustrated in IMAGE 5, in which we marked the edges with arrows. It is an area of particular relief; it could be a wrinkle ridge. In IMAGE 6 I marked the edge of this area. Is it or is it not a wrinkle ridge? The catalogue of wrinkle ridges of the LROC Quickmap in the area indicates several small segments (IMAGE 7) that could be, but there is none that matches the one marked in IMAGE 6. The two longest segments correspond to Dorsa Tetyaev to the north and Dorsa Harker to the south, whose relief (typical of the dorsa) is clearly seen in IMAGE 8 with oblique lighting, while in the center our area seems to be a zone of a faint glow. The relief that we see to the right of IMAGE 7 does not help much either. In principle, according to the catalogue of wrinkle ridges of the LROC Quickmap, Dorsa Tetyaev and Harker seem to join in the area where the "horn" would be, although this intermediate zone does not seem to have such a steep relief, towards the interior of Mare Crisium the relief drops a lot (it is a deep mare), but towards the east there do not seem to be deep changes in relief. There is also no wrinkle ridge segment in IMAGE 7 that curves westward toward Crisium's interior.

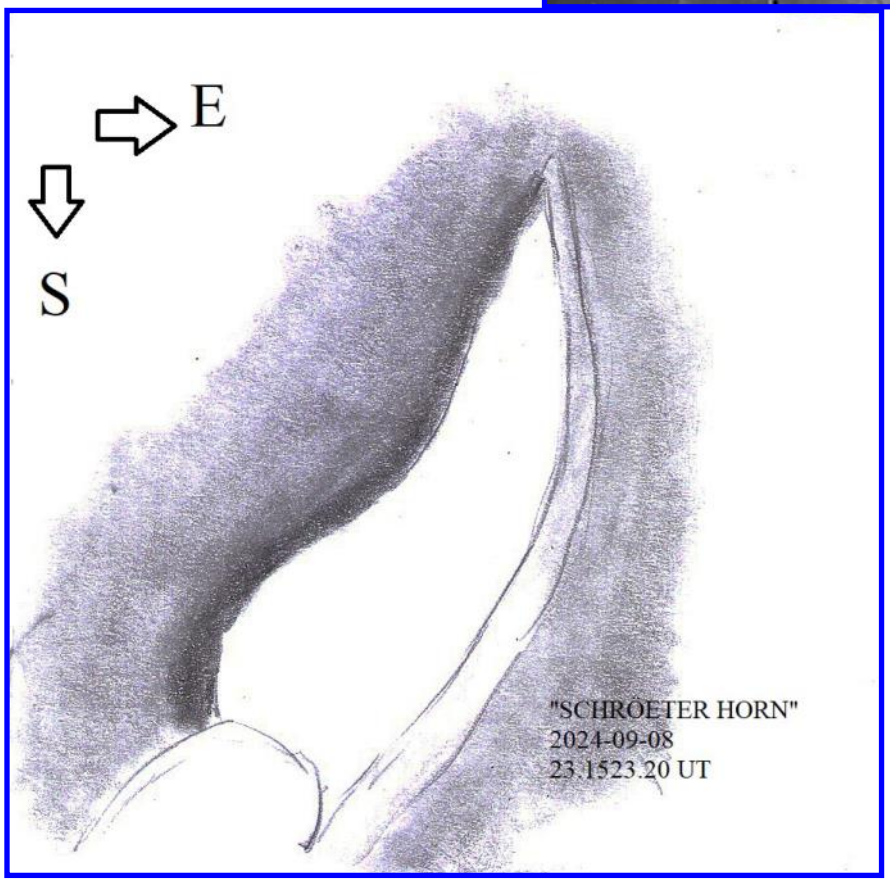


Image 4, Schröeter's Horn, *Alberto Anunziato, Paraná, Argentina. 2024 September 08 23:15-23:20 UT. Meade EX105 Maksutov-Cassegrain telescope, 154 x.*

Lunar Topographic Studies
Schröeter's Bright Horn On Mare Crisium

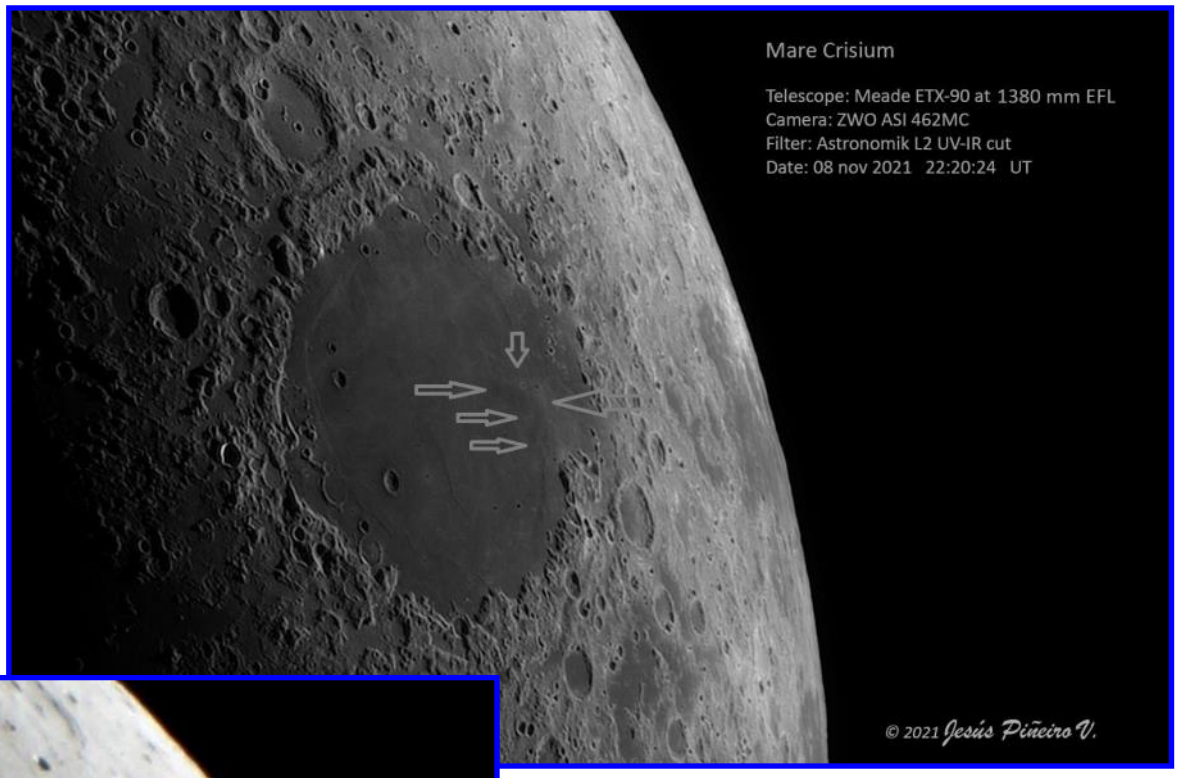


Image 5, Mare Crisium, *Jesús Piñeiro, San Antonio de los Altos, Venezuela. 2021 November 08 22:24 UT. Meade EXT90 Maksutov-Cassegrain telescope, Asutronomik L2 UV-IR cut filter, ZWO ASI462MC camera.*

Image 6, Mare Crisium, *Desiré Godoy, Oro Verde, Argentina. 2016 December 12 00:06 UT. Meade Starfinder 8 inch reflector telescope, 742 nm IR pass filter.*

Lunar Topographic Studies
Schröeter's Bright Horn On Mare Crisium

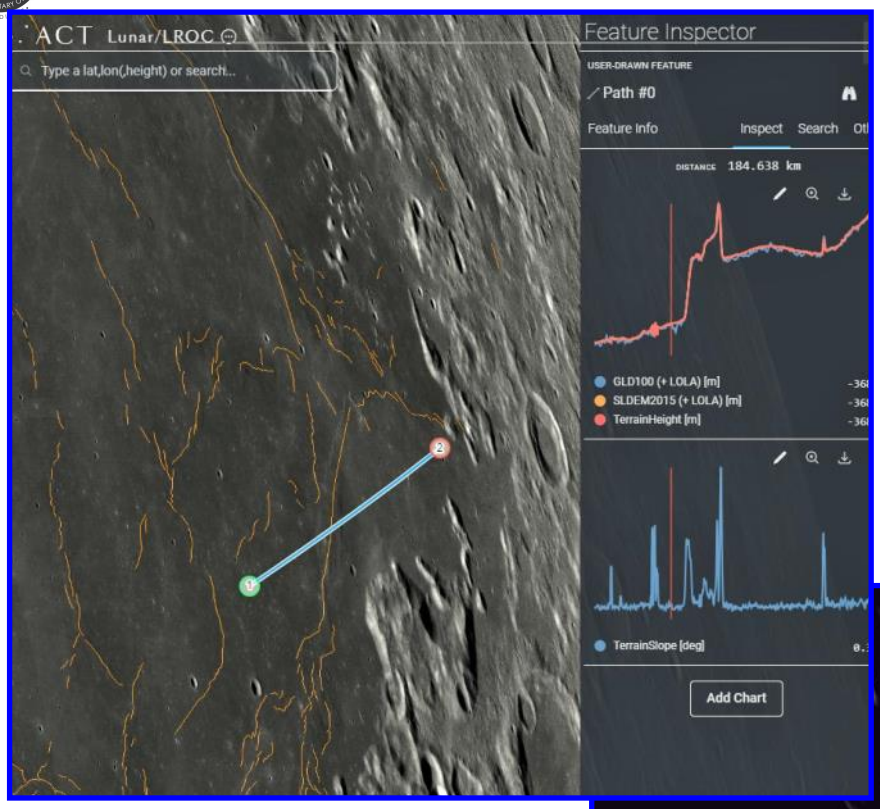


Image 7, Wrinkle Ridges in Mare Crisium, *LROC.*

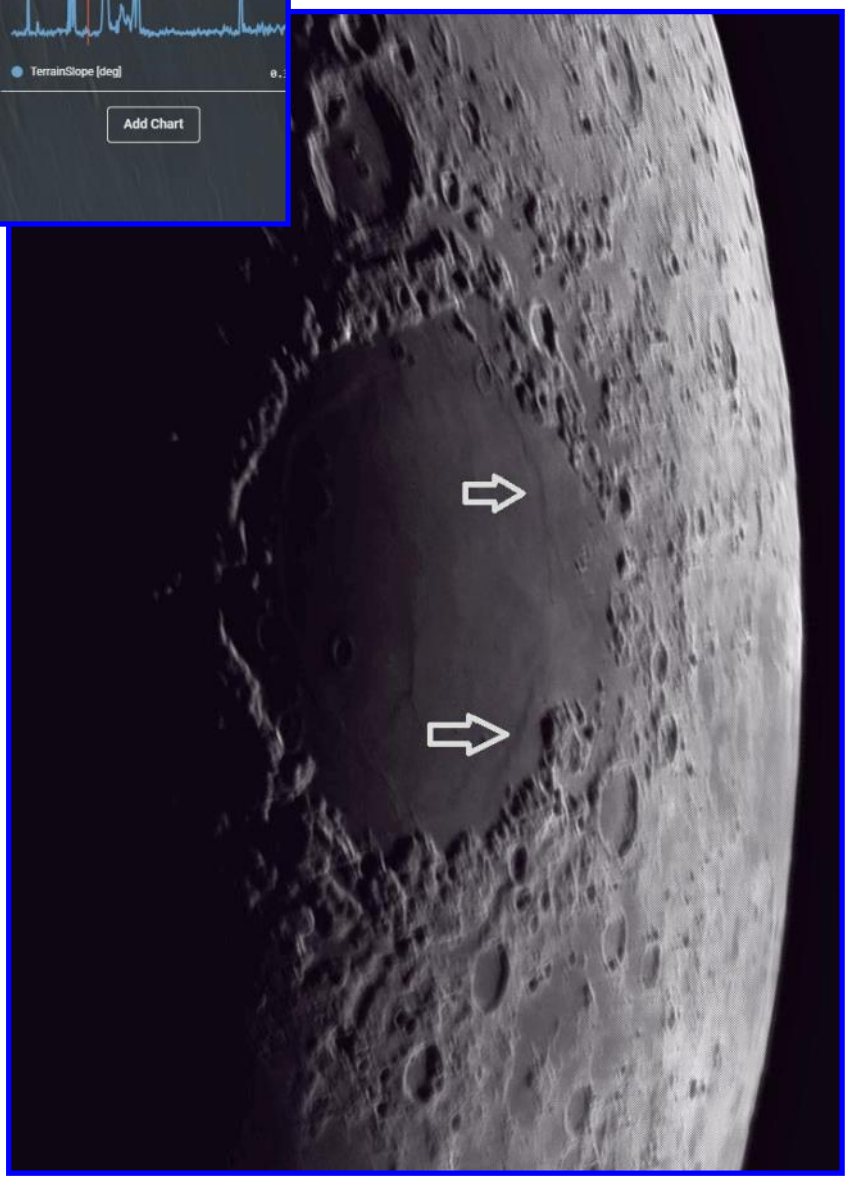


Image 8, Mare Crisium, *Richard Martin, Canelones, Uruguay. 2021 December 06 23:37 UT. 130 mm reflector telescope, ZWO ASI120MM/S camera.*

In short, the area is a visual mystery: Why do we see it this way? The truth is that, although its outline is slightly different and probably not as conspicuous as on his map, Schröeter marked an area that visually appears to be a "bright horn," which can be seen in photographs of the area. Is it a combination of rugged relief, on its western inner edge, formed by dorsum segments, and bright material in the east, where there is no conspicuous relief to justify its appearance? This does not seem likely, since it seems to be even better seen in oblique illumination near the terminator. Another lunar observational mystery.

No BULLialdus

Rik Hill

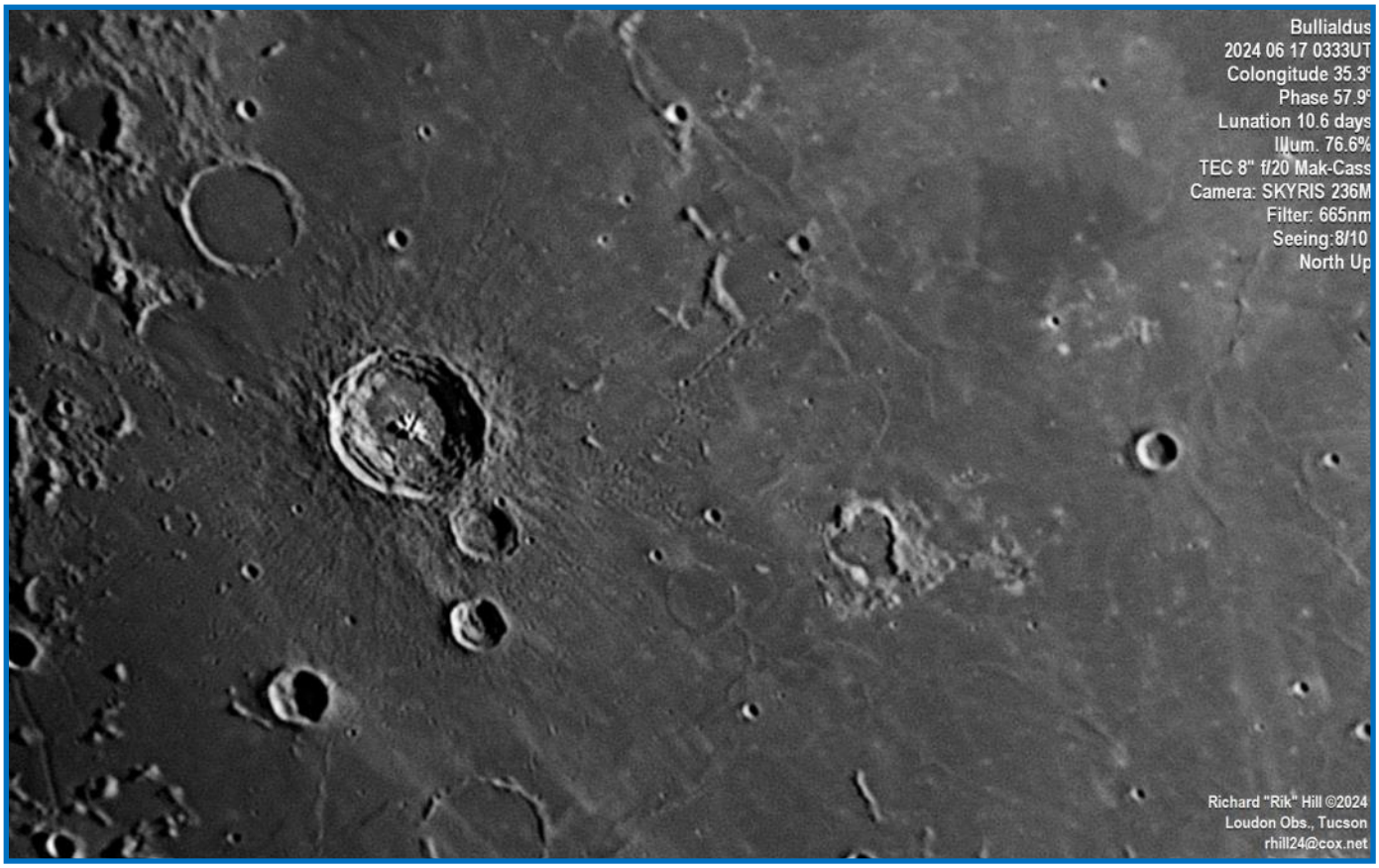
Only a few hours after Copernicus comes into view, another magnificent terraced crater becomes visible farther to the south in Mare Nubium. This is Bullialdus (61km dia.) easily identified by the three craters to the south of it, Bullialdus A (25km) then further out Bullialdus B (22km) and to the west (left) of that, Konig (23km). Notice the radial striations from impact ejecta surrounding Bullialdus. In close to the crater walls, it forms a crisscross pattern where ejecta from different parts of the crater were laid down with their different trajectories…and it all happened in a very energetic few seconds! Some very much older formations surround Bullialdus. Above and slightly left is a ring crater Lubiniezky (43km), and directly below is another ring crater, Kies (46km) both flooded during the Nubium impact event some 4.55-3.92 billion years ago. You may also notice the three flooded and ruined craters in a more or less vertical arrangement to the upper right of Bullialdus. The upper one is Opelt (49km), the bottom one is Gould (33km) and the middle one is Gould M (42km). Below these craters is an unnamed catena that crosses through the bottom of Gould with the north end just under the small young crater Gould P (8km). On the south end of this catena is another almost perpendicular that appears to be secondary craters made from ejecta form Bullialdus. This radial catena points to one of the most interesting features in this region, the heart-shaped "crater" Wolf. This pre-Imbrian (4.5-3.5 b.y.) crater is unique in many respects. Ignored by most early selenographers it was only recently named, in 1912, by Krieger & Konig in Mond Atlas – Neue Folege (Moon Atlas – New Episode) where they said:

The adjoining mountains to the west have a strange, form very different from the ring mountains, although it must be addressed as such. In its structure, it is vaguely reminiscent of Julius Caesar, for example. It is symmetrical and its axis of symmetry is in the predominant direction of deletion. The name M. Wolf. (foot note: Hofrat Professor Max Wolf, Direktor der großh. Sternwarte Heidelberg-Königstuhl **or** Privy Councillor Professor Max Wolf, Director of the. Heidelberg-Königstuhl Observatory)

Like the previously mentioned craters Wolf is flooded but something more is going on. I suspect, though have not read anywhere, that this is really the combination of two or three 10-12km craters that were later heavily modified by Nubium lava flooding leaving only portions of the crater rims above the surrounding mare. These rims are low too with the highest point being only 0.7km high. To the south the wall has been completely breached. This portion of the formation is called Wolf B.

This formation will reward those with a good night, good optics and some magnification. The whole apron on the south side of this crater looks as if it was hammered out in a blacksmith's shop. A portion of the north side of the interior floor has the same appearance.

One thing about this crater is that it changes with the lighting. It is a fun activity to observe it every night it's visible.



Bullialdus, *Richard Hill, Loudon Observatory, Tucson, Arizona, USA. 2024 June 17 03:33 UT, colongitude 35.3˚. TEC 8 inch f/20 Maksutov-Cassegrain telescope, 665 nm filter, SKYRIS 236M camera. Seeing 8/10.*

Lunar Topographic Studies
No BULLialdus

The Dawes Plateau

Alberto Anunziato

More than 5 years ago, I sent a sketch of the Copernican crater Dawes (18 km in diameter) near the terminator to our magazine. At this moment the dark shadows make it clear that Dawes is located in an elevated area. If you look at the images of the area you will see that practically no elevation can be distinguished in this border area between Mare Serenitatis and Mare Tranquillitatis. There is not much literature about this very interesting crater, except for the study "The Lunar Crater Dawes" (J.R. Donaldson), available at https://www.asprs.org/wpcontent/uploads/pers/1969journal/mar/1969_mar_239 -245.pdf .

At the moment, this text confirmed to me that "indicated by LAC 42 the slope of the surrounding terrain is away from the rim of the Dawes crater which is 300 meters higher than the mare surface. This would tend to indicate the presence of a small anticline structure with the apex in the proximity of Dawes and the limbs sloping outward from the crater" (pages 241/242), which can be confirmed with IMAGE 1 which is Figure 5.17 (page 93) of "The Geological History of the Moon" by Don Wilhelms (United States Government Printing Office, Washington, 1987): Dawes is higher than the surface of the Mare Tranquillitatis.

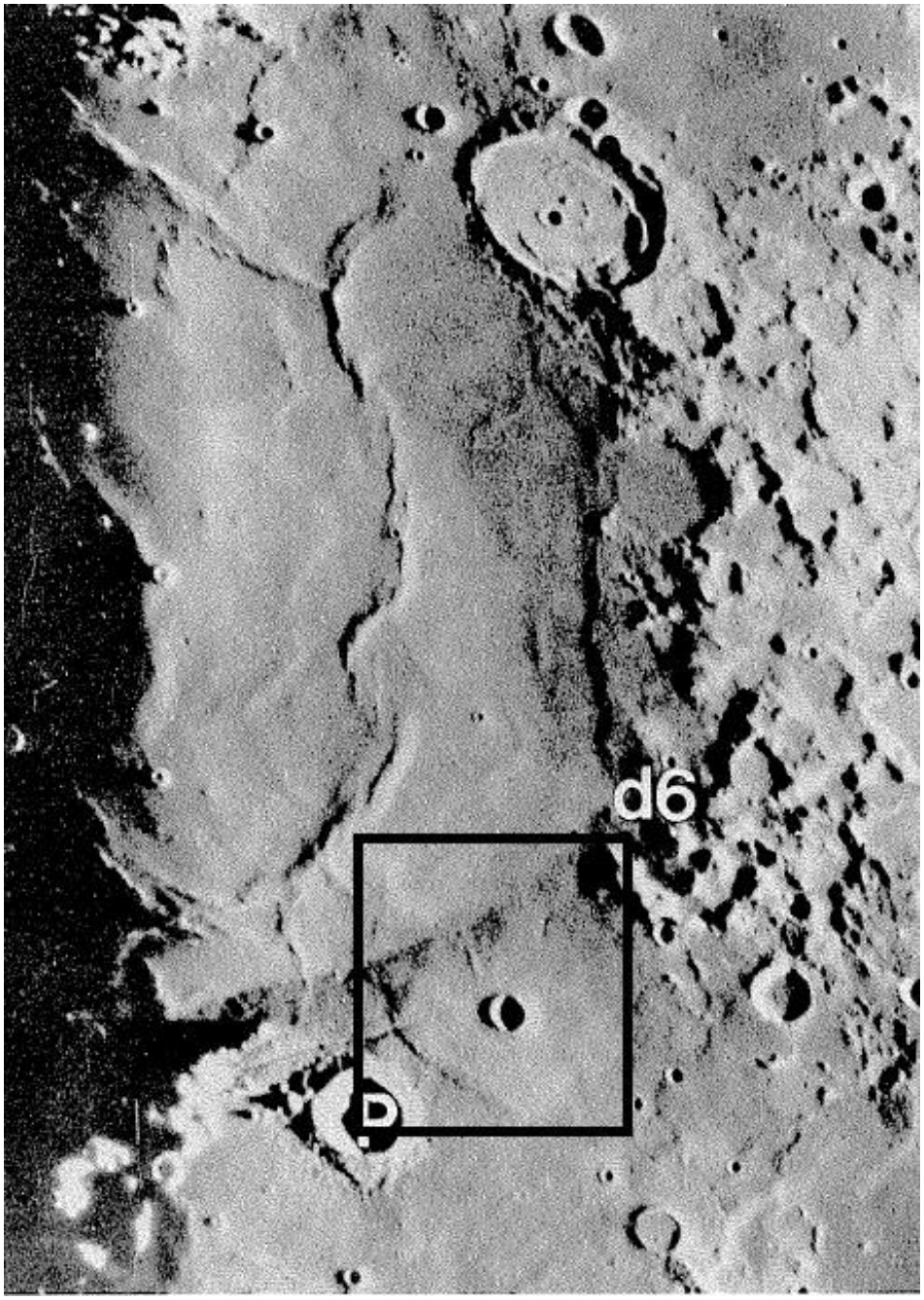
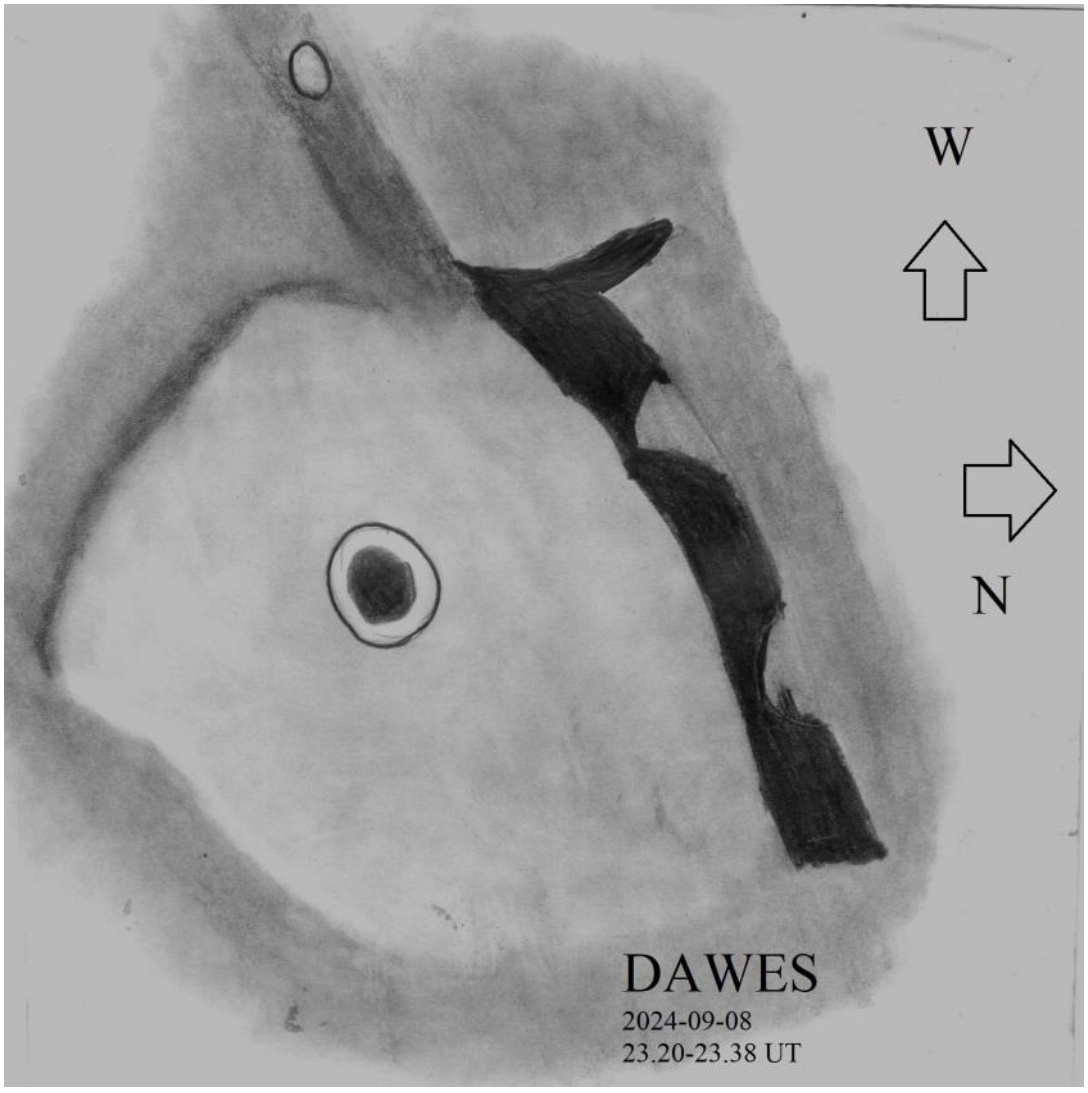


Image 1 Dawes *from Geologic History of the Moon, Don Wilhelms.*

Well, a few nights ago I could observe a marvelous sight, which probably can only be seen one night a month: the plateau where Dawes is located, perfectly outlined, with the shape that was illustrated in IMAGE 2. I remembered my observation of 2019, but the lighting (or my viewing abilities) was much better, not so dark, and it was outlined as a great dome. In this 2024 I can go to Luna Cognita (2020, Springer, New York) and Garfinkle is extremely clear and precise: "The Dawes crater is slightly offset toward the west from the center of a rectangular-shaped low-elevation plateau (dome or large shield volcano?). The outline of the plateau is shown by the shadow cast along its western edge". Exactly, it looks like a gigantic shield volcano. The shadow on the western edge is really very dark, an indicator of steep relief. We tend to forget old books and in the case of "The Moon" by Thomas Elger (1895, George Philip & son, London) it is a mistake. Obviously, it is an old book in lunar science, but I believe that they are the best visual descriptions of the selenographic features that exist. Elger knew that Dawes was located in a "nearly circular light area". Now well, the relief map of the LROC Quickmap does not help much, it is obvious that the Dawes area is higher than Mare Serenitatis and that the dark shade that comes on the north edge is steep relief shade, which coincides with zones where the lava is darker, but there is no conspicuous relief that justifies the south edge. The east edge is the only one that is not as marked. On the west edge the relief of the border this is extended towards Eratosthenes and there is clearly a small peak illuminated by the first lights of the dawn, part of the mountain relief of the border of Serenitatis.



Have you seen Dawes' plateau in all its glory?

Image 2, Dawes, *Alberto Anunziato,* Paraná, Argentina. 2024 September 08 23:20-23:38 UT. Meade EX105 Maksutov-Cassegrain telescope, 154x.

Linné: A Lunar Crater of Scientific Interest

Marcelo Mojica Gundlach

1.-Summary: Linné lunar crater, located in the near side of the Moon, is an object of great interest to astronomers due to its distinctive physical characteristics and geological history. This article provides a detailed review of the most relevant data on the Linné Crater, including location, dimensions, morphological characteristics, historical observation events and visibility on different lunar days and equipment.

2. Position and Location: Linné is located in the selenographic coordinates approximately 27.7° North latitude and 11.8° East longitude [1]. Its location in the "Mare Serenitatis" makes it easily observable from Earth using modest telescopes. However, its small diameter makes it difficult to resolver with small optics. On the personal with a 72mm APO you notice only a diffuse spot, as it is described in much literature for aficionados, Fig. 2, but it would be interesting to deal with it with different lighting angles. With 100mm of aperture you can notice it more clearly, but always in processed and contrasted images Fig. 3. At a simple glance you can only distinguish a little diffuse white spot with this equipment, which is why this crater originated some confusions over whether or not changes were made in the last thousand years. One of the most notable observations was carried out by the German astronomer Johann Friedrich J. Schmidt in 1866, from the Athenas observatory, who documented apparent changes in the crater. Schmidt reported that the crater had converted into a white stain, which generated a debate about the possibility of recent lunar activity. Sir John Herschel assumed that there had been an earthquake on the moon that changed Linné by smashing up the walls. However, subsequent studies suggest that these observed changes were probably optical effects caused by different lighting conditions [5].

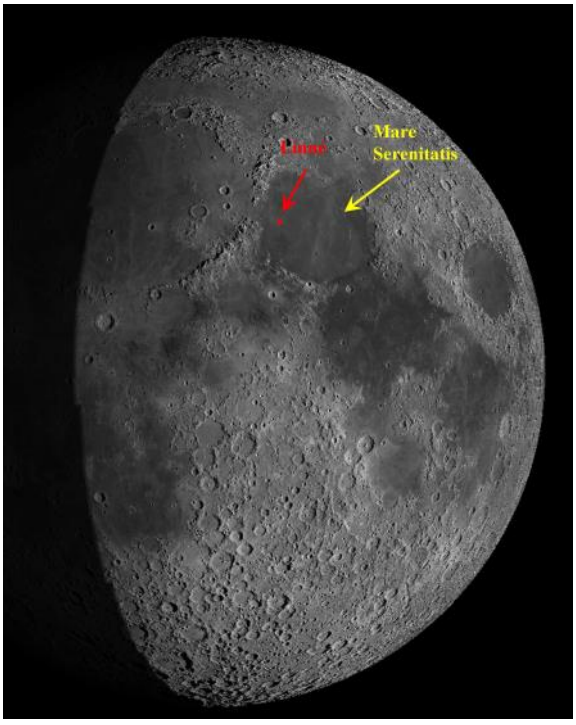


Fig. 1 Virtual Moon Atlas 8.2. Freeware

Cherrington, 1984, says that: “Some of the best photographs usually show Linné as a small diffuse spot…I observed it with a 3.5” small aperture telescope with very favorable conditions with the search termination and I didn't notice anything more than that a small, amorphous and diffuse lack” [4]. An interesting project would be to be able to determine the minimum aperture to be able to detect the crater and the moon phase appropriate to do so. Currently, astronomy aficionados have a large variety of equipment that can be very useful.

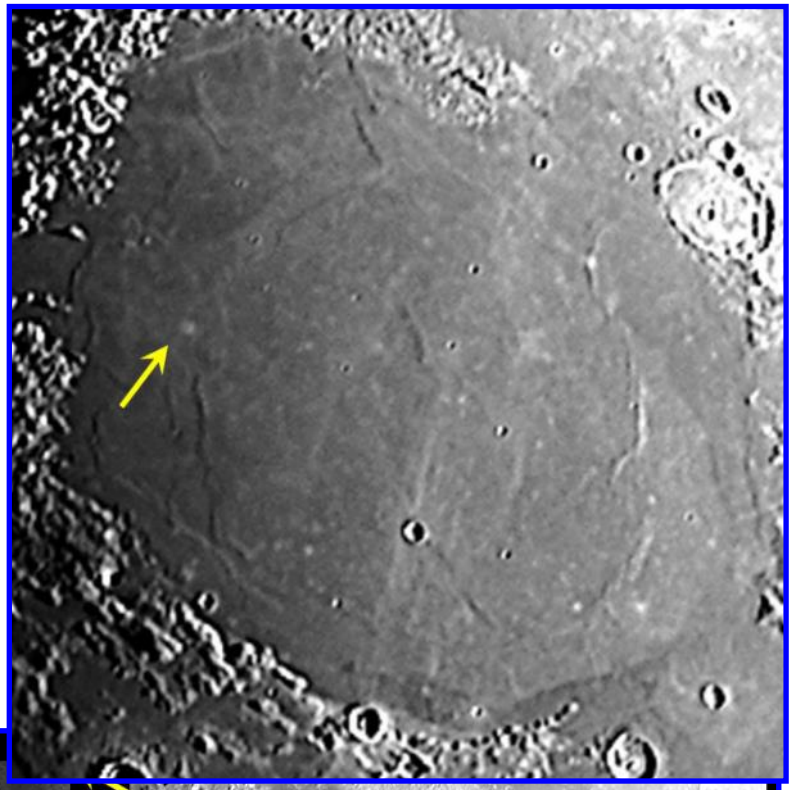
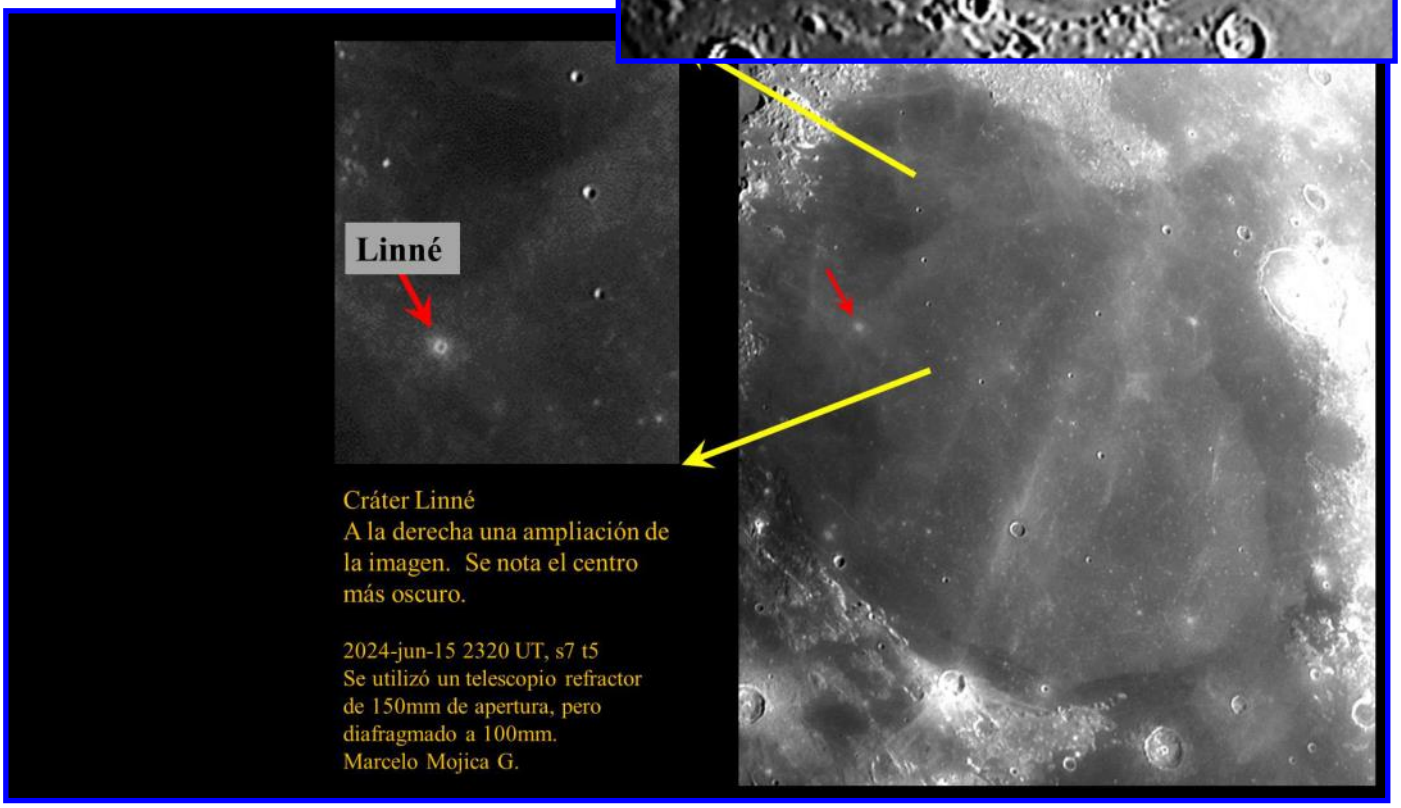


Fig. 2. Image taken with a APO 72mm refractor

Fig. 3. It can be observed that the crater has a dark center and the circular wall is noticeable.



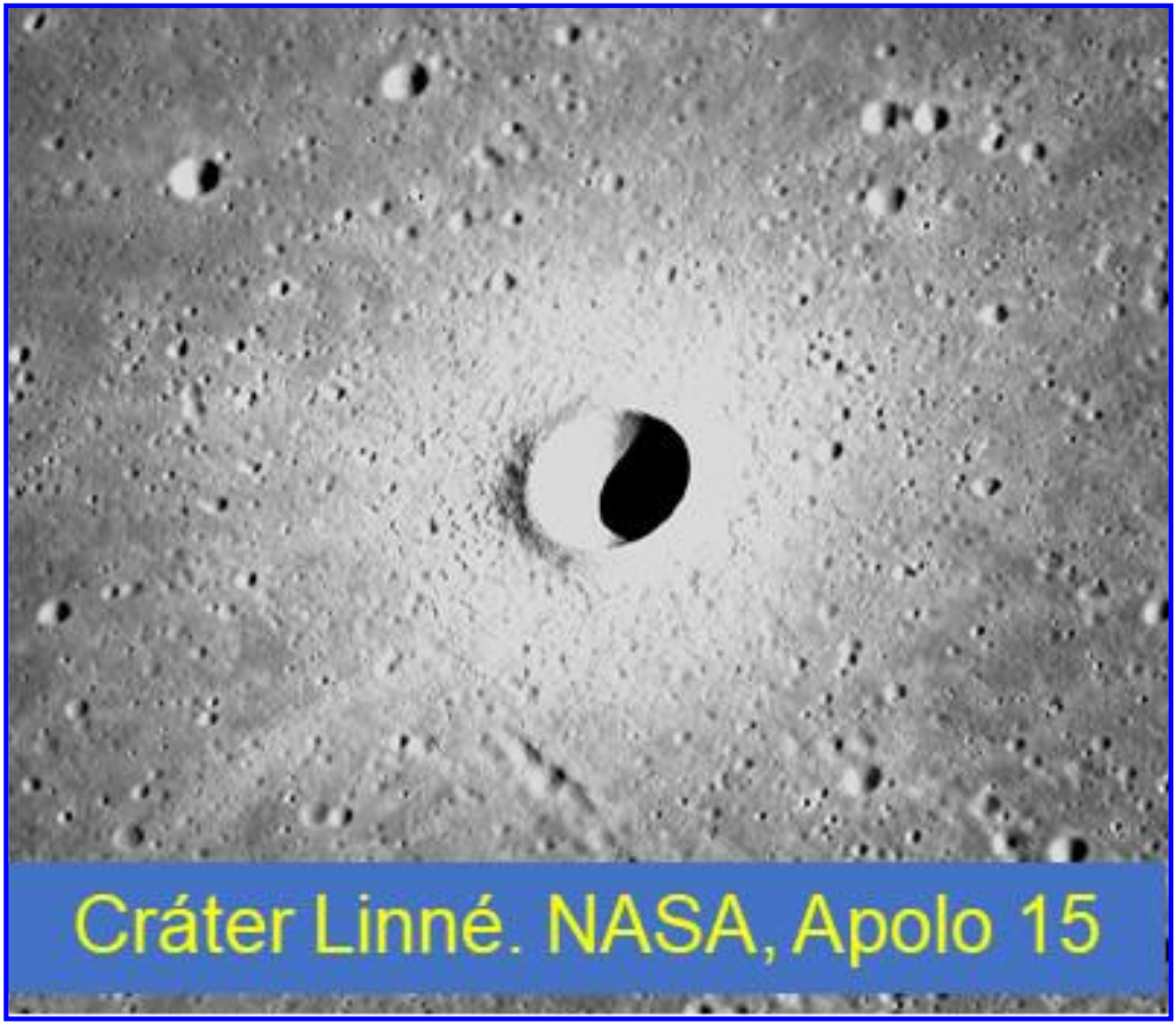


Fig. 4. The conical shape photographed from Apollo 15 [2].

3. Physical Characteristics, Fig. 4:
• Diameter: The crater has a diameter of approximately 2.2 kilometers and is conical in shape, which classifies it as a small crater in lunar terms [2].
• Depth: Linné has an estimated depth of about 600 meters. This considerable depth in relation to its diameter provides valuable information about the excavation and accumulation processes of material after an impact [2].
• Morphology: It has a sharp rim and an almost perfect circular shape, typical characteristics of recent impact craters. The crater floor is relatively flat, with no evidence of a central peak, which is common in smaller craters [3].

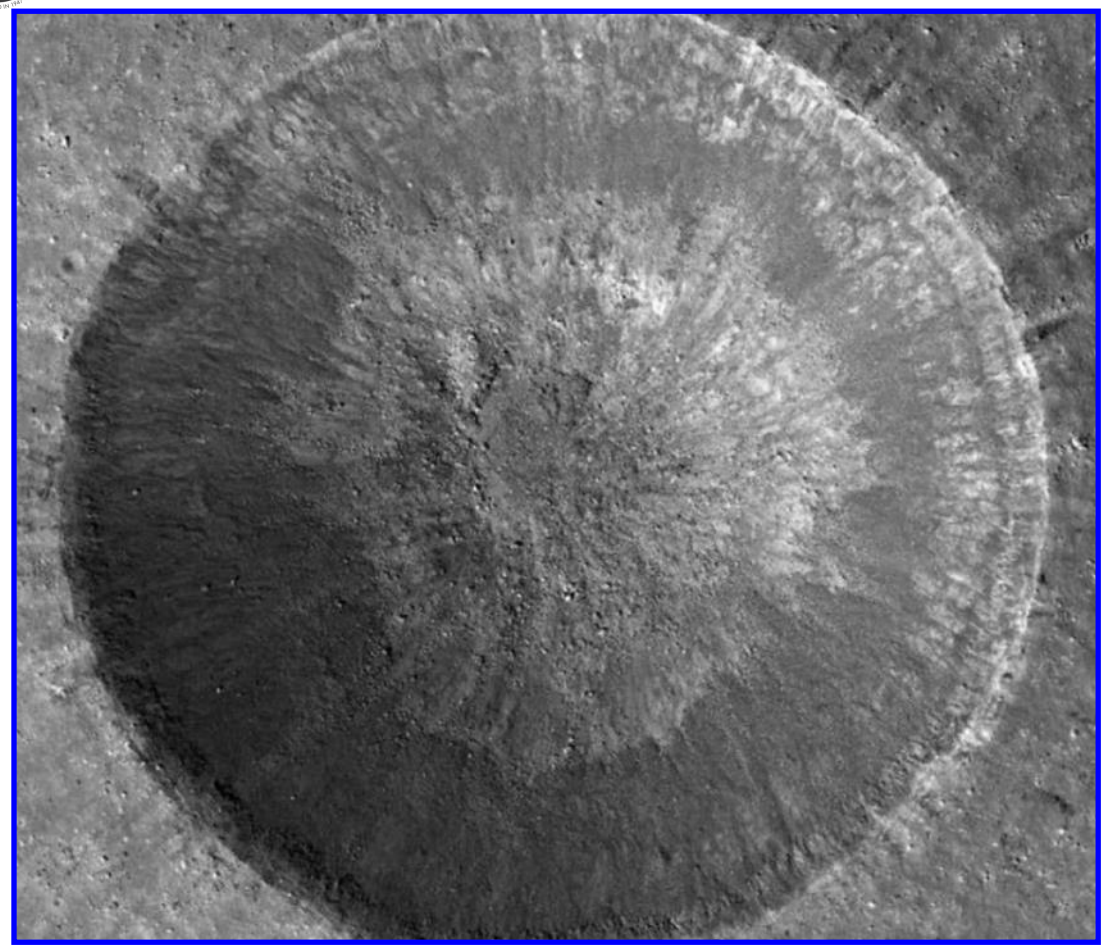


Fig. 5. Image by the Lunar Reconnaissance Orbiter Camera[6]

4. Age and Visibility: Linné is a relatively young crater in geological terms. Its intact appearance and the absence of significant erosion suggest that it was formed less than 10 million years ago, but more exact data is not available [3]. The visibility of Linné varies with the phases of the Moon. It is particularly noticeable during the first quarter from 6 days after the new moon and the last quarter from 5 days after the full moon, when solar illumination casts shadows that highlight its sharp contours and relief. To notice it as a crater visually, the Virtual Lunar Atlas suggests at least a 200mm aperture telescope [1].

5. Scientific Significance: The study of craters like Linné is crucial to understanding the history of meteoric bombardment on the Moon and, by extension, the solar system. Its relatively intact state provides a natural laboratory for studying crater formation processes and lunar surface geology. Furthermore, its easy visual accessibility makes it an ideal target for amateur and professional observers alike.

Conclusion: Linné Crater, with its combination of distinctive physical features and observational history, remains a focus of interest in lunar research. The data collected on its morphology, dimensions and visibility throughout the different lunar phases contribute significantly to our understanding of geological processes on the Moon and other planetary bodies.

References:

1. Virtual Moon Atlas 8.2.
2. https://es.wikipedia.org/wiki/Linn%C3%A9_(cr%C3%A1ter)
3. Published by Mark Robinson on 14 March 2011. Lunar Reconnaissance Orbiter Camera. https://www.lroc.asu.edu/images/305.
4. Cherrington Ernerst, Jr. Exploring the Moon, 1984, Dover Publications, INC. New York.
5. Patrick Moore. The Data Book of Astronomy, Institute of Physics Publishing, 2000.
6. Published by Mark Robinson on 6 July 2010, Linné Crater

The Wrinkle Ridge that Crosses Puiseux D

Alberto Anunziato

Mare Humorum has a good enough red of wrinkle ridges. As Robert Garfinkle says in "Luna Cognita": "Being a circular mare, the unnamed wrinkle ridges in Mare Humorum generally follow the outline of the mare shore". The unnamed ridge that appears in IMAGE 1 is one of the largest that runs concentrically in the center of Mare Humorum, in the southeast area, apparently crossing the Puiseux D crater (7 km in diameter).

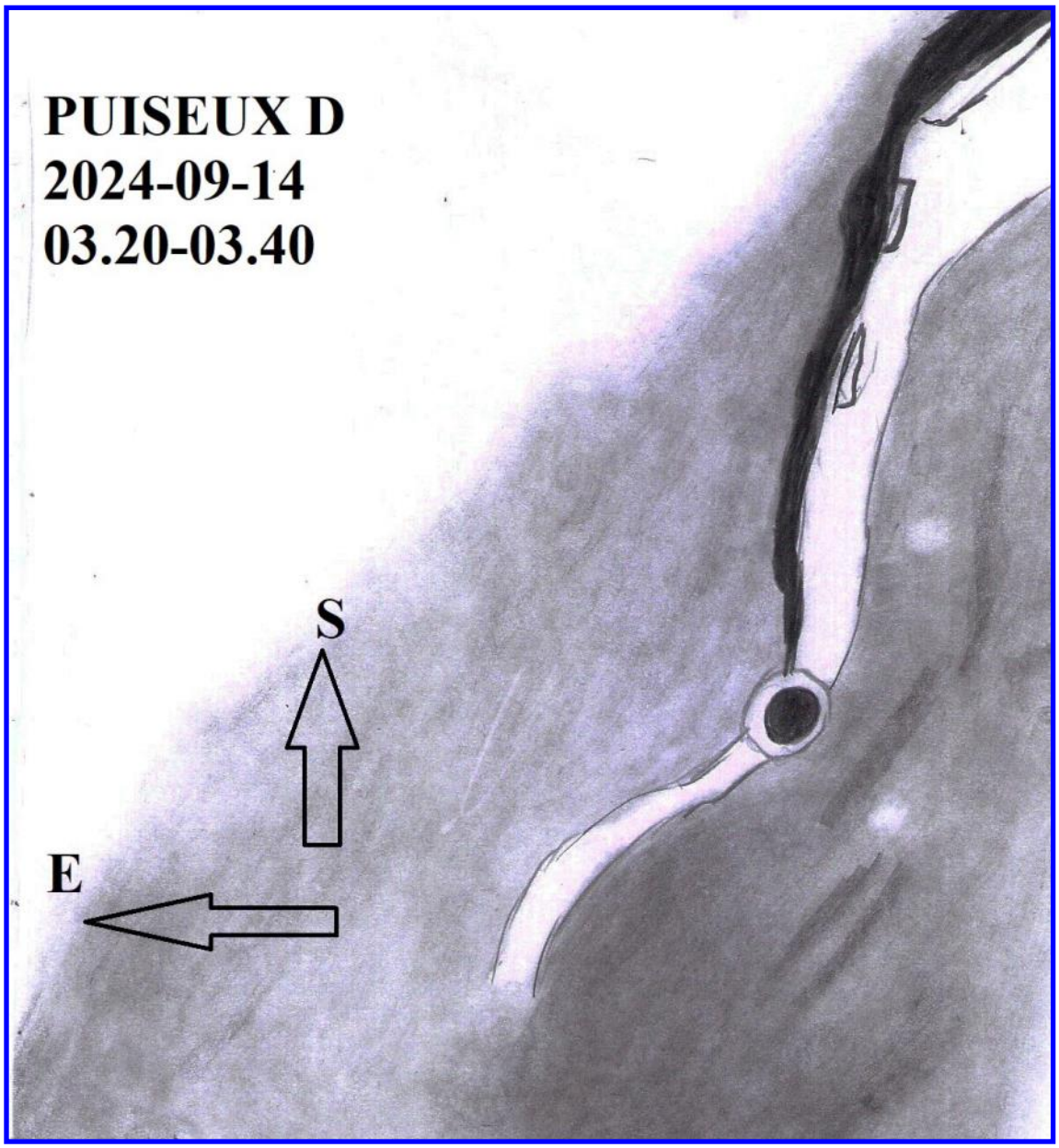


Image 1, Puiseux D, *Alberto Anunziato, Paraná, Argentina. 2024 September 14 03:20-03:40 UT. Meade EX105 Maksutov-Cassegrain telescope, 154 x.*

Visually the wrinkle ridge is divided into two segments, to the north of the crater a segment which is not very well visible in which we cannot distinguish topographic details, and to the upper part of the crater a segment which is also deviates towards the west and which clearly presents three higher zones, three crests, on the eastern edge. The surface of the mare is more complex than the west, in the north it is darker and parallel to our ridge it seems to have some elevations (if we can interpret the dark lines in this way). The original sketch included the ridges that run transversely, radial to the center of Mare Humorum, in the nearby of Gassendi O and J craters, to the north of Puiseux D. I cancelled this area because it was not compliant with the precision of the tracing of those ridges, which at the moment of observation I included only at the end. I tried to sketch a wider landscape, which would seem more pretty… and it was a mistake. I must have reserved these minutes, which were the last of my observation, and I was tired, to record more details of the ridge that was first sketched and that I present in IMAGE 1. Once again, to confirm my visual observation, I returned to the "Photographic Lunar Atlas for Moon Observers", by Kwok Pau, more precisely in its volume 2, in which there are various images of the wrinkle ridges in the southeast of Mare Humorum. I choose the image that appears on page 279, of which I took the small detail which is IMAGE 2. By comparing it with my observation I can confirm that the other ridges I mentioned more in the north were not precisely sketched (for that reason I erased them), that the alleged parallel elevations did not appear (at least in the photograph) and that the location of the two bright points in the west was quite precise. In IMAGE 2, I marked with stripes the location of the 3 main crests that I observed visually. Looking at the image of Kwok, which is a small part of the original image, we can admire the complete texture of the topography of the upper segment, especially near Puiseux D, in which the crests run over the arch chaotically, in parallel and transversal directions, very distinct from the simplified form in which the topography of a wrinkle ridge is usually thought of.

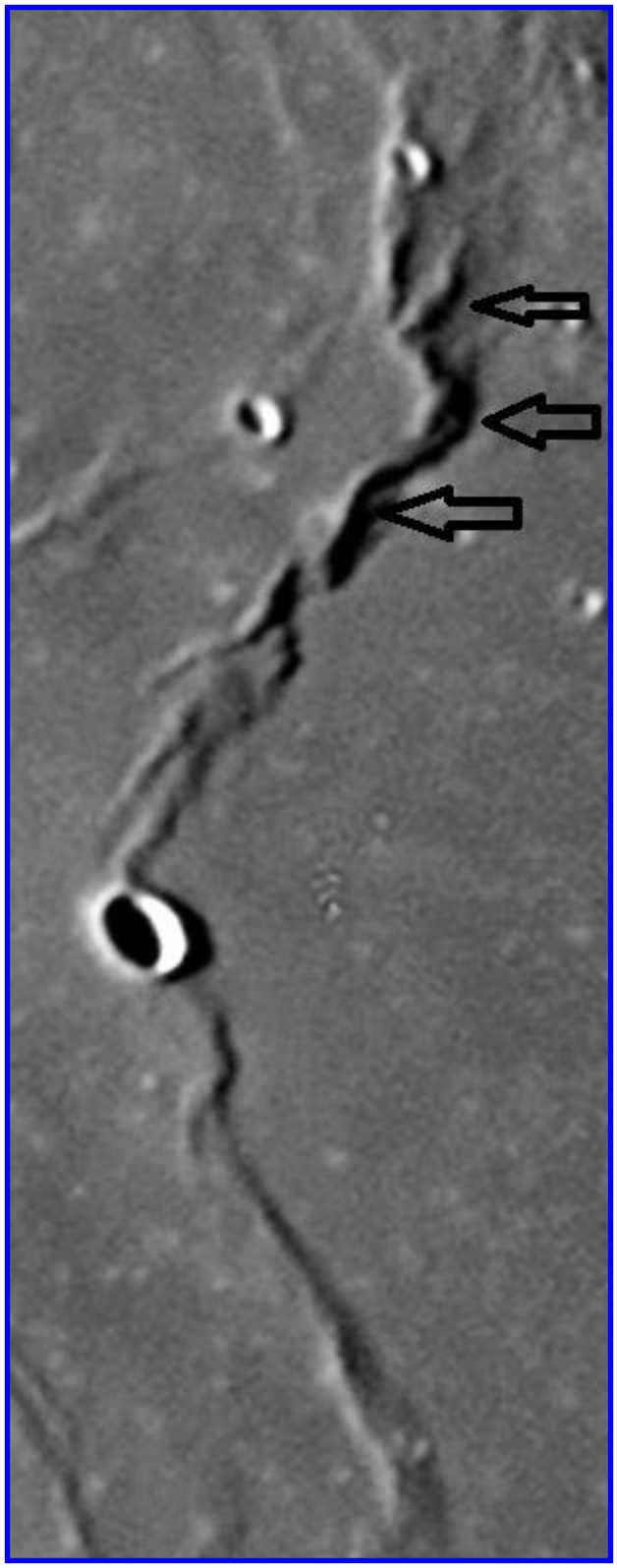


Image 2, Dorsum Puiseux *from "Photographic Lunar Atlas for Moon Observers", by Kwok Pau, Volume 2, Page 279.*

Copernicus
Under Different Illumination and Processing

Marcelo Mojica Gundlach /Group Icarus

Copernicus crater is one of the most impressive and studied of the Moon, located in the central region at a longitude of: 20° 5' West and at a latitude of: 9.621° North [1]. Named in honor of the Polish astronomer, this crater is a notable example of complete impact craters and offers a variety of characteristics and events that make it a fascinating object for both professional astronomers and aficionados.

Geological Characteristics

With a diameter of approximately 96 kilometers and a depth of 3.8 kilometers, Copernicus stands on its escalating walls and a series of central peaks that rise 1.2 kilometers from the bottom of the crater [2]. These central peaks were formed by the debris of the lunar surface between the impact of the meteorite that created the crater, a process that reveals much about the dynamics of cosmic impacts. If it is estimated that Copernicus was formed in the period called "Copernican" (-1.1 billion years), it is clear that this crater gives name to a geological period on the Moon [1].

The floor of the crater is covered by a blanket of material seen during the impact, which extends into bright rays that can be easily observed with telescopes from Earth. These rays, formed by fragments of rock and dust, extend over hundreds of kilometers and are a testimony to the strength of the impact that Copernicus created.

Possible Events

The formation of the Copernicus crater was a catastrophic event that released an immense amount of energy. The impact released the lunar surface with a kinetic energy estimated at approximately 9.6×10^{22} [J][3]. The collision with the meteorite caused a visible glow even from the ground, which would be welcomed by observers at that moment. The ejecta seen during the impact were dispersed over a vast area, contributing to the formation of other geological features on the Moon.

In modern times, Copernicus continues to be a point of interest for astronomical events. During lunar eclipses, for example, observation of the crater can provide information about the interaction of solar light with the lunar surface and the Earth's atmosphere. Furthermore, the smallest impact events to improve the impact of the meteoric bombardment on the Moon, originating in the material expelled from Copernicus, which occur in the surroundings of "Stadius" crater, almost disappeared, and which can be studied in detail with a telescope with 200 or more mm aperture [4].

Observation from Earth

For terrestrial observers, Copernicus is an accessible and fascinating object. With a modest telescope, even amateur astronomers can observe the details of their walls and the ray system. During the crescent phase of the Moon, solar light falls obliquely on the crater, casting large shadows that highlight the topography in detail. It can be observed 2 days after the first quarter or until 1 day after the last quarter [1] and it is visible even with binoculars, it is clear that to be able to appreciate it better it is advisable to use at least a 100mm aperture telescope one 200 increases [4].

After full moon and processing with high contrast

On the 25th of May 2024 at night (TL), I was making plans for lunar photography of the waning moon. I was trying to experiment with the ZWO 178 camera and so be able to detect lunar rays in large and "young" craters, but I was surprised by the images obtained, especially of Copernicus, it could show an area (southwest), which I hadn't noticed before. A darker semi circumference could be seen with some smaller craters that are centered on the edges. This is why it would be interesting if lunar observers started a campaign to follow Copernicus every full moon if possible.

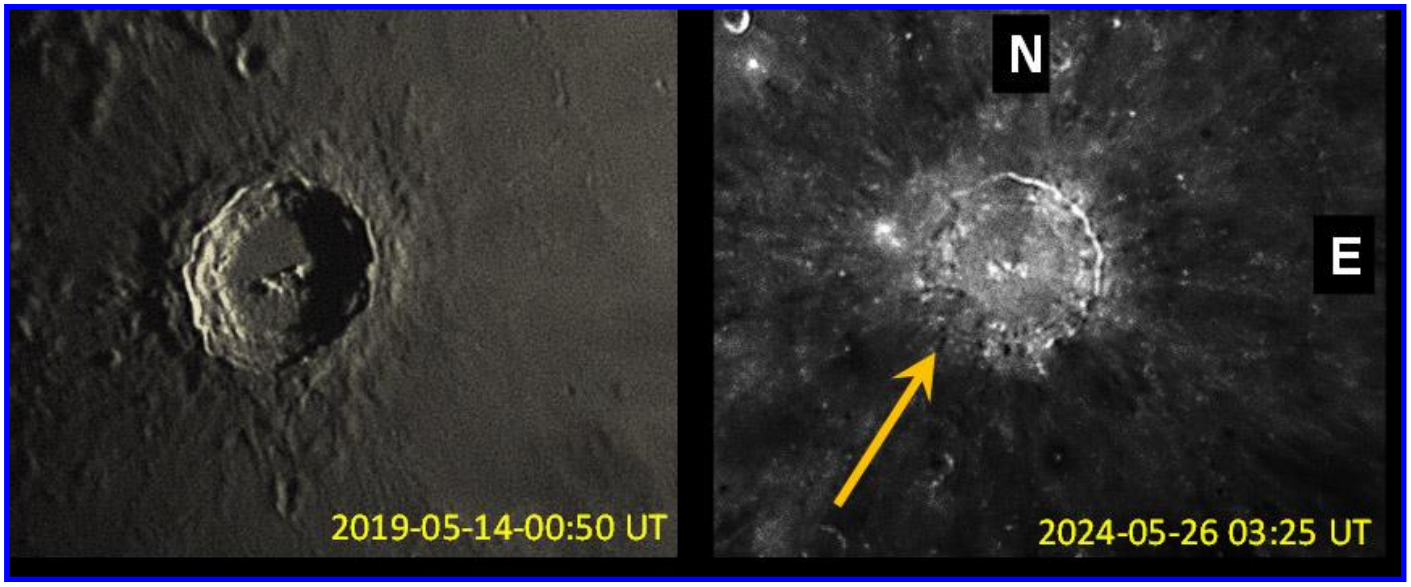


Fig1.- On the left we have the crater near the terminator, while on the right we observe it in the darker when you play a little with contrast and brightness. Both images were taken with a 90mm Mak with a 1250mm focal length and a ZWO 178 B/W camera light of the full moon. It is interesting to note below the center of the crater a semi-circular area that is darker when you play a little with contrast and brightness. Both images were taken with a 90mm Mak with a 1250mm focal length and a ZWO 178 B/W camera.

References

1) Virtual Moon Atlas 8.2. https://sourceforge.net/projects/virtualmoon/

2) Wood Charles A., Collins Maurice J.S., 21st Century Atlas of the Moon, Ed. Morgantown, 2013.

3) https://hal.science/hal-00743837/document

4) Philippe Henarejos, Guía de Astronomía, Ed. Akal, 2008

Observing the Full Moon

Robert Reeves

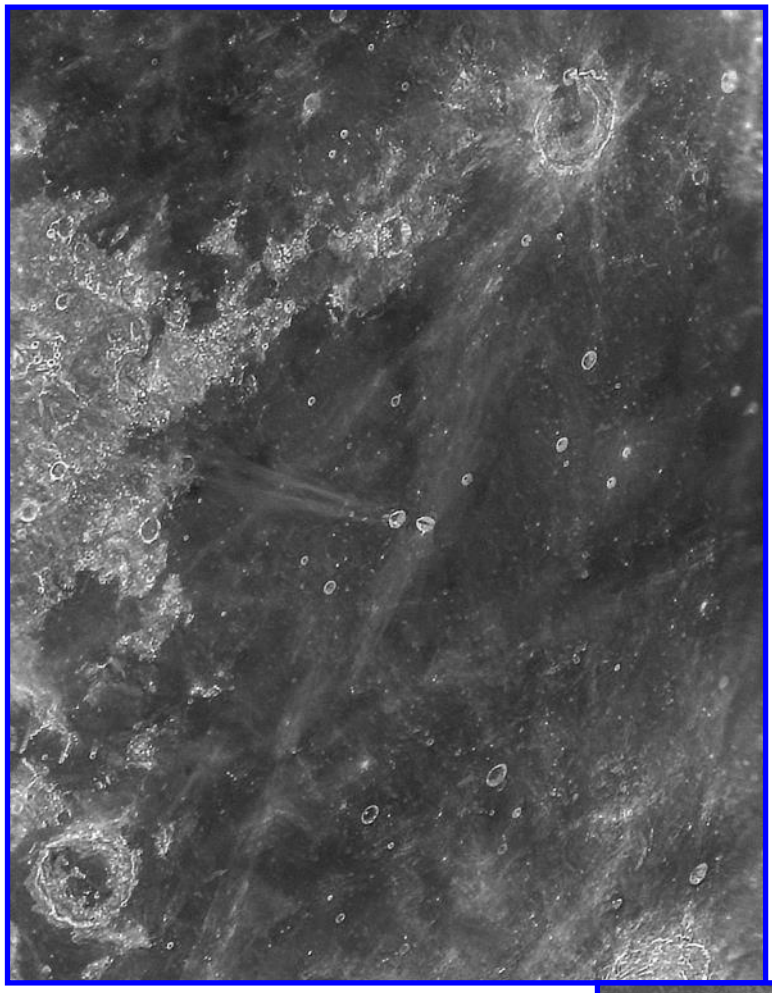
The flat, shadowless full moon is considered a poor time for lunar observing because the lack of contrasting shadows hides familiar details. However, some lunar features appear better under the glare of an overhead sun than they do under the more traditional observing at low sun elevation. It is well known that crater rays are brightest at full moon, but other features also blossom into unexpected brilliance. The most eye-catching details are the luminous rims of craters and the rims of linear rilles formed by the splitting of the surface by a volcanic dyke. If contrasting against a dark maria, the rims of younger craters appear like circular beacons, almost glowing like they emit their own fluorescent light.

An unusually brilliant full moon illuminated, seemingly self-luminous crater rim is a sign the crater is of the Copernican or Eratosthenian Epoch. Craters from these eras spanning as much as three billion years ago formed after the period of heavier asteroid bombardment that degraded older features. The relatively youthful crater rims are covered with blocks of rough, reflective material that has not yet been dulled and smoothed by eons of meteoric bombardment and solar radiation.

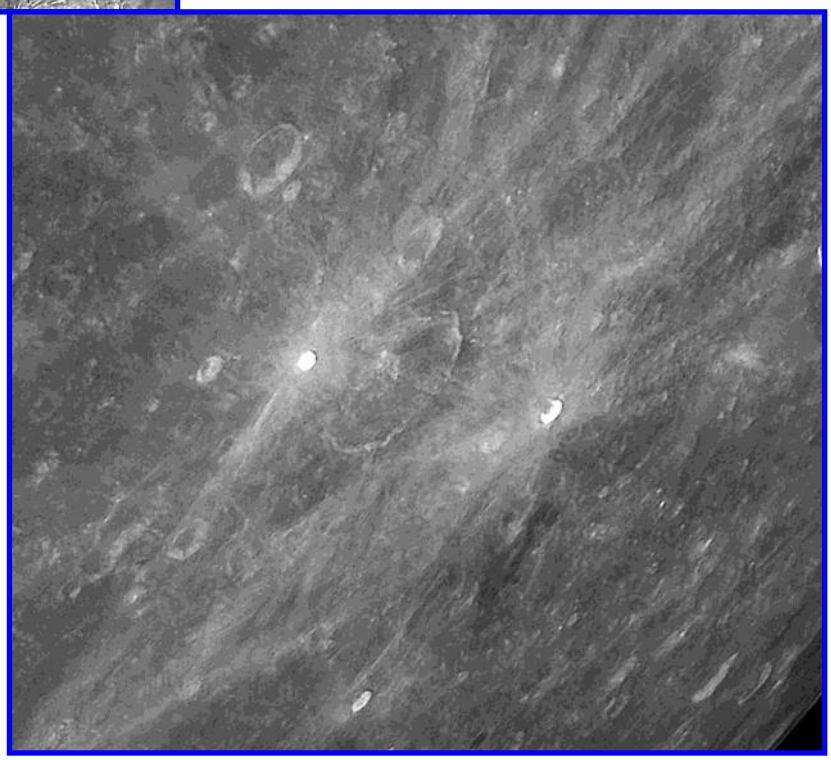
The sunlight illuminating crater rims is most efficiently reflected toward its source, the Sun. At full moon, the Earth is aligned between the Sun and the Moon, placing us in line with the brightest reflection. The rims of linear riles are also bright at full moon indicating they also have broken and crumbled material on their rims. Conversely, older craters possessing eroded and less reflective rims are noticeably dimmer.

When the full Moon blots out the shadows that traditionally define popular lunar features, do not ignore Luna. The glare of a full Moon may be uncomfortable at the eyepiece, so put sunglasses on your telescope by using an inexpensive 1 ¼-inch neutral density "Moon filter" available from all popular telescope outlets. Even during full phase, the Moon presents us with unusual targets worthy of our attention. Scan the face of the Moon and pick out the younger craters putting on a light show for our enjoyment.

Proclus is one of the Moon's younger large craters and displays one of the brightest crater rims at full Moon. Proclus also displays a butterfly ray pattern, indicating it was created by an oblique impact. All photos by Robert Reeves

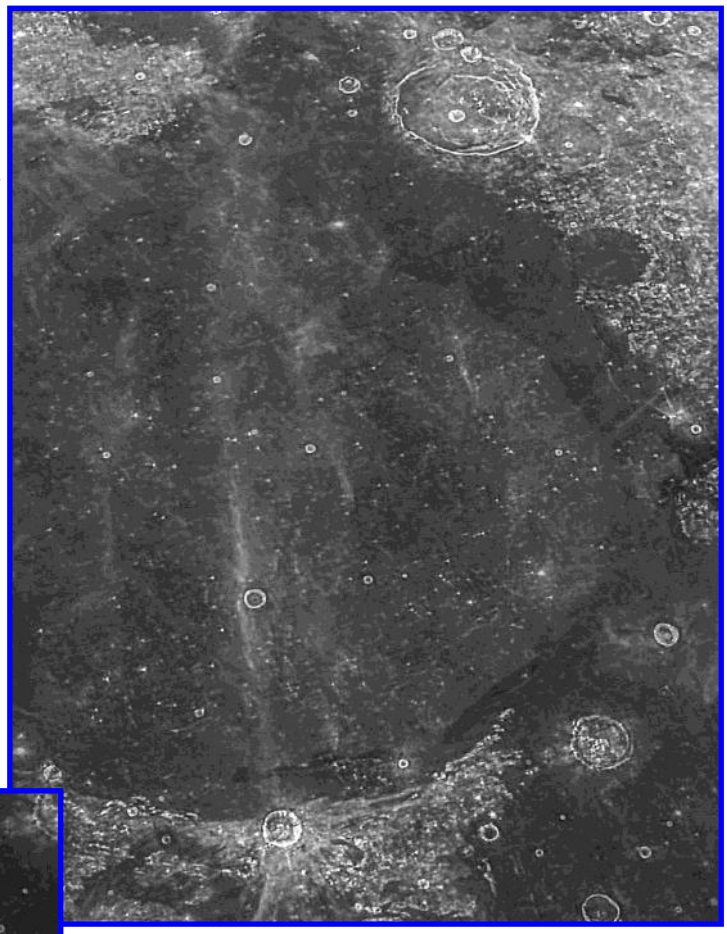


The dark plains of Mare Fecunditatis are dotted with bright-rimed young craters, including the twin craters Messier and Messier A, highlighted by their unusual mono-directional ray system.

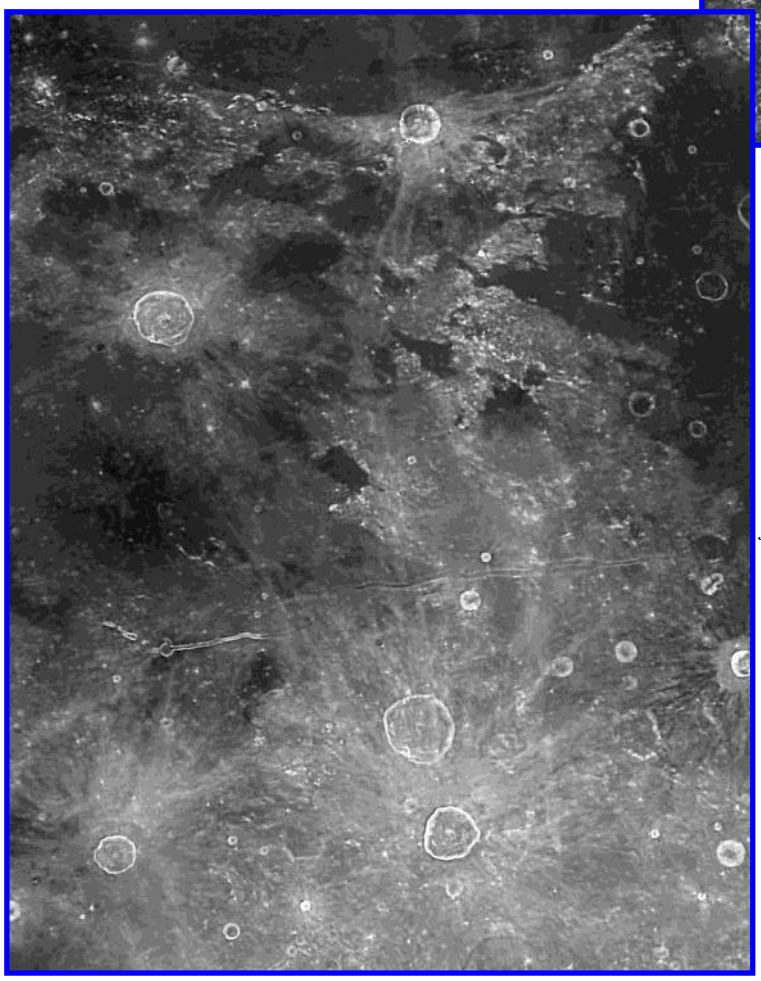


The small satellite craters Stevinus A and Furnerius A span eight and 11 kilometers and are normally lost in the jumble of the cratered southern highlands. At full Moon, their bright rims and fresh, brilliant ray systems earn the pair the designation of "The Headlights".

Lunar Topographic Studies
Observing the Full Moon



During full Moon, the normally bland plains of Mare Serenitatis are punctuated by the bright rims of dozens of small young craters. The two-toned hue of Serenitatis basalts is also highlighted by the harsh overhead illumination. The isolated splash of rays crossing west of Bessel crater is believed to be part of the Tycho ray system.



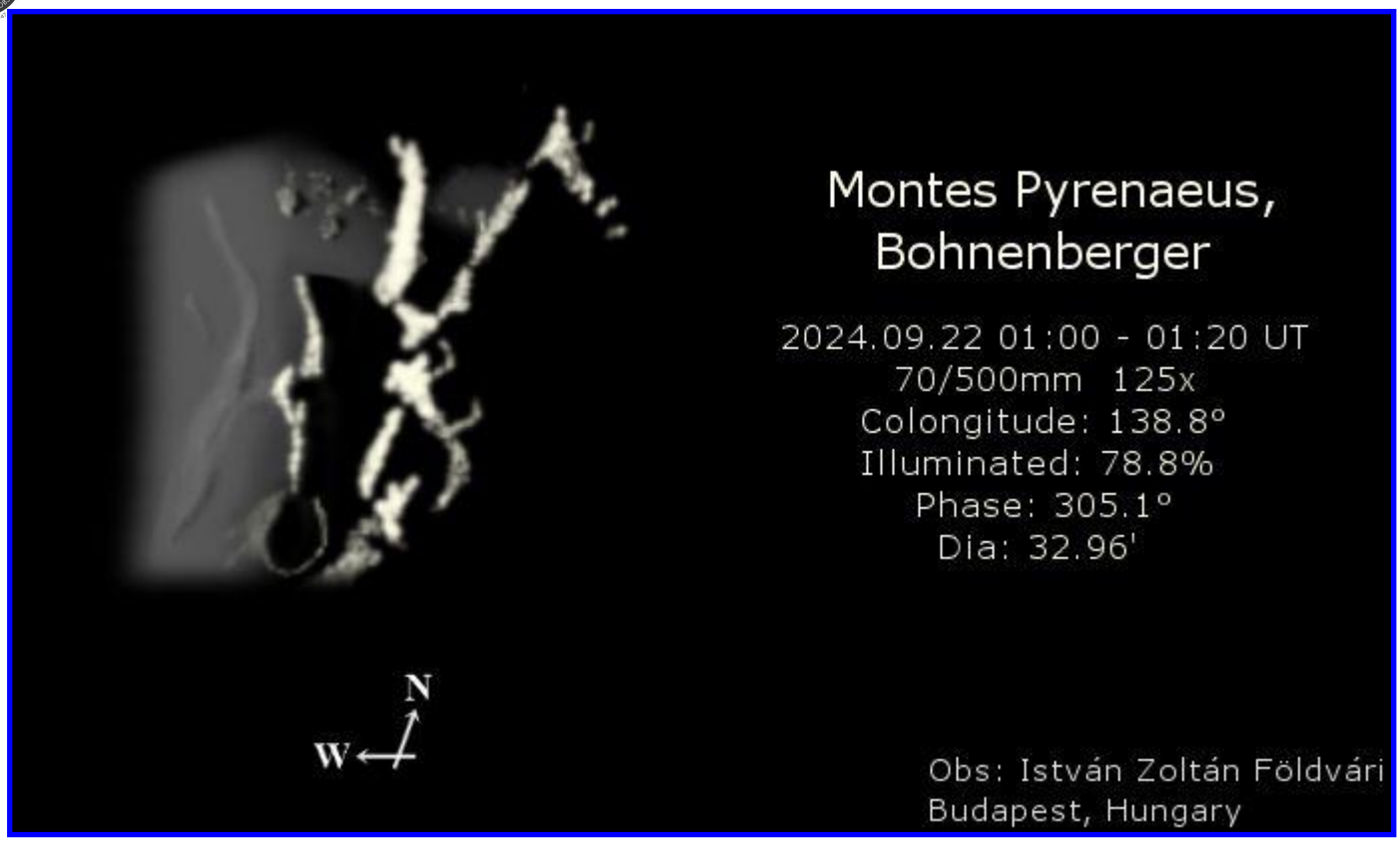
Overhead illumination reveals the directional rays from bright-rimed Menelaus crater at the top, suggesting it formed from an oblique impact. Manilius at the upper left displays a normally unseen weak ray system. The lengths of Rima Hyginus and Rima Ariadaeus are outlined by their bright rims. At lower center, the bright rims of Agrippa and Godin show not all craters are round.

The luminous rims of ghost craters on southern Oceanus Procellarum contrast with the dark basalt. The eroded ghost crater rims are noticeably dimmer than the fresher young craters dotting the mare.

The previous article and fine images come from the book Exploring the Moon with Robert Reeves, 2023. If you do not have this book yet, it is an excellent lunar resource available at Amazon.com.

-David Teske

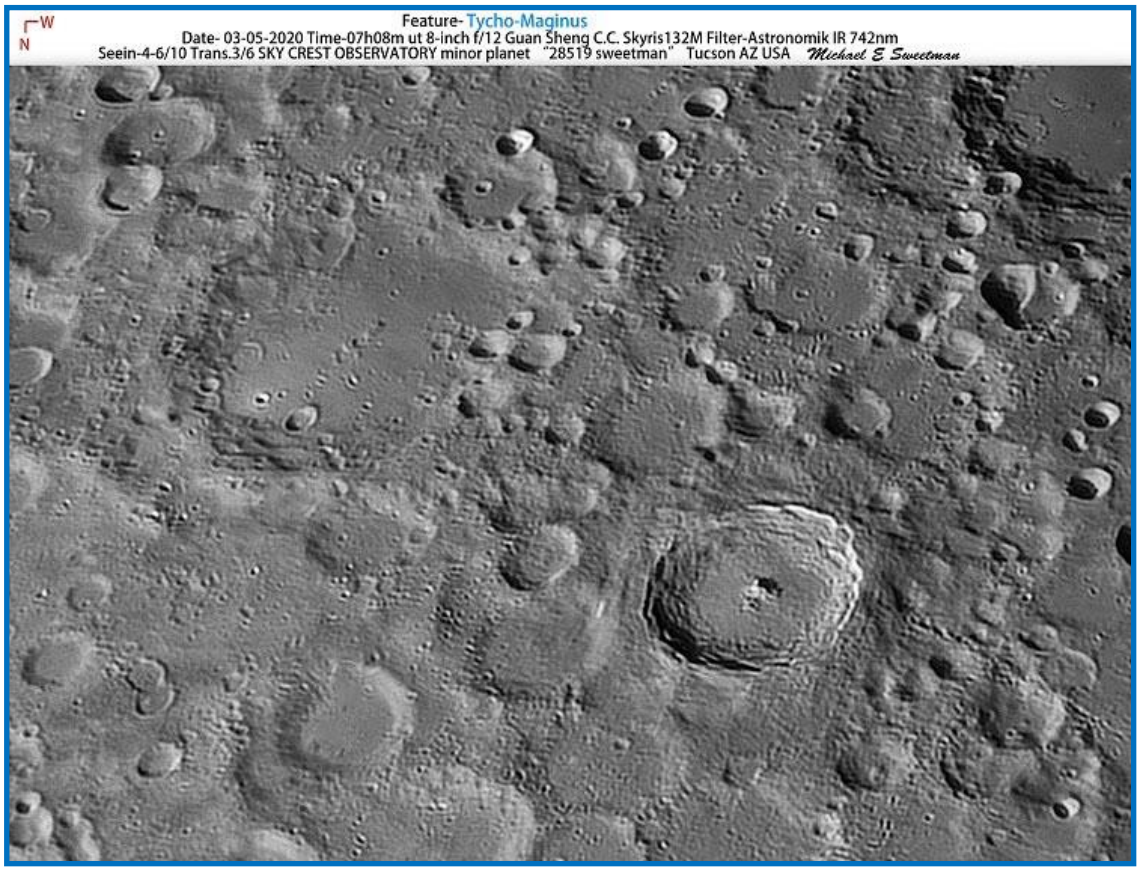
Lunar Topographic Studies
Observing the Full Moon



Montes Pyrenaeus and Bohnenberger, *István Zoltán Földvári, Budapest, Hungary. 2024 September 22 01:00-01:20 UT, colongitude 138.8º. 70 mm refractor telescope, 500 mm focal length, 4 mm Vixen LV Lanthanum eyepiece, 125x. Seeing 4-5/10, transparency 5/6.*

Proclus, *Alan Trumper. 2024 September 18 04:06 UT, Paraná, Argentina. Heritage 130 mm reflector telescope, 2 x barlow, ZWO 224MC camera.*

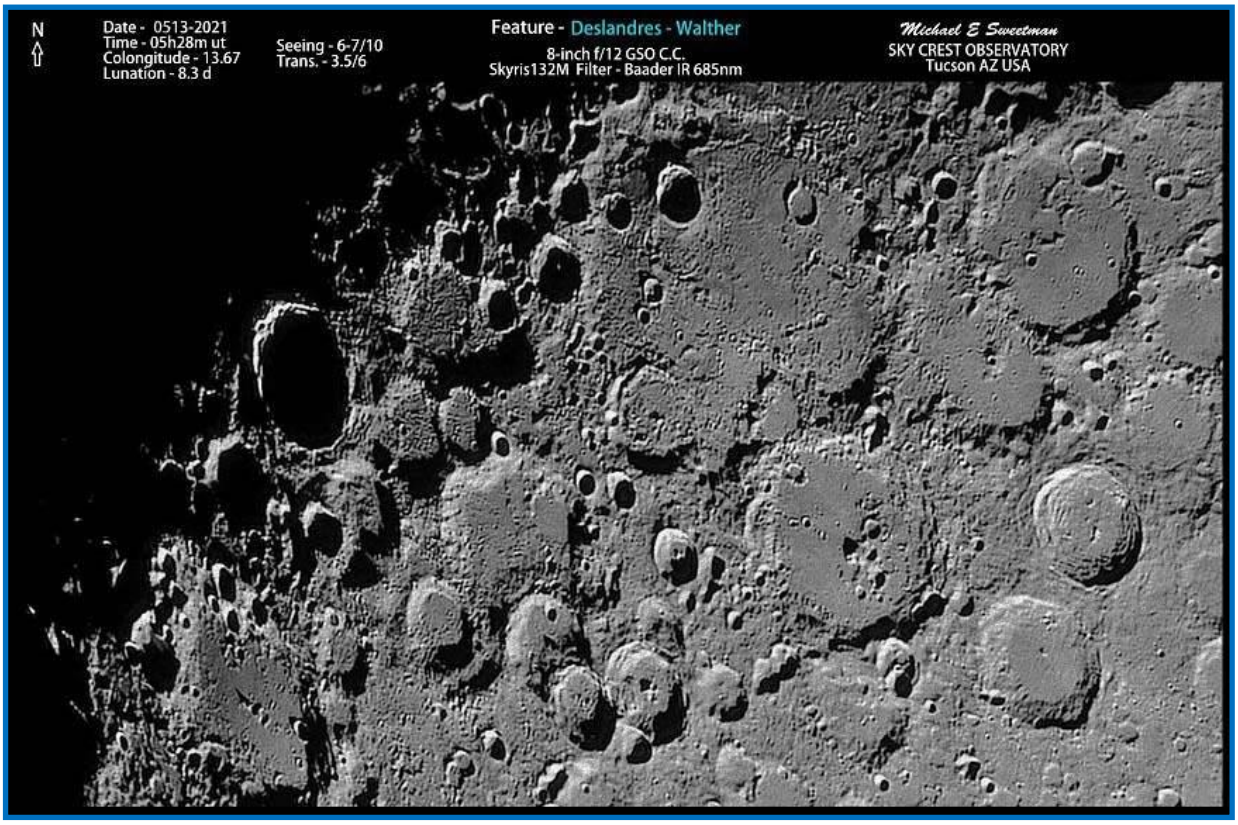
Recent Topographic Studies



Tycho and Maginus, *Michael E. Sweetman, Sky Crest Observatory, Tucson, Arizona, USA. 2020 March 05 07:08 UT. 8 inch f/12 GSO Classical Cassegrain telescope, Baader IR 685 nm filter, SKYRIS 132 M camera. North is down west is right. Seeing 4-6/10, transparency 3/6.*

Carrel, *István Zoltán Földvári, Budapest, Hungary. 2024 September 23 01:23-01:56 UT, colongitude 151.1°. 70 mm refractor telescope, 500 mm focal length, 4 mm Vixen LV Lanthanum eyepiece, 125x. Seeing 7/10, transparency 5/6.*

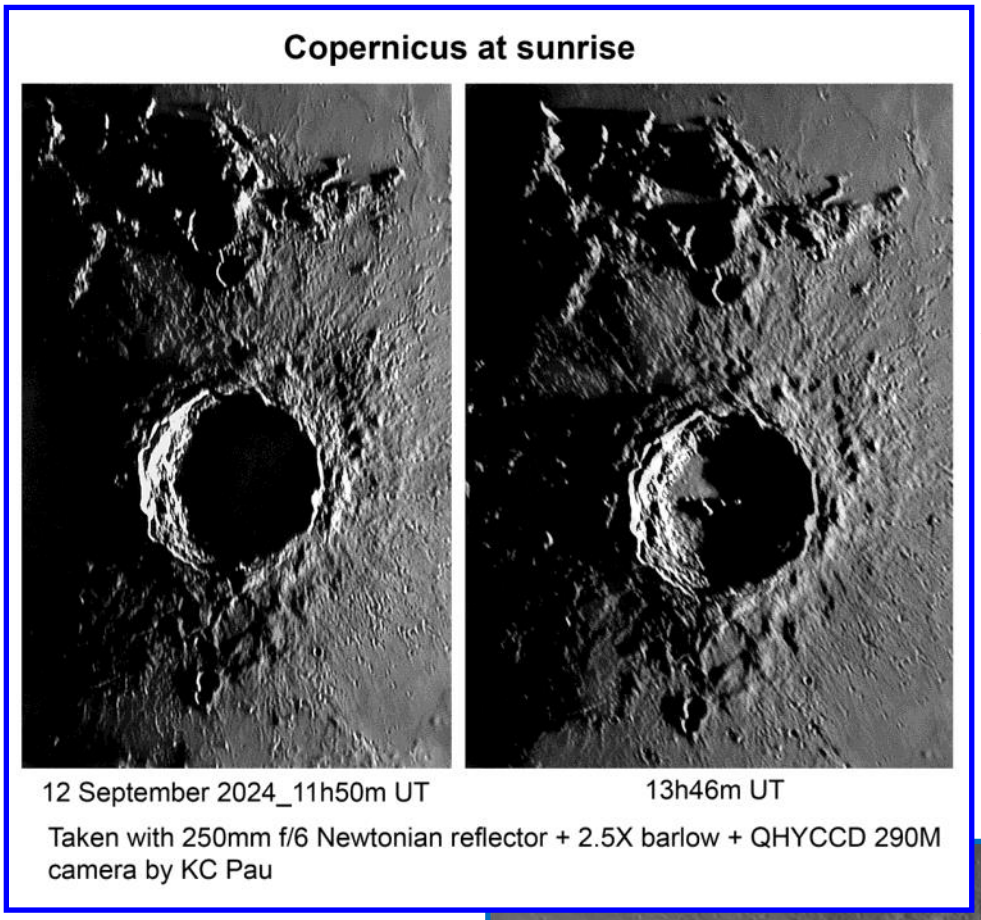
Recent Topographic Studies



Deslandres, *Michael E. Sweetman, Sky Crest Observatory, Tucson, Arizona, USA. 2021 May 13 05:28 UT. 8 inch f/12 GSO Classical Cassegrain telescope, Baader IR 685 nm filter, SKYRIS 132 M camera. North is to the upper right. Seeing 6-7/10, transparency 3.5/6.*

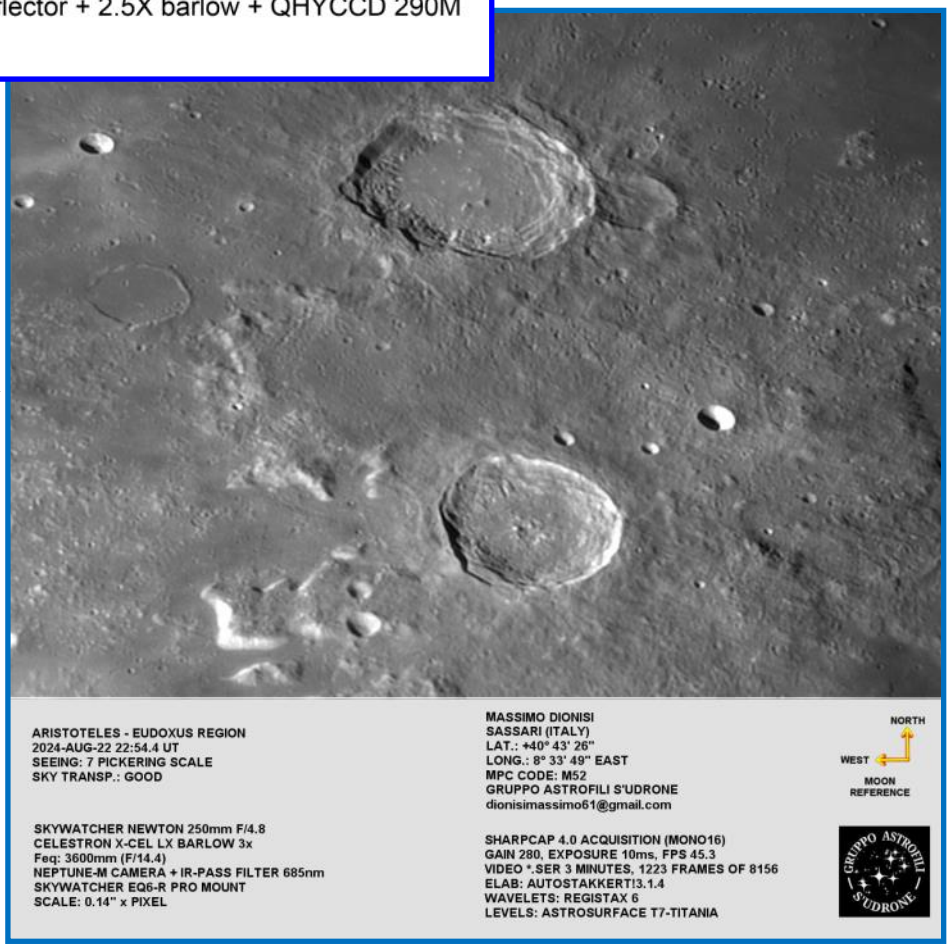
Rimae Janssen and Fabricius, *István Zoltán Földvári, Budapest, Hungary. 2024 September 22 00:41-01:00 UT, co-longitude 138.5º. 70 mm refractor telescope, 500 mm focal length, 4 mm Vixen LV Lanthanum eyepiece, 125x. Seeing 4-5/10, transparency 5/6.*

Recent Topographic Studies

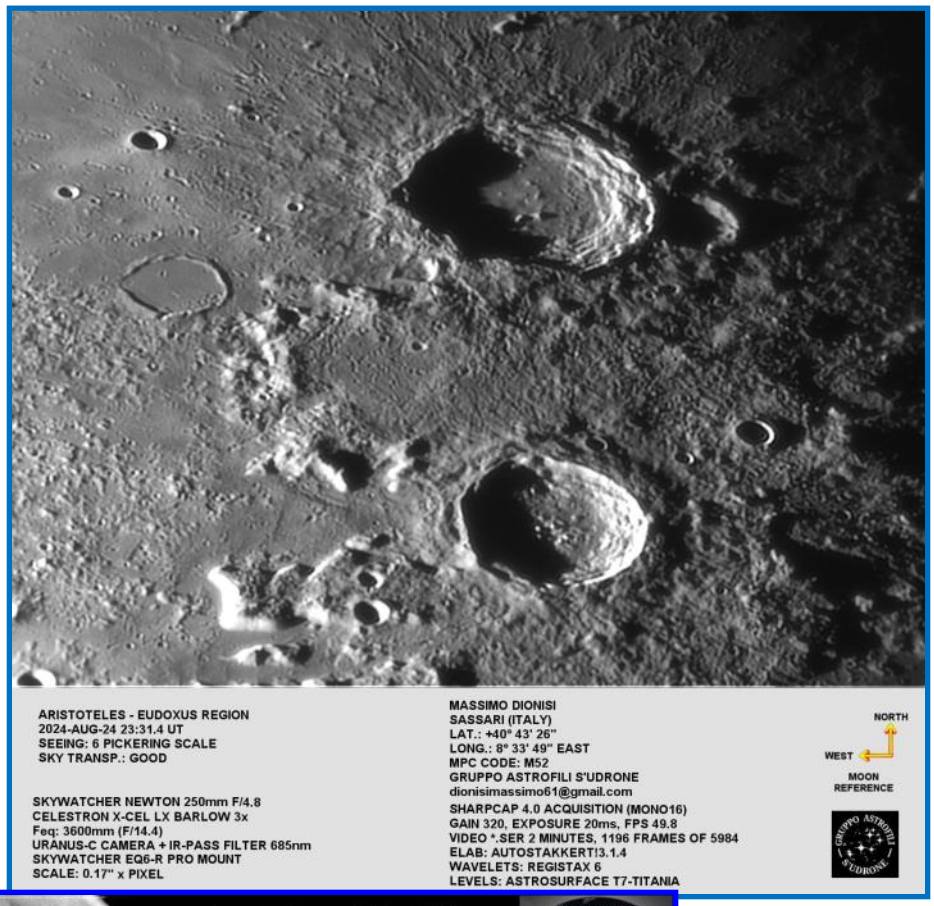


Copernicus at Sunrise, *KC Pau, Hong Kong, China. 2024 September 12 11:50 UT and 13:46 UT. 250 mm f/6 Newtonian reflector telescope, 2.5x barlow, QHYCCD 290M camera.*

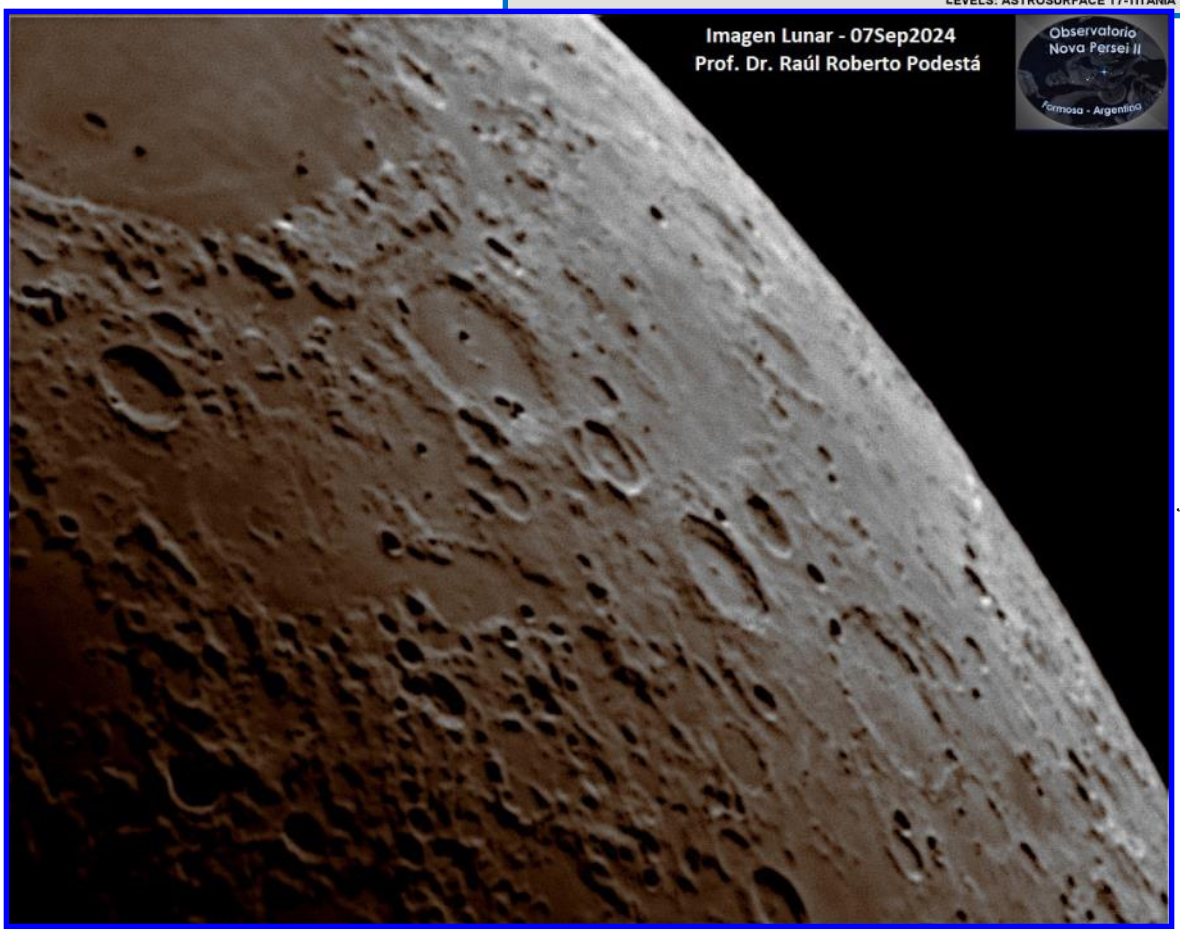
Aristoteles, *Massimo Dionisi, Sassari, Italy. 2024 August 22 22:54 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Neptune M camera. Seeing 7/10 Pickering scale, transparency good.*



Recent Topographic Studies

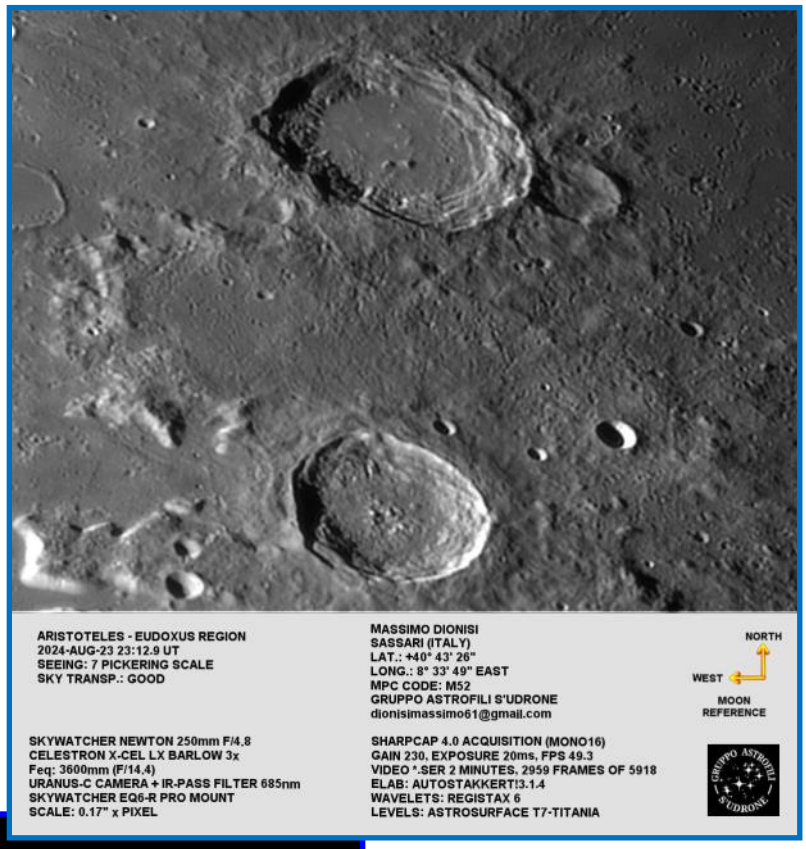


Aristoteles, *Massimo Dionisi, Sassari, Italy. 2024 August 24 23:31 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 6/10 Pickering scale, transparency good.*



Cleomedes, *Raúl Roberto Podestá, Formosa, Argentina. 2024 September 07 23:10 UT. 102 mm Maksutov-Cassegrain telescope, UV/IR cut filter, ZWO ASI178 MC camera. North is to the right and west is down.*

Recent Topographic Studies



Aristoteles, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:12 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

The Moon on International Observe the Moon Night, *Richard Hill, Loudon Observatory, Tucson, Arizona, USA. 2024 September 15 04:07 UT, co-longitude 52.6˚. eVscopeeQuinox 1. Seeing 7-8/10 with clouds.*

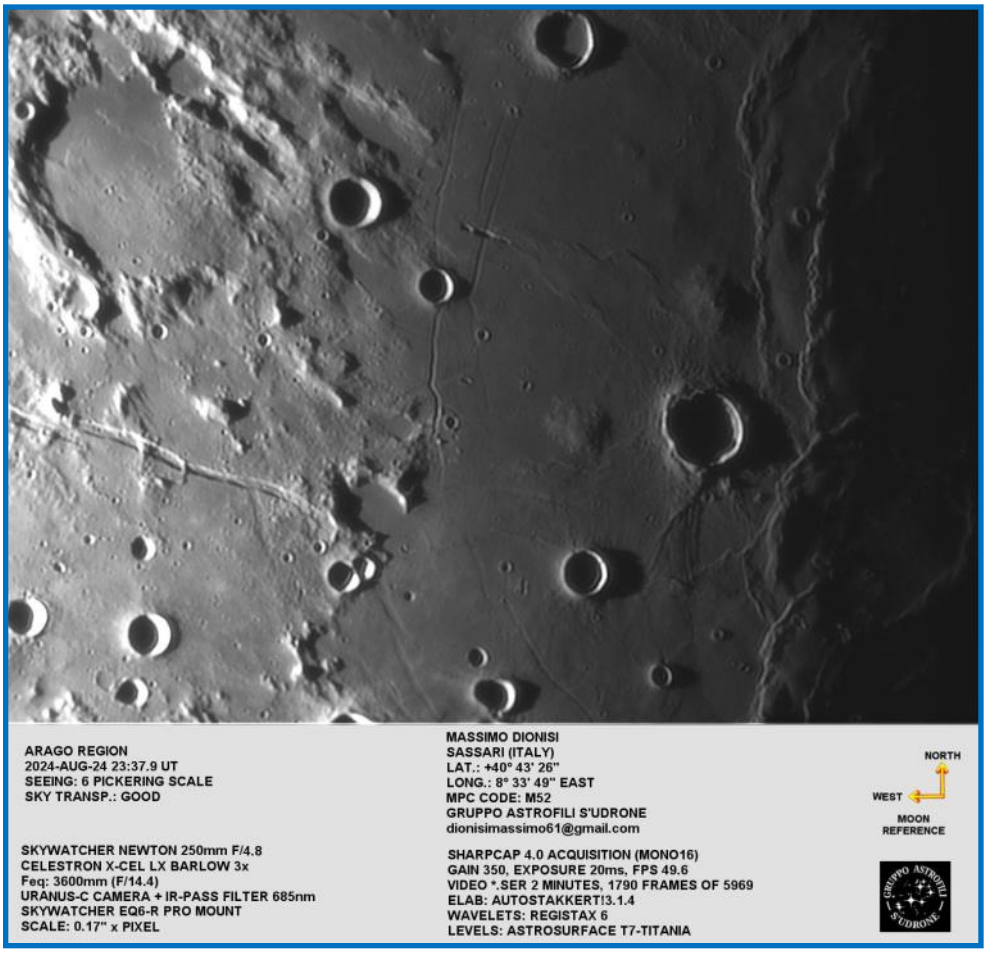
Some statistics of the International Observe the Moon Night

- 6,152 unique registrations
- 1,447 of these were public events
- 4,705 of these were individual and household participation
- 122 countries participated, with 6 new countries this year (Angola, Antigua and Barbuda, Barbados, Bhutan, South Sudan, and the Democratic Republic of the Congo)

Thus far, we've documented roughly 750,000 participants by looking at registrations, views online, and reported numbers.

Staci L. Tiedeken
Public Outreach Coordinator, Solar System Exploration Division
International Partnerships Coordinator, International Observe the Moon Night
NASA's Goddard Space Flight Center
ADNET Systems, Inc

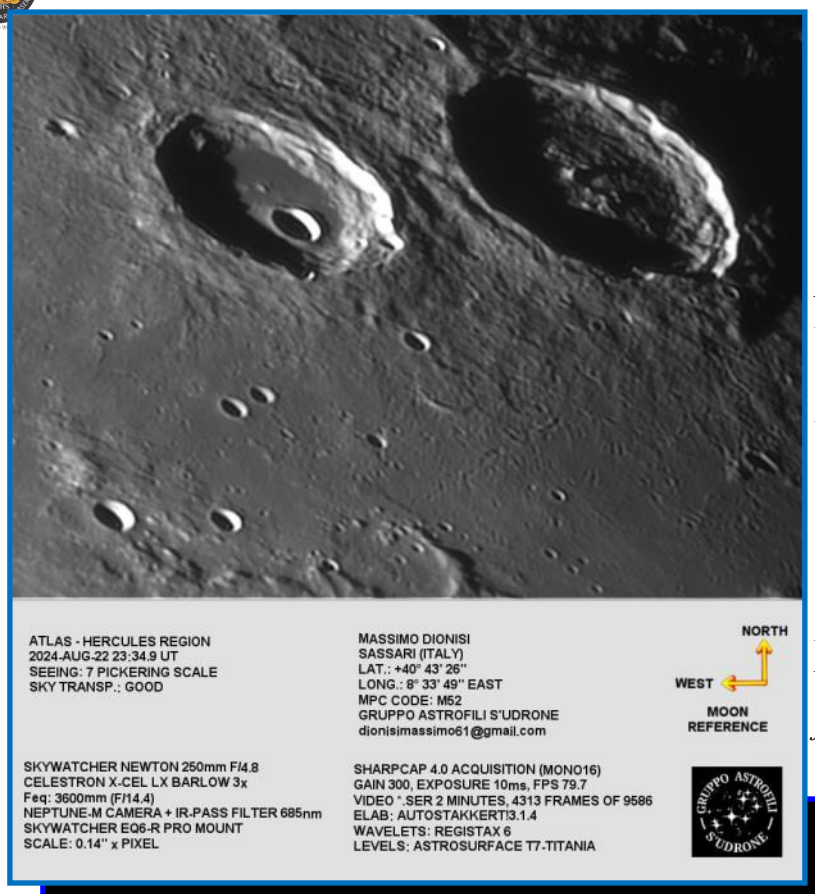
Recent Topographic Studies



Arago, *Massimo Dionisi, Sassari, Italy. 2024 August 24 23:37 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 6/10 Pickering scale, transparency good.*

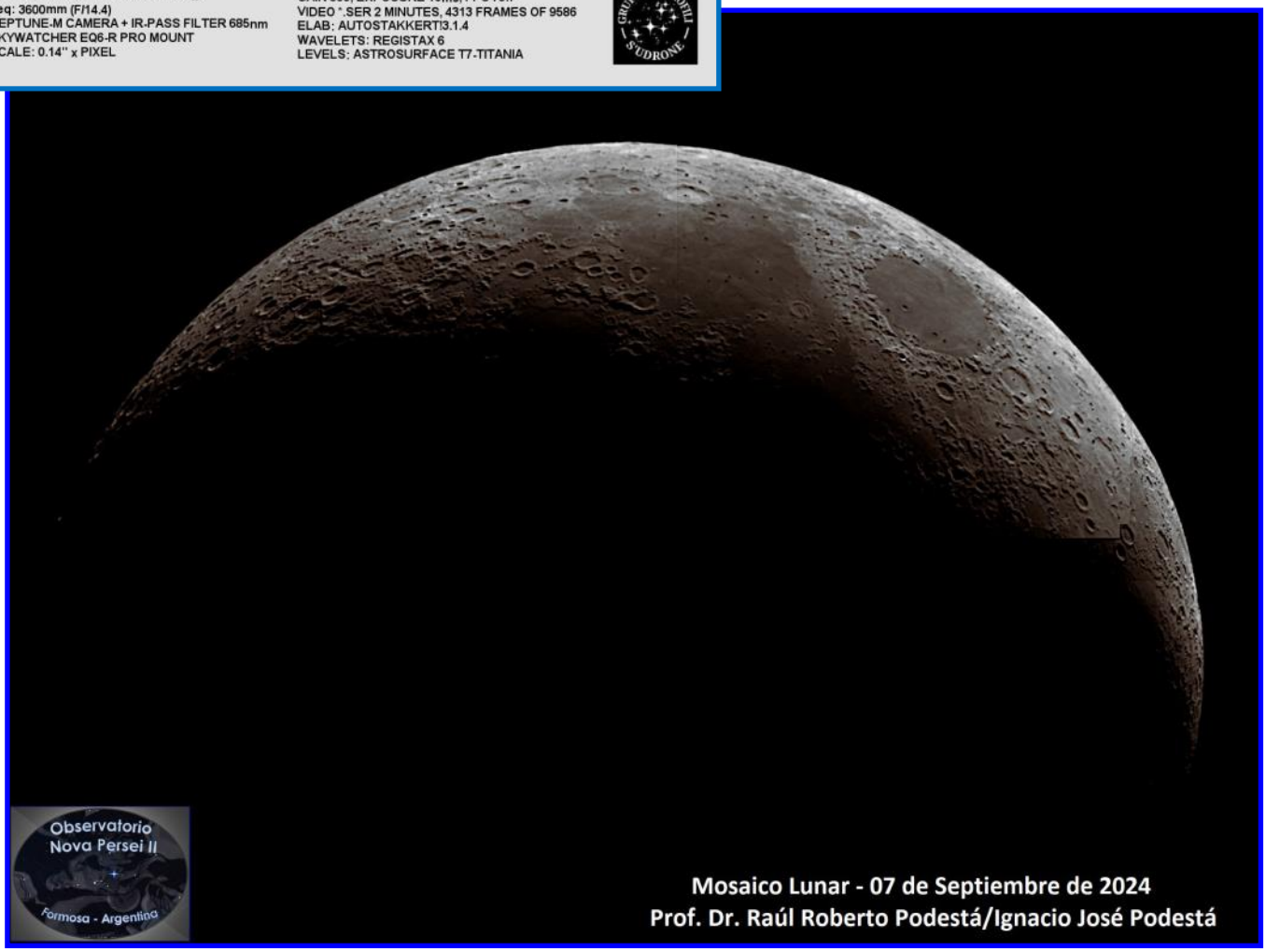
Mare Nectaris, *Jairo Chavez, Popayán, Colombia. 2024 August 10 00:15 UT. 311 mm truss -tube Dobsonian reflector telescope, MOTO E5 PLAY camera. North is down, west is right.*

Recent Topographic Studies

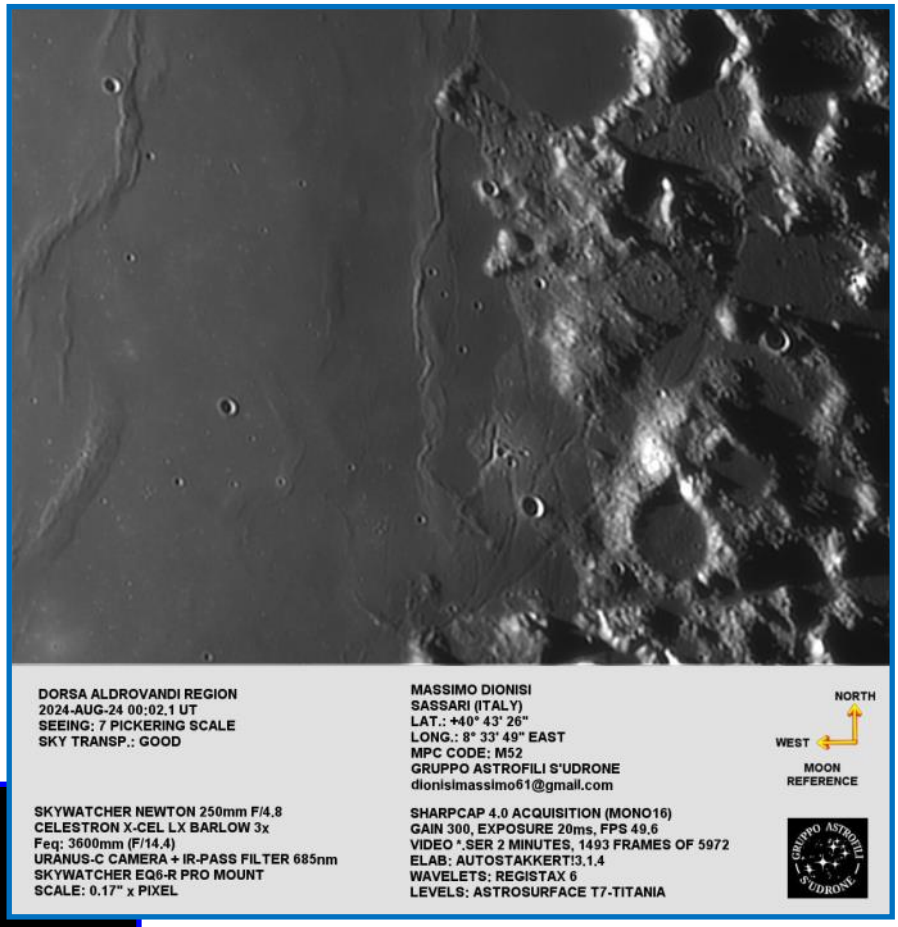


Atlas and Hercules, *Massimo Dionisi, Sassari, Italy. 2024 August 22 23:34 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Neptune M camera. Seeing 7/10 Pickering scale, transparency good.*

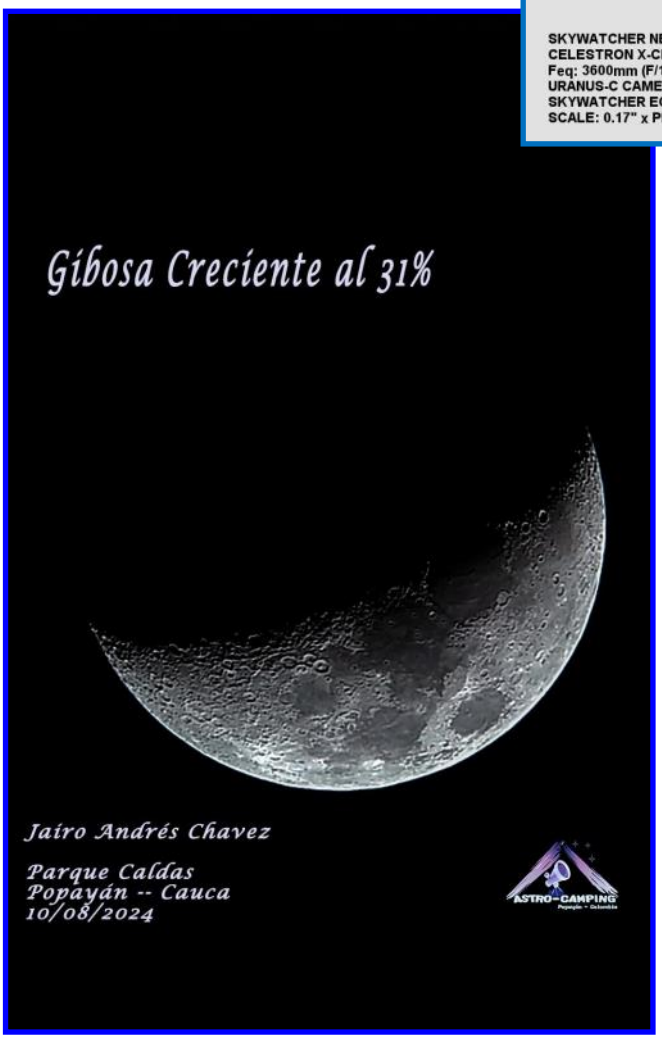
Mare Crisium, *Raúl Roberto Podestá, Formosa, Argentina. 2024 September 07 22:57 UT. 102 mm Maksutov-Cassegrain telescope, UV/IR cut filter, ZWO ASI178 MC camera. North is to the right and west is down.*



Recent Topographic Studies

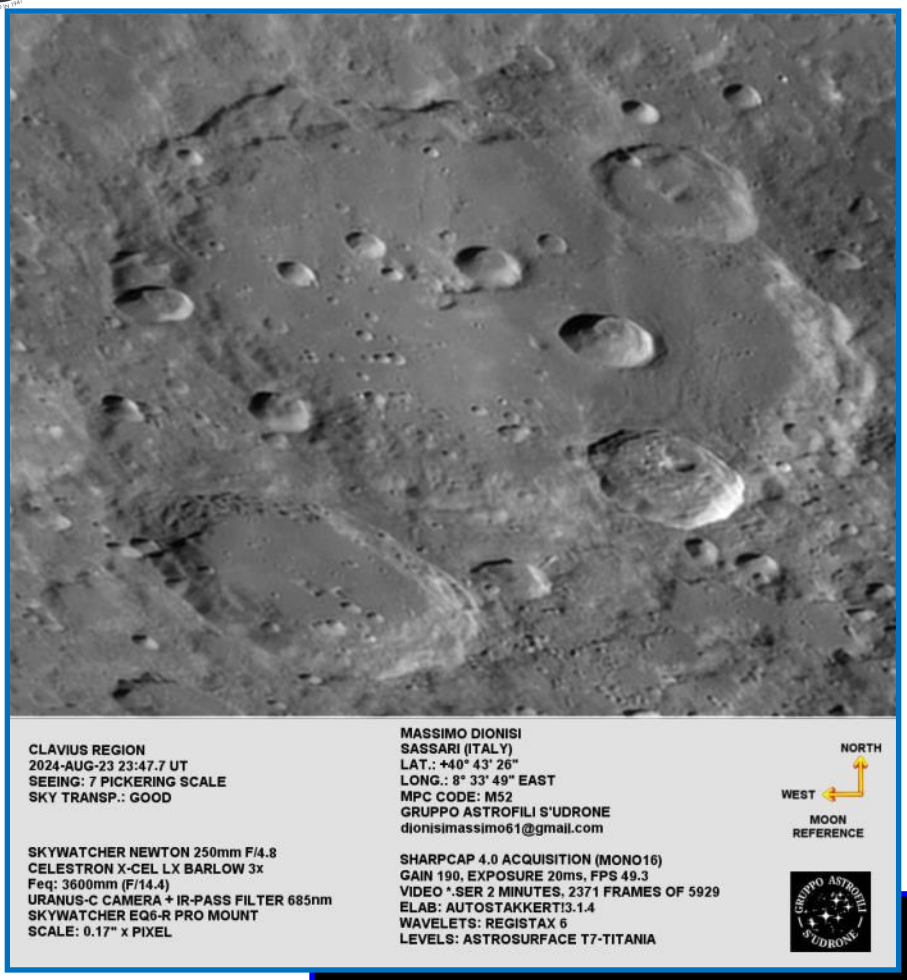


Dorsa Aldrovandi, *Massimo Dionisi, Sassari, Italy. 2024 August 24 00:02 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*



Waxing Crescent Moon, 31%, *Jairo Chavez, Popayán, Colombia. 2024 August 10 00:23 UT. 311 mm truss-tube Dobsonian reflector telescope, MOTO E5 PLAY camera. North is to the upper right, west is to the upper left.*

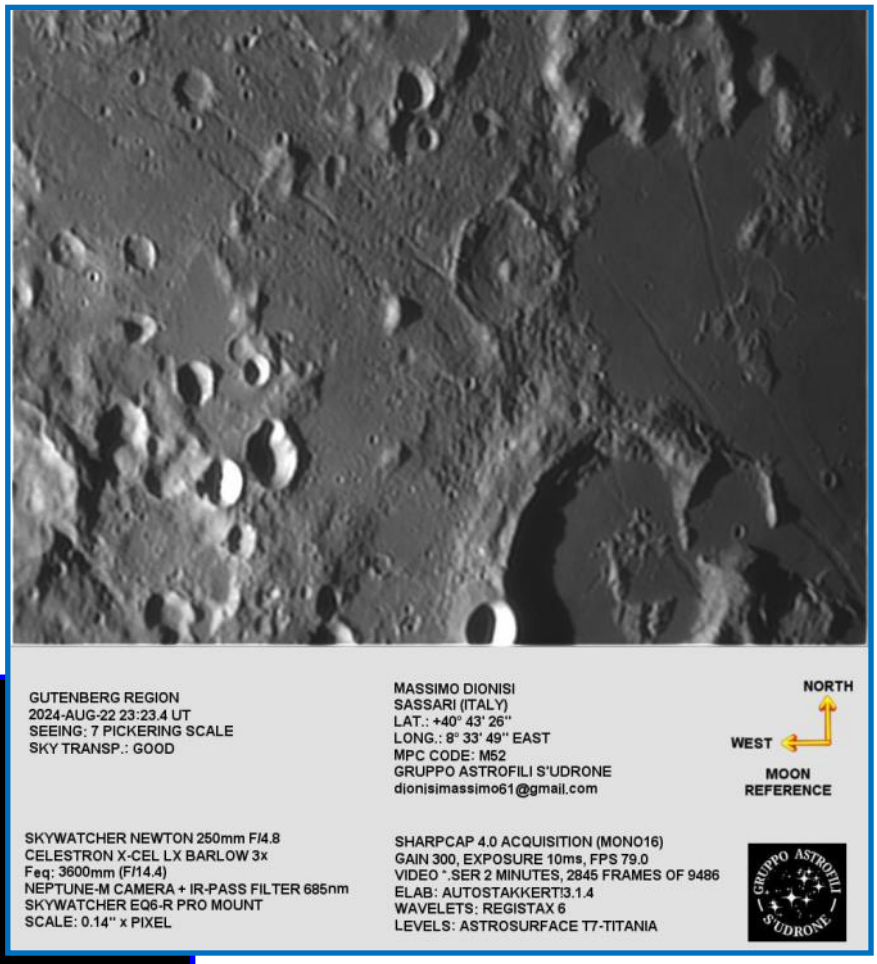
Recent Topographic Studies



Clavius, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:47 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

Langrenus, *Raúl Roberto Podestá, Formosa, Argentina. 2024 September 07 23:05 UT. 102 mm Maksutov-Cassegrain telescope, UV/IR cut filter, ZWO ASI178 MC camera. North is to the right and west is down.*

Recent Topographic Studies

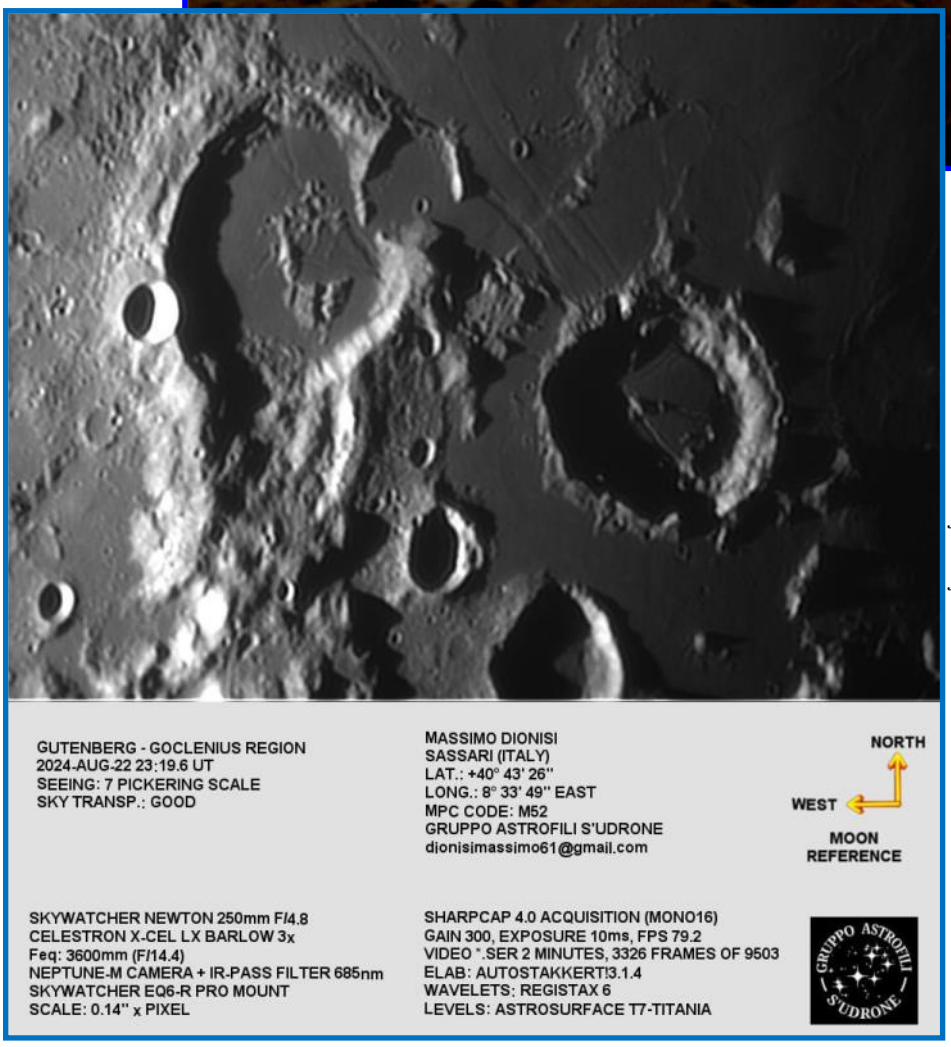


Gutenberg, *Massimo Dionisi, Sassari, Italy. 2024 August 22 23:23 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Neptune M camera. Seeing 7/10 Pickering scale, transparency good.*

Waxing Gibbous Moon, 60%, *Jairo Chavez, Popayán, Colombia. 2024 August 14 00:51 UT. 311 mm truss-tube Dobsonian reflector telescope, MOTO E5 PLAY camera. North is to the lower left, west is to the lower right.*

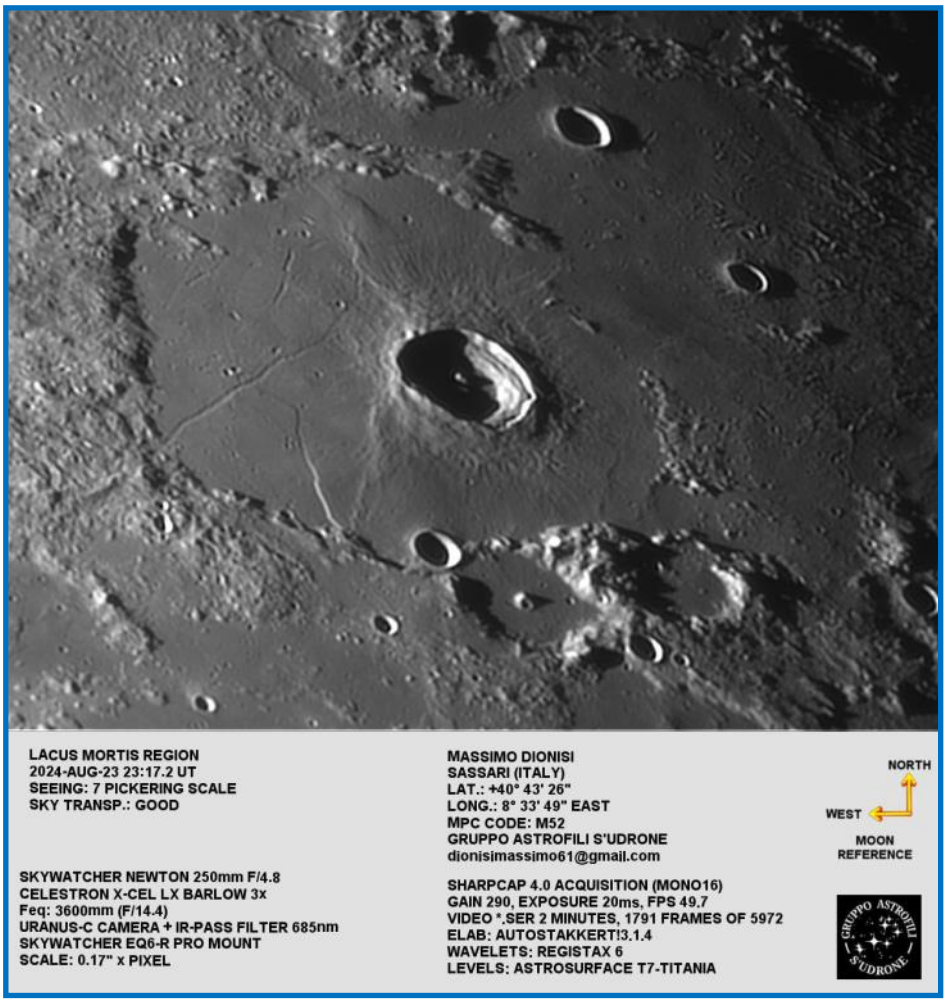
Recent Topographic Studies

Petavius, *Raúl Roberto Podestá, Formosa, Argentina. 2024 September 07 23:01 UT. 102 mm Maksutov-Cassegrain telescope, UV/IR cut filter, ZWO ASI178 MC camera. North is to the right and west is down.*



Gutenberg and Goclenius, *Massimo Dionisi, Sassari, Italy. 2024 August 22 23:19 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Neptune M camera. Seeing 7/10 Pickering scale, transparency good.*

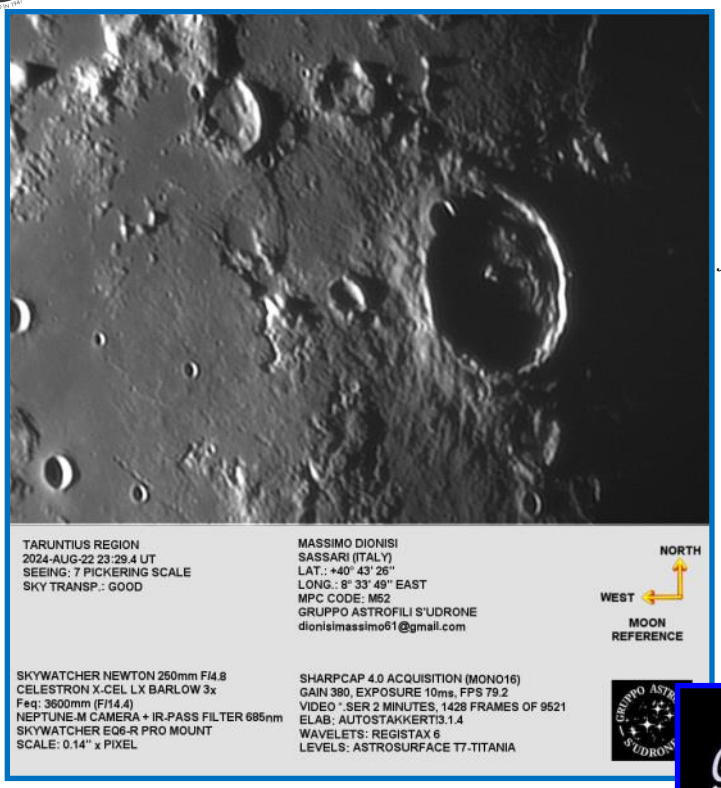
Recent Topographic Studies



Lacus Mortis, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:17 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

Waxing Gibbous Moon, 79%, *Jairo Chavez, Popayán, Colombia. 2024 August 15 23:58 UT. 311 mm truss-tube Dobsonian reflector telescope, MOTO E5 PLAY camera. North is to the right, west is up.*

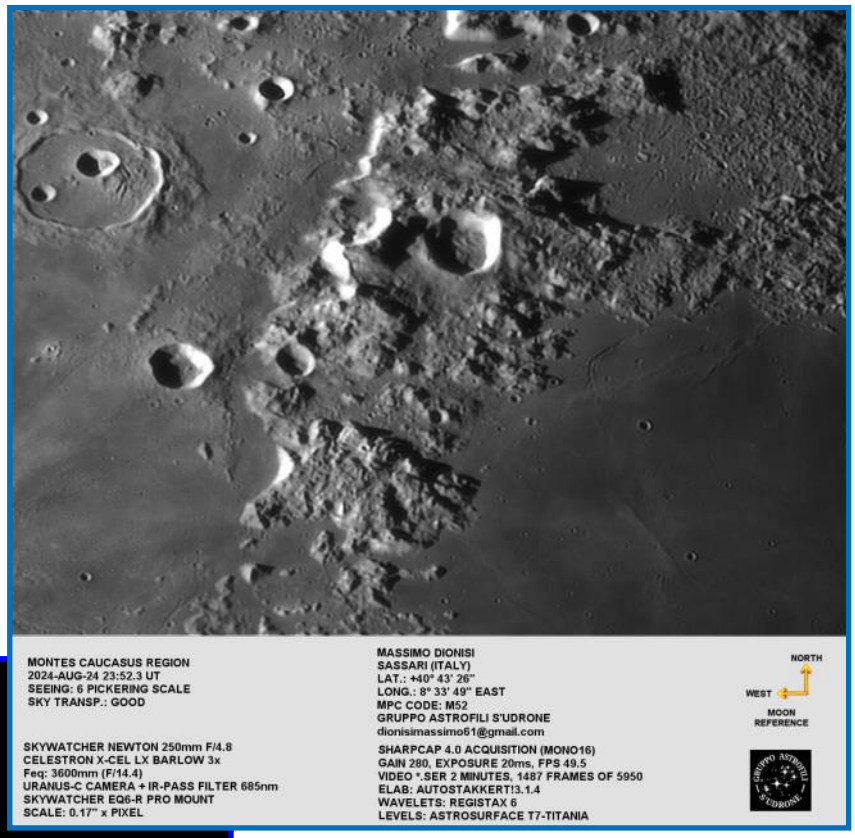
Recent Topographic Studies



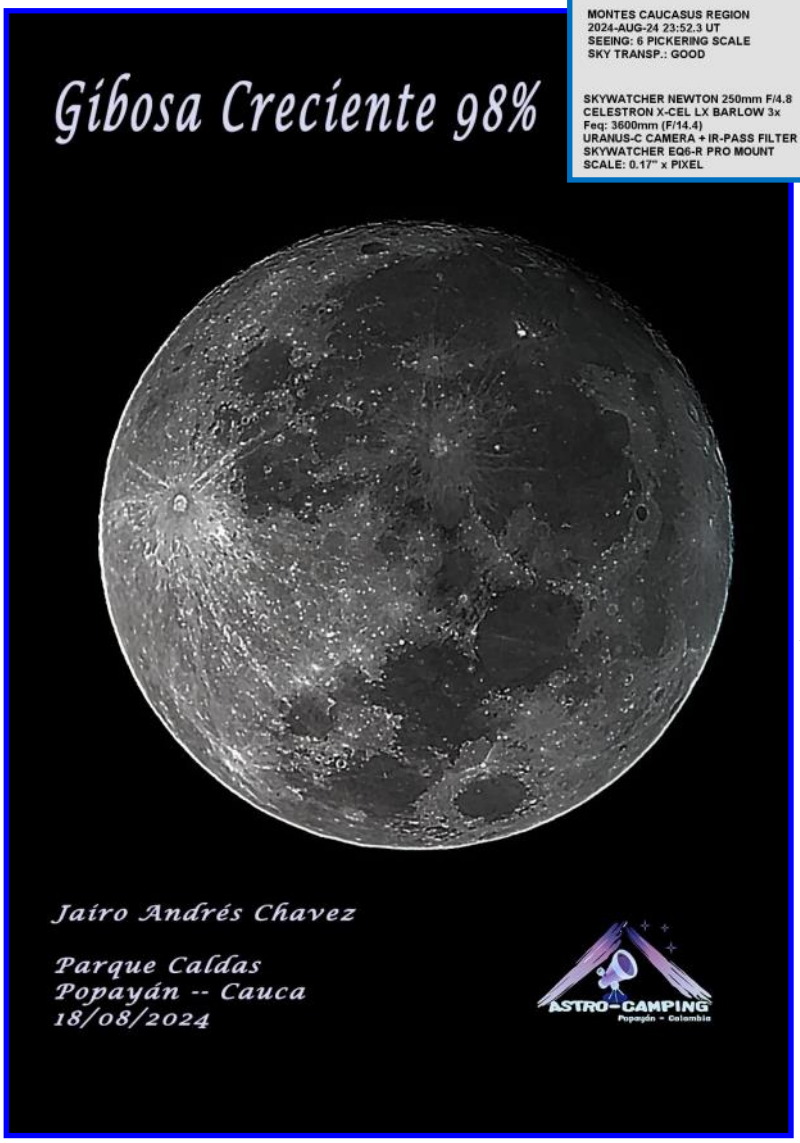
Taruntius, *Massimo Dionisi, Sassari, Italy. 2024 August 22 23:29 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Neptune M camera. Seeing 7/10 Pickering scale, transparency good.*

Waxing Gibbous Moon, 94%, *Jairo Chavez, Popayán, Colombia. 2024 August 18 23:57 UT. 311 mm truss-tube Dobsonian reflector telescope, MOTO E5 PLAY camera. North is to the right, west is up.*

Recent Topographic Studies

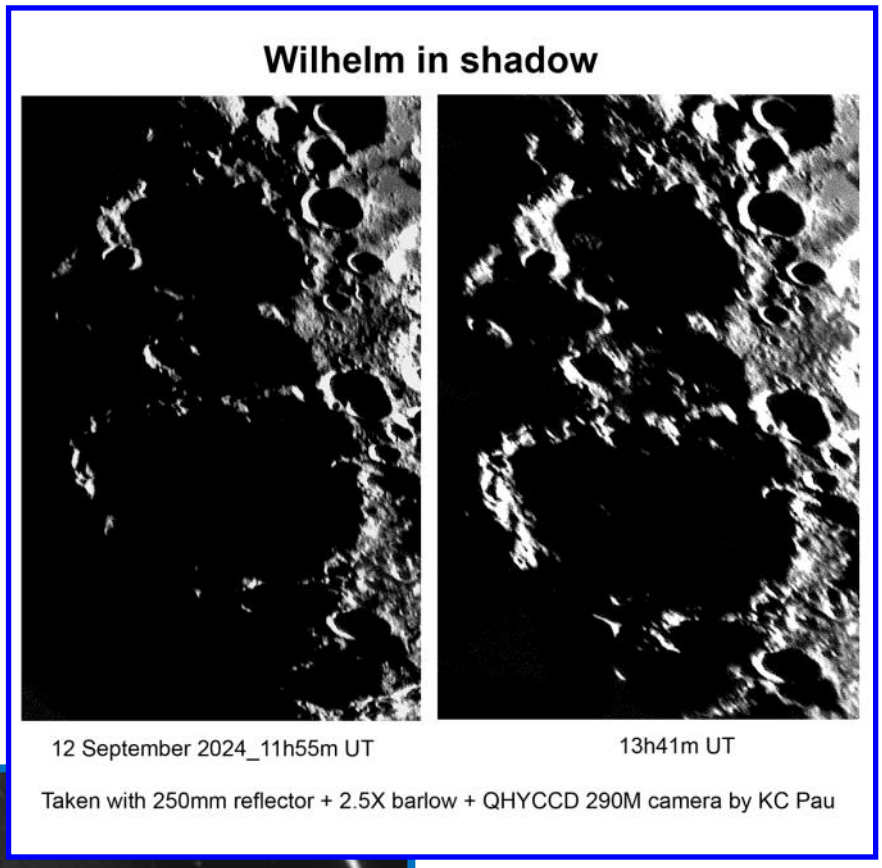


Montes Caucasus, *Massimo Dionisi, Sassari, Italy. 2024 August 24 23:52 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 6/10 Pickering scale, transparency good.*

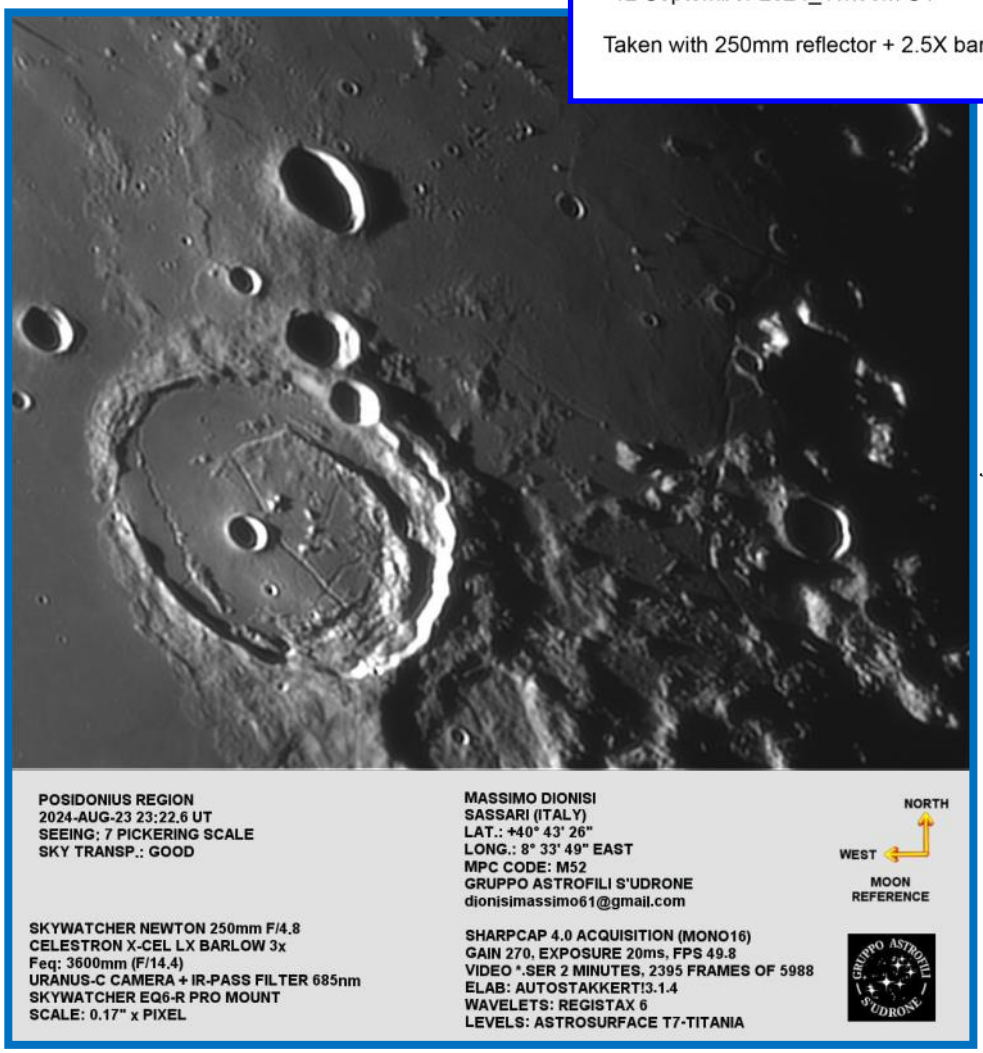


Waxing Gibbous Moon, 98%, *Jairo Chavez, Popayán, Colombia. 2024 August 19 00:28 UT. 311 mm truss-tube Dobsonian reflector telescope, MOTO E5 PLAY camera. North is to the right, west is up.*

Recent Topographic Studies

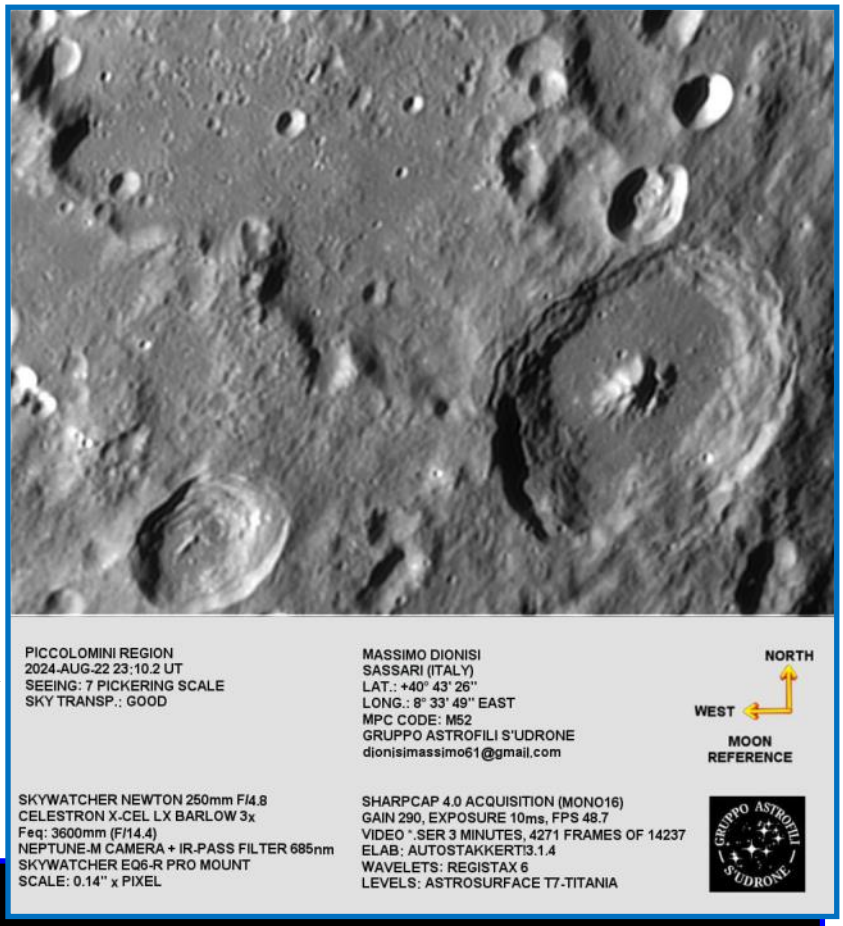


Wilhelm in Shadow, *KC Pau, Hong Kong, China. 2024 September 12 11:55 UT and 13:41 UT. 250 mm f/6 Newtonian reflector telescope, 2.5x barlow, QHYCCD 290M camera.*



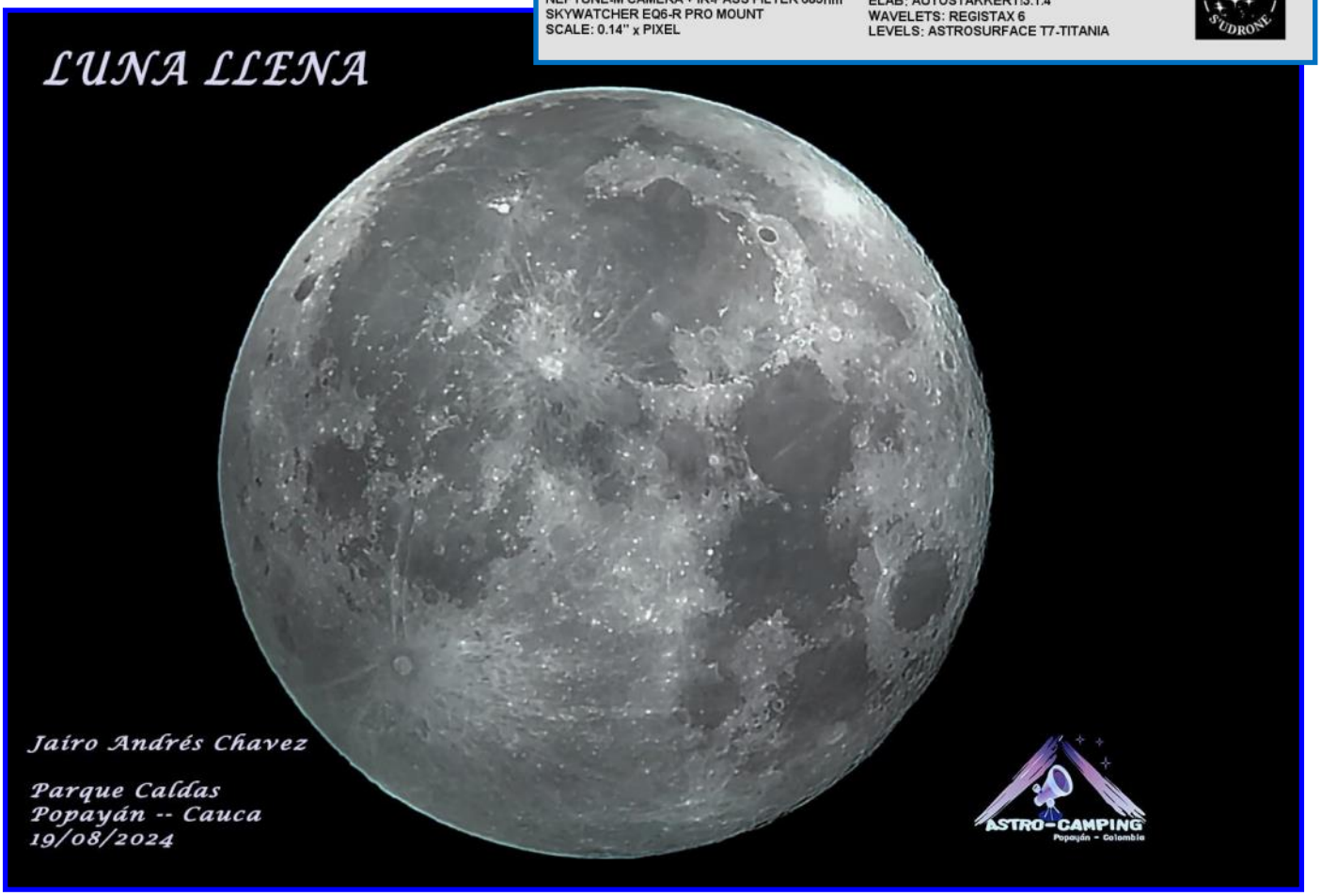
Posidonius, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:22 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

Recent Topographic Studies

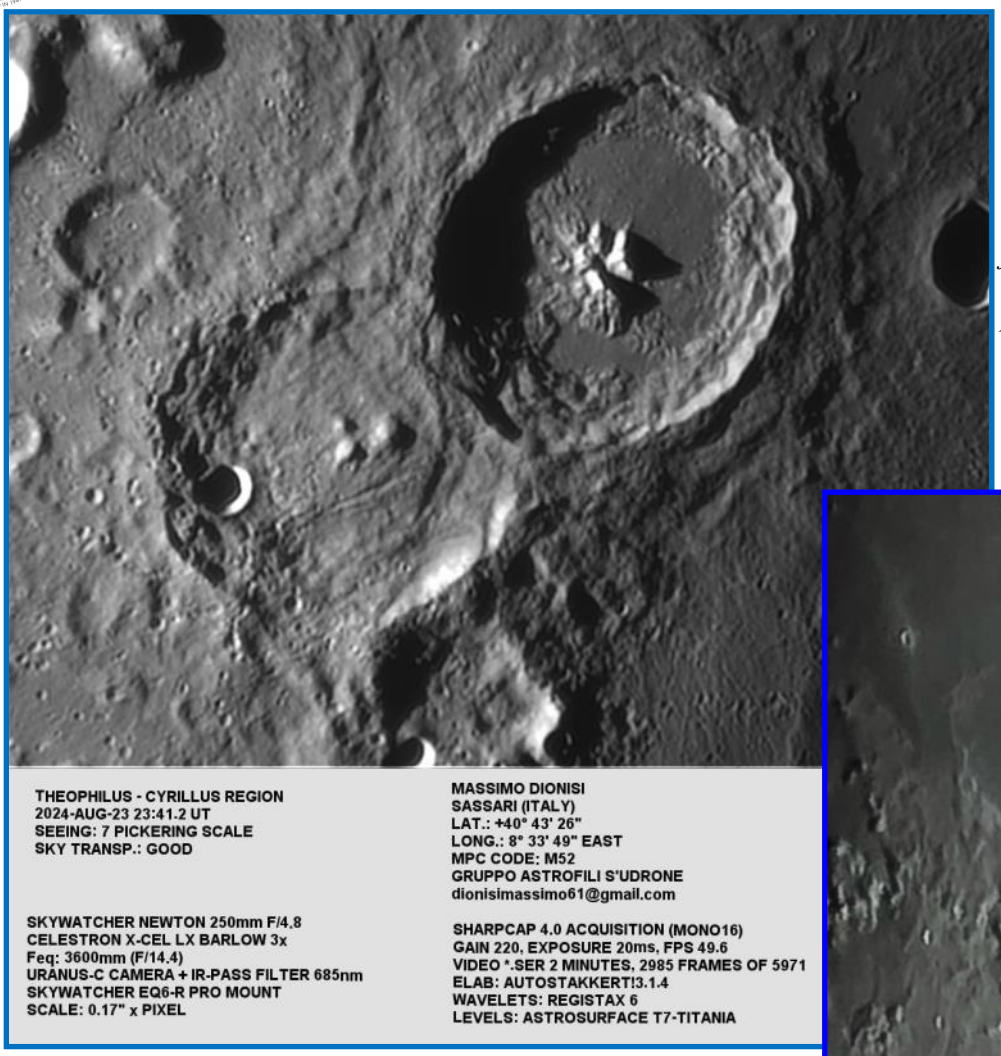


Piccolomini, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:10 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

Full Moon, *Jairo Chavez, Popayán, Colombia. 2024 August 20 02:40 UT. 311 mm truss-tube Dobsonian reflector telescope, MOTO E5 PLAY camera. .*



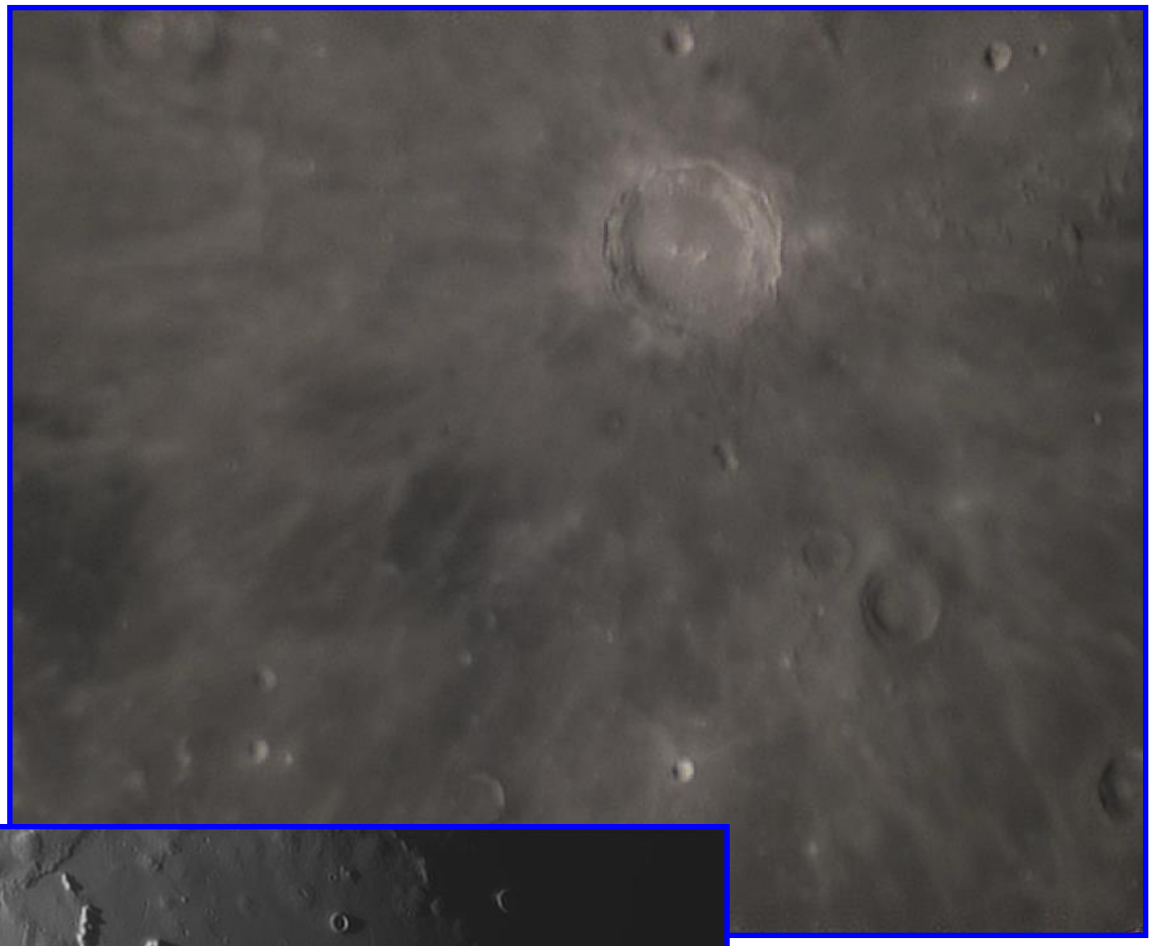
Recent Topographic Studies



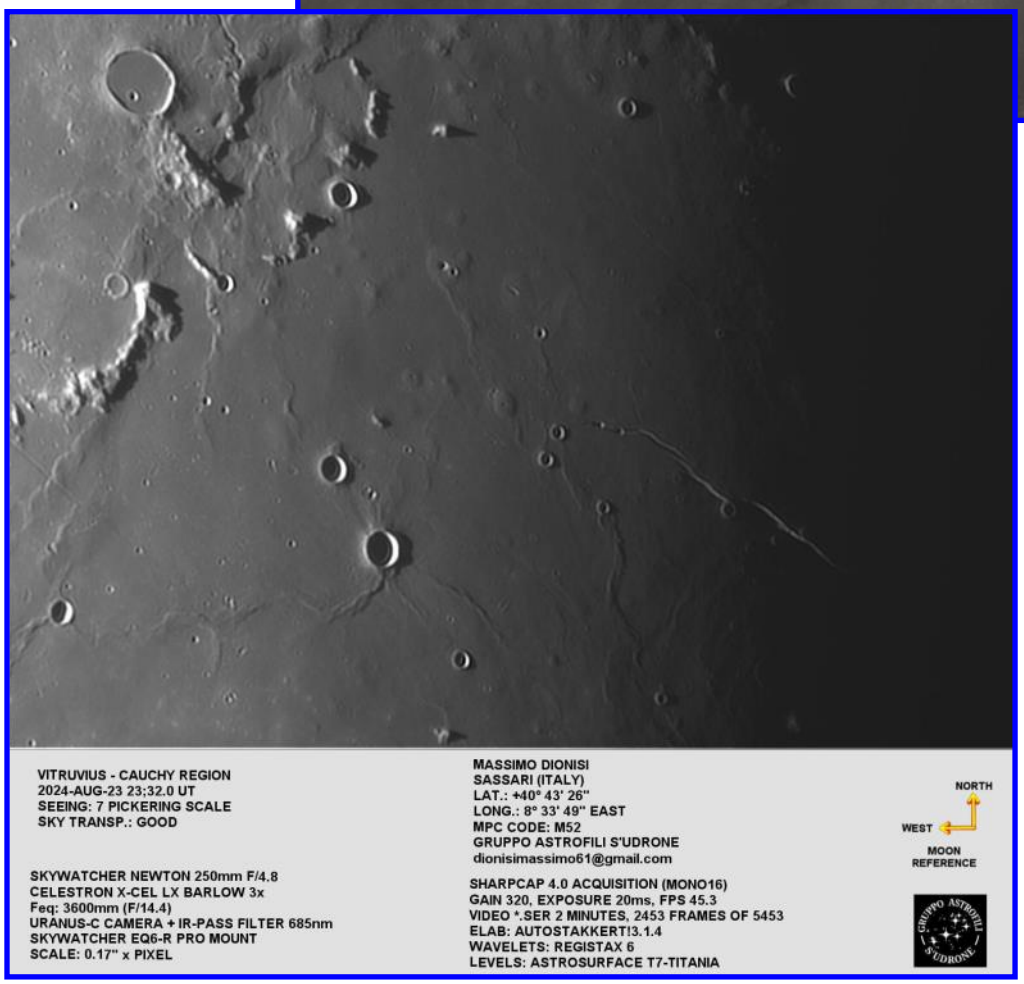
Theophilus, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:41 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

Gassendi, *Leus Monsalve, Villa Libertador San Martín, Argentina. 2024 September 14 22:23 UT. Skywatcher 102 mm Cassegrain telescope, 2x barlow, iPhone 15 Max camera.*

Recent Topographic Studies



Copernicus, *Alan Trumper, Paraná, Argentina. 2024 September 15 02:57 UT. Celestron 11 inch Edge HD Schmidt-Cassegrain telescope, ZWO 224MC camera.*



Vitruvius and Cauchy, *Massimo Dionisi, Sassari, Italy. 2024 August 23 23:32 UT. Skywatcher 250 mm f/4.8 Newtonian reflector telescope, 3x barlow, efl 3600 mm, IR pass 685 nm filter, Uranus C camera. Seeing 7/10 Pickering scale, transparency good.*

Recent Topographic Studies

Mare Imbrium, *Alan Trumper, Paraná, Argentina. 2024 September 12 23:22 UT. Heritage 130 mm reflector telescope, 2 x barlow, ZWO 224MC camera.*

Recent Topographic Studies

Lunar Geologic Change Detection Program

Coordinator Dr. Anthony Cook- atc@aber.ac.uk
Assistant Coordinator David O. Darling -DOD121252@aol.com

2024 October

LTP Reports Received
No new LTPs have been reported, but there was a visual sighting of a candidate impact flash as seen from the Czech Republic, that ALPO's Brian Cudnik kindly forwarded onto me. On 2024 Sep 07 UT 18:25:40±10s Lukas Shrbeny, an astronomer from the Ondrejoy Observatory, was looking at the Moon, about to set with binoculars, when they saw a faint flash in the upper part of where the earthshine would have been on the Moon. This was observed from 14.7670539˚E, 49.1362031˚N, and an altitude of 422m and at that time the Moon was just 2.1˚ above the horizon and on an azimuth of 240.9˚. Lukas checked satellites down to magnitude 5, but could not find any in that area. He also checked flights but none could have been in that part of the sky at that time. Alas I am not aware of anyone else observing at that time. This leaves three possibilities: 1) a cosmic ray air shower strike on the observer's eye, 2) a drone or maybe a military aircraft strobe – the former is unlikely because it would be slow moving and probably flash several times in the binocular field of view. 3) an impact flash. Alas without further confirmation, from a different geographical locality, we may never know whether this was a real impact flash or not.

Routine reports received for August included: Maurice Collins (New Zealand - ALPO/BAA/RASNZ) imaged: Archimedes, Plato, Rupes Recta and several features. James Dawson (Nottingham, UK – BAA) imaged: Xenophanes. Walter Elias (Argentina – AEA) imaged: Hyginus, Mons Piton, and Theophilus. Massimo Giuntoli (Italy – BAA) observed: Cavendish E. Chris Longthorn (UK – BAA) imaged: Atlas, Mare Crisium and several features. Trevor Smith (Codnor, UK – BAA) observed Aristarchus and Plato. Alexander Vandenbohede (BAA) imaged several features during a Saturn Occultation.

Note that we I have included some BAA pooled observations in with this report.

Analysis of Routine Reports Received (August)

Hercules: On 2024 Aug 09 UT 19:36 Chris Longthorn (BAA) imaged this area under similar illumination to the following report:

On 1885 Feb 19 at UT 19:00-20:00, Gray of England?, saw a small crater (in it?) that was dull red with vivid contrast. The Cameron 1978 catalog ID is 247 and the weight=3. The ALPO/BAA weight=3.

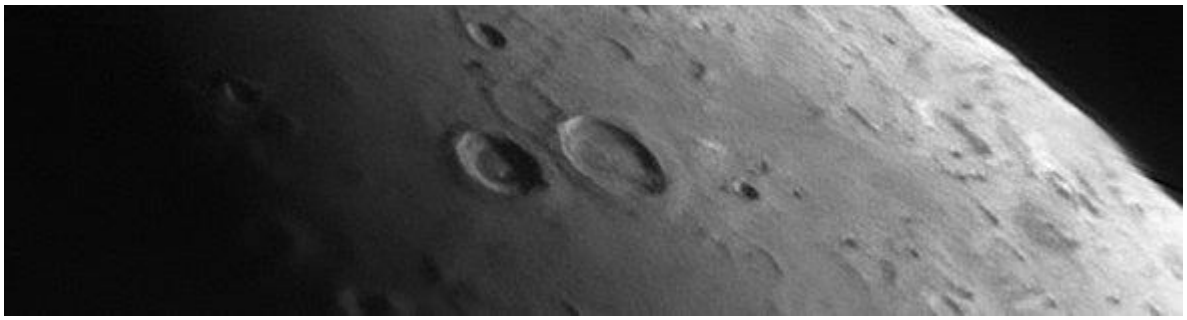


Figure 1. *Atlas and Hercules as imaged by Chris Longthorn on 2024 Aug 09 UT 19:36 using a*

Although there is no sign of dull red crater with vivid contrast, because Chris was using monochrome imagery, you can certainly see, in Fig 1, Hercules G has a craterlet on the floor. So, I wonder if this was what Gray was seeing? Because Chris was using an IR filter, if there was any dull redness in the area then this would have shown up as very bright in his image, unless of course the dull red seen by Gray in 1885 was monochromatic light i.e. at one wavelength. We shall leave the weight at 3 for now.

Mons Piton: On 2024 Aug 12 UT 01:49 Walter Elias (AEA) imaged this area under similar illumination to the following report:

Mons Piton 2022 Aug 04 UT 19:41-20:10 T. Smith (Codnor, UK, 16 inch Newtonian, x247, Seeing IV) mountain was very bright and red around its eastern slopes. An examination of the bright and contrasty Proclus crater revealed that to be relatively color free compared to Piton. An examination of other features, north and south along the terminator revealed some tinge of color but not as strong as on Mon Piton. Mons Piton examined with a yellow filter at 19:50 and still showed red along the eastern side, other features along the terminator had no color through the filter. Video images by. A.Cook (Newtown, UK) made earlier at 1929 & 19:40 UT, (in the SWIR (1.5-1.7 microns) did not reveal Mons Pico as especially bright - but resolution was poor. A friend of Smith, phoned up the next day to say that they saw a mountain on the limb exhibiting red on the 14th August. Probably the redness was due to atmospheric spectral dispersion as the Moon was low, and it was especially visible on Mons Piton as this is an exceedingly contrasty object on the terminator. ALPO/BAA weight=1.

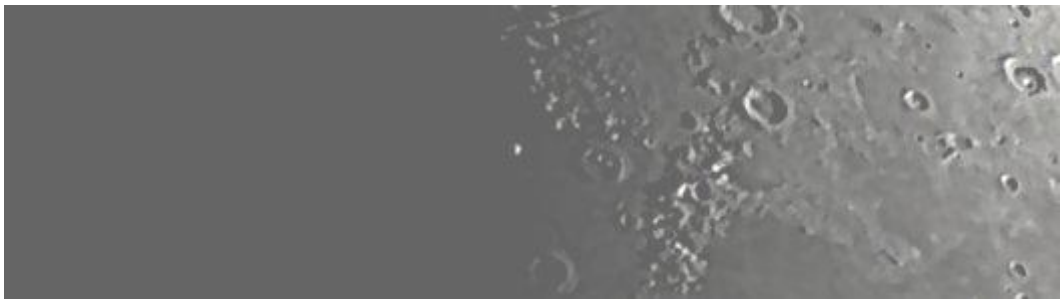


Figure 2. *Mons piton as imaged by Walter Elias (AEA) on 2024 Aug 12 UT 01:49.*

Although Walter's image does not help with the color aspect of Trevor Smith's report, we can at least see that Mons Piton is nice and bright, as one of its slopes is sunward facing. It is comparable in brightness to some of the mountains further to the east. We shall leave the 2022 LTP at a weight of 1 for now.

Alphonsus: On 2024 Aug 13 UT 08:30 Maurice Collins (BAA) imaged the whole Moon under both similar illumination and viewing angle (to within ±1˚) to the following report:

On 1993 Mar 31 at UT19:35-21:15 J. Knott (England, UK, 8.5" reflector, x180 and x216, seeing=II and Transparency=good) the central peak of Alphonsus appeared to be bright but the observer was not confident enough to initiate a LTP alert. The Cameron 2006 catalog ID=458b and weights=1. The ALPO/BAA weight=0.

Figure 3. *The Alphonsus area as imaged on 2024 Aug 13 UT 08:30 by Maurice Collins (ALPO/BAA/RASNZ) and orientated with north towards the top.*

Maurice's image (Fig 1) is effectively what John Knott would have seen because the topocentric libration and illumination are the same to within ±1˚. As you can see the central peak is very bright. We have discussed a repeat illumination observation of this event before in the 2014 Mar newsletter and actually assigned a weight of 0 into the written description. However, it seems that I did not get around to transcribing the weight of 0 into the database. So, we can do this now and remove it permanently from being used in any LTP database statistics, or indeed future predictions.

Cavendish E: On 2024 Aug 17 UT 20:40 Massimo Giuntoli (BAA) observed this crater because in the past they had witnessed it as exceptionally bright. Massimo used a 70mm F/13 refractor at x100 and x225 magnification under Antoniadi IV seeing (poor). He commented that the crater had mostly a normal appearance i.e. bright, but perhaps even duller than he would have expected. Let's keep on monitoring this crater visually and with imaging.

Aristarchus: On 2024 Aug 21 Alexander Vandenbohede (Belgium - BAA) was imaging the Moon primarily for the Saturn occultation, but this was under similar illumination to the following 2 reports:

Aristarchus 1978 Nov 16 UT 19:40-19:45. Observer: Mark Kidger (UK, 6" refractor x40, x133, x200, seeing poor-boiling) - saw the north wall of Aristarchus to be an electric blue. No spurious color was seen in other craters (despite the conditions). No other observers were able to confirm this due to the weather. ALPO/BAA weight=2.

Aristarchus 1975 Dec 19 UT 22:45 Observed by Foley (Kent, England) "Suspected anomaly in it", NASA catalog weight=1. NASA catalog ID #1424. ALPO/BAA weight=1.

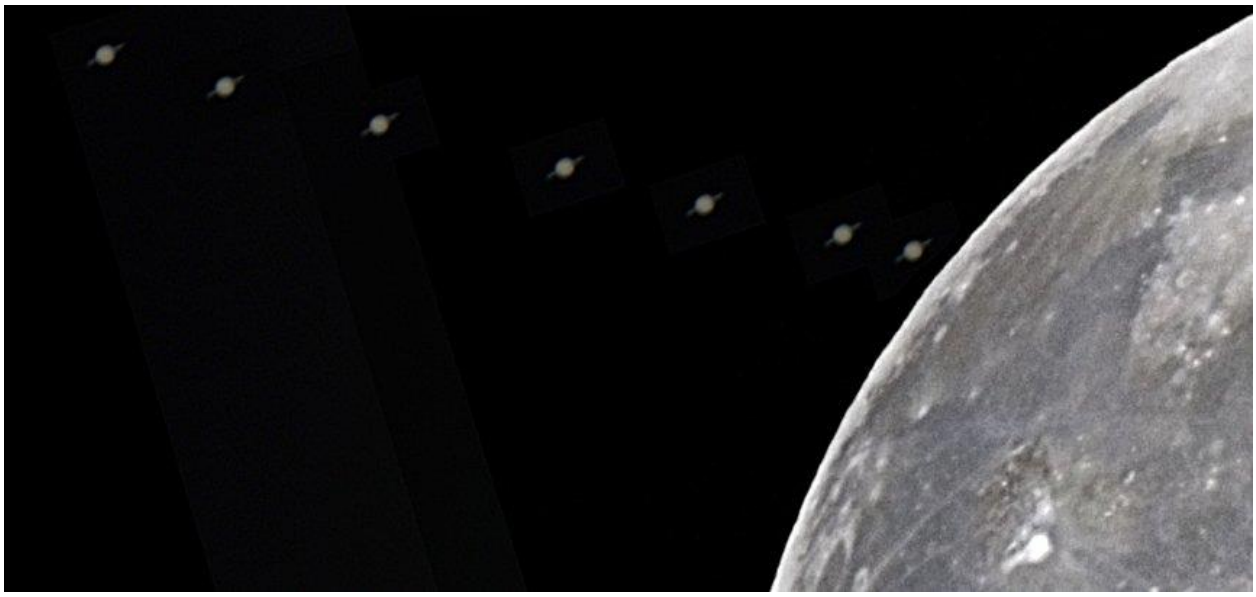


Figure 4. *Saturn's approach to the Moon in a composite image by Alexander Vandenbohede (BAA) taken on 2024 Sep 21 UT 03:03, 03:07, 03:12, 03:20, 03:24, 03:28 and 03:30. North is towards the top.*

Figure 5. *Color enhanced image taken by Alexander Vandenbohede (BAA) taken on 2024 Sep 21 UT 03:03. North is towards the top. A sketch made by Mark Kidger, of the Bristol Astronomical Society, can be seen in the bottom right, illustrating the region of electric blue coloration seen back in 1978.*

Alexander was using a Sony alfa 58 DSLR camera on a C8 telescope. The seeing conditions were terrible and imaging was only possible through gaps between the clouds. Although the aim was to obtain images of Saturn and the Moon, see composite image in Fig 4, an earlier image, taken at 03:03UT, also fell within the similar illumination window for the above two repeat illumination events (Fig 5). Although Alexander's image was never intended for use in repeat illumination work, and consequently the interior of Aristarchus is saturated, you can see some blueness, or mauve, on the NE exterior ejecta blanket of the crater. I would not like to say that was exactly what Mark Kidger saw back in 1978, as he also saw blueness inside the north rim, but he did take the time and trouble to try different eyepieces and check for the effect on other features (not seen on other similarly bright features).

I cannot really comment on the Foley report as it is too vague, but we have had a similar illumination observation made, as discussed in the 2018 Oct newsletter.

We shall leave both LTP reports at their current weights, but hope that if you see Mark Kidger's name crop up in future predictions, try to image without saturating the interior of the crater.

General Information: For repeat illumination (and a few repeat libration) observations for the coming month - these can be found on the following web site: http://users.aber.ac.uk/atc/lunar_schedule.htm . By re-observing and submitting your observations, only this way can we fully resolve past observational puzzles. If in the unlikely event you do ever see a LTP, firstly read the LTP checklist on http://users.aber.ac.uk/atc/alpo/ltp.htm , and if this does not explain what you are seeing, please give me a call on my cell phone: +44 (0)798 505 5681 and I will alert other observers. Note when telephoning from outside the UK you must not use the (0). When phoning from within the UK please do not use the +44! Twitter LTP alerts can be accessed on https://twitter.com/lunarnaut .

Dr Anthony Cook, Department of Physics, Aberystwyth University, Penglais, Aberystwyth, Ceredigion, SY23 3BZ, WALES, UNITED KINGDOM. Email: atc @ aber.ac.uk

Lunar Calendar October 2024

Date	UT	Event
2	1152	Moon at descending node
2	1849	New Moon (lunation 1259), annular solar eclipse, Pacific ocean, Patagonia
2	2000	Moon at apogee 406,516 km
5	2000	Venus 3° north of Moon
7	1900	Antares 0.2° north of Moon, occultation Easter Island to Africa
9		Greatest southern declination -28.5°
10		North limb most exposed +6.8°
10	1855	First Quarter Moon
11		West limb most exposed -7.3°
14	1800	Saturn 0.1° south of Moon, occultation South Africa to China
15	1800	Neptune 0.6° south of Moon, occultation Africa to Japan
16	0705	Moon at ascending node
17	0100	Moon at perigee 357,74 km, Large tides
17	1126	Full Moon, largest of the year
19	1600	Uranus 4° south of the Moon
19	2100	Moon 0.2° north of Pleiades
21	0800	Jupiter 6° south of Moon
22		Greatest northern declination +28.7°
22		South limb most exposed -6.8°
23		East limb most exposed +7.9°
23	1800	Pollux 1.7° north of Moon
23	2000	Mars 4° south of Moon
24	0803	Last Quarter Moon
29	1744	Moon at descending node
29	2300	Moon at apogee 406,161 km
31	0500	Spica 0.5° south of Moon

AN INVITATION TO JOIN THE A.L.P.O.

The Lunar Observer is a publication of the Association of Lunar and Planetary Observers that is available for access and participation by non- members free of charge, but there is more to the A.L.P.O. than a monthly lunar newsletter. If you are a non-member you are invited to join our organization for its many other advantages.

We have sections devoted to the observation of all types of bodies found in our solar system. Section coordinators collect and study members' observations, correspond with observers, encourage beginners, and contribute reports to our Journal at appropriate intervals.

Our quarterly journal, *The Journal of the Association of Lunar and Planetary Observers-The Strolling Astronomer*, contains the results of the many observing programs which we sponsor including the drawings and images produced by individual amateurs. Additional information about the A.L.P.O. and its Journal is on-line at: **http://www.alpo-astronomy.org.** I invite you to spend a few minutes browsing the Section Pages to learn more about the fine work being done by your fellow amateur astronomers.
To learn more about membership in the A.L.P.O. go to: **http://www.alpo- astronomy.org/main/member.html** which now also provides links so that you can enroll and pay your membership dues online.

SUBMISSION THROUGH THE ALPO IMAGE ARCHIVE

ALPO's archives go back many years and preserve the many observations and reports made by amateur astronomers. ALPO's galleries allow you to see on-line the thumbnail images of the submitted pictures/observations, as well as full size versions. It now is as simple as sending an email to include your images in the archives. Simply attach the image to an email addressed to

lunar@alpo-astronomy.org (lunar images).

It is helpful if the filenames follow the naming convention :

FEATURE-NAME_YYYY-MM-DD-HHMM.ext

YYYY {0..9} Year

MM {0..9} Month

DD {0..9} Day

HH {0..9} Hour (UT)

MM {0..9} Minute (UT)

.ext (file type extension)

(NO spaces or special characters other than "_" or "-". Spaces within a feature name should be replaced by "-".)
As an example the following file name would be a valid filename:

Sinus-Iridum_2018-04-25-0916.jpg
(Feature Sinus Iridum, Year 2018, Month April, Day 25, UT Time 09 hr16 min)

Additional information requested for lunar images (next page) should, if possible, be included on the image. Alternatively, include the information in the submittal e-mail, and/or in the file name (in which case, the coordinator will superimpose it on the image before archiving). As always, additional commentary is always welcome and should be included in the submittal email, or attached as a separate file.

If the filename does not conform to the standard, the staff member who uploads the image into the data base will make the changes prior to uploading the image(s). However, use of the recommended format, reduces the effort to post the images significantly. Observers who submit digital versions of drawings should scan their images at a resolution of 72 dpi and save the file as a 8 1/2"x 11" or A4 sized picture.

Finally a word to the type and size of the submitted images. It is recommended that the image type of the file submitted be jpg. Other file types (such as png, bmp or tif) may be submitted, but may be converted to jpg at the discretion of the coordinator. Use the minimum file size that retains image detail (use jpg quality settings. Most single frame images are adequately represented at 200-300 kB). However, images intended for photometric analysis should be submitted as tif or bmp files to avoid lossy compression.

Images may still be submitted directly to the coordinators (as described on the next page). However, since all images submitted through the on-line gallery will be automatically forwarded to the coordinators, it has the advantage of not changing if coordinators change.

ATTENTION ALL CONTRIBUTORS
Effective Immediately (March 1, 2024)

While it is a great honor to put together The Lunar Observer, we are now overwhelmed by our success with some issues in excess of 200 pages.

The increased time it requires for me to perform this job (as a volunteer) pulls me away from my own family and other obligations. Thus, the following rules are being implemented to improve content flow on my end and provide you with the criteria needed to make the "TLO" even more professional in appearance and subject matter.

1. **Review your image(s) at your location before submitting it/them, then brighten or darken it/ them as needed and if required, using whatever tools you have at hand. Images deemed unsuitable (including blurry, out-of-focus or "clouded-out" images) will either be returned for your attention or simply not used.**
2. **Images in jpeg format are preferred but others are also acceptable.**
3. **Crop your images to avoid jagged edges.**
4. **Orient the image so it makes the most sense. North at the top (with Mare Crisium at the upper right) is preferred but not required. To our many wonderful southern hemisphere contributors, please orient as you wish (probably south at top).**
5. **Be very limited on end-of-the-month submissions.**
6. **CHOOSE ONLY YOUR BEST IMAGES and limit the number to no more than eight (8) per each issue of the TLO. (obviously, if there is an article you are writing or contributing to this does not apply).**
7. **The image filename should be submitted with the object name spelled correctly, then the year-month-day-hour-minutes-Your Name or initials So, my image of Copernicus should have a file name of:**

Copernicus_2023-08-31-2134-DTe
means
Copernicus, 2023 August 31, 21:34 UT by David Teske

If we all do this going forward, it should make putting this all together faster and easier. Many of you already do this. Thank you for your contributions and your help. We have a premier lunar resource for the planet.

Please send images/drawings/text to drteske@yahoo.com

ATTENTION ALL CONTRIBUTORS
Effective Immediately (March 1, 2024)

In his efforts to make our organization as professional as possible, the late Walter Haas, the founder of the ALPO, urged that all image and sketch CAPTIONS be as complete as possible. This could enable others to perform their own observations using as much of the original caption data as possible to obtain the same or at least similar results. And while not everyone can provide every detail, we request the following in your captions:

1. Name of feature or object followed by name of imager and their specific location (including geographical coordinates if readily available).
2. Date and Universal Time when image was captured (or sketch was completed) using either the three-letter abbreviation or full spelling of the month to avoid possible month-and-date or date-and-month confusion.
3. Sky seeing (steadiness) conditions (0 = Worst and 10 = Perfect).
4. Sky transparency (opacity of the atmosphere) conditions (poor to good)
5. Intensity conditions (Standard ALPO Scale of Intensity: 0.0 = Completely black and 10.0 = Very brightest features, Intermediate values are assigned along the scale to account for observed intensity of features).
6. Equipment details (including instrument type, brand is optional) and aperture size (inches or mm/cm); telescope mount data (if applicable), camera brand and type, filter data (if applicable), as much exposure data as available (sketchers should provide other pertinent data).
7. Capturing, exposure and processing software data.
8. Personal comments about specific features including north (or south) in the image (sketch), markings and all other items pertinent to the subject being presented.
9. Any other pertinent comments.
10. Email or other contact information.

Below are two sample captions. Both at least attempt to follow the above-stated guidelines

Meton Region as imaged by Massimo Dionisi of Sassari, Italy (10°43’26” N, 8° 33’9” E), on 2024 January 30, at 00:03 UT. Equipment details: Sky Watcher 250 mm, f/4.8 reflector telescope, Tecnosky ADC, Celestron X-cel LX 3x Barlow lens, effective focal length = 4,750 mm, 685 nm IR pass filter, Neptune-M camera, Skywatcher EQ6-R Pro mount. Seeing conditions = III-to-IV (Antoniadi scale). Software details: SharpCap 4.0 acquisition (mono), AutoStakkert! 3.1.4 ELAB, Registax Wavelets.

Lunar craters Hausen and Bailly D as imaged by István Zoltán Földvári of Budapest, Hungary on 2020 April 07, at 21:03-21:17 UT. Colongitude 86.5°. Equipment details: 70 mm refractor telescope, f/l = 500 mm, Vixen Lanthanum LV 4mm eyepiece, 125x, Baader Contrast Booster Filter. Sky seeing = 7 out of 10, sky transparency = 6 out of 6.

When submitting observations to the A.L.P.O. Lunar Section

In addition to information specifically related to the observing program being addressed, the following data should be included:

Name and location of observer
Name of feature
Date and time (UT) of observation (use month name or specify mm-dd-yyyy-hhmm or yyyy-mm-dd-hhmm)
Filter (if used)
Size and type of telescope used Magnification (for sketches)
Medium employed (for photos and electronic images)
Orientation of image: (North/South - East/West)
Seeing: 0 to 10 (0-Worst 10-Best)
Transparency: 1 to 6

Resolution appropriate to the image detail is preferred-it is not necessary to reduce the size of images. *Additional commentary accompanying images is always welcome.* **Items in bold are required. Submissions lacking this basic information will be discarded.**

Digitally submitted images should be sent to:
David Teske – david.teske@alpo-astronomy.org
Alberto Anunziato–albertoanunziato@yahoo.com.ar
Wayne Bailey—wayne.bailey@alpo-astronomy.org

Hard copy submissions should be mailed to David Teske at the address on page one.

CALL FOR OBSERVATIONS: FOCUS ON: Archimedes region

Focus on is a bi-monthly series of articles, which includes observations received for a specific feature or class of features. The subject for the November 2024, will be Archimedes. Observations at all phases and of all kinds (electronic or film based images, drawings, etc.) are welcomed and invited. Keep in mind that observations do not have to be recent ones, so search your files and/or add these features to your observing list and send your favorites to (both):

Alberto Anunziato – albertoanziato@yahoo.com-ar
David Teske – david.teske@alpo-astronomy.org

Deadline for inclusion in the Archimedes Focus-On article is October 20, 2024

FUTURE FOCUS ON ARTICLES:

In order to provide more lead time for contributors the following future targets have been selected:

Subject	TLO Issue	Deadline
Archimedes Region	**November 2024**	**October 20, 2024**
Anaxagoras	**January 2025**	**December 20, 2024**
Clavius	**March 2025**	**February 2025**
Volcanic Features	**May 2025**	**April 20, 2025**

Focus On Announcement:
Archimedes, Autolycus and Aristillus: The Magnificent Three

These beautiful features in the western part of the Mare Imbrium are well known but always deserves another look. Archimedes, Autolycus and Aristillus are very different from each other. Archimedes is a large crater (83 km.) with a floor completely flooded by the lava that formed Mare Imbrium, which also flooded partially it's ejecta blanket. Autolycus (39 km.) is the smaller one, its main characteristic is a rough and disintegrated floor. Aristillus (55 km.) is a typical and splendid impact crater with terraced inner walls, wide and bright ejecta blanket and a constellation of central peaks. Let's enjoy these 3 magnificent craters along with other nearby wonders such as Montes Spitzbergen, Montes Mountains or Palus Putredinis.

NOVEMBER 2024 ISSUE-Due October 20 2024: ARCHIMEDES, AUTOLYCUS AND ARISTILLUS

JANUARY 2025 ISSUE-Due December 20 2024: ANAXAGORAS

MARCH 2025 ISSUE-Due February 20 2025: CLAVIUS

MAY 2025 ISSUE-Due April 20 2024: VOLCANIC FEATURES

IMAGE CREDIT: JESÚS PIÑEIRO

Focus-On Announcement
Anaxagoras, the "Tycho" of the North

Anaxagoras, with a diameter of 50 km, is a relatively small and relatively recent crater (it belongs to the Copernican period) and that is why we can appreciate the deadly magnificence of the ejected materials, which cover surfaces that reach more than 600 kilometers from the crater and with the Sun's rays striking frontally near the full moon it has an undeniable similarity to Tycho. With a more oblique illumination it is a real challenge to locate it, since it is quite close to the northern limb, a location that has taken away its prominence among those who observe and photograph the Moon. It is an interesting crater, with features such as a central peak of anorthosite and bright rays that cross its walls.

FOCUS ON NOVEMBER 2024: Due: October 20, 2024: ARCHIMEDES, AUTOLYCUS AND ARISTILLUS

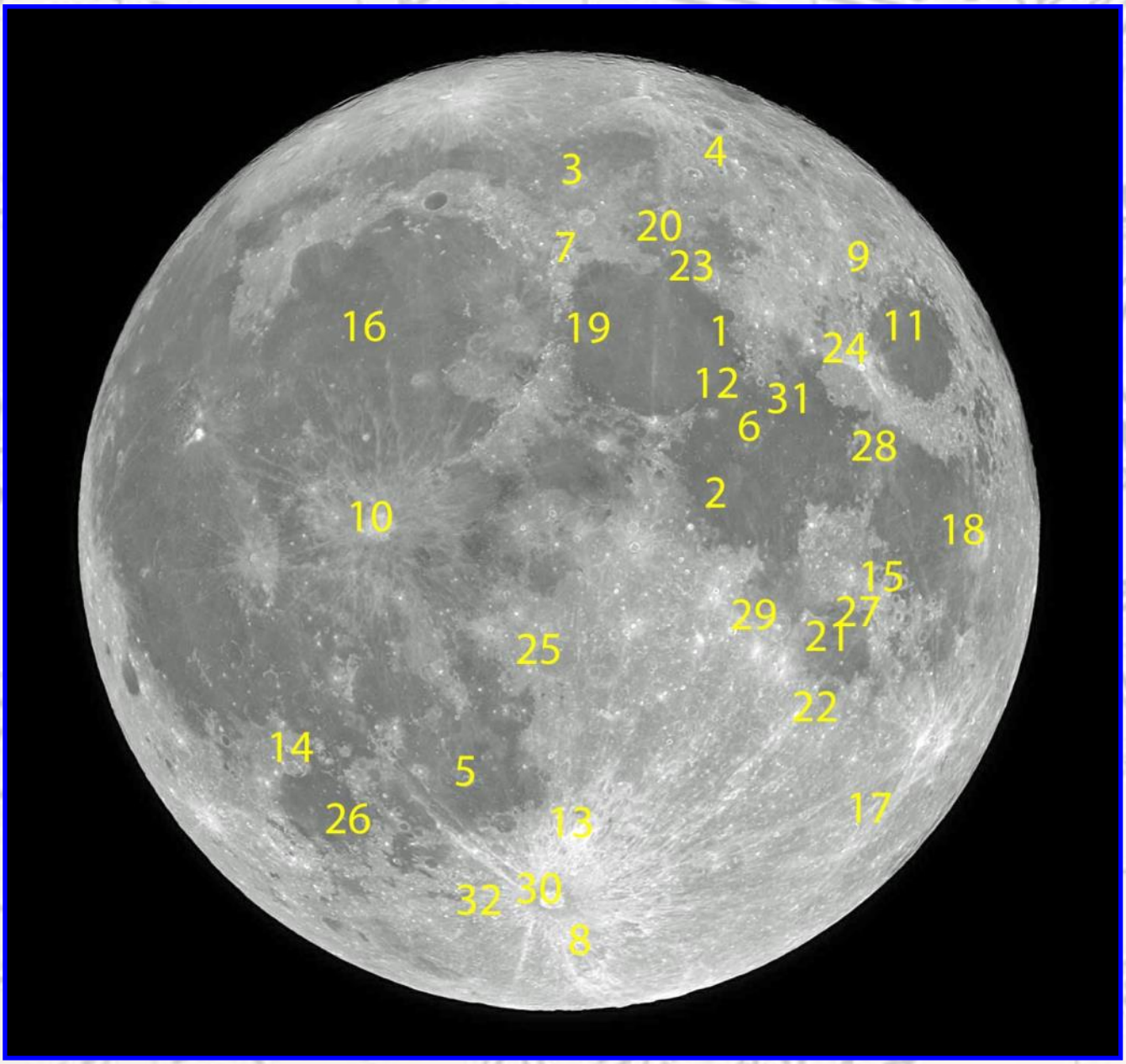
FOCUS ON JANUARY 2025: Due December 20, 2024: ANAXAGORAS

FOCUS ON MARCH 2025: Due February 20, 2025: CLAVIUS

FOCUS ON: MAY 2025: Due April 20, 2025: VOLCANIC FEATURES

Image Alberto Anunziato

Key to Lunar Images In This Issue



1. Aldrovandi, Dorsa
2. Arago
3. Aristoteles
4. Atlas
5. Bullialdus
6. Carrel
7. Caucasus, Montes
8. Clavius
9. Cleomedes
10. Copernicus
11. Crisium, Mare
12. Dawes
13. Deslandres
14. Gassendi
15. Gutenberg
16. Imbrium, Mare
17. Janssen
18. Langrenus
19. Linné
20. Mortis, Lacus
21. Nectaris, Mare
22. Piccolomini
23. Posidonius
24. Proclus
25. Ptolemaeus
26. Puiseux
27. Pyrenaeus, Montes
28. Taruntius
29. Theophilus
30. Tycho
31. Vitruvius
32. Wilhelm