



THE LUNAR OBSERVER

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.

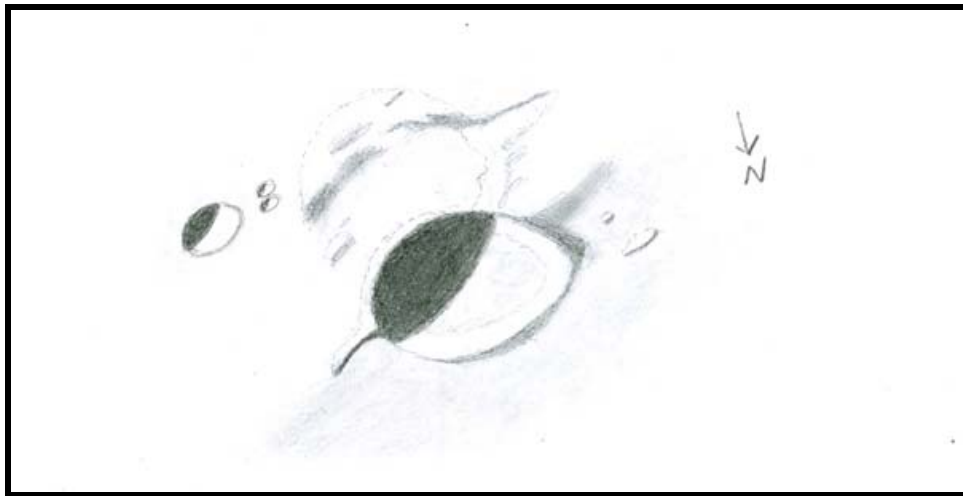
EDITED BY: Wayne Bailey wayne.bailey@alpo-astronomy.org

17 Autumn Lane, Sewell, NJ 08080

RECENT BACK ISSUES: http://moon.scopesandscapes.com/tlo_back.html

FEATURE OF THE MONTH – AUGUST 2009

Bouguer



Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA

May 6, 2009 3:22-3:48 UT

15 cm refl, 170x, seeing 6-7

I sketched this crater on the evening of May 5/6, 2009 after the occultation of ZC 1788. This crater is located north of Sinus Iridum near where Mare Frigoris and Sinus Roris apparently merge. Bouguer is an egg-shaped crater with a pointed west end. Its floor appeared to be featureless. The shadow cast by its rim is widest to the southwest and northwest, and narrowest at its pointy west end. There are two small peaks near the west end of Bouguer and a nearby, fuzzy strip of shadow. A narrow, curved ridge extends to the northeast from Bouguer. This ridge and the strip of shadow are on the boundary between dusky mare material to the north and lighter terrain to the south. Bouguer A is the fair-sized crater east of Bouguer, and two smaller craters are just to its west. These two are not shown on the Lunar Quadrant Map. South of Bouguer and west of A is what perhaps is a possible ghost ring. This feature appears

to have a wide southeast rim, and nothing of a northeast rim except for one peak. Its north side would be obliterated by Bouguer, and its ragged west side has a bright interior and a substantial projection to the southwest. This ghost ring has a dusky interior, darker than surrounding terrain, and much like the mare material north of Bouguer. The wide southeast rim is lighter than the adjacent area, and is much like the bright western interiors of both itself and Bouguer.

LUNAR CALENDAR

AUGUST-SEPTEMBER 2009 (UT)

Aug. 04	00:43	Moon at Apogee (406,026 km - 252,293 miles)
Aug. 06	00:55	Full Moon (Penumbral Lunar Eclipse)
Aug. 06	19:00	Moon 3.1 Degrees NNW of Jupiter
Aug. 06	24:00	Moon 2.7 Degrees NNW of Neptune
Aug. 09	12:00	Moon 5.1 Degrees NNW of Uranus
Aug. 13	18:55	Last Quarter
Aug. 16	03:00	Moon 3.2 Degrees N of Mars
Aug. 17	22:00	Moon 1.7 Degrees NNE of Venus
Aug. 18	07:00	Moon 0.48 Degrees NNW of asteroid Vesta
Aug. 19	04:54	Moon at Perigee (359,641 km - 223,471 miles)
Aug. 20	10:01	New Moon (Start of Lunation 1072)
Aug. 21	05:00	Moon 0.97 Degrees NNE of asteroid Pallas
Aug. 22	01:00	Moon 6.1 Degrees SSW of Saturn
Aug. 22	09:00	Moon 2.6 SSW of Mercury
Aug. 27	11:41	First Quarter
Aug. 31	11:05	Moon at Apogee (405,267 km - 251,821 miles)
Sept. 02	19:00	Moon 2.9 Degrees NNW of Jupiter
Sept. 03	05:00	Moon 2.6 Degrees NNW of Neptune
Sept. 04	16:03	Full Moon
Sept. 05	16:00	Moon 5.0 Degrees NNW of Uranus
Sept. 12	02:16	Last Quarter
Sept. 13	17:00	Moon 1.1 Degrees NNE of Mars
Sept. 15	10:00	Moon 1.4 Degrees SSW of asteroid Vesta
Sept. 16	07:57	Moon at Perigee (364,053 km - 226,212 miles)
Sept. 16	16:00	Moon 3.0 Degrees SSW of Venus
Sept. 18	17:00	Moon 6.2 Degrees SSW of Saturn
Sept. 18	18:43	New Moon (Start of Lunation 1073)
Sept. 18	24:00	Moon 1.1 Degrees SSW of Mercury
Sept. 26	04:48	First Quarter
Sept. 28	03:34	Moon at Apogee (404,431 km - 251,302 miles)
Sept. 29	22:00	Moon 2.8 Degrees NNW of Jupiter
Sept. 30	11:00	Moon 2.7 Degrees NNW of Neptune

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 can be found on-line at: <http://www.alpo-astronomy.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 is 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: Deslandres

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 2009** edition will be Deslandres. Observations 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 fascinating area to your observing list and send your favorites to:

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

Deadline for inclusion in the Deslandres article is August 20, 2009

FUTURE FOCUS ON ARTICLES:

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

Menelaus	TLO Issue: Nov. 2009	Deadline: Oct. 20, 2009
Atlas & Hercules	TLO Issue: Jan. 2010	Deadline: Dec. 20, 2009

HIGH-SUN OBSERVING: TYCHO

William M. Dembowski, FRAS

Assistant Coordinator, Lunar Topographical Studies

The true appearance of any object, astronomical or otherwise, cannot be determined with a single observation or captured in a single image. Except for those minor differences caused by libration, we cannot view lunar features from different angles, but we can observe them under a variety of lighting conditions. Observing features when they are near the terminator is generally considered to be the most revealing, with the views decreasing in value the further the subject is from that light/shadow demarcation until, under a high sun, the view is at its worst.

I strongly disagree. In fact, a high sun has become my favorite lighting angle and I strongly urge the reader to devote serious observing time to features that are far from the terminator. There is no better place to begin than the crater Tycho which dominates the Full Moon with its dramatic ray system.

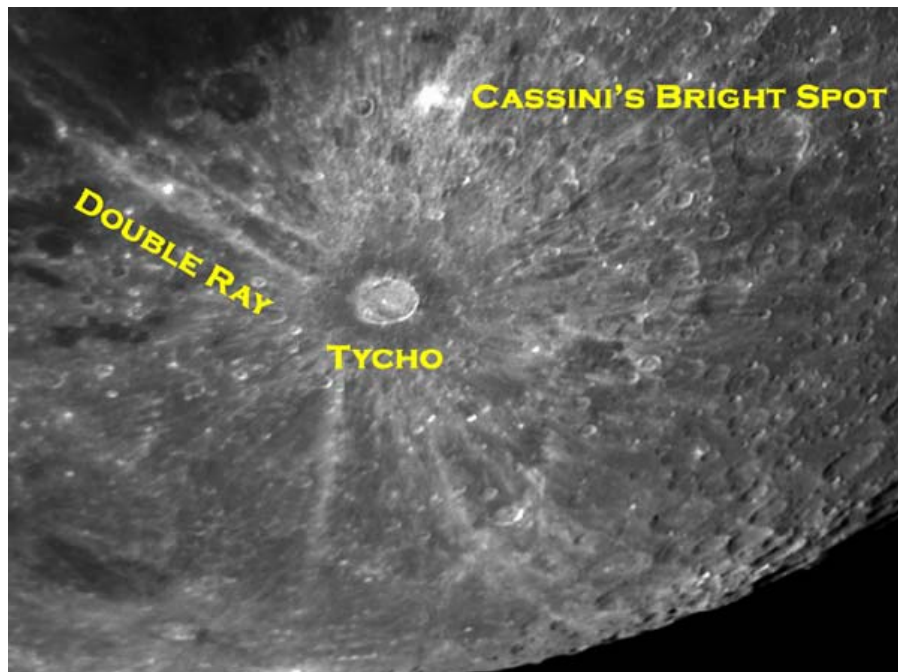


Image Data:

Observer: William M. Dembowski, FRAS
Location: Elton, Pennsylvania, USA
Date & Time: July 9, 2009 – 03:45 UT
Orientation: North/Up – East/Right
Colongitude: 111.1
Seeing: 4/10
Transparency: 2/6
Telescope: Celestron 8 inch f/10 SCT
Camera: ImagingSource DMK41
Filters: UV/IR Cutoff & Wratten #58
(Green)
Stack: 160/800

Although not exceptionally large (85km/53miles), Tycho's presence at Full Moon can be detected with the naked eye because of its expansive ray system. An interesting exercise is to try and trace the full extent of Tycho's larger rays which can extend for hundreds of miles. As with all large systems, the further one gets from the parent crater the more difficult it is to be sure they are coming from Tycho and are not just chance alignments. A good place to begin is with the famous double ray which extends northwest into Mare Nubium.

Note that running counterclockwise from the double ray to the next large ray is an area of exclusion (about 120°) where no major rays are present; suggesting that Tycho was formed by an oblique impact. Although it is frequently pointed out that some of the Tychonian rays (including the double ray) do not point back to the center of the parent crater, I have never seen mention of the fact that the midpoint of the double ray *is* aligned with the center of Tycho. Whether this is of any significance, I do not know. Another aspect of the rays to observe is the dark halo surrounding Tycho, created by the rays "stopping short" of the crater rim. Finally, an interesting feature within the confines of the Tycho Ray System is Cassini's Bright

Spot. To the north and slightly east of Tycho it is one of those fascinating features which can only be seen when some distance from the terminator.

As previously stated, observing the moon under a variety of lighting conditions is necessary in order to gain a more complete understanding of its features, but do not think of high-sun observing as a necessary evil in that quest. Give it the time and effort it deserves and you may find that you have opened a new window to lunar observing that has been too long ignored.

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

STEPHEN CHADWICK – PALMERSTON NORTH, NEW ZEALAND Digital moon mosaic.

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND Digital images of 2, 4, 5, 6, 10, 11, 13, 15, 16, 24 day moon, Aristarchus-Eddington, Aristarchus-Marius Hills, Eratostenes-Kepler, 13 & 16 day terminator, Mare Crisium, Petavius(2), Pythagorus-Sinus Iridum, Southern Limb, Gassendi(2), 15 day supersaturated color mosaic, Theophilus-Piccolomini, Tycho-Grimaldi.

WILLIAM DEMBOWSKI – WINDBER, PENNSYLVANIA, USA Digital images of Aristarchus, Lacus Mortis-Mare Humboldtianum, Mare Crisium-Cleomedes, Mare Crisium, Petavius & Furnerius, Rupes Altai & Mare Nectaris, Northeast quadrant, Kepler Rays and Tycho Rays. Banded crater reports for Aristarchus(2), Burg, Kepler and Menelaus.

HOWARD ESKILDSEN - OCALA, FLORIDA, USA Digital image of Mare Orientale. Banded crater reports for Aristarchus, Bessarion, Brayley, Damoiseau E, Kepler and Milichius.

ALEXANDROS FILOTHODOROS – KARLOVASSI SAMOS ISLAND, GREECE Digital image of Copernicus-Kepler-Aristarchus.

ROBERT HAYS – WORTH, ILLINOIS, USA Drawings of Bouguer and Müller

RICHARD HILL – TUCSON, ARIZONA, USA Digital image of Ariadaeus-Ptolemaeus, Hipparchus-Purbach, and Arzachel-Orontius.

PATTY MAYER – FLORIDA, USA Drawing of Langrenus.

PHILLIP MORGAN –WORCESTERSHIRE, ENGLAND Drawings of dome North of Menelaus(2)

LARRY TODD – DUNEDIN, NEW ZEALAND Digital image of Deslandres-Regiomontanus.

MIKE WHITE – LEVIN, NEW ZEALAND Digital images of 8, 13, 15 day & Full moon, Eratosthenes-Mare Imbrium.

RECENT TOPOGRAPHICAL OBSERVATIONS



MOON H alpha – Stephen Chadwick – Palmerston North, New Zealand. July 09, 2009 12:35 am, 250 mm f/7.5, SBIG ST8, H alpha filter.

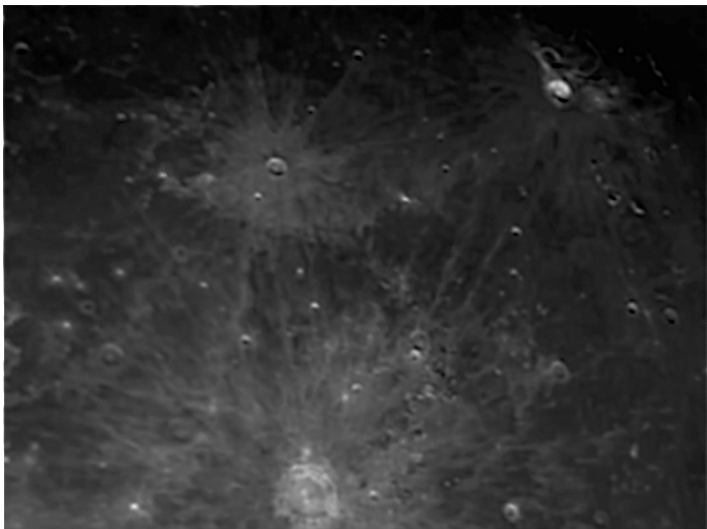
POSIDONIUS – Maurice Collins - Palmerston North, New Zealand, July 28, 2009 07:18 UT. C8, 3x barlow, LPI.





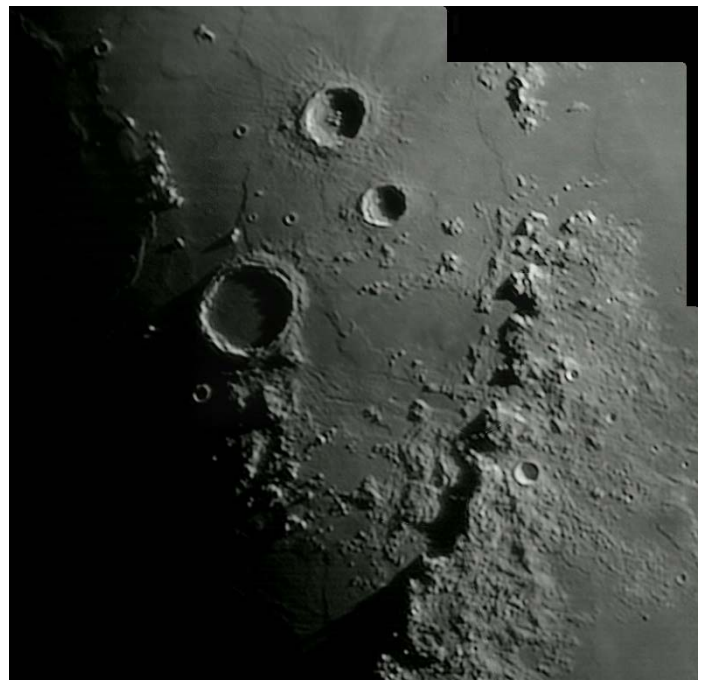
PETAVIUS & FURNERIUS – William Dembowski – Windber, Pennsylvania, USA. July 09, 2009 04:03 UT. Seeing 5/10, colongitude 111.2°. Celestron 8" SCT, f/10, DMK 41, UV/IR cutoff & W58 filter.

MARE ORIENTALE – Howard Eskildsen – Ocala, Florida, USA. June 17, 2009, 09:43 UT. Seeing 3/10, Transparency 4/6, Meade 6" f/8 refractor, DMK 41.



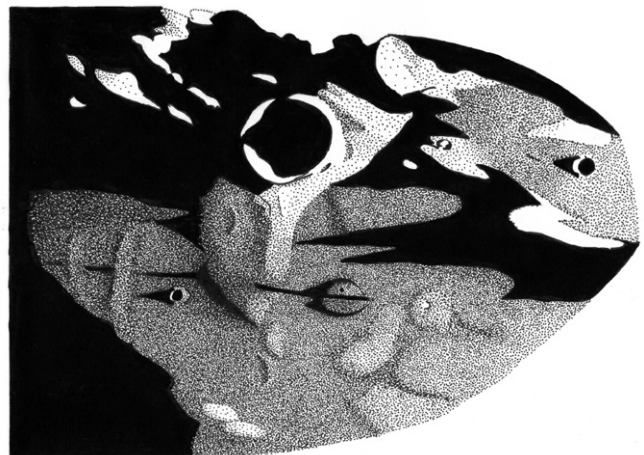
COPERNICUS –ARISTARCHUS – Alexandros Filothodoros - Karlovassi Samos Island, Greece. June 25, 2008. Seeing 8/10, Transparency: 4/6, C5, 5x powermate, Toucam.

ARCHIMEDES REGION – Richard Hill – Tucson, Arizona, USA. June 01, 2009 03:15 UT. Seeing 7/10. Questar 3.5", 2x barlow, UV/IR blocking filter, SPC900NC



LANGRENUS – Patty Mayer – Florida, USA. June 25, 2009, 04:35-05:10 UT. Astroscan, 2x Barlow, 25mm SMA eyepiece.

MENELAUS - Phillip Morgan –Worcestershire, England. September 17, 2003 02:05 UT. Seeing 4-8/10, Transparency 4/5, Colongitude 162.94-163.31. 305 mm Newtonian, 400x.





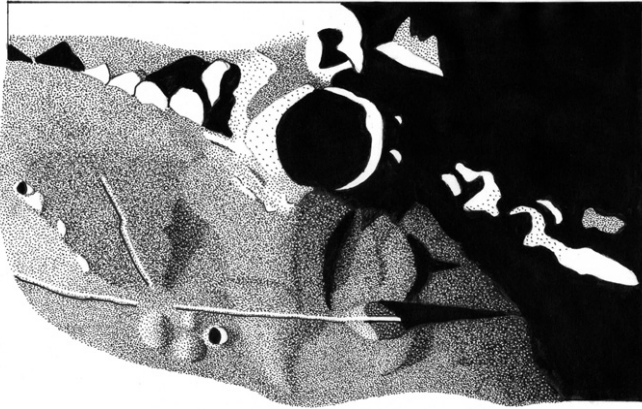
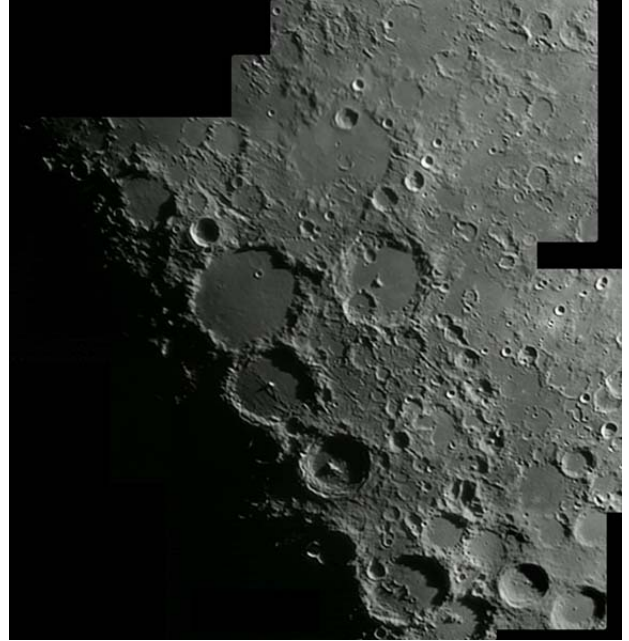
DESLANDRES-REGIOMONTANUS – Larry Todd – Dunedin, New Zealand. April 06, 2009 21:22 UT. OMC200 f/20 Maksutov, Opticstar 122ccd.

FULL MOON – Mike White – Levin, New Zealand. July 07, 2009, 07:30-08:12 UT. Orion SkyQuest XT10, TLSystems EQ Platform, Meade LPI.



ADDITIONAL TOPOGRAPHICAL OBSERVATIONS

HIPPARCHUS - PURBACH – Richard Hill – Tucson, Arizona, USA. June 01, 2009 03:12 UT. Seeing 7/10. Questar 3.5", 2x barlow, UV/IR blocking filter, SPC900NC



MENELAUS - Phillip Morgan –Worcestershire, England. December 29, 2003 17:14-18:20 UT. Seeing 6-7/10, Transparency 4/5, Colongitude 345.04-345.36. 305 mm Newtonian, 400x.

8 DAY MOON – Mike White – Levin, New Zealand. July 01, 2009, 10:10-10:46 UT. Orion SkyQuest XT10, TLSystems EQ Platform, Meade LPI.



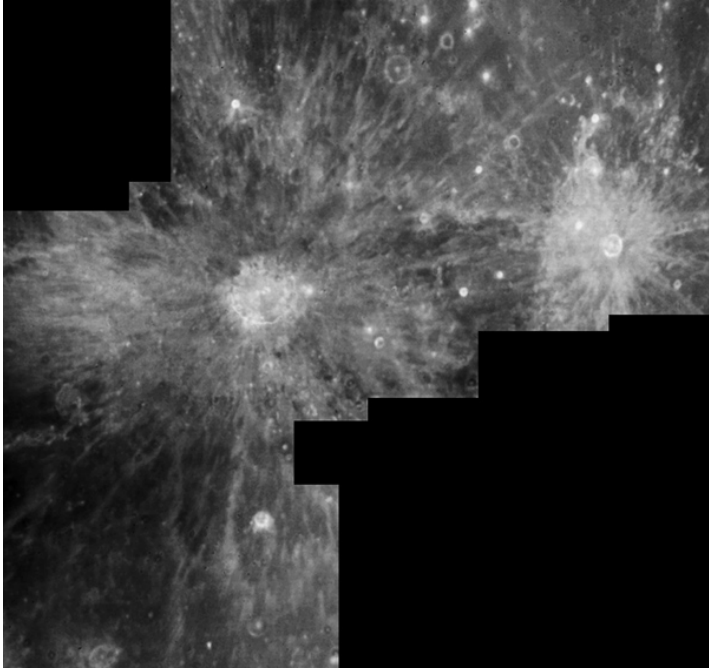
BRIGHT LUNAR RAYS PROJECT

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

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

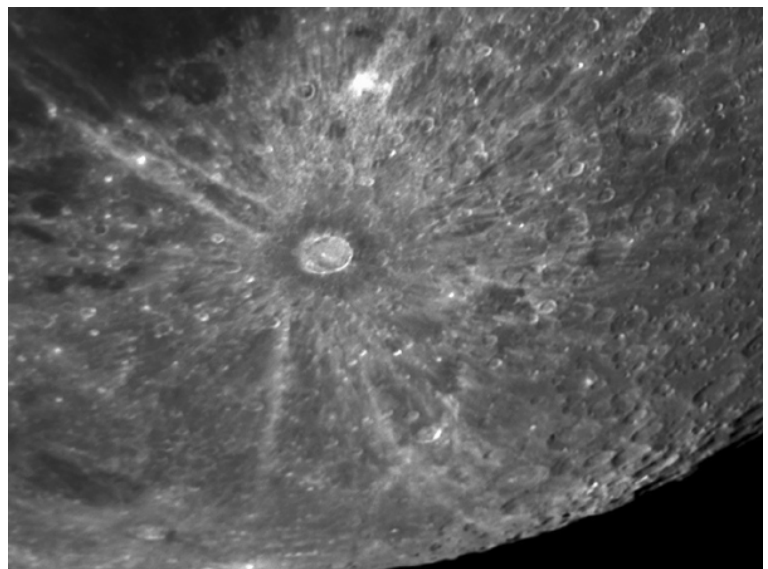
Bright Lunar Rays Website: <http://moon.scopesandscapes.com/alpo-rays.html>

RECENT RAY OBSERVATIONS



ERATOSTHENES TO KEPLER - Maurice Collins - Palmerston North, New Zealand, July 09, 2009 11:02-11:15 UT. C8, 3x barlow, LPI.

TYCHO - William Dembowski – Windber, Pennsylvania, USA. July 09, 2009 03:45 UT. Seeing 4/10, colongitude 111.1°. Celestron 8" SCT, f/10, DMK 41, UV/IR cutoff & W58 filter.



BANDED CRATERS PROGRAM

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

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

Banded Craters Program Website: <http://moon.scopesandscapes.com/alpo-bcp.html>

A.L.P.O. Lunar Section - Banded Craters Observing Form

Crater Observed: Burg (See note on Eudoxus)

Observer: William M. Dembowski Observing Station: Elton Moonshine Observatory

Mailing Address: 219 Old Bedford Pike, Windber, PA 15963

Telescope: Celestron SCT 20 cm f/10

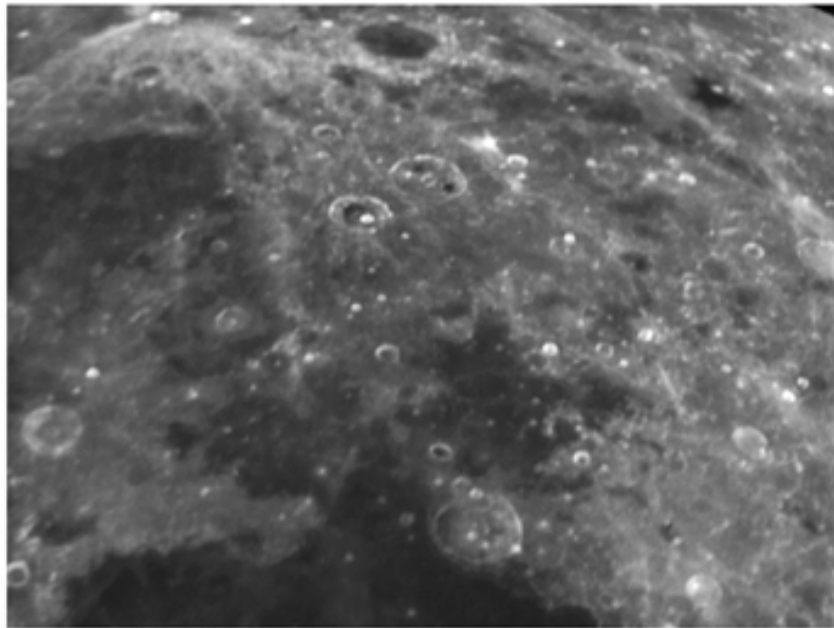
Imaging: ImagingSource DMK41 Filters: UV/IR cutoff

Seeing: 3/10 Transparency: 2/6

Date (UT): 2009/07/06 Time (UT): 02:37

Colongitude: 73.6

Image: (North up) (East right)



NOTES:

One small but distinct band on Burg's inner north wall.

Although not on the list of banded craters, Eudoxus appears to have banding in this image; broad bands at 1, 2 and 7, o'clock, a narrow band at 4, and some faint hints of banding at 9. I have found no mention of banding in lunar literature so these may be illusions created during the imaging process.

A.L.P.O. Lunar Section - Banded Craters Observing Form

Crater Observed: Aristarchus

Observer: William M. Dembowski Observing Station: Elton Moonshine Observatory

Mailing Address: 219 Old Bedford Pike, Windber, PA 15963

Telescope: Celestron SCT 20 cm f/10

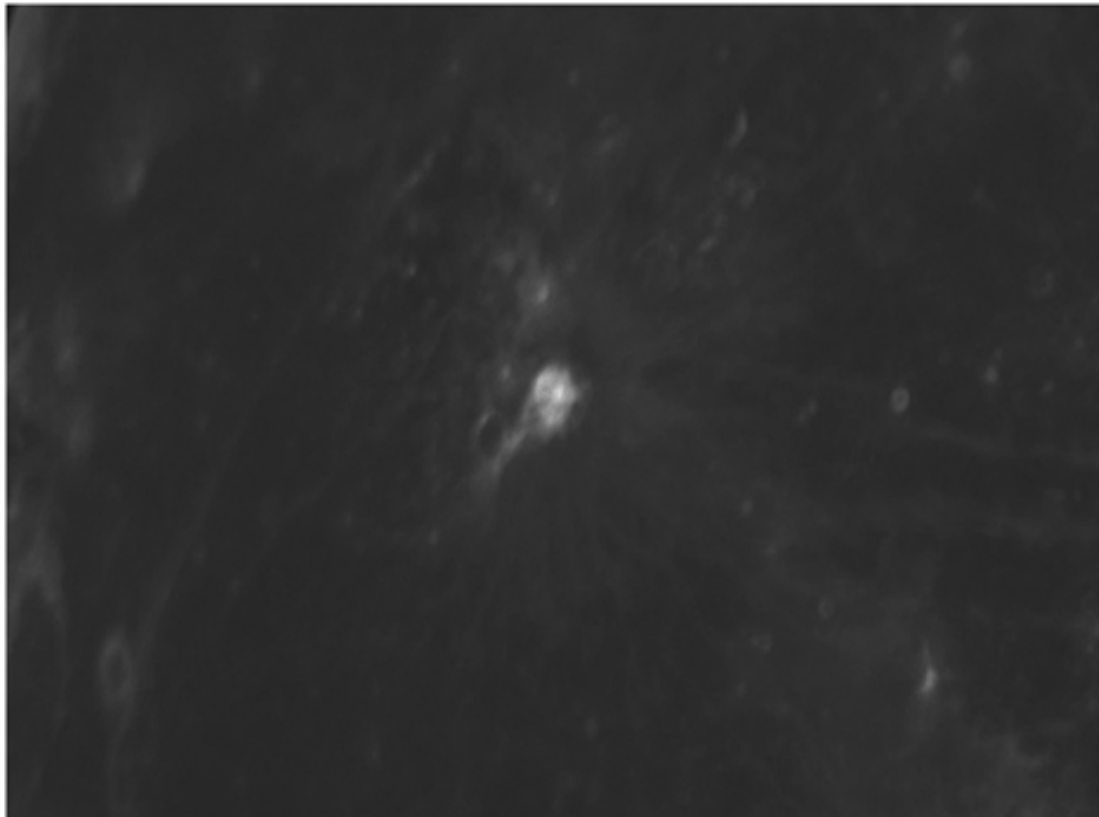
Imaging: ImagingSource DMK41 Filters: UV/IR cutoff

Seeing: 4/10 Transparency: 2/6

Date (UT): 2009/07/09 Time (UT): 03:27

Colongitude: 110.9

Image: (North up) (East right)



A.L.P.O. Lunar Section: Selected Areas Program Banded Craters Observing Form

Crater Observed: Aristarchus

Observer: Howard Eskildsen Observing Station: Ocala, Florida

Mailing Address: P.O. Box 830415, Ocala, Florida, 34483

Telescope: Meade Refractor 15.2 cm f/8

Imaging: DMK AF02.AS, 2X Barlow, Filters: None

Seeing: 3/10 Transparency: 4/6

Date (UT): 2009/06/17 Time (UT): 09:46

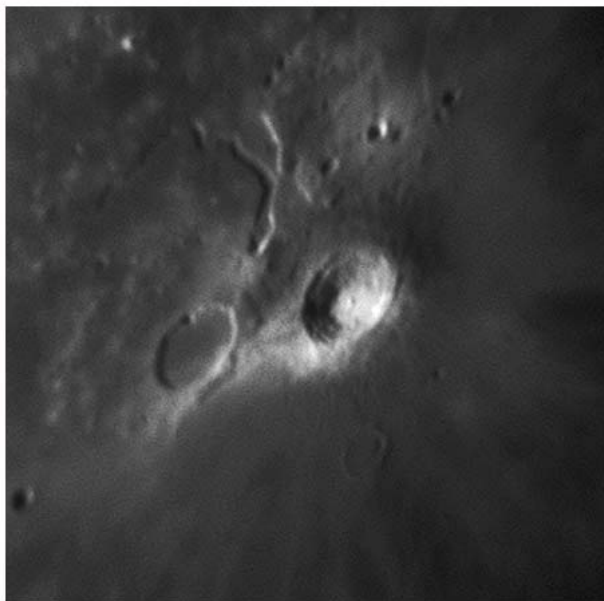
Colongitude: 205°

Position of crater:	Selen. Long.	Selen. Lat.
	47.4° West	23.7° North

Lunar Atlas Used as Reference: Virtual Moon Atlas Expert Version 2.1 2004-11-07

Image (north up):

Comments:



Poor seeing.

LUNAR TRANSIENT PHENOMENA

Coordinator – Dr. Anthony Cook – atc@aber.ac.uk

Assistant Coordinator – David O. Darling - DOD121252@aol.com

LTP NEWSLETTER – JULY 2009

Dr. Anthony Cook - Coordinator

Observations for Jun 2009 were received from the following observers: Jay Albert (Lakeworth, FL, USA), Clive Brook (Plymouth, UK), Maurice Collins (Palmerston North, New Zealand), myself (Aberystwyth, UK), Marie Cook (Mundesley, UK), Alan Heath (Long Eaton, UK), Steve Lang (Stanley Bay, New Zealand), Phil Morgan (UK), and Mike White (Levin, New Zealand).

Incidentally there is a penumbral lunar eclipse this month, starting at Aug 05 UT 23:04, maximum at Aug 06 UT 00:39UT and ending at UT 02:14. So if you suspect a slight discoloration on the southern part of the Moon, or that this area is perhaps not quite its usual brightness, then this will be the reason why!

LTP reports: There were two LTP reports for June, however these are being given very low weights for reasons stated in the descriptions below. Nevertheless if anybody was observing at the same time, please let me know as soon as possible.

2009 June 11 UT 0100-0115 Clive Brook (Plymouth, UK, 2" refractor, x25, no cloud or haze) observed that Aristarchus fluctuated in brightness, this effect was not seen on other craters. The ALPO/BAA weight=1 due to the small telescope size.

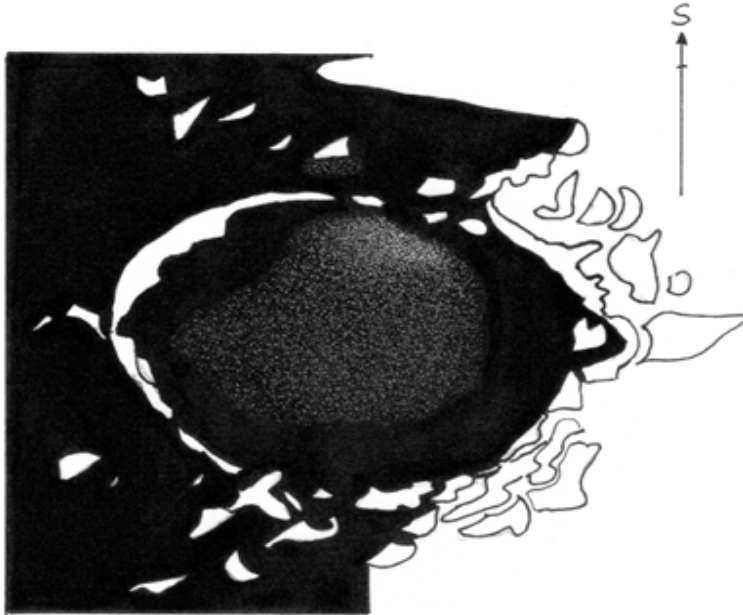


Fig 1 Phil Morgan's sketch depicting an ashen light affect during sunset at Plato

2009 Jun 16 UT 03:20-03:40 Phil Morgan (UK, 12" reflector, x400, seeing=6/10 and transparency=5/5) observed a large diffuse ashen-like effect over the shadow filled floor of Plato. The effect was noted to be lighter towards the south. Phil checked the effect with both left and right eyes and it remained the same. Unusually no shadow spires from rim mountain peaks were seen. A check for color in the region affected revealed none. As time progressed, terrestrial twilight encroached. A sketch was made

as can be seen above in Fig 1. The ALPO/BAA weight=1 due to unfamiliarity with this area at such a late stage in illumination and the effects of terrestrial twilight on contrast.

Routine reports for June: I am enclosing some illustrative examples of routine reports and their relevance to past LTP reports with the hope that this will encourage others to submit routine observations:

On 2009 Jun 03 at UT 22:00 (slightly earlier than the suggested observing time of 22:55-00:47), Alan Heath made a sketch (See Fig 2) of Archimedes using his Celestron-8 scope at x200 and 318, seeing "S4". This was an attempt to see the normal appearance of the crater for similar illumination and libration to Pasternak's LTP from 1973 Jun 11 UT 21:05-21:15. Pasternak was observing from Klinge, Germany, using a 3" refractor, and found a faint red area east of Archimedes that faded in the last 5 minutes of the observation. This observational report was published in: Hilbrecht and Kuveler, *Earth, Moon & Planets*, 30 (1984), p53-61. Alan Heath did not report any sign of color this time, but at least we have an accurate sketch of the general appearance of the crater with appropriate shadows.

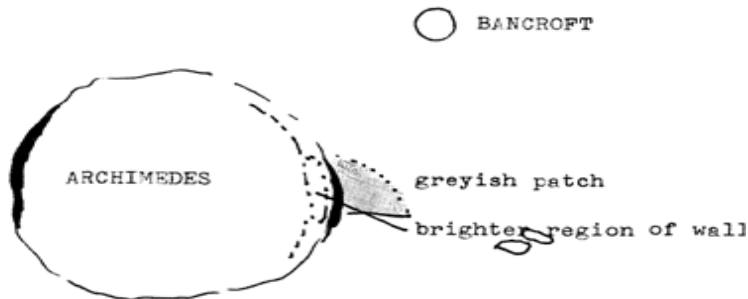


Fig 2. A sketch of Archimedes made on 2009 Jun 03 by Alan Heath that nearly matches the illumination and libration conditions from a 1973 Jun 11th LTP (south at the top). East of the crater is to the left..

Now a difficult choice, who's image to show from New Zealand for June? To resolve this I picked one at random – this is the Plato region (Fig 3) by Steve Lang from a large mosaic made from images from 2009 Jun 04 UT 09:00-09:30. This matches the same illumination as a LTP reported by Armagh (Northern Ireland) astronomer, Moseley on 1966 Sep 25, when Moon blinks were seen inside the crater. Although Steve's image is in black and white, it will be relatively easy to add artificial spurious color and check out what Moseley suspected, that it might have had something to do with low altitude spectral dispersion? - Actually a Moon blink should be unaffected by spectral dispersion.

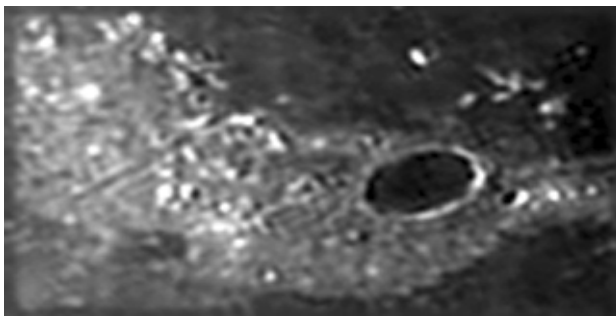


Fig. 3 Plato and surrounds taken on 2009 Jun 04 by Steve Lang – this matches the illumination present on the 1966 Sep 25 LTP seen by Moseley.

On 2009 Jun 10, Jay Albert was observing with his Celestron 11" SCT . Transparency was little better than magnitude 2, but seeing was 7/10. Unfortunately his hand controller malfunctioned and he had to observe manually. Between UT 04:40-05:10 Jay observed Aristarchus and noted that the entire floor seemed rough (or "granulated") with the central peak standing out sharply and very bright. This was within

+/-0.5° in illumination angle to a LTP seen by Bartlett on 1964 Oct 23 where Bartlett, using a 3" refractor (x133 and x200, seeing=3-5 and transparency=4), described a granulated appearance to the south floor, 6° bright with faint traces of pale yellow; the rest of the crater was 8° bright. Although Jay confirmed the granulated appearance, he did see any color though - but notes that Bartlett was using a small refractor, and suggests that so maybe it was false color? I guess that this color explanation could also apply to the Pasternak LTP described above too.

LCROSS: LRO and LCROSS were both launched successfully in a text book fashion on 2009 June 26 and have now gone into orbit. LCROSS has already returned some images, so we know that its cameras work correctly. We are told will be due to impact into a permanently shadowed area in the vicinity of the south pole on 2009 Oct 09 at UT 11:30 – a date for your diary.

LRO: If you would like to look for LTPs at the locations where the spacecraft will be imaging, like ALPO's David Darling had organized before with Clementine and Lunar Prospector, then the precise real time location of the spacecraft can be found on the following Arizona State University web site:

<http://lroc.sese.asu.edu/whereislro/>

Please do bear in mind that the footprints of the LROC highest resolution camera will be 2.5km x 26km or approximately 1" x 13" as viewed from Earth (at the centre of the lunar disk) and the image scale will be 50cm / pixel. However there is also a multi-waveband context camera that will obtain 100m / pixel images too. So should a LTP occur, when the images will be released by NASA's Planetary Data System (PDS), we will have access to multi-spectral and multi-resolution imagery of whatever was happening I therefore urge strongly that all experienced lunar observers attempt to image, or visually look for LTPs, along the spacecraft trajectory during the lifetime of the mission. If you are not interested in LTP work, then please try to do this anyway because you will be able to compare your images directly with the wide angle context images from LRO!

Continuing on the subject of LROC, I have come across the following public web site – it enables you to tell the spacecraft to take images of specific parts of the lunar surface. If your choice is lucky enough to be accepted and imaged, then when the results are eventually released by NASA's PDS then you will be able to see these. Again please do bear in mind that the "postage stamp image sizes" are very small areas of the Moon, the public selection of targets will have a very low priority (waiting until the primary mission is over and we enter an extended mission), and you are asked not to put in more than 5 requests per day....

http://target.lroc.asu.edu/output/lroc/lroc_page.html

For repeat illumination LTP predictions for the coming month, these can be found on the following web site: <http://users.aber.ac.uk/atc/tlp/tlp.htm>. For members who do not have access to the internet, please drop me a line and I will post predictions to you. 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!

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KEY TO IMAGES IN THIS ISSUE

1. Archimedes
2. Aristarchus
3. Bouguer
4. Burg
5. Copernicus
6. Damoiseau E
7. Eratosthenes
8. Furnerius
9. Hipparchus
10. Kepler
11. Langrenus
12. Mare Orientale
13. Petavius
14. Posidonius
15. Tycho

FOCUS ON targets

X = Deslandres (September)

Y = Menelaus (November)

Z = Atlas & Hercules

