ASSOCIATION OF LUNAR & PLANETARY OBSERVERS
ALPO
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THE LUNAR OBSERVER

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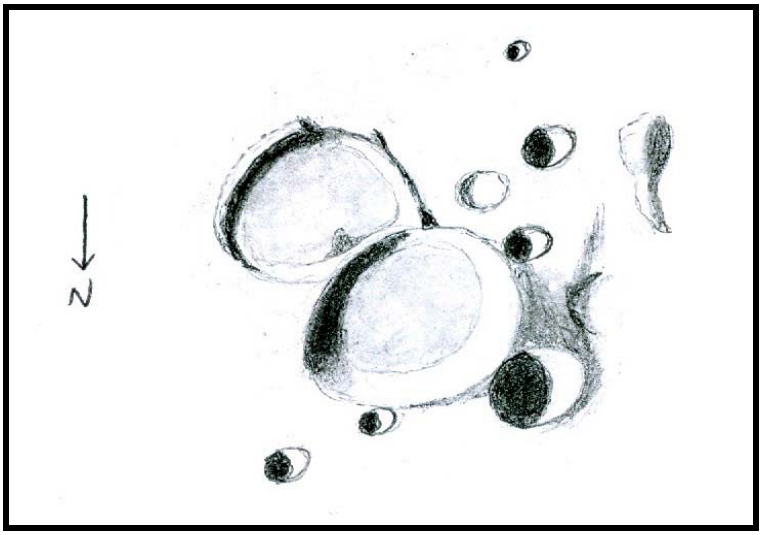
RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – JULY 2011

IDELER



Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
February 11, 2011 01:45-02:13, 02:30-02:45 UT, 15 cm refl, 170x, seeing 7/10

I drew this crater on the evening of Feb. 10/11, 2011 before the moon hid an 8th-magnitude star. Ideler is a southern crater, west of Pitiscus and southeast of Maurolycus. Ideler has a smooth floor and a blunt point on its northeast rim. Ideler L is east of Ideler, and has been intruded upon by the latter's rim. Ideler L is nearly as large as Ideler, but it appears to be shallower. Two small points are on the south rim of Ideler L, and a small fuzzy bit of shadow is near the merger of its rim with Ideler's rim. Two modest craters are on or near the northeast rim of Ideler; the larger and more easterly one is Ideler EC. The conspicuous, deep crater on the northwest rim of Ideler is Baco R. There is substantial shadowing along the west and south sides of Baco R, and along the west side of Ideler down to Ideler A. Ideler B is south of A, and is similar to it, and Ideler C is the small pit south of B. A shallow saucer is east of Ideler A and B, and south of Ideler. A vague partial ring may lurk within the shadowed area South of Baco R, and a curved ridge farther to the southwest may be associated with Baco.

LUNAR CALENDAR

JULY-AUGUST 2011 (UT)

July 01	04:53	New Moon (Start of Lunation 1095)
July 02	23:00	Moon 4.9 SSW of Mercury
July 07	14:05	Moon at Perigee (369,565 km – 229,637 miles)
July 07	23:00	Moon 7.5 Degrees SSW of Saturn
July 08	06:29	First Quarter
July 12	16:54	Extreme South Declination
July 14	01:00	Moon 3.3 Degrees S of Pluto
July 15	06:38	Full Moon
July 18	05:00	Moon 5.4 Degrees NNW of Neptune
July 21	01:00	Moon 5.8 Degrees NNW of Uranus
July 21	22:48	Moon at Apogee (404,356 km – 251,255 miles)
July 23	05:03	Last Quarter
July 23	22:00	Moon 4.9 Degrees NNW of Jupiter
July 27	03:06	Extreme North Declination
July 27	19:00	Moon 1.0 Degrees ESE of Mars
July 30	08:00	Moon 4.2 Degrees SSW of Venus
July 30	18:39	New Moon (Start of Lunation 1096)
Aug. 01	09:00	Moon 1.5 SW of Mercury
Aug. 02	21:00	Moon at Perigee (365,755 km – 227,270 miles)
Aug. 04	06:00	Moon 7.2 Degrees SSW of Saturn
Aug. 06	11:08	First Quarter
Aug. 08	23:18	Extreme South Declination
Aug. 10	05:00	Moon 3.3 Degrees S of Pluto
Aug. 13	18:57	Full Moon
Aug. 14	12:00	Moon 5.2 Degrees NNW of Neptune
Aug. 17	07:00	Moon 5.7 Degrees NNW of Uranus
Aug. 18	16:24	Moon at Apogee (405,159 km – 251,754 miles)
Aug. 20	09:00	Moon 4.7 Degrees NNW of Jupiter
Aug. 21	21:56	Last Quarter
Aug. 23	12:18	Extreme North Declination
Aug. 25	13:00	Moon 2.6 Degrees S of Mars
Aug. 27	24:00	Moon 2.4 Degrees SSW of Mercury
Aug. 27	03:03	New Moon (Start of Lunation 1097)
Aug. 29	08:00	Moon 6.4 Degrees SSW of Venus
Aug. 30	17:36	Moon at Perigee (360,857 km – 224,226 miles)
Aug. 31	20:00	Moon 6.9 Degrees SSW of Saturn

○

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 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.alpoastronomy.org/index.htm** 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.

Note: The published images now contain links to the original, full resolution images. Clicking on an image while connected to the internet, will download the original image, which in some cases has significantly higher resolution than the published version.

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 always be included:

Name and location of observer
Name of feature
Date and time (UT) of observation
Size and type of telescope used
Orientation of image: (North/South - East/West)
Seeing: 1 to 10 (1-Worst 10-Best)
Transparency: 1 to 6
Magnification (for sketches)
Medium employed (for photos and electronic images)

CALL FOR OBSERVATIONS:
FOCUS ON: Posidonius

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 **September 2011** edition will be **Posidonius**. 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 crater to your observing list and send your favorites to:

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

Deadline for inclusion in the Posidonius article is August 20, 2011

FUTURE FOCUS ON ARTICLES:

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

Mare Humorum TLO Issue: November 2011 Deadline: October 20, 2011

ALPO 2011 CONFERENCE

The annual ALPO Conference is being held in Las Cruces, New Mexico this year. I encourage you to attend, if possible, and to consider presenting a paper. Information, including deadlines, from the conference web-site follows, with links to more information.

ALPO 2011 CONFERENCE

The 2011 Annual Conference of the Association of Lunar and Planetary Observers will be held at New Mexico State University, Guthrie Hall Room 201, in Las Cruces, New Mexico, Friday, July 22, 2011 and Saturday, July 23, 2011. For the latest information visit: www.morning-twilight.com/alpo

REGISTRATION:

	Before July 1:	After July 1:
Individual:	$65.00	$80.00
Individual plus family member:	$75.00	$95.00

Banquet: $30 per person (Held at NMSU Golf Course Clubhouse)

LODGING:

Conference Hotel: Sleep Inn University 2121 S. Triviz, Las Cruces, NM 88001 (575) 522-1700

Reservations: Deadline for the reduced conference rate is July 6th. Single queen bed: $70+tax single or double occupancy (Call after April 1, 2011- Mention the Association of Lunar and Planetary Observers Conference)

NMSU Dorm Rooms		Bedding Included*	Bedding not included**
Residence Halls	Single Occupancy	$25.00	$19.00
	Double Occupancy	$21.50	$16.00
Apartments	Chamisa Village	N/A	$39.00
	Vista Del Monte or Cervantes Village	N/A	$28.50

DORM RATES PER PERSON PER NIGHT
*Bedding includes 2 flat sheets, 1 pillowcase, 1 pillow, and 1 blanket. Towels are not provided.
**Apartments include kitchens. Guests must bring their own cooking equipment and dining utensils.
If you would like to stay in the dorms, you can download the NMSU Housing Request Form here (PDF).

SPECIAL TOURS: July 21 and July 22

The deadline for special tours registration is July 1, 2011.

REGISTRATION/QUESTIONS: alpoconference@morning-twilight.com

Registrar: ALPO 2011 Conference Robert Williams, 308 N. Mesquite St. #3, Las Cruces, NM 88001

CONTRIBUTED PAPERS:

The deadline for contributed papers has passed.

FOCUS ON: Plato

Wayne Bailey
Coordinator: Lunar Topographical Studies

Plato (Fig. 1) is one of the best-known and most easily recognized features on the moon: the circular dark spot in the northern hemisphere, sitting on the inner edge of the Imbrium Ring between Mare Imbrium and Mare Frigoris. Its nearly

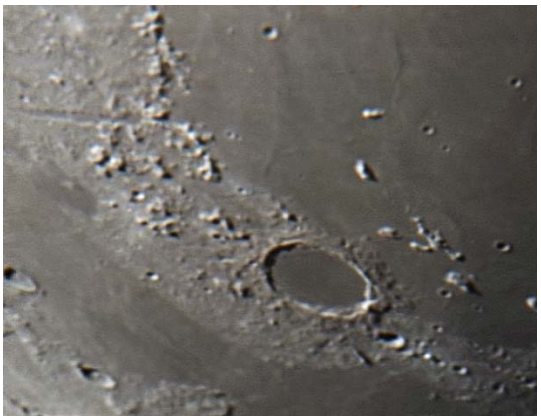


Figure 1*- Maurice Collins-Palmerston North, New Zealand. January 14, 2011 09:11 UT. C8, 2x barlow, LPI.*

featureless, flat black floor and bright circular rim immediately attract attention when the phase is near full. With lower sun angles, the jagged shadows crossing its flat floor invite examination (Fig. 2).

The crater is a little more than 100 km in diameter, almost perfectly circular, appearing slightly oval only due to foreshortening. It's position on a ring of Mare Imbrium shows that it formed after the Imbrium forming impact, and its flat, lava filled interior formed before the era of lava flooding ended. This narrows its age to between 3.0-3.85 billion years. Gouges in its ejecta blanket attributed to the Sinus Iridum impact indicate that

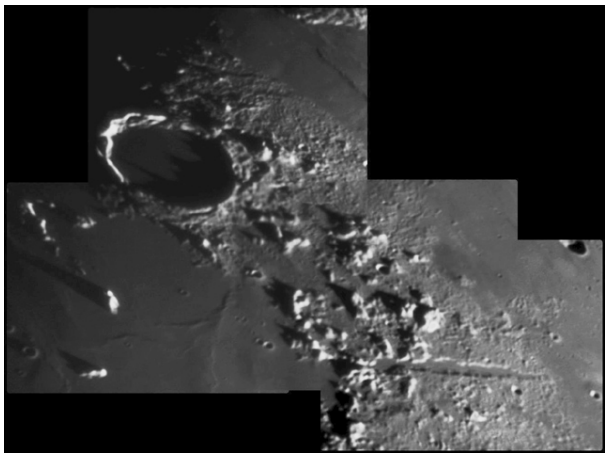


Figure 2 *– Richard Hill-Tucson, Arizona, USA. December 18, 2007 02:09 UT. Seeing 7/10, C-14 SCT, 1.6x barlow, UV/IR block filter, SPC900NC.*

it's older than Iridum. The density of small craters on the floor of Plato is less than on the nearby surface of Mare Imbrium indicating that the floor of Plato is younger than the surface of Mare Imbrium. It is also slightly darker than the mare, which may indicate a slightly different composition. Subtle tonal and color differences also seem to mark multiple lava flows within the crater (Fig. 3). The extreme flatness of the floor indicates that the lavas were very low viscosity. The expected depth and central peak height for a 100 km diameter crater, combined with the measured depth to the floor, indicate that the central peak

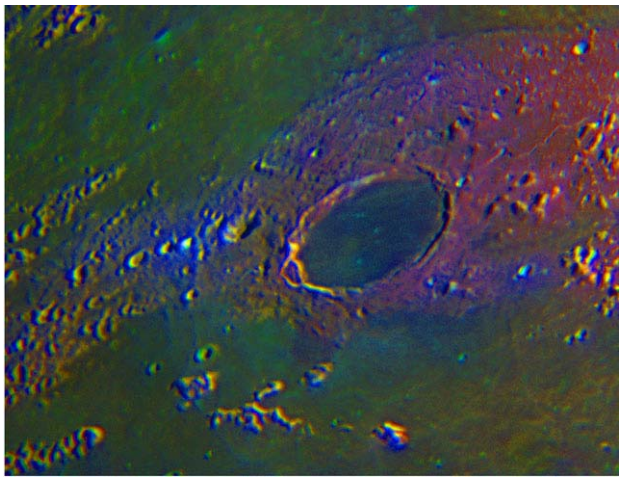
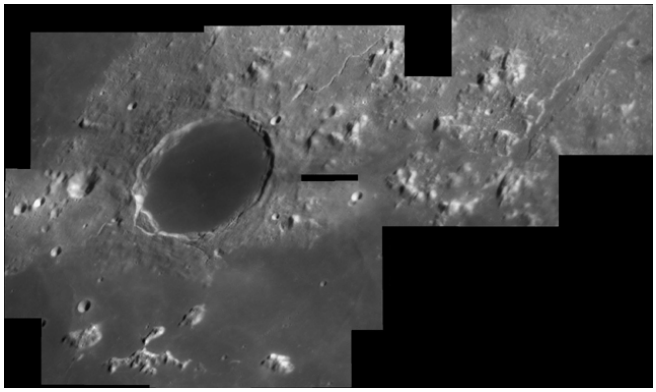


Figure 3*- Wayne Bailey-Sewell, New Jersey, USA. March 30, 2007 02:27-03:04 UT. Seeing 4/10 Transparency 4/6, Colong. 46.0°. C-11 SCT, f/10+2x barlow, Skynyx 2-1M, False color, saturation increased. R/G/B – Schuler IR78/R/B filters.*

is barely covered. The largest of the floor craters is almost centrally located on the floor, but there is no sign of the buried peak.

Other than the height variations of the rim, which produce the well known shadow spires at low sun angles, the most noticeable feature is the large (15 km) triangular block of western wall that has partially separated and slid down into the crater. A similar feature, not as obvious, exists just to the north on the

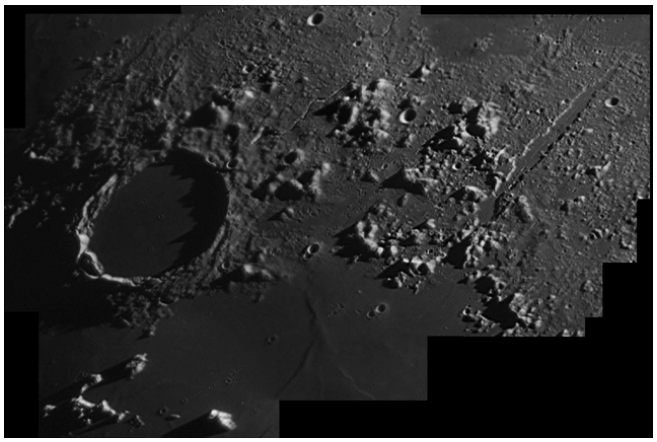
northwest wall. A thin sinuous rille extends eastward from near the base of Plato's eastern wall, and a winding channel runs down the west wall, turning south at the base to continue as a thin sinuous rille into Mare Imbrium (Fig. 4).



Only a few small craters can be seen on Plato's floor. Five or six are in the 1-2 km diameter size range, none larger. When near the terminator, these can be

Figure 4 *– Richard Hill-Tucson, Arizona, USA. April 26, 2010 05:02 UT. Seeing 810, C-14 f/10 SCT, 2x barlow, UV/IR block filter, DMK21AU04.*

seen as craters casting shadows (Fig. 5), but at high sun angles, they're only visible as bright spots (Fig. 3). Claims have been made of visually detecting more than 70 small craters, but almost all are near or at the limit of detectability even with large telescopes and good seeing. High-resolution images from spacecraft have shown that although there are numerous small craters, most don't correspond very well with the claimed visual detections.



A ghost crater, slightly larger than Plato, seems to exist just to its south in Mare Imbrium. The curve of the mare edge can be continued along a low ridge that

Figure 5 *- Richard Hill-Tucson, Arizona, USA. May 22, 2010 02:29 UT. Seeing 810, C-14 f/10 SCT, 2x barlow, UV/IR block filter, DMK21AU04*

curves around to Mons Pico, marking the north, east and south walls of the ghost crater. The western edge disappears along the Montes Teneriffe (Fig. 6 & 7).

Plato has been the site of numerous reports of mists, obscurations or veiling of features. In some cases, the subtle tonal variations of the floor may have been misinterpreted as mist. Almost all the floor features are near the limits of visibility, so vagaries of seeing may easily account for most of the reports of missing or new craters. North mentions in his book, however, that in addition to small craters not being visible when nearby features seem to indicate that they should be seen, sometimes they are visible when other features indicate they shouldn't be visible (an interesting twist on the obscuration phenomenon, also possibly seeing related). Examining the nearby

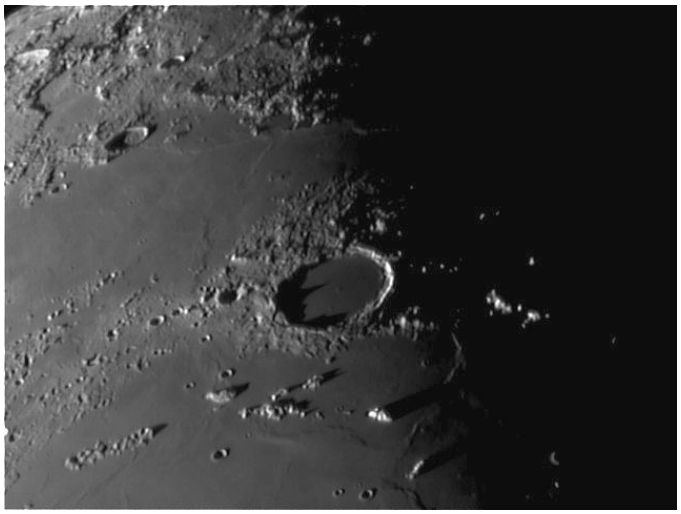


Figure 6 *– Ed Crandall-Lewisville, North Carolina, USA. September 1, 2010 10:02 UT. Seeing A-III, Colong. 183.2°. 110 mm f/6.5 APO, 3x barlow, Toucam.*

features Mons Pico and Mons Piton at various phases (especially waxing versus waning) will provide a vivid illustration of how appearance can change with illumination.

Plato is illuminated from about 1st quarter to 3rd quarter. When near the terminator, the long shadows cast across the crater floor can be seen to change within minutes. These also change appearance at different lunations due to the variation in solar

azimuth. Bliss (formerly Plato A. It's named for an 18th century English Astronomer Royal, not any emotional reaction to Plato) is a smaller (20 km) crater about 22 km west of Plato. A string of three smaller craters extend westward from it, and shorter strings extend northwest and southwest, giving the impression of a human stick figure with Bliss as its head. The floor of Plato seems to darken near full phase, but this is a contrast effect. Like the rest of the moon, it is brightest at full moon, but the rim brightens more than the floor giving the appearance of a darkened floor.

Although Plato appears bland and uninteresting when first viewed, particularly when compared to Copernicus' complexity or Tycho's spectacular ray system, closer examination reveals a wealth of interesting details.

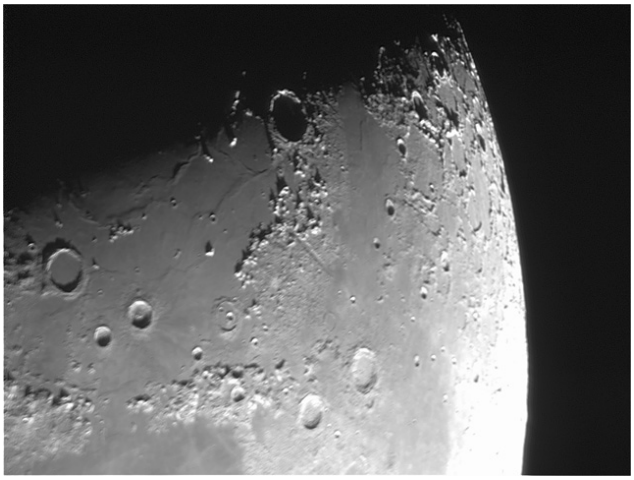


Figure 7 *– Mark Hardies, New Port Richey, Florida, USA. March 13, 2010 01:37 UT. Seeing 610, transparency 5/6,* Colong. 8.7°. C-8 f/10 SCT, DMK41AU02

ADDITIONAL READING

Bussey, Ben & Paul Spudis. 2004. The Clementine Atlas of the Moon. Cambridge University Press, New York.
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Grego, Peter. 2005. The Moon and How to Observe It. Springer-Verlag, London.
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Wlasuk, Peter. 2000. Observing the Moon. Springer-Verlag, London.
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MARE SMYTHII

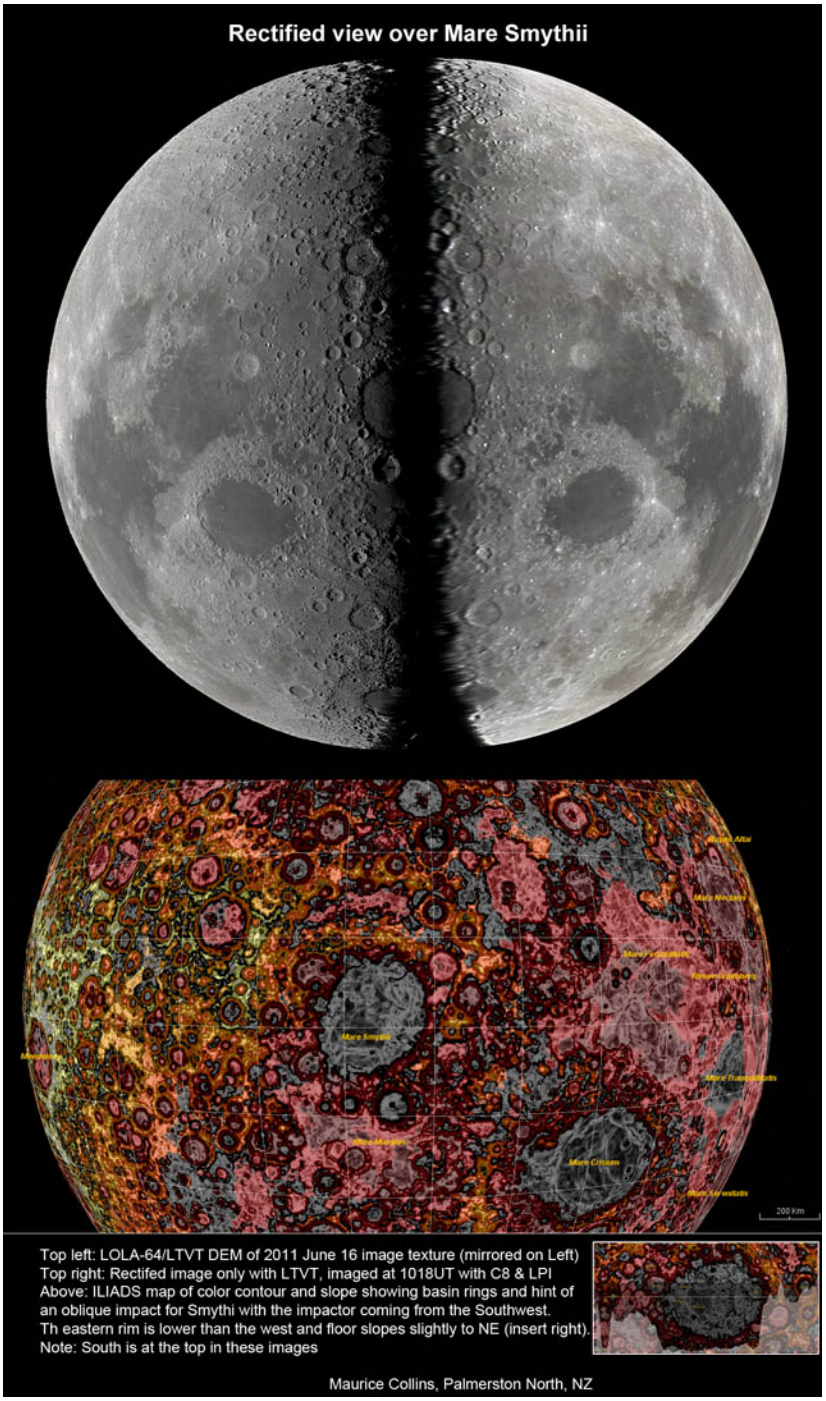
Maurice Collins

On the weekend and Monday morning, I was playing around with my full-Moon image in LTVT and made this rectified view from above Mare Smythii. I also used that image as texture for a DEM in LTVT. It is not perfectly registered though in places, hope you wont mind too much. What I got from it is that Mare Smythii is slightly hexagonal, not something I had noticed for basins in general before, but larger craters have this pattern e.g. Walther. Perhaps Smythii is intermediate between the largest craters and the smallest basins.

I mirrored one against the other so the greater detail in the DEM can be compared more easily (least it was easier for me).

Below it is an ILIADS software view of the basin using color contour map and surface slope combined. It shows up the basin rings quite well I thought. It also looks elongated toward the northeast. Like Mare Crisium, with a slight Tomahawk basin shape that Peter Shultz showed in his talk (LPSC42 abstract 2611) is caused by oblique impacts. In this case I would think the projectile came from the southwest at about 220 deg azimuth. The thickest part of the Mare is in the northeast, which probably would have been the thinnest crust and deepest part of the initial cavity of the oblique impact.

All of this is speculation of course and was something to while away a wet day and to make use of a telescopic image which led to thinking about the Moon.



ARISTILLUS HIGH-SUN ANGLE OBSERVATIONS

Howard Eskildsen

The image (Fig. 1), taken on April 18, 2011 at 03:18 UT, shows some interesting bright as well as dark albedo features of the crater and surrounding areas. Bright rays from Aristillus are plainly visible on the areas north, east, and west of the crater, and appear to mingle with rays from Autolycus on the south. There are hints of dark rays as well, mixed with the bright rays, particularly north of Aristillus. A curious, moderately bright albedo feature can be seen crossing the north crater rim and extending about half a crater diameter to the north, suggesting that it is part of the continuous ejecta material. It seems to intermingle with some dark ray material on in its fringes and covers a portion of the ghost crater just north of Aristillus.

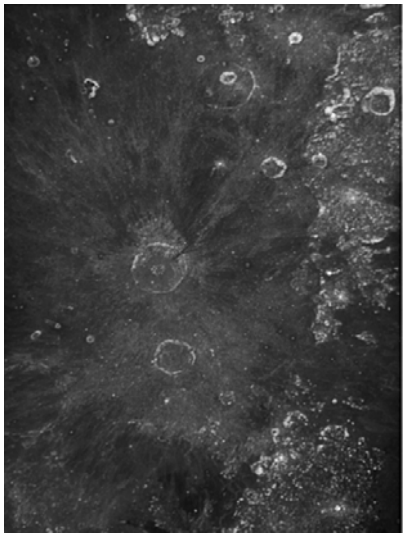


FIGURE 1 *– **ARISTILLUS**- Howard Eskildsen, Ocala, Florida, USA. April 18, 2011 03:18 UT. Seeing 7/10, Transparency 5/6. 6" f/8 refractor, Explore Scientific lens 3X Barlow, DMK 41AU02.AS, IR block & V block filters.*

Most notable on the image are the two dark bands that arise from the base of the northeastern crater wall, cross the crater rim and diverge before blending into the background between 14 and 18 km from the rim crest. It must have been one of the last features deposited since it is so clear, distinct, and overlies other portions of the crater. Its dark albedo suggests it consists of mare-like material, perhaps ejected from a deeper portion of the crater and streaming outward and upward beyond the rim, but not beyond the continuous ejecta blanket. Other possibilities might include pyroclastics or impact melt remnants, but these seem highly unlikely considering the almost linear pattern and absence of other associated markings.

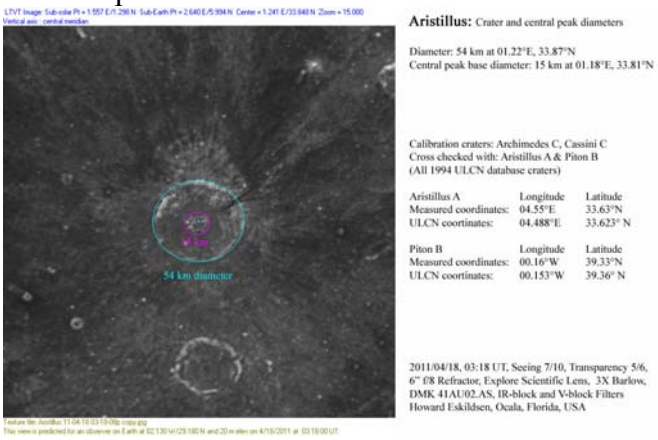


FIGURE 2 *– **ARISTILLUS** crater and central peak diameter measurements.*

Measurements of crater diameter, central peak complex diameter, and of the dark bands were made with the LTVT program as noted on figures 2 and 3. Note that the actual length of the bands ascending the inner crater wall would be a bit longer than their horizontal distance that was measured on this image. I estimated the measurement error to ± 1 km for the band lengths. The measurement error of lunar longitude and latitude coordinates was at least 0.07° for longitude and 0.05° latitude based on comparison data included on Fig. 3. Also, for comparison, the measured crater diameter of 54 km, is 1 km less than listed in the Lunar Impact Crater Database version February 2009, and 2 km less than the diameter listed by the Virtual Moon Atlas. This could be due to method or statistical error, or could reflect the fact that the bright portion of the rim is related to soil maturity, lies on the steep inner slope of the crater, and its outer margin may not exactly represent the true rim crest.

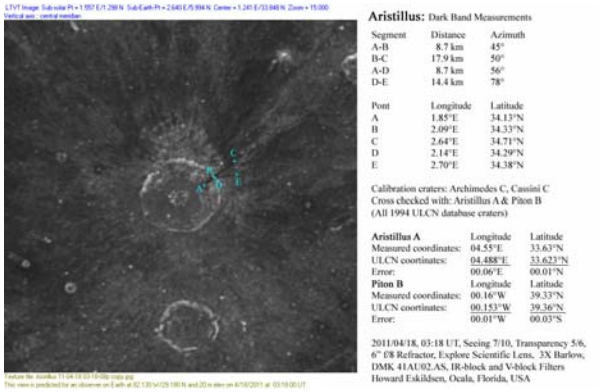
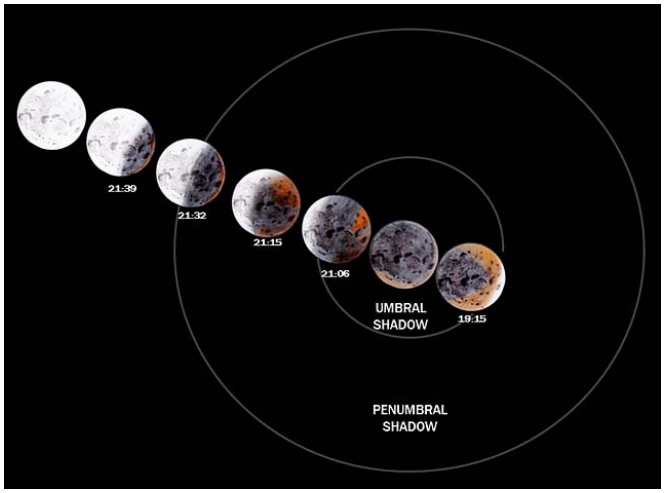


FIGURE 2 *– **ARISTILLUS** dark band measurements.*

FIRST LUNAR ECLIPSE OF 2011

Charles Galdies



This is my first composite sketch of a total lunar eclipse that took place yesterday on June 15, 2011 as observed from Malta. It was the first of two such eclipses in 2011. The second will occur on December 10, 2011.

I used graphite with blender and an orange pencil colour. Sketching was done at the 40mm eyepiece using SCT 8" f/10. Conditions were clear and seeing was 7/10. The individual sketches were made on scanned sketches of the full moon. Scanning was done at 600 dpi and processed using GIMP. I enjoyed sketching the various stages of the eclipse especially during the fast-changing penumbral phase.

In my sketches I tried to capture the interesting tonality of the orange colour shading visible over parts of the eclipsed region of the moon.

This was a relatively rare central lunar eclipse, in which the center point of Earth's shadow passes across the Moon. The eclipse was visible rising over South America, western Africa, and Europe, and setting over eastern Asia.

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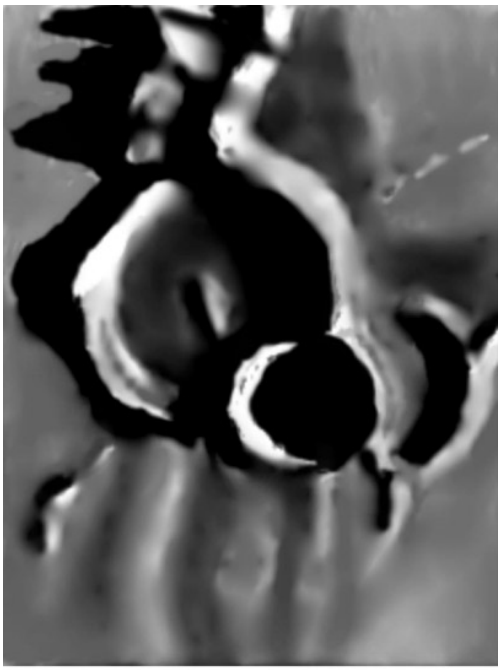
DAVY

Peter Grego

Early morning over Davy, about a third of the crater's interior was covered by shadow cast by its eastern wall. The illuminated floor of Davy was dark in tone and there was a north-south elongated hill at its centre. A little terracing was visible on Davy's inner southwestern wall; the inner northwestern wall was very bright. To Davy's north lay the western wall of Davy Y, a broad double wall casting several shadow spires to the west. Only



DAVY *- Peter Grego- St Dennis, Cornwall , UK. June 9, 2011 20:50-21:50 UT, Col. 11.9-12.4°, Seeing: AIII, intermittent cloud, twilight. 300mm Newtonian, 195x, integrated light. PDA sketch*

the southwestern section of Davy Y's floor is taken in by this observation, the western and southern parts of it next to the inner edges of the wall were darker in tone than the rest of the floor of Davy Y. Indications of Catena Davy were observed in the form of a brighter linear feature, but no distinct individual craters of the catena were observed – the seeing was not good enough on this evening. Davy A, overlapping the southeastern part of Davy, was largely in shadow, but its inner western wall was bright. East of Davy A was another, less well-formed crater which it overlapped, superimposed

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upon the southern floor of Davy Y. To the south of Davy and Davy A were a number of hilly south-trending ridges, two of them distinct and casting shadows, several others more indistinct; these may have been remnants of radial sculpting formed by the impact of Davy Y.

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LUNAR ECLIPSE FROM SOUTHERN TUSCANY

Paolo R. Lazzarotti

It's been one year long lasting silence from me, but the latest total eclipse has brought motivations enough to (re)start again! Everything has changed into my life during this year, but not my passion for Astronomy!

I liked to give my personal "representation" to this phenomena making the eclipsed Moon rising over the magnificent Tuscany countryside where I'm now living in with great pleasure.The quite low altitude of our satellite helped a lot with my purpose, but not its extremely low brightness when completely dipped into Earth shadow! At any rate, after several attempts, I could get a reasonable balance of lights and colours. was kissed with cristal clear sky during the whole eclipse, except a few scattered clouds at moon rising not disturbing at all.

http://www.lazzarotti-hires.com/2011/06/la-mia-eclisse-di-luna-dalla-maremma.html?lan=english

Have a pleasant and relaxing vision!

Thank you for your attention.

LUNAR TOPOGRAPHICAL STUDIES

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

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

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

OBSERVATIONS RECEIVED

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND. Digital images of 5, 10, 11, 14(2), 22(2), & 25 day moon, Aristarchus, Full Moon, Mare Smythii, Marius Hills & Schickard.

HOWARD ESKILDSEN - OCALA, FLORIDA, USA. Digital images of Anaxagoras(2), Anaximander, Aristillus, Burg, Conan, Dawes, Egede, Endymion, Hercules, Mare Humboldtianum, Menelaus, Montes Alpes, Nansen, NE Moon, NW Moon, Oceanus Procellarum, Pythagoras, Pytheas, Taurus, Thales(2) & Waning Gibbous Moon.

CHARLES GALDIES – NAXXAR, MALTA. Drawing of Lunar Eclipse.

PETER GREGO – ST. DENNIS, CORNWALL, UK. Drawings of Davy.

KERRY KOPPERT - NEW PLYMOUTH, TARANAKI, NEW ZEALAND. Digital image of Gibbous Moon.

PAOLO LAZZAROTTI – MASSA, ITALY. Digital image sequence of Lunar eclipse,

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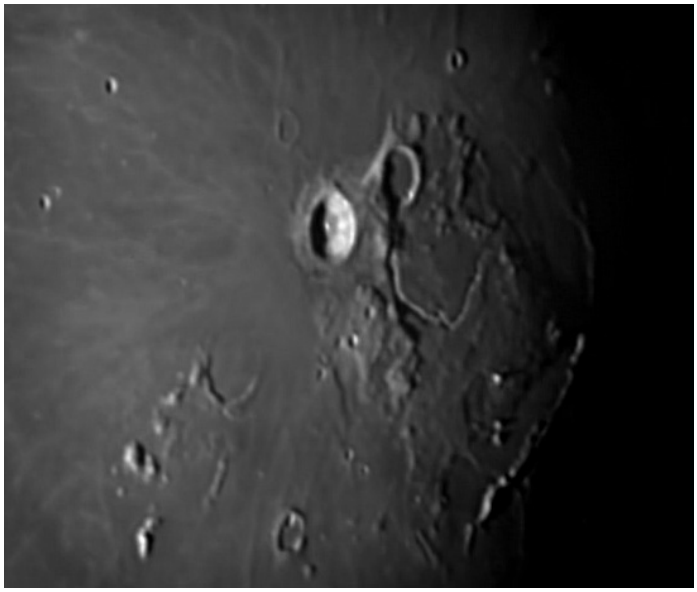
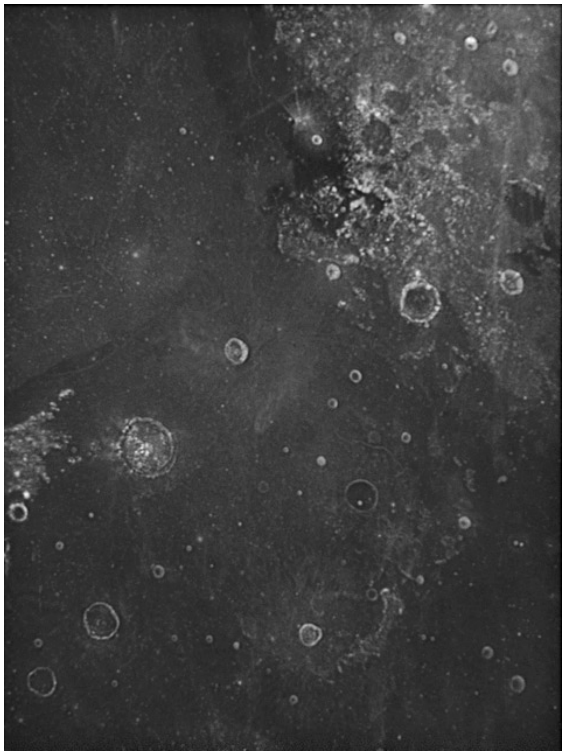
RECENT TOPOGRAPHICAL OBSERVATIONS



ARISTARCHUS - Maurice Collins-Palmerston North, New Zealand. June 13, 2011 11:10 UT. Volcanic haze. C8, 2x barlow, LPI.

RECENT TOPOGRAPHICAL OBSERVATIONS

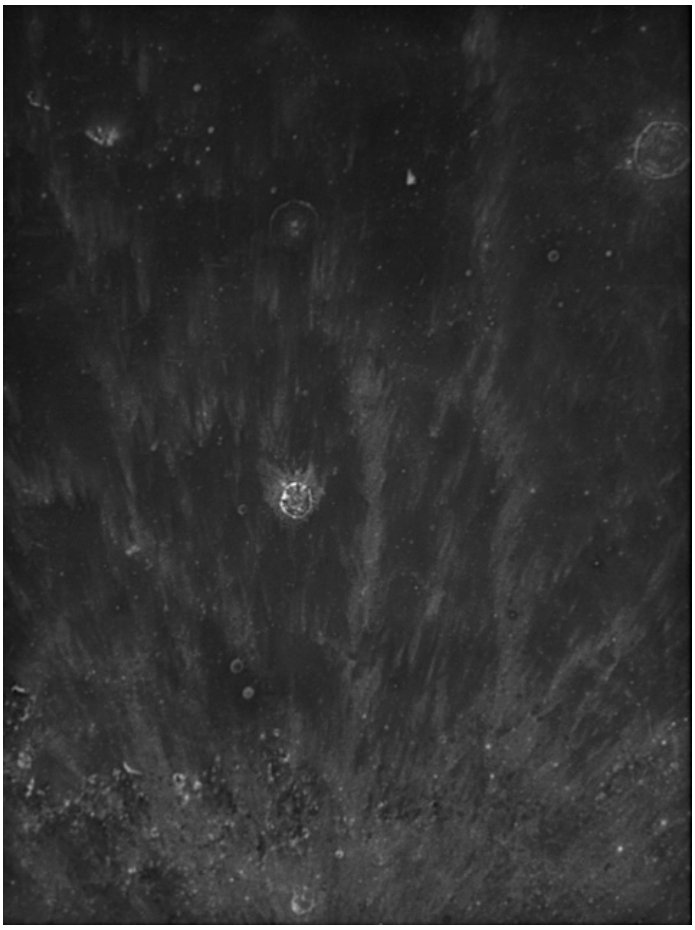


DAWES - Howard Eskildsen-Ocala, Florida, USA. April 18, 2011 03:14 UT. Seeing 7/10, Transparency 5/6. 6" f/8 refractor, Explore Scientific lens 3X Barlow, DMK 41AU02.AS, IR block & V block filters.

18 day Moon - Kerry Koppert - New Plymouth, Taranaki, New Zealand. June 20, 2011, 11:52 UT. C-11 SCT, 0.63x reducer.

ADDITIONAL TOPOGRAPHICAL OBSERVATIONS

MARIUS HILLS - Maurice Collins-Palmerston North, New Zealand. June 13, 2011 11:13 UT. Volcanic haze. C8, 2x barlow, LPI.



PYTHEAS - Howard Eskildsen-Ocala, Florida, USA. April 18, 2011 03:22 UT. Seeing 7/10, Transparency 5/6. 6" f/8 refractor, Explore Scientific lens 3X Barlow, DMK 41AU02.AS, IR block & V block filters.

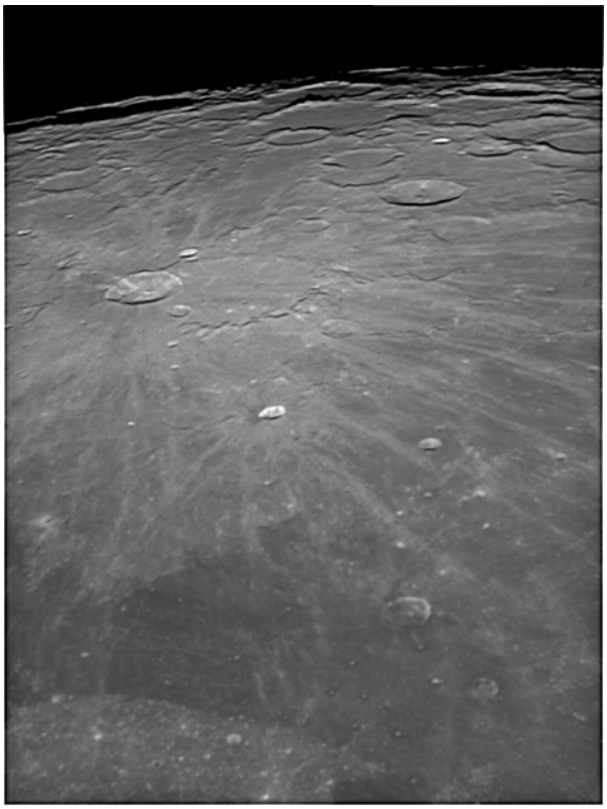
BRIGHT LUNAR RAYS PROJECT

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

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

Bright Lunar Rays Website: http://moon.scopesandscapes.com/alpo-rays.html

RECENT RAY OBSERVATIONS



ANAXAGORAS RAYS - Howard Eskildsen-Ocala, Florida, USA., April 18, 2011 02:47 UT. Seeing 7/10, Transparency 5/6. 6" f/8 Explore Scientific lens refractor, 3x Barlow, DMK 41AU02.AS, IR-UV block filter.

THALES RAYS - - Howard Eskildsen-Ocala, Florida, USA., April 18, 2011 02:36 UT. Seeing 7/10, Transparency 5/6. 6" f/8 Explore Scientific lens refractor, 3x Barlow, DMK 41AU02.AS, IR-UV block filter.

LUNAR TRANSIENT PHENOMENA

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

LTP NEWSLETTER – JULY 2011

Dr. Anthony Cook - Coordinator

Observations for May 2011 were received from the following observers: Jay Albert (Lake Worth, FL, USA) observed: Agrippa, Aristarchus, Cleomedes, and Messier A. Lajos Bartha (Hungary) Observed: Earthshine. Maurice Collins (New Zealand) observed: Blanchinus. Mare Nectaris, Posidonius, Valles Alpes and took whole Moon images. Myself (Aberystwyth, UK): captured time lapse imagery of various parts of the Moon. Marie Cook (Mundesley, UK) observed: Aristarchus, Cleomedes, Copernicus, Plato. Colin Henshaw (Saudi Arabia) captured: whole disk images of the Moon and Earthshine. Maurizio Morini (UAI, Italy) observed: Daniell. András Maczo (Hungary) observed Earthshine. Bob O'Connell (Keystone Heights, FL, USA) observed: Proclus. Brendan Shaw (UK) observed: Alpetragius, Alphonsus, Aratus, Herschel, Linne, Maskelyne, Menelaus, Posidonius, Proclus, Secchi, Valles Alpes. Hamish Watchman (New Zealand) took a whole Moon image.

News: Unfortunately I received a set-back in that my hard-drive crashed in mid May, and a rather antiquated backup approach did not help much in recovering files beyond March 4th. I may therefore be getting in contact with some of you if I find any post March observations were not recovered successfully to ask if you could please send the observations again. To help prevent this situation occurring in future, I will be doing monthly full backups and daily incremental backups from now on! Also to speed up data entry, Andrew Rawlins, our computer expert at IMAPS, has written a portal so that you can submit your observations electronically, instead of going via email. This has the added advantage that the observations you submit, go straight into an automatically organized directory structure for the archives, and which can also be read in directly into a TLP and routine observation database. Please let me know if you would like to try out this observation submission portal, and I will send you a username and password.

TLP Reports: No TLPs were reported in May. Concerning the report that Aristarchus was very bright in Easthshine on 2011 Apr 07 UT 19:45-20:10 as seen by Giorgio Sancristoforo (Milan, Italy) and Lajos Bartha (Budapest, Hungary), I read in the last BAA Lunar Section circular that Tim Haynes (UK) was watching an occultation that night of Tau Ceti. Tim reports in an email communication with me that he was observing through 10x50 binoculars and did not even notice Aristarchus, although he was not looking for it especially. If Giorgio's estimate of magnitude +0.7 was roughly right then Aristarchus would have had to have brightened 2-3 orders of magnitude over its normal brightness in the space of about 30 minutes. This is rather difficult to accommodate with the energy involved, and definitely cannot be due to a temporary change in reflectivity of surface materials. Earthshine glint and opposition surge seems unlikely too. Therefore it is imperative that we find additional observations of Earthshine that night. Please consult other observers you know on the Internet, or at your local astronomical society in order to see if anyone else was observing on the evening of April 7th – I really would like to get this situation resolved.

Routine Reports: On 2011 May 08 Maurizio Morini (UAI TLP coordinator, Milan, Italy) re-observed the crater Daniell at the same illumination as is described in the TLP report below:

On 1979 Dec 24 Marcus Price of Camberley, UK noticed that an area in relation to the central area of the floor could not be resolved. Averted vision was used, but this did not help to resolve detail. The crater was close to the terminator and was in general sharply in focus apart from the suspect area. No spurious color seen. Sketch supplied. P.Foley wonders if the effect was due to the resolution limit of Price's

scope? Cameron 2006 extension catalog ID=78 and weight=2. ALPO/BAA weight=2. 6" reflector x64 and x120.Seeing=III-IV and Transparency=good.

Maurizio observed one hour before the TLP predicted repeat illumination time, as a reference. The conditions were just before sunset, seeing was acceptable, and a wind was starting to increase in strength from the east – he took some images. One hour later the wind was strong enough to vibrate the telescope, and so image quality was much poorer – fortunately the illumination was similar in both images, so he used the earlier image as a reference as it was sharper. Maurizio comments about the original TLP observation that it was made with a 6" reflector with a theoretical resolution of 0.75 seconds of arc, or about 1.5 km on the lunar surface – Daniel has a small rille system on its floor, and a small lateral peak (as seen in Clementine UVVIS image mosaic). From his images, Maurizio noted that the centre of the crrater was partly in shadow. His theory is that the telescope that Marcus Price was using, simply could not resolve the rille structure on the floor, the resolution constraints under the atmosphere at the time being the culprit. This concurs with Foley's theory mentioned in the Cameron catalog.

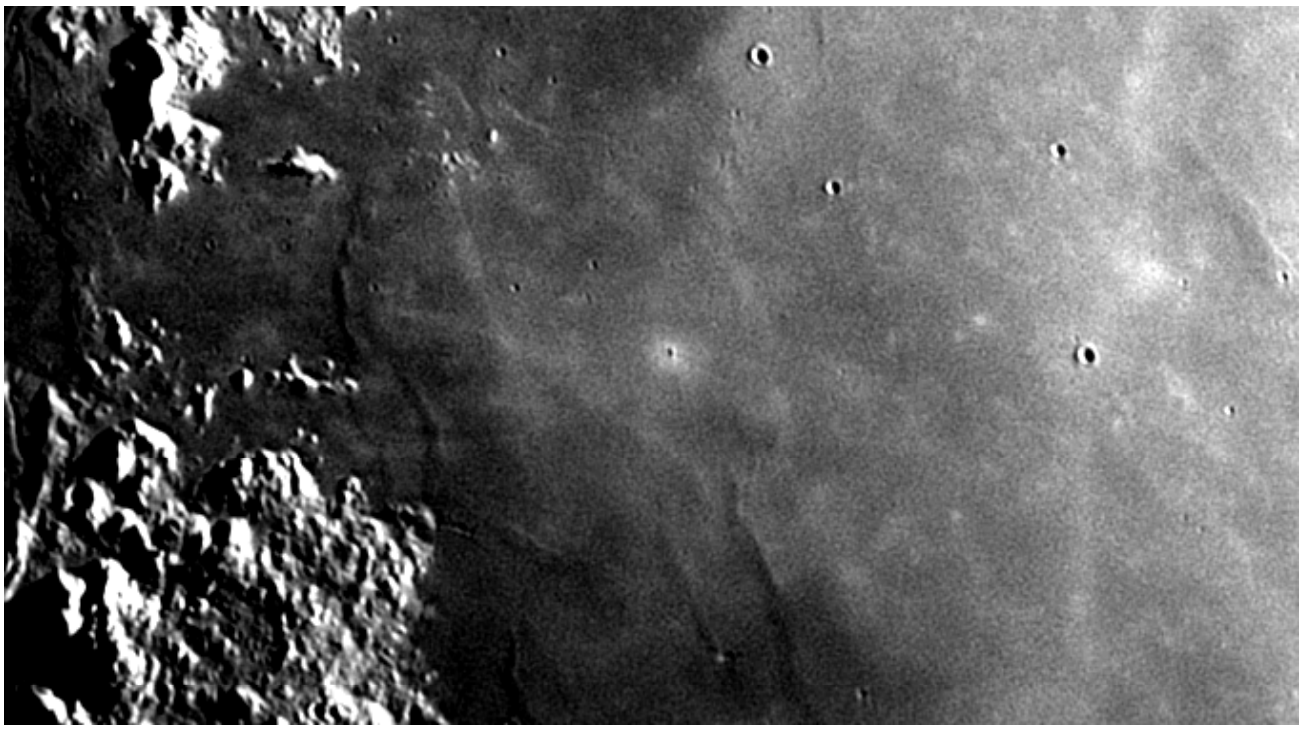


Figure 1. Linne at centre of image – taken by Brendan Shaw on 2011 May 10 at UT21:45. North is at the top.

On 2011 May 10 Brendan Shaw imaged Linne crater at the same illumination and topocentric libration (to within +/-1°) as it was seen by Knott in 1867. Here is the summary of Knott's report as presented in the Cameron catalog:

2011-May-13 UT 22:40-01:36 Ill=83% Linne observed by Knott on 1867-1-16. *Linne 1867 Jan 16 UT 20:00? Observed by Knott (England) "Strong impression of a small central darkspot on it. Says it may have been an illusion. "NASA catalog weight=0. ALPO/BAA weight=1. NASA catalog ID #160.*

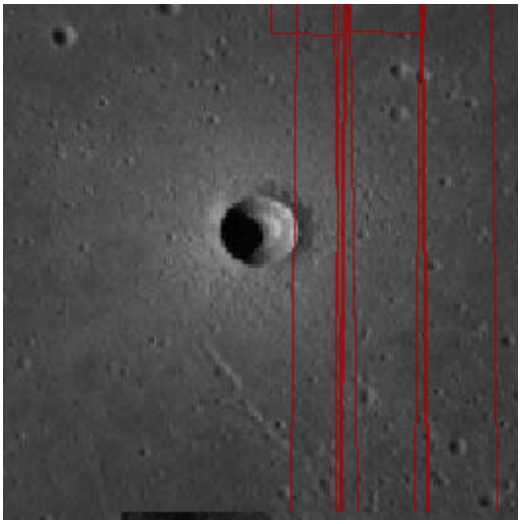


Figure 2. Linne as imaged by LRO WAC camera. Some NAC camera footprints overlaid. North is at the top.

Well Brendan has definitely imaged the dark spot inside Linne; it is simply interior shadow. However take a look at where the shadow is? The Sun is shining from the right hand side of the image (verify by looking at other craters). So if this is the case, why is the apparent illuminated rim in Linne on the wrong side? – indeed it looks more like a mound than a crater. I suspect that this is partly down to image resolution being close to that of the 2.2 km diameter Linne crater, the sunward facing slope on the outer eastern rim, and the bright ejecta blanket. However it is more complicated than this still, since Figure 2 reveals that Linne appears as a double crater, one crater inside another, and this is bound to have a more complex type of shadow filled interior than most typical bowl shaped craters of this size. Note that a digital elevation model of the crater, derived from LROC stereo imagery (2011 Lunar and Planetary Science Conference abstract 2063) shows a partial bowl shaped profile just inside the crater with a larger interior truncated cone-like depression. It also has a steeper exterior slope on the outer rim than do most craters of this size. This non-bowl shaped profile could have some interesting effects on shadows and might explain some of the mysterious appearances reported by astronomers in the past. I will change the BAA/ALPO weight for this particular TLP from 1 to 0.

On 2011 May 09 UT 23:30-01:10 Bob O'Connell re-observed Proclus at the same illumination to what is described in the TLP report below. He too imaged the bright white spot on the western rim. Therefore I will reduce the weight of this observation to 0.

2011-May-09 UT 23:53-23:58 Ill=40% Proclus observed by Hopp on 1972-6-18 Proclus 1972 Jun 18 UT 15:48 Observed by Hopp (13.25E, 52.5N, 75mm reflector) "Bright white point at W wall of crater" T=3, S=2. Ref: Hilbrecht & Kuveler Moon & Planets (1984) Vol 30, pp53-61.

Lastly, I just wanted to show Figure 3 below, to illustrate some excellent work being done by Lajos Bartha and András Maczo (Hungary), and also Collin Henshaw (Saudi Arabia) on monitoring Earthshine, both visually, and with CCD cameras. Please keep up the good work and use time lapse imaging to look for any changes in brightness on the night side.

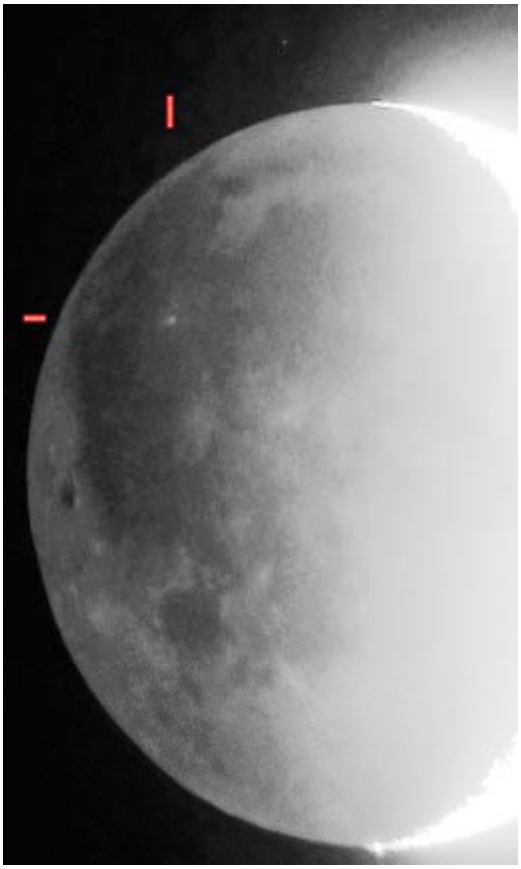


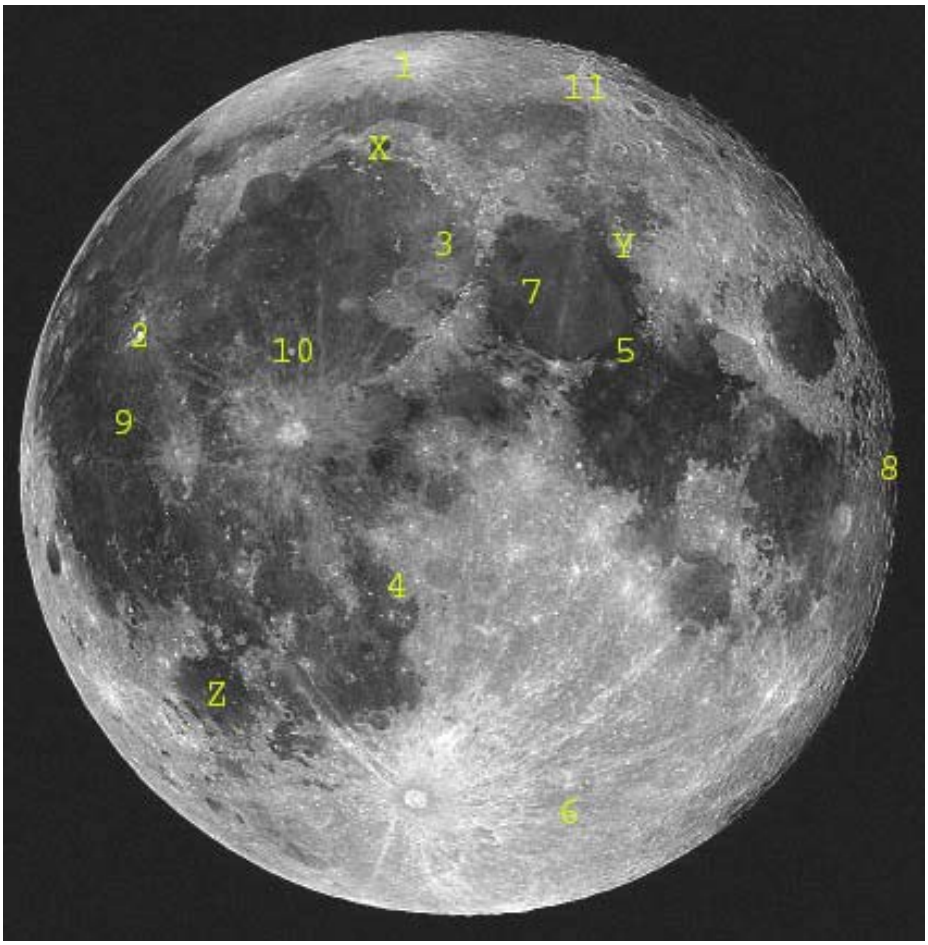
Figure 3. Lunar Earthshine as imaged by András Maczo on 2011 May 07 UT 21:02. Aristarchus is highlighted by arrows. North is at the top.

Suggested Features to observe in Jul: For repeat illumination (only) 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, 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 http://twitter.com/lunarnaut.

Dr Anthony Cook, Institute of Mathematical and Physical Sciences, University of Wales Aberystwyth, Penglais, Aberystwyth, Ceredigion, SY23 3BZ, WALES, UNITED KINGDOM. Email: atc @ aber.ac.uk.

KEY TO IMAGES IN THIS ISSUE

1. **Anaxagoras**
2. **Aristarchus**
3. **Aristillus**
4. **Davy**
5. **Dawes**
6. **Ideler**
7. **Linne**
8. **Mare Smythii**
9. **Marius Hills**
10. **Pytheas**
11. **Thales**



FOCUS ON targets

X = Plato (July)
Y = Posidonius (September)
Z = Mare Humorum (November)