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THE LUNAR OBSERVER

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.
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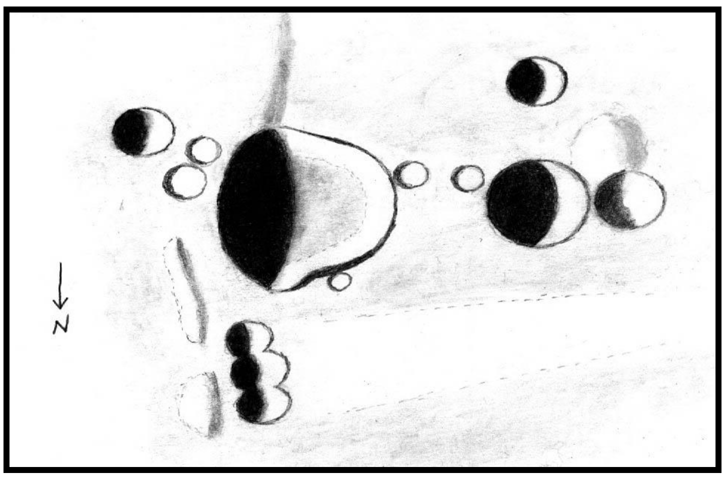
RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – MARCH 2014

BAROCIUS G



Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
October 12, 2013 00:33-01:05 UT, 15 cm refl, 170x, seeing 6-7/10

I drew this crater and vicinity on the evening of Oct. 11/12, 2013 while the moon was hiding rho Sagittarii. This area is east of Barocius and Maurolycus. Barocius G is somewhat acorn-shaped with dimples in its north and south sides, and an east rim that is not as strongly curved as its west rim. It showed substantial interior shadow, but no detail was noticed on its floor. Barocius GA is just north of Barocius G near the latter's greatest exterior shadow. This small crater is quite shallow as are two larger saucers west of Barocius G. The largest crater to the west is Barocius M, and Barocius N is its smaller version to the south. Both M and N are quite deep. Barocius L is just west of M, and is about the same size as N. It is not as deep as M and N, but L is not as shallow as the saucers between Barocius G and M. A low swelling is evident along the south rims of Barocius M and L. A chain of three overlapping craters is north of Barocius G. They are shown but not labelled on the Lunar Quadrant map. These three craters appear to be of about equal depth. A low mound is just east of this trio, and a wide, low ridge is to the south of them. A vague bright streak is west of the trio and north of Barocius G, M and L. It looks like a ray; if so, it could be from Tycho. Barocius S is the larger of two shallow craters near the east rim of Barocius G. The larger, deeper crater farther to the east is Nicolai G. This crater looks similar to the ones north of Barocius G.

LUNAR CALENDAR

MARCH-APRIL 2014 (UT)

Mar	01	08:00	New Moon
	04	17:45	Moon Descending Node
	07	22:07	Moon-Aldebaran: 2.3° S
	08	13:27	First Quarter
	08	22:54	Moon North Dec.: 19.1° N
	11	19:46	Moon Apogee: 405400 km
	16	17:08	Full Moon
	18	20:38	Moon-Spica: 1.8° S
	19	03:14	Moon-Mars: 3.4° N
	19	06:30	Moon Ascending Node
	21	03:40	Moon-Saturn: 0.2° N
	23	07:28	Moon South Dec.: 19° S
	24	01:46	Last Quarter
	27	09:52	Moon-Venus: 3.6° S
	27	18:30	Moon Perigee: 365700 km
	30	18:45	New Moon
Apr	01	02:30	Moon Descending Node
	04	06:52	Moon-Aldebaran: 2.1° S
	05	07:12	Moon North Dec.: 19° N
	07	08:31	First Quarter
	08	14:52	Moon Apogee: 404500 km
	14	18:24	Moon-Mars: 3.7° N
	15	03:56	Moon-Spica: 1.8° S
	15	07:42	Full Moon
	15	07:47	Total Lunar Eclipse
	15	13:23	Moon Ascending Node
	17	07:42	Moon-Saturn: 0.4° N
	19	12:55	Moon South Dec.: 18.9° S
	22	07:52	Last Quarter
	23	00:27	Moon Perigee: 369800 km
	25	23:16	Moon-Venus: 4.5° S
	28	11:36	Moon Descending Node
	29	06:04	Annular Solar Eclipse
	29	06:14	New 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 nonmember 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 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.

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
Size and type of telescope used
Magnification (for sketches)
Filter (if used)
Medium employed (for photos and electronic images)
Orientation of image: (North/South - East/West)
Seeing: 1 to 10 (1-Worst 10-Best)
Transparency: 1 to 6

Full resolution images are preferred-it is not necessary to compress, or 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 both

Wayne Bailey – wayne.bailey@alpo-astronomy.org

and Jerry Hubbell –jerry.hubbell@alpo-astronomy.org

CALL FOR OBSERVATIONS: FOCUS ON: MARE VAPORUM

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 **May 2014** edition will be **Mare Vaporum.** 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 this to your observing list and send your favorites to (both):

Wayne Bailey - wayne.bailey@alpo-astronomy.org

Jerry Hubbell –jerry.hubbell@alpo-astronomy.org

Deadline for inclusion in the Mare Vaporum article is April 20, 2014

FOCUS ON: MARE FRIGORIS

By Wayne Bailey

Coordinator: Lunar Topographical Studies

Visually, Mare Frigoris is the oddest lunar mare. It's the only mare that isn't basically circular. This long, narrow strip curves around the north side of Mare Imbrium, from Sinus Roris northwest of Sinus Iridum almost to Mare Serenitatis on the east, with a northeastward extension from Aristoteles almost to Endymion (fig. 1). On rectified images (images corrected to remove the foreshortening due to the curvature of the moon's surface), or images taken from overhead by orbiters, the northern shore of Mare Frigoris, the Caucasus, Apennine, and Carpathian Mountains form a circular arc that could be the outer ring of the Imbrium multi-ring basin. Even the Aristarchus Plateau could be somehow related to this rim. The highlands that border Mare Imbrium from the Alps past Plato and Sinus Iridum, would then be an inner ring of the basin, possibly continuing to include the Archimedes Mountains. The region north of Mare Frigoris is also covered with ejecta and ejecta scars from Imbrium (fig. 2).

***Figure 1* - Full Moon.** *Maurice Collins-Palmerston North, New Zealand. December 12, 2013 09:39-09:45 UT. FLT-110, ASI120MC*

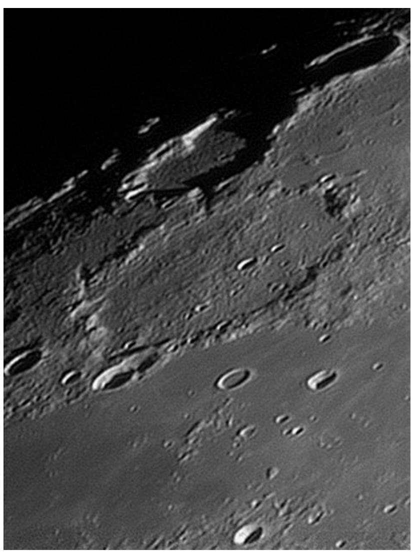


***Figure 2* – J. Herschel.** *Jerry Hubbell, Locust Grove, Virginia, USA. January 13, 2014 01:39 UT. Seeing 8/10, Transparency 5/6. Colongitude 52.5º. ES152ED APO refr, Flea3 GigE, red filter.*

While this is currently the most widely accepted interpretation of Mare Frigoris, it has some problems. One problem is simply that there aren't good markers for much of the Imbrium Basin rim. There are large gaps on the south and west of any proposed rim, The north rim of Mare Frigoris contains no mountain ranges like those that rim other mare. The fact that it continues the arc of the mountains to Imbrium's south and east is the main reason to identify it as the outer rim. Overall, Frigoris' shores seem more like beaches than raised rims (fig. 3).

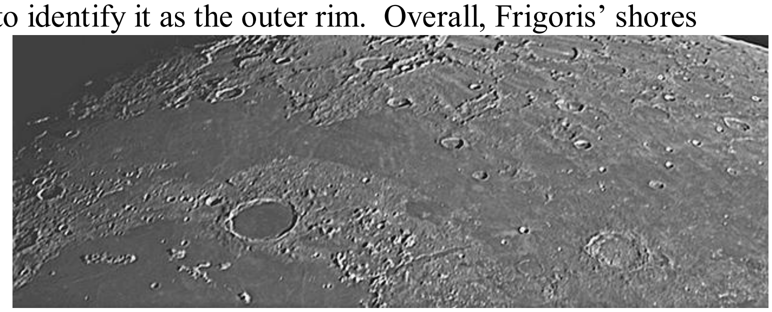


***Figure 3* – Mare Frigoris.** *William Dembowski, Windber, Pennsylvania, USA. September 19, 2010 00:28 UT. Colongitude 38.9, Seeing 6-7/10. C9.25 SCT f/10, DMK41, UV/IR filter.*

Also, if the strip that includes Sinus Iridum, Plato, and the Alps is interpreted as an inner ring, it is not concentric with the outer rim; its eastern portion nearly intersects the Caucasus Mountains. An alternative interpretation is that this area is fallback from the excavation of Imbrium that just happens to protrude above the mare surface (fig. 4). It may be that the real question is how to interpret this highland region within the bounds of the mare.

Turning now to Mare Frigoris itself, what is there to see here? First we have to realize that because it extends over almost 90º of longitude, at any one time different parts are viewed under very different illumination conditions. It's possible for it to be local noon at one end while the sun is just rising or setting at the other end (fig. 5). The full length of the mare is only illuminated from about one week before to one week after full moon. Since most of this mare lies between 40º-50º latitude, there is a large amount of foreshortening in the north-south direction. East-west foreshortening is variable, being smallest at the central meridian.

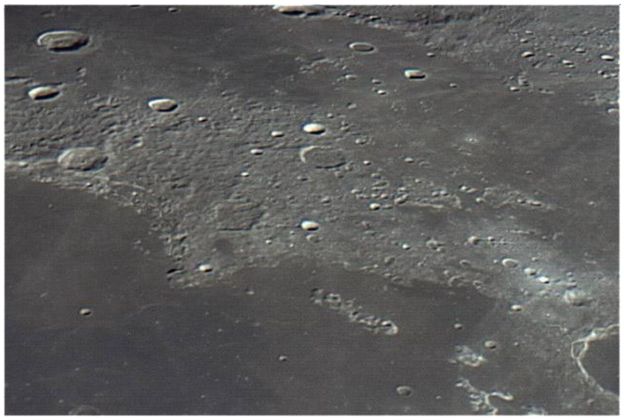


Figure 4 ***– Western Mare Frigoris.*** *Jay Albert, Lake Worth, Florida USA. December 15, 2013 03:46 UT. Seeing 7-8/10 Transparency 3/6. C-11, NextImage 5.*

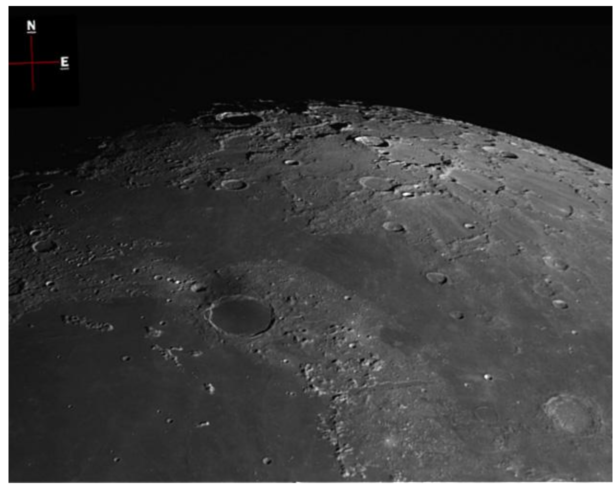


Figure 5 ***– Sunrise to Noon.*** *Orlando Benitez Sanchez, Canary Islands, Spain. December 23, 2012 20:30 UT. Seeing 7/10, transparencey 5/6, colongitude 36.7°. SCT 235mm, f/6.3, DMK21AU04.AS.*

The largest craters on the mare surface are Aristoteles, Harpalus, and the partially destroyed craters Gartner and Mitchell. Numerous bright rays cross the mare surface which are easily visible under a high sun (fig. 6). Under a low sun, many wrinkle ridges can be seen (fig. 7), especially covering the eastern portions (fig. 8). With careful examination, albedo differences identify different lava flows, particularly prominent in the western portion, near Harpalus (fig. 9A). These also show up as color differences, noticeable on color images with increased color saturation (fig. 9B). Increasing the color saturation also makes the ejecta surrounding Harpalus more visible. Apparently the impact that formed the crater penetrated the upper lava flow and excavated material from the flow seen to the east.

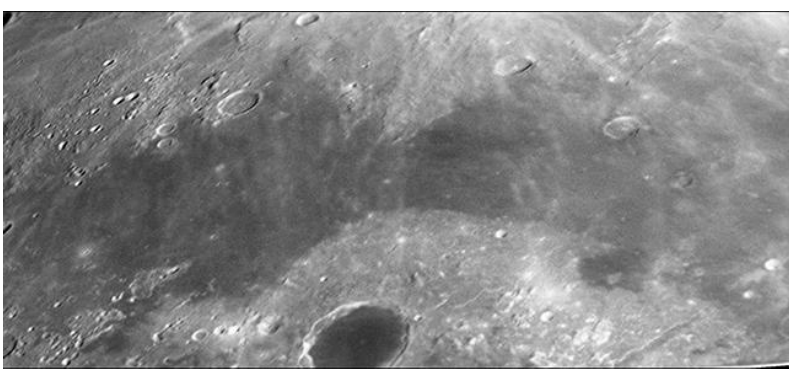


Figure 6 ***– Rays.*** *Richard Hill – Tucson, Arizona, USA January 14, 2014 04:49 UT. Seeing 7/10. TEC 8" f/20 MAK-CASS, SKYRIS 445. 656.3 nm filter.*

Some of the best known lunar features border Mare Frigoris on the south. Sinus Iridum, a large, partially submerged crater whose rim is labeled as the Jura Mountains, Promontorium Heraclides and Promonturium Laplace is an easily recognized landmark on the northwest rim of Mare Imbrium. The dark, flat, circular floor of Plato (fig. 10) also attracts attention whenever it is illuminated. Finally, the Alpine Valley, traversing the lunar Alps provides observing challenges, particularly its central rille.

North of Mare Frigoris the terrain is more complicated with numerous large and small craters. Foreshortening also makes navigation difficult. Libration can help by choosing observation times when the lunar north pole is tilted toward the earth. W. Bond (fig. 11) at the north shore of the mare, is an interesting feature. It's labeled as a crater, but it appears almost perfectly square instead of round. This is not simply a perspective effect; on rectified images it also appears nearly square. Most large craters are actually polygonal, not circular, but this is an extreme example. Nearby, to the northwest, Goldschmidt also appears to have a 90º bend in

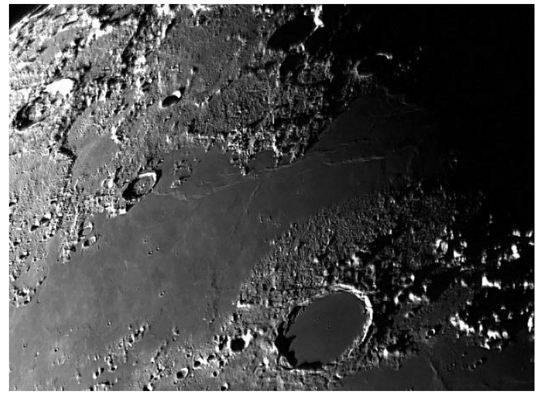


Figure 7 ***- Central Mare Frigoris Wrinkle Ridges.*** *Marnix Praet - Stekene, Belgium. August 23 2013 Skywatcher Quattro10" Newtonian, 5X barlow, DMK 618, Red interference filter.*

its northern wall, but rectified images show that it is actually nearly circular, perspective emphasizes a slight angle in its north wall.. Situated on the west wall of Goldschmidt, Anaxagoras (fig 12) spreads its rays over the region. If it were located further south, Anagoras would join Tycho, Copernicus & Kepler as one of the more spectacular rayed craters.

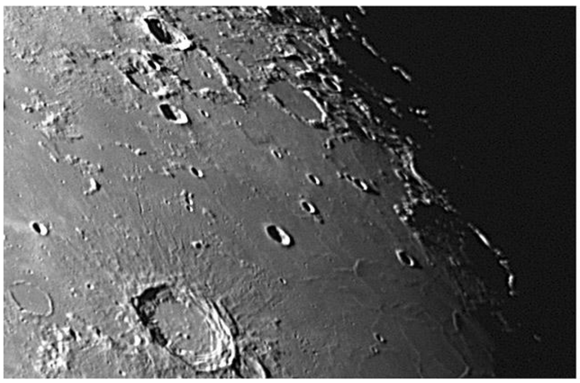


Figure 8 ***– Eastern Mare Frigoris.*** *Wayne Bailey, Sewell, NJ USA. August 3, 2007 05:55 UT. transparency 3/6, Seeing 4/10. Colongitude 146º. C-11, f/10, IR72 filter.*

Although wrinkle ridges are fairly common on Mare Frigoris, only a few rilles are charted. Rimae Archytas runs parallel to the south shore, opposite the crater Archytas which lies on the mare's north shore. Rimae Gartner lies within the partially submerged crater Gartner in the far northeast corner of Frigoris. Most of the edge of Mare Frigoris is oriented east-west. Rilles that are parallel to the edge would be difficult to detect since they wouldn't create the shadows and bright interior wall that reveal their presence.

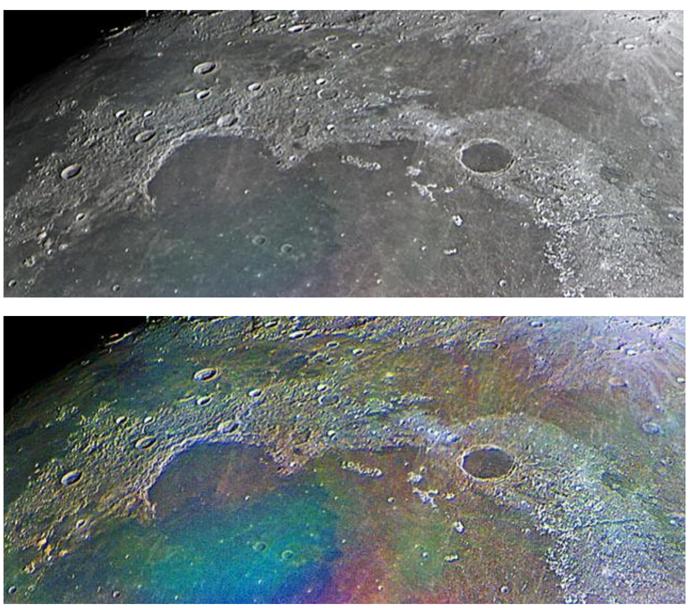


Figure 9 ***– Harpalus.*** *Maurice Collins-Palmerston North, New Zealand. December 15, 2013 09:33 UT. FLT-110, ASI120MC. A; top: original image. B: bottom: increased color saturation.*

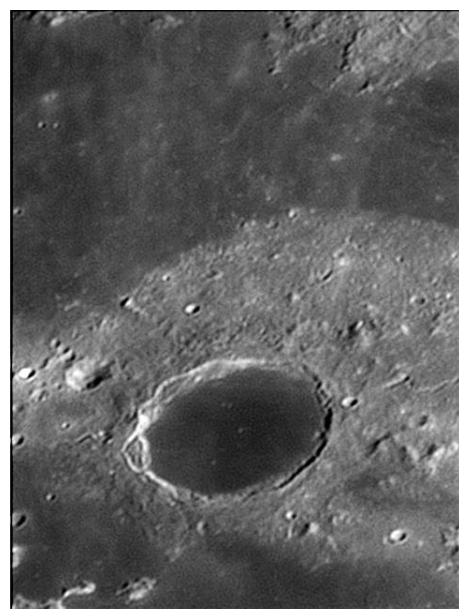


Figure 10 ***– Plato.*** *Jerry Hubbell, Locust Grove, Virginia, USA. January 13, 2014 01:42 UT. Seeing 8/10, Transparency 5/6. Colongitude 52.5º. ES152ED APO refr, Flea3 GigE, red filter.*

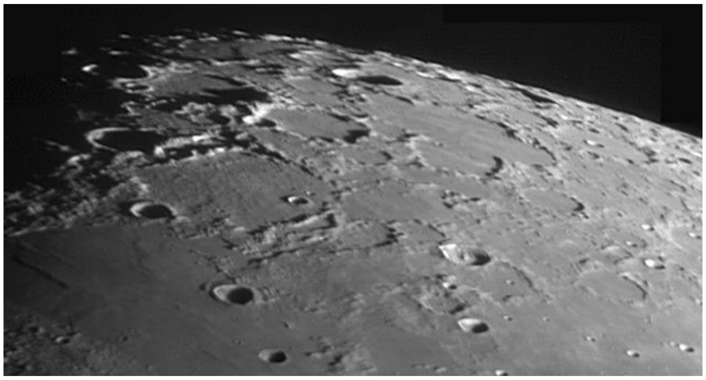


Figure 11 ***– W. Bond.*** *Alexander Vandenbohede, Assebroek, Belgium. December 10, 2013 17:50 UT C-8 f/20 (2x barlow) SCT, webcam.*

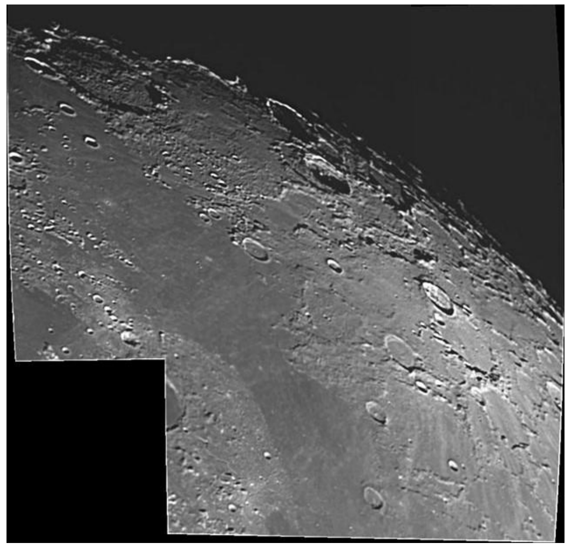


Figure 12 ***– Anaxagora Rays.*** *Michael Sweetman, Tucson, Arizona, USA, January 12, 2014 07:58 UT. Seeing 6/10. Explore Scientific 5" APO refractor, f/15. DMK21, IR-UV block filter.*

ADDITIONAL READING

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The-Moon Wiki. http://the-moon.wikispaces.com/Introduction

LUNAR TOPOGRAPHICAL STUDIES

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Assistant Coordinator – William Dembowski - dembowski@zone-vx.com

Assistant Coordinator – Jerry Hubbell –jerry.hubbell@alpo-astronomy.org

Website: http://moon.scopesandscapes.com/

OBSERVATIONS RECEIVED

JAY ALBERT – LAKE WORTH, FLORIDA, USA. Digital image of Mare Frigoris.

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND. Digital images of 6, 14 & 15 day Moon, Aristarchus & Mare Orientale.

ROBERT HAYS - WORTH, ILLINOIS, USA. Drawings of Barocius G & Hooke-Shuckburgh.

RICHARD HILL – TUCSON, ARIZONA, USA. Digital image of Jannsen.

DAMIAN PEACH-SELSEY, WEST SUSSEX, UNITED KINGDOM. Digital image of Clavius.

MICHAEL SWEETMAN – TUCSON, ARIZONA USA. Digital image of Mare Frigoris.

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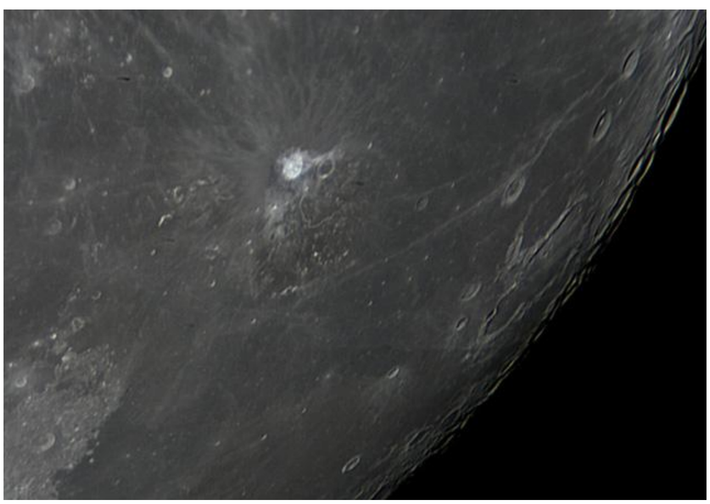
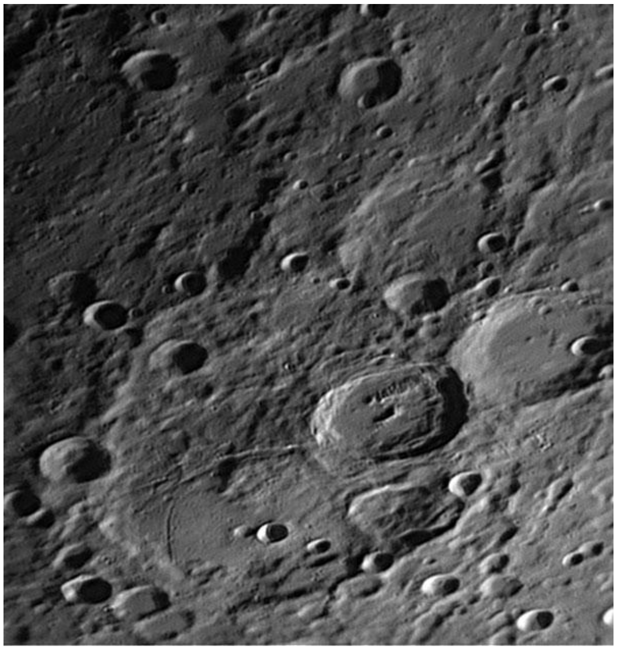
RECENT TOPOGRAPHICAL OBSERVATIONS



ARISTARCHUS - Maurice Collins-Palmerston North, New Zealand. February 14, 2014 09:43 UT. FLT-110, f/14. North down.

RECENT TOPOGRAPHICAL OBSERVATIONS

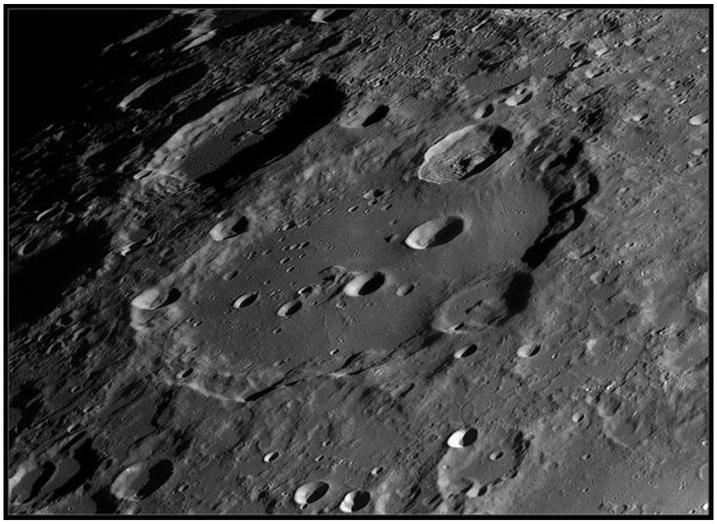
MARE ORIENTALE - Maurice Collins-Palmerston North, New Zealand. February 14, 2014 09:46 UT. FLT-110, f/14. North down.



JANNSEN – Richard Hill – Tucson, Arizona, USA January 7, 2014 01:18 UT. Seeing 7/10. TEC 8" f/20 MAK-CASS, SKYRIS 445. 656.3 nm filter.

Early in a lunation we are treated to this feature spending several nights on or near the terminator. This large crater is a beautiful sight with it's large rimae criss-crossing and curving across the floor of Janssen. Oddly enough I had never notice the mountains on the floor of Fabricius to the north, but then I've never had this kind of resolution on this area.

CLAVIUS–Damian Peach –Selsey, West Sussex, United Kingdom. January 11, 2014.



LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – MARCH 2014

Dr. Anthony Cook - Coordinator

Observations for January were received from the following observers: Jay Albert (Lake Worth, FL, USA - ALPO) observed Alphonsus, Archimedes, Aristarchus, Atlas, Gassendi, and Plato. Maurice Collins (Palmerston North, New Zealand) imaged Copernicus, Mare Imbrium, Mare Nectaris, and the whole lunar disk, Marie Cook (Mundesley, UK - BAA) observed Censorinus, Eudoxus, Proclus and Yerkes, Rik Hill (Tucson, AZ, USA - ALPO) imaged Janssen, Mare Frigoris, Mare Nectaris, and Pythagoras. Brendan Shaw (UK - BAA) imaged Alphonsus, Eratosthenes, Proclus and Ross D.

News: Although I will not be attending the lunar and Planetary Science Conference in Houston this year, the abstracts for the conference have been published on-line. Of particular relevance are the preliminary results from NASA's LADEE mission http://www.hou.usra.edu/meetings/lpsc2014/pdf/sess201.pdf . It is interesting to note that they have so far not found evidence for high altitude charged dust particle clouds that many had thought could explain the high altitude horizon glows seen by Apollo astronauts and the Clementine mission. As it turns out this is not encouraging for the main theory to explain LTP, namely clouds of electrostatic levitated dust particles that would scatter light above the terminator area. However it is early days yet, and such clouds are not expected anyway unless one can produce large electric fields at the surface such as we get with strong solar flares – the latter of course have been a rarity in the currently depleted solar maximum. They have however confirmed the presence of high altitude dust plumes that the spacecraft have flown through, and these were caused by ejecta from meteorite impacts on the surface, and tend to become more frequent during major meteor showers.

If say one year after the mission ends (allowing time for publication of results), and they still have not found signs of charged dust particle clouds high above the surface, then it maybe prudent to review to role of LTP observing in the Lunar Section. This would be because the levitated dust particle model is one of the most common explanations invoked for LTP, and without this, then less efficient and less probable mechanisms would be needed to create temporary effects that some astronomers have claimed to have seen through telescopes. So for now, let us carry on as usual, trying to disprove past LTP observations under repeat illumination/libration conditions, at least until April 2015.

My call for help for information about 1870 May 12 LTP reportedly seen by W.R. Birt in Plato (see the October 2013 LTP newsletter), has been answered in the February 2014 BAA Lunar Section circular by Nigel Longshaw. Nigel points out that the NASA catalog has probably gotten the description of "an Extraordinary display of lights" mixed up with spots and streaks on the floor of the crater that was being enthusiastically mapped by astronomers of that era. The number of "visible" spots and streaks on the floor of Plato of course varied with the size of the instrument being used, seeing conditions, transparency, illumination angle and libration.

Finally, If you are carrying out impact flash observations in support of the LADEE mission, please continue to do so, if not and you are interested, then contact ALPO's Brian Cudnik (cudnik@sbcglobal.net) for further details.

LTP Reports: Although he does not regard this as a LTP, Nigel Longshaw (BAA) has sent in an observation of Geminus from 2013 Dec 19 that again shows that under similar illumination to a previous observation he made on 2011 Jan 21, that the rim of this crater reveals a faint sepia tinge. This comes under the category of "permanent color" – in other words it should repeat at a particular selenographic colongitude, every lunation. Despite this not being a LTP, many observers might regard this as a challenge for the high resolution imagers amongst you to see if you can capture this effect on camera. Please try to capture color images of this crater at selenographic colongitudes of between 118.5°-118.7°, and if you do detect the natural sepia color, how early or late in colongitude, outside of this range, can it be recorded?

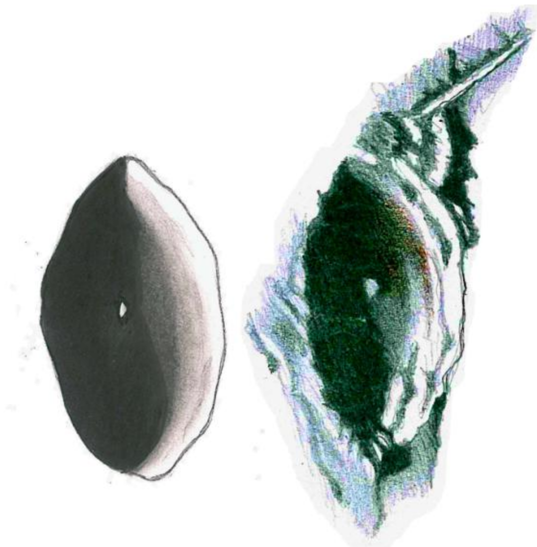


Figure 1. *Sketches of Geminus by Nigel Longshaw (BAA) with north towards the top. Note that both sketches show a probable natural surface color of sepia on the inner E/NE floor/rim* ***(Left)*** *2011 Jan 21 UT 22:11* ***(Right)*** *2013 Dec 19 UT 22:15-22:30.*

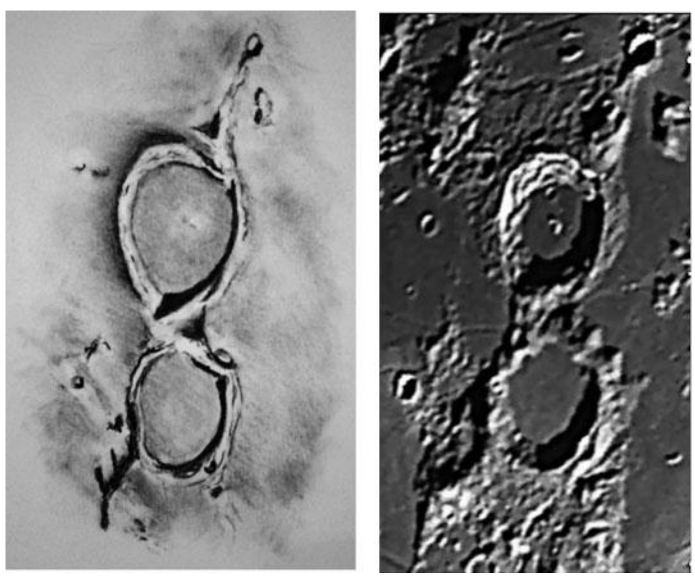


Figure 2. *A comparison between a sketch and a CCD image of the Campanus and Mercator crater floors with north towards the top right.* ***(Left)*** *Sketch by Stephen Bush (SPA) on 2014 Jan 11 UT 22:00-22:30.* ***(Right)*** *Processed CCD image by Mike Brown (BAA) on 2014 Jan 11 UT 19:41.*

A second report, which was also not a LTP, was passed onto me by Peter Grego by one of his Society of Popular Astronomy (SPA) observers: Stephen Bush. Stephen made a charcoal sketch of the Campanus and Mercator region on 2014 Jan 11 UT22:00-22:30, using a 6” SCT x180 (Seeing III). He found that the floor of both craters was remarkably uniform. Peter also points out that earlier that evening, at 19:41 UT, Mike Brown had imaged the area using a 10” Newtonian with a Hoya 830nm IR filter, seeing 2/10, transparency 10/10 – processed with Registax. Mike's image does actually show some detail on the floors of these two craters (See Fig 2) for a comparison. The amount of extra detail visible maybe due to the processing power of the Registax software?

Routine Reports: Here is a selection of reports received for January that can help to re-assess some past LTP observations.

***Figure 3**. Ross D (just south of centre) as imaged by Brendan Shaw on 2014 Jan 10 UT 00:04 through a green filter with north towards the top. The image has been sharpened and contrast enhanced.*

Ross D: On 2014 Jan 10 UT 00:04 Brendan Shaw imaged the Ross D area under the same illumination as a LTP report from 1969 by Gene Cross:

> *Ross D 1969 May 25 UT 04:34-04:38 Observed by Cross (Las Cruces, NM, USA, 5" refractor) "Bright spot adjacent to NE segment of crater, 1.5-2" at greatest extent & much brighter than rim of Ross D. Fuzziness here & extensive obscur. of detail E. of Ross D (Apollo 10 watch)" NASA catalog weight=3, NASA catalog ID #1147. ALPO/BAA weight=3.*

Now Ross D has a diameter of 9 km (4.5"), and as we can see from Fig 3, there is clearly no *"bright spot adjacent to NE segment of crater, 1.5-2" at greatest extent"*. There is a fuzzy ringed spot slightly up and far right of Ross D in the image, just to the right of a small crater, but this is nowhere as bright as the rim of Ross D and too far away. The 1969 LTP description is sufficiently different to Brendan's repeat illumination image that I have no hesitation in keeping this LTP report at a weight of 3.

Alphonsus: On 2014 Jan 10 UT 00:21 Brendan Shaw imaged Alphonsus at similar illumination to the following two LTP reports (see Fig 4), one from 1980 by Grant Blair, and the other from 1993 by John Knott:

> *On 1980 Oct 17 at UT18:40-19:10 G. Blair (Weir, Renfrewshire, Scotland, UK, 22cm reflector, seeing II, transparency excellent, no spurious color) noticed at 18:40UT that the bright central peak of Alphonsus was elongated. At 18:41UT, at higher power, the central peak separated from a bright point of light, intensity about that of a 6th magnitude star. at 18:43UT a filter check was made of the suspect point and surrounding regions - slightly brighter in red. At 18:50UT intensity of bright point reduced to equivalent of 4th magnitude star. Noted that Earthshine was the brightest that he had ever seen it. At 19:03 UT losing the Moon behind a chimney. UT 19:10 brief appearance, bright point still seen at 4th magnitude. 19:27UT the Moon disappears again.20:15UT reappearance of the Moon and Alphonsus appeared normal. The ALPO/BAA weight=2. This is a BAA Lunar section observation.*

> *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=1.*

As you can see from Fig 4, the central peak is “very bright” and elongated, therefore as John Knott suggested in his 1993 LTP report he had been right to be not very confident about this being a LTP – it is perfectly normal to be this bright at this selenographic colongitude and so will be given a weight of 0 and removed from the LTP catalog. As for the Grant Blair 1980 report, yes the peak should have been bright, and as we can see from Fig 4 is also elongated too. What the Brendan’s image cannot help with us with though is the reported variability in brightness and the color filter difference seen in 1980 - however as we have solved at least some of the “unusual” descriptions reported I think we can safely lower the weight from a 2 to a 1 for the Blair LTP report. The brightness variability could after all be related to sun angle or indeed seeing conditions.

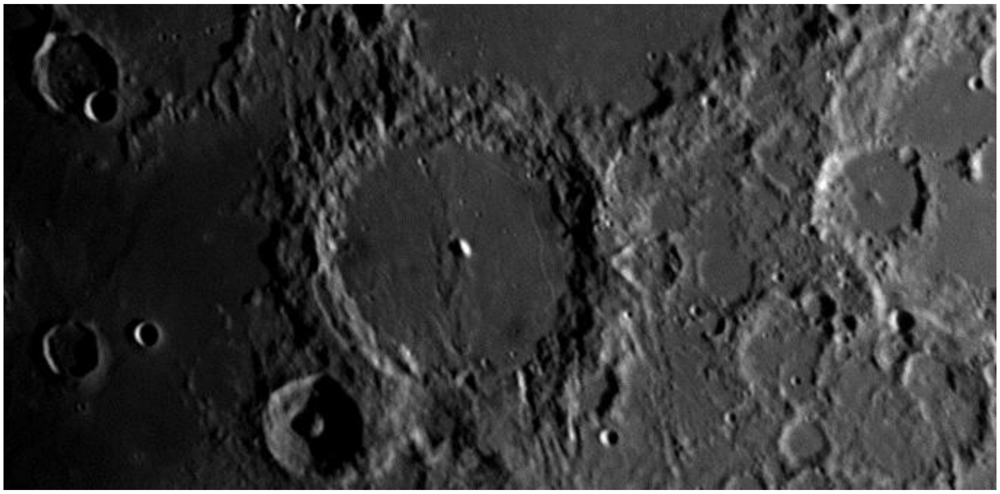


Figure 4*. Alphonsus as imaged by Brendan Shaw on 2014 Jan 10 UT 00:21 through a green filter with north towards the top.*

Atlas: On 2014 Jan 12 UT 02:05-02:20 Jay Albert observed Atlas (seeing 7-8/10, transparency 3rd magnitude, 6” SCT) at a similar illumination to the following David Darling LTP report from 1991:

> *On 1991 Apr 25 at UT 02:34-02:37 UT D. Darling (Sun Praire, WI, USA, 12.5" reflector, x64) found that Atlas had spots in it that were "more intense in blue". No blinks were detected elsewhere on the Moon apart from Gassendi. The Cameron 2006 catalog ID=425 and weight=4. The ALPO/BAA weight=2.*

Jay reported that Atlas was fully sunlit. The usual dark patches on the floor were seen. A very bright spot was seen on the floor immediately W of the N dark patch. This bright spot appears to be the craterlet shown in that position on Rukl chart 15. The central peaks were visible as a bright ring. He sometimes suspected that the N dark patch might have been marginally more intense in the W44A filter than in the W25, but could not be certain. He performed blinks at 214x and at 70x, the latter to get closer to the magnification used by David Darling in his original observation. So both observers found spots that were brighter in blue light, though in the case of the Darling description they were “more intense in blue”, and Jay only notes the northern most one and then only “marginally more intense” in blue. In view of this it is difficult to know whether the original 1991 observation should merit an increase or decrease in its weight, so for safety I will leave it at a weight of 2.

Proclus: On 2014 Jan 13 UT 17:00-17:10 Marie Cook observed Proclus with a 90mm Questar telescope (x80, seeing IV, transparency moderate to poor) under the same illumination as the following Bartlett LTP from 1950:

> *Proclus 1950 Jul 27 UT 02:56 Observed by Bartlett (Baltimore, MD, USA) described in the NASA catalog as: "C.p. of Proc. disappeared)" 5" reflector used at x100, NASA catalog weight=4. ALPO/BAA weight=1.*

What is interesting here is that Marie observed with a smaller telescope than Bartlett, and under poor seeing and transparency, but did actually manage to see the central white spot in Proclus. Given that the central spot should have been visible to Bartlett, even under poor observing conditions, I will raise the weight of his report to 2.

Torricelli B: On 2014 Jan 14 UT 09:28-09:35 Maurice Collins imaged the Moon under the same illumination and topocentric libration conditions (to within +/-1º) to a 1985 LTP observation by Kevin Marshall, where Torricelli B was reported to be "very bright", as described by Cameron catalog below:

> *On 1985 Jul 01 at 02:00-03:00 UT K. Marshall (Medellin, Columbia, 30cm reflector, x200, seeing IV, transparency very hazy) observed that Torricelli B was abnormally bright (1.9 compared to 2.9 for Proclus and 3.0 for Censorinus)using a C.E.D. No color was seen though. The Cameron 2006 catalog ID=279 and the weight=4. The ALPO/BAA weight=2.*

So the important point here is that both the illumination and viewing directions should be the same in 1985 and 2014. Therefore if the effect seen in 1985 was due to the light scattering properties of the lunar surface then it should repeat exactly. As you can see in the image taken by Maurice in Fig 5, Torricelli B is considerably fainter than nearby Censorinus. Kevin Marshall's observation was made under very hazy conditions, so it is possible that transparency variations may have led to a one-off apparent brightening. The observer does not state whether he double checked his results with the CED (A Crater Extinction Device), but other observations by the same observer suggest that they were quite a careful. I am therefore keeping the weight of this observation at 2 – it would have gone up to 3 if the observer had specifically stated that they had double checked for transparency issues. Incidentally the CED was invented by David Jewitt (a former BAA Lunar Section member who is now a Prof of Astronomy at UCLA), and used calibrated neutral density filters placed one in front of the other to absorb light and eventually extinguish views of bright objects on the Moon – this way it was possible for visual observers to measure the relative brightness of lunar features in a quantifiable manner, before the era of amateur CCD imagery.

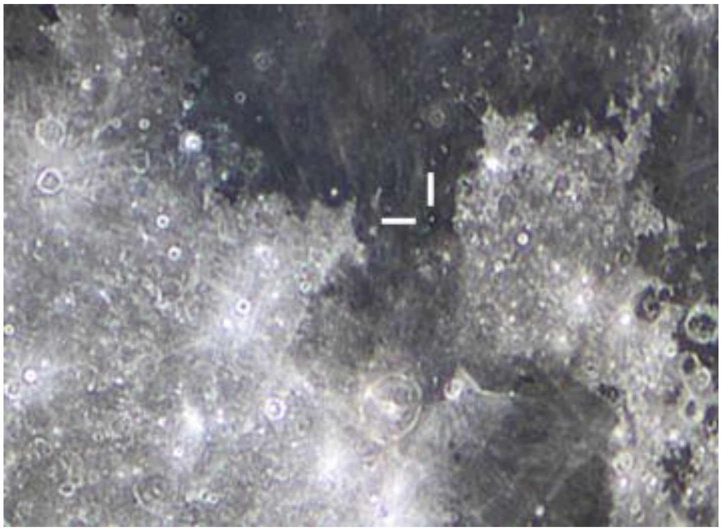


Figure 5*. Torricelli B as indicated by the tick marks from an image of mosaic of the Moon taken by Maurice Collins on 2014 Jan 14 at 09:28-09:35 with north towards the top.*

Suggested Features to observe in March: For repeat illumination (and a few repeat libration) LTP predictions for the coming month, these can be found on the following web site: http://users.aber.ac.uk/atc/tlp/tlp.htm. If you would like to join the LTP telephone alert team, please let me know your phone No. and how late you wish to be contacted. If in the unlikely event you see a LTP, advice on tests to carry out can be found on: http://users.aber.ac.uk/atc/alpo/ltp.htm . If you are still convinced it is a LTP then please give me a call on my cell phone: +44 798 505 5681 and I will alert other observers. Twitter LTP alerts can also be accessed on http://twitter.com/lunarnaut.

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KEY TO IMAGES IN THIS ISSUE

1. **Alphonsus**
2. **Aristarchus**
3. **Atlas**
4. **Barocius**
5. **Campanus**
6. **Clavius**
7. **Geminus**
8. **Jannsen**
9. **Mare Frigoris**
10. **Mare Orientale**
11. **Proclus**
12. **Ross**
13. **Torricelli**

FOCUS ON targets

X = Mare Vaporum (May)