



# THE LUNAR OBSERVER

RECENT BACK ISSUES: [http://www.zone-vx.com/tlo\\_back.html](http://www.zone-vx.com/tlo_back.html)

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

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Elton Moonshine Observatory - <http://www.zone-vx.com>

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## FEATURE OF THE MONTH - NOV. 2007



### MOSTING & SOMMERING

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

July 6, 2007 - 09:10 to 09:23 UT

15cm Newtonian - 170x - Seeing 6-8/10

I observed these craters and vicinity on the morning of July 6, 2007 while watching the moon uncover 7th-mag. ZC 3500. These craters are near Sinus Aestuum close to the center of the visible side. Hosting is a crisp, somewhat ploygonal crater with sharp points on its east and west sides. There is a large mound southwest of its center, and an unshadowed bright spot on its floor. There is evidence of interior terracing and a sunlit peak within its internal shadow. The shallow pit Mosting D is to its east. Sommering is a broken crater northwest of Mosting. It consists of a wide eastern arc and a narrow western arc. (The latter may be shown too wide on the sketch.) Its floor appeared featureless. There is a great variety of elevations near these craters, especially east of Mosting. The largest one north of Mosting may be Sommering gamma, according to the Lunar Quadrant map. The large ridge east of Mosting does not even seem to be shown there. Three curved arcs east of Mosting D may be the ghost ring Sommering M, according to the map.

## 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.

## **CALL FOR OBSERVATIONS:**

### **FOCUS ON: Alphonsus**

*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 **January 2008** edition will be the crater **Alphonsus**. 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 crater to your observing list and send your favorites to [Dembowski@zone-vx.com](mailto:Dembowski@zone-vx.com)

**Deadline for inclusion in the Alphonsus article is December 20, 2007**

## **Alphonsus Transient Phenomena**

### **WILLIAM DEMBOWSKI - LTSS COORDINATOR:**

The crater Alphonsus is not only an interesting feature from a topographical standpoint, it is also a site frequently mentioned in reports of Lunar Transient Phenomena (LTP). As you observe Alphonsus in response to the Focus On call for observations, we ask that you be aware of its importance in the study of LTP's. Dr. Anthony Cook has compiled a schedule of dates and times for the observing of various features for the purpose of verifying, or disqualifying, earlier reports of LTP's. A complete listing for the current month can always be found at: <http://www.cs.nott.ac.uk/~acc/Lunar/ltp.htm>

In a cooperative effort between the Lunar Topographical Studies Section and the Lunar Transient Phenomena Section, each *Focus On* target will also become the *LTP* target for the same period. To that end, Dr. Cook has provided a schedule for Alphonsus, for the months of November and December, with the following commentary:

### **DR. ANTHONY COOK - LTP COORDINATOR:**

The following are a set of dates and UT times under which you will have the chance to observe Alphonsus under identical illumination (to within +/-0.5 deg conditions to what they appeared as during past LTP (Lunar Transient Phenomena) events. The objective of observing such features at these dates and times is to gain a detailed set of observations of the "normal" appearance of these features from which we may judge critically past LTP reports. This will help greatly to eliminate many of these LTPs from the 1978 NASA catalog for which simple tricks of lighting were to blame. It will then allow us to identify a core set of reliable observations whose origin may be due to transient, natural surface processes on the Moon.

### **FOR OBSERVATIONS TO BE SUBMITTED TO THE LTP PROGRAM:**

Please ensure that the Moon is at least 20 degrees above the horizon at your site and that the Sun is below the horizon. Any observations that you send in where the Moon was below the altitude, or the Sun was above the horizon will be ignored hence forth – this is being done to ensure high quality observations.

# Schedule of Repeat Illumination Events for Crater Alphonsus

**Compiled by Dr. Anthony Cook**  
**Coordinator, LTP Section**

Date	UT	Phase	Original observation with link to description
2007-Nov-17	03:28-05:13	42%	Hoffmann 1965-Apr-08 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/3455">http://www.cs.nott.ac.uk/~acc/Lunar/Events/3455</a>
2007-Nov-17	14:01-15:58	47%	Hopp 1972-Sep-15 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/7455">http://www.cs.nott.ac.uk/~acc/Lunar/Events/7455</a>
2007-Nov-17	21:24-23:46	49%	Moseley 1967-Feb-17 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/4625">http://www.cs.nott.ac.uk/~acc/Lunar/Events/4625</a>
2007-Nov-18	21:59-00:08	60%	Brook 2004-Feb-29 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/9530">http://www.cs.nott.ac.uk/~acc/Lunar/Events/9530</a>
2007-Nov-19	11:30-13:26	67%	Argus_net 1969-Nov-19 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/6395">http://www.cs.nott.ac.uk/~acc/Lunar/Events/6395</a>
2007-Nov-20	00:08-02:45	72%	Moseley 1967-Feb-19 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/4645">http://www.cs.nott.ac.uk/~acc/Lunar/Events/4645</a>
2007-Nov-20	01:08-03:33	72%	Jennings 1966-Apr-01 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/3820">http://www.cs.nott.ac.uk/~acc/Lunar/Events/3820</a>
2007-Nov-20	13:27-15:23	78%	Argus_net 1969-Nov-20 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/6415">http://www.cs.nott.ac.uk/~acc/Lunar/Events/6415</a>
2007-Dec-16	17:47-19:40	42%	Hoffmann 1965-Apr-08 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/3455">http://www.cs.nott.ac.uk/~acc/Lunar/Events/3455</a>
2007-Dec-17	04:20-06:24	48%	Hopp 1972-Sep-15 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/7455">http://www.cs.nott.ac.uk/~acc/Lunar/Events/7455</a>
2007-Dec-17	11:48-14:09	52%	Moseley 1967-Feb-17 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/4625">http://www.cs.nott.ac.uk/~acc/Lunar/Events/4625</a>
2007-Dec-18	12:22-14:34	63%	Brook 2004-Feb-29 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/9530">http://www.cs.nott.ac.uk/~acc/Lunar/Events/9530</a>
2007-Dec-19	01:55-03:52	68%	Argus_net 1969-Nov-19 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/6395">http://www.cs.nott.ac.uk/~acc/Lunar/Events/6395</a>
2007-Dec-19	14:34-17:11	75%	Moseley 1967-Feb-19 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/4645">http://www.cs.nott.ac.uk/~acc/Lunar/Events/4645</a>
2007-Dec-19	15:17-18:16	75%	Jennings 1966-Apr-01 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/3820">http://www.cs.nott.ac.uk/~acc/Lunar/Events/3820</a>
2007-Dec-20	03:53-05:49	79%	Argus_net 1969-Nov-20 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/6415">http://www.cs.nott.ac.uk/~acc/Lunar/Events/6415</a>
2007-Dec-31	02:44-04:10	51%	Alter 1937-Oct-26 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/870">http://www.cs.nott.ac.uk/~acc/Lunar/Events/870</a>
2007-Dec-31	19:15-20:56	44%	Hobdell 1980-Jul-05 <a href="http://www.cs.nott.ac.uk/~acc/Lunar/Events/8755">http://www.cs.nott.ac.uk/~acc/Lunar/Events/8755</a>

The above schedule is for repeat illumination to within +/-0.5 deg and it is the observer's responsibility to make sure that the Moon is sufficiently high above their horizon e.g. 20 deg.

## LUNAR CALENDAR - NOVEMBER 2007 (UT)

Nov. 01	21:19	Last Quarter
Nov. 04	01:00	Moon 1.6 Degrees SSW of Saturn
Nov. 04	17:00	Moon 2.7 Degrees SSW of Venus
Nov. 08	05:00	Moon 6.2 Degrees SSW of Mercury
Nov. 09	12:33	Moon at Apogee (406670 km - 252693 miles)
Nov. 09	23:03	New Moon (Start of Lunation 1050)
Nov. 12	21:00	Moon 5.0 Degrees S of Jupiter
Nov. 17	12:00	Moon 0.91 Degrees SSE of Neptune
Nov. 17	22:32	First Quarter
Nov. 19	09:00	Moon 1.8 Degrees NNW of Uranus
Nov. 24	00:13	Moon at Perigee (357195 km - 221951 miles)
Nov. 24	14:30	Full Moon
Nov. 27	06:00	Moon 1.7 Degrees N of Mars

# **FOCUS ON: Copernicus**

**William M. Dembowski, FRAS**  
**Coordinator, Lunar Topographical Studies**

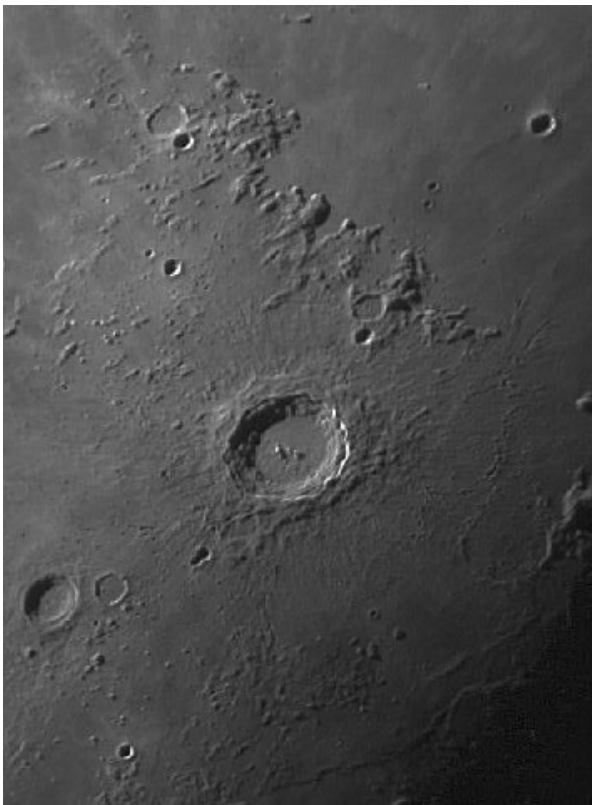
## **INTRODUCTION:**

Open any book on lunar observing, turn to the section on Copernicus, and you are sure to find words like “magnificent” or “spellbinding”. Chances are you will even find a reference to T. G. Elger describing Copernicus as “the Monarch of the Moon”. Then get out your telescope, drop in your favorite lunar eyepiece, and you will see why such praise is justified.

Relatively large (93 km), very well placed for observing, and with a myriad of sharply defined features, Copernicus is the personification of the ideal lunar crater.

## **THE WALLS:**

Like so many other craters its size, Copernicus appears at first to be circular in shape but then a closer look reveals that it is polygonal. The walls of Copernicus are composed of at least eight relatively straight segments of approximately 30km each that rise about 900 meters above their surroundings. (Figure 1) The walls present an eyeful of terracing, slumping, and a wide array of grooves and ridges but are nearly devoid of craters.



**FIGURE 1**

**Digital image by Bob O’Connell**  
**Keystone Heights, Florida, USA**  
**September 5, 2007 - 09:29 UT**  
**Seeing: 7/10 - Trans: 5/6**  
**Orion 180mm f/15 Mak-Cas**  
**Meade LPI - 1.9x Barlow**

The inner northern wall does, however, contain a very interesting non-feature. About three days past First Quarter, the interplay of light and shadow sometimes create the appearance of a cave formed by a peculiarly shaped spiral pattern. The lighting conditions must be very precise and the viewing window is very short, but it is certainly an illusion worth seeking. See Table 1 for the dates and times that are favorable for viewing this elusive “feature”.

**TABLE 1**

**Dates favorable for seeing the “Cave”**

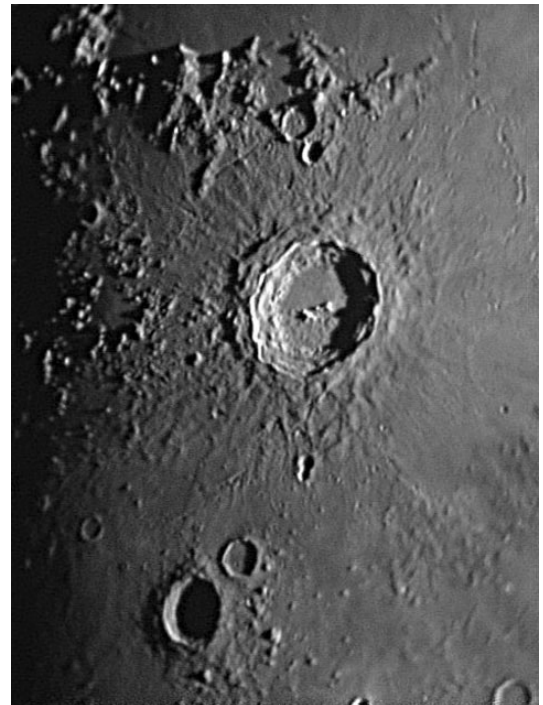
<b>YEAR</b>	<b>DATE</b>	<b>UT</b>
<b>2007</b>	<b>Nov.19</b>	<b>20.5</b>
<b>2007</b>	<b>Dec.19</b>	<b>10.8</b>
<b>2008</b>	<b>Jan.18</b>	<b>01.3</b>
<b>2008</b>	<b>Feb.16</b>	<b>15.4</b>
<b>2008</b>	<b>Mar.17</b>	<b>04.8</b>
<b>2008</b>	<b>Apr.15</b>	<b>17.4</b>
<b>2008</b>	<b>May 15</b>	<b>05.2</b>
<b>2008</b>	<b>June 13</b>	<b>16.5</b>

**Stephen J. O’Meara - Sky & Telescope Magazine  
February 2003**

Outside the walls of Copernicus is the ejecta blanket which shows up beautifully under a low sun and extends for a full crater diameter in all directions (Figure 2). Sunrise is also the best time to view the hundreds of secondary craters that surround Copernicus. Secondary craters, by definition, are those formed by the return of large chunks of lunar material thrown skyward in the initial Copernican impact (Figure 3).

**FIGURE 2**

**Digital image by Dan Montagano  
Montreal, Canada  
July 8, 2007  
6 inch f/6 Mak-Newt  
Canon Powershot 540**





**FIGURE 3**

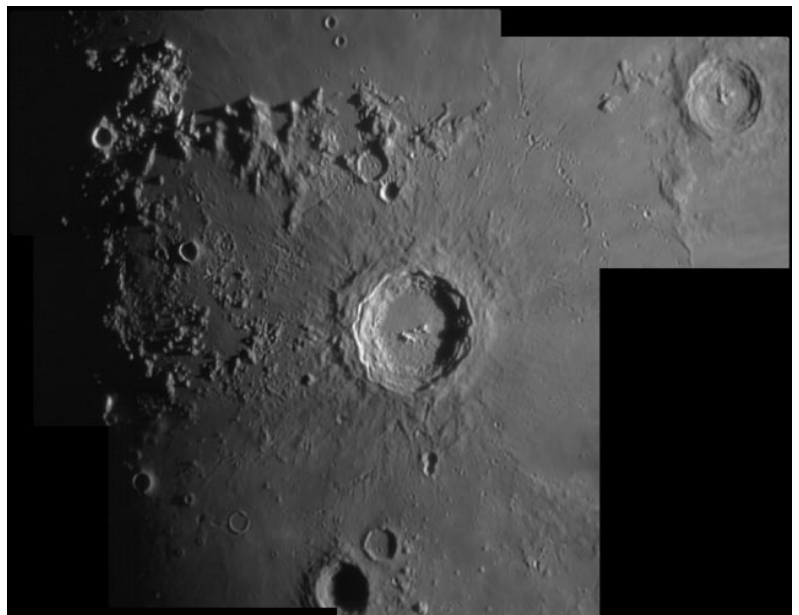
**Digital image by Guilherme Grassmann  
Americana, Brasil  
October 20, 2007 - 22:04 UT  
Seeing: 8/10 - Trans: 6/10  
10 inch f/10 SCT  
21AF04 Firewire**

**THE FLOOR:**

At a depth of only 3760 meters, Copernicus is shallower than predictions for craters its size and so probably contains a significant amount of impact melt. Variations in the impact melt explain why the floor of Copernicus is very hummocky in all but its northwestern region which is quite smooth. Like its walls, the floor of Copernicus does not boast any easily visible craters; a testament to its relatively young age (approximately 1 billion years). The center of the crater holds a cluster of peaks in the 1200 meter range (Figure 4). The largest of the central mountains is the westernmost and is well separated from its companions.

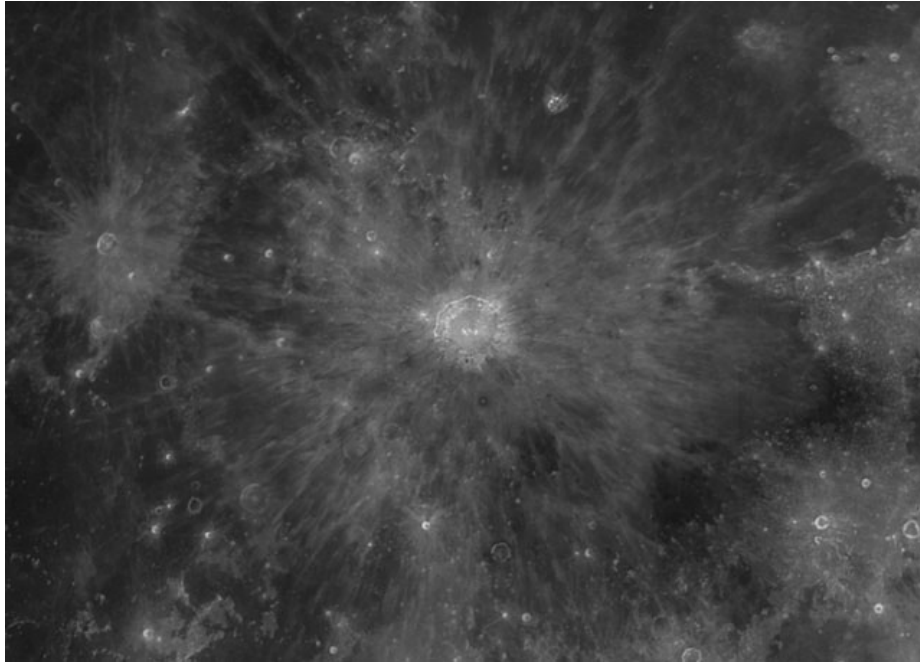
**FIGURE 4**

**Digital image by Rik Hill  
Tucson, Arizona, USA  
June 25, 2007 - 03:05 UT  
Seeing 7/10  
14 inch SCT - 1.6x Barlow  
SPC900NC Camera  
UV/IR Blocking Filter  
300/1500 Images**



### **THE RAYS:**

The ray system of Copernicus is second only to Tycho in its brilliance and extent. The Copernican rays are not all long and straight, although the longest cover a distance of 700 km. Instead, quite unlike those of Tycho, some of the rays are plume like and form large loops (even loops within loops). These peculiar rays are best seen about two crater diameters southeast of Copernicus. To the west, the rays of Copernicus merge with those of Kepler to form a complex tapestry that deserves more than a cursory glance (Figure 5).



**FIGURE 5**

**Digital image by Wayne Bailey - Sewell, New Jersey, USA  
September 26, 2007 - 02:29 UT - Colong: 83.8  
Seeing: 5/10 - Trans: 4/6  
C11 f/10 SCT - Lumenera Skynyx 2-1M Camera  
Schuler IR72 Filter**

### **DOUBLE-DIGIT OBSERVING:**

With a diameter of nearly 100km, Copernicus is a prime target for those observing with magnifications below 100x. Undoubtedly, the most rewarding views are those obtained at or near Full Moon when the spectacular ray system is seen at its best.

### **REFERENCES:**

O'Meara, Stephen J. - "The 'Cave' in Copernicus", Sky & Telescope Magazine, Feb.2003  
Rukl, Antonin - "Atlas of the Moon", Paul Hamlyn Publishing, 1991  
Wood, Charles A. - "The Modern Moon: A Personal View", Sky Publishing, 2003



## ADDITIONAL COPERNICUS OBSERVATIONS



**Drawing by Fred Corno - Settimo Torinese, Italy  
October 20, 2007 - 18:35 to 19:40 UT  
Takahashi FS128 f/8.1 Refractor - 149x - Vixen ND 50% Filter  
Seeing: 5 with noticeable turbulence - Trans: Excellent**



**Digital image by Michael Mattei - Littleton, Massachusetts, USA  
March 19, 2005 - 00:47 UT - Seeing: 7/10  
14 inch f/10 SCT - Philips Toucam**

## **ADDITIONAL COPERNICUS OBSERVATIONS**



**Digital image by Andy Miller - Conneaut, Ohio, USA  
October 5, 2007**

**4 inch C102HD Refractor - HP635 2.1mp camera (afocal)**



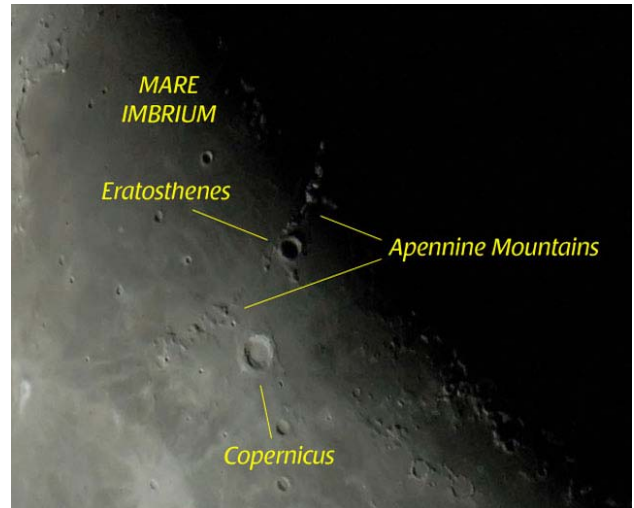
**Digital image by Maurice Collins - Palmerston North, New Zealand  
September 21, 2007 - 09:22 UT - Seeing: All  
Meade ETX90 Mak-Cass - Fuji A800 Camera**

## ADDITIONAL COPERNICUS OBSERVATIONS



**Digital image by Michael Boschat  
Halifax, Nova Scotia, Canada  
September 5, 2007 - 07:00 UT  
Seeing: 5/10 - Trans: 4/6  
11cm f/10 Refractor  
Centrios 3.0 MP DSC3020 (afocal)**

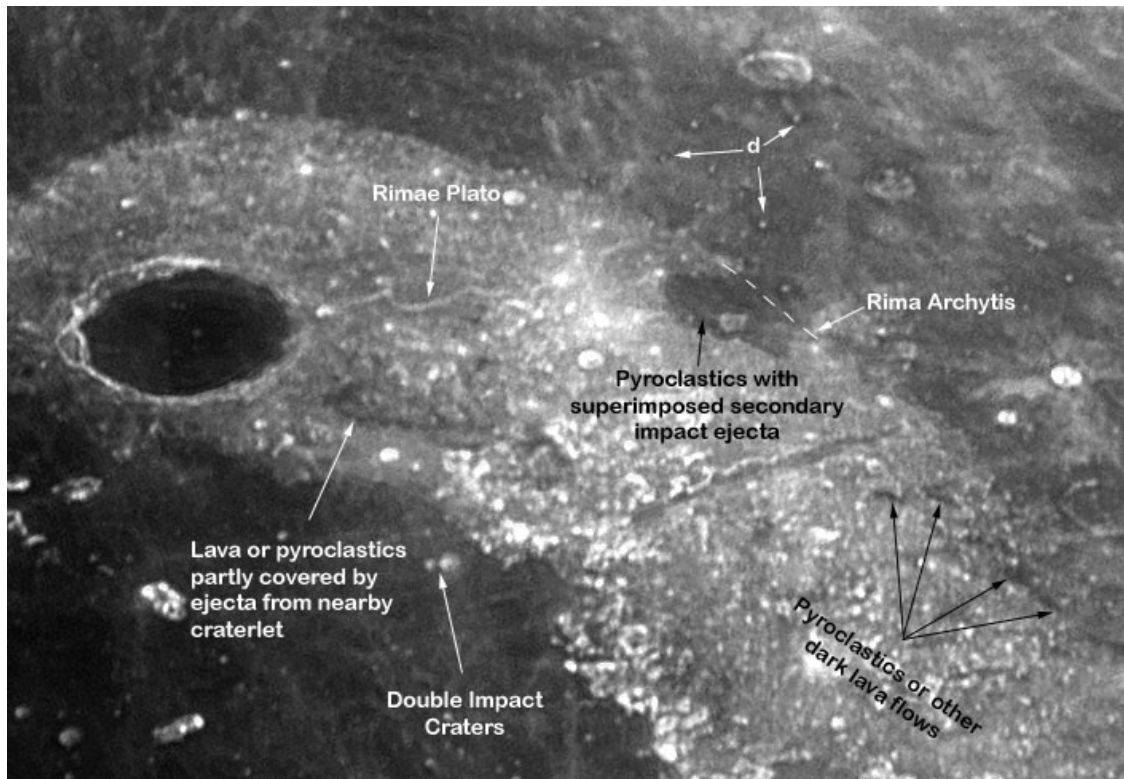
**Digital image by Chris Harvey  
S.Devon, England  
September 5, 2007  
Meade ETX-105 Mak-Cass**



**Digital image by Gary Morton  
Eastbourne South East, UK  
September 30, 2007  
4.5 inch Newtonian Reflector  
Meade LPI Camera/Envisage**

# **DARK DEPOSITS NEAR RIMA ARCHYTAS**

**By Howard Eskildsen - Ocala, Florida, USA**



**Digital image (Cropped from full frame)**

**by Howard Eskildsen - Ocala, Florida, USA**

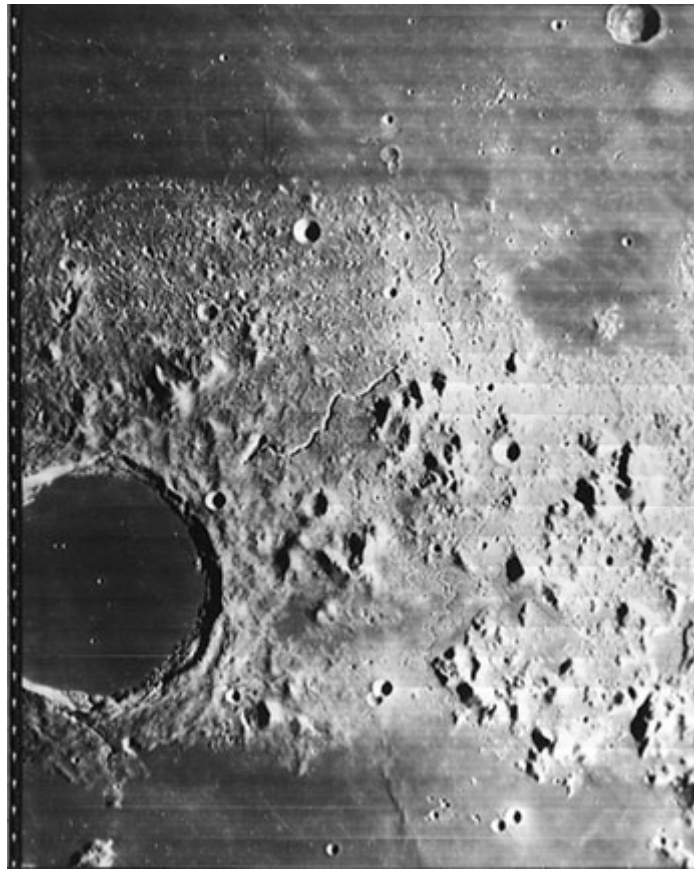
**September 26, 2007 - 01:17 UT - Colongitude: 83.9**

**Meade 6 inch f/8 Refractor - 2x Barlow - Orion StarShoot II Camera**

Dark deposits in the area south of the estimated position of Rima Archytas are consistent with pyroclastic deposits. Alternatively they could be considered mare-type lava deposits that pre-date Rima Archytas. This photo can not really distinguish which is correct, but on the Lunar Orbiter photo IV-122-H3 there appears to be a bell shaped area of pyroclastic deposit extending just past the small craterlet to the northeast of the rille. The deposit has been modified by secondary impact craters and rays, most likely from Anaxagoras. Other possible areas of pyroclastics South of Vallis Alpes are shown by dark arrows.

Near Plato another curious dark area appears, marked by a white arrow. The Lunar Orbiter photo shows that impact ejecta from the bright small crater just to the right of the arrow has partly covered the darker material and caused the illusion of a sinuous appearance of this dark patch. This area is also partly shown by Wes Higgins's photo featured in the September 24, 2007 LPOD. Comparing the photos would make me guess that this is an embayment in the basaltic lava flows of Imbrium.

**Link to Wes Higgins LPOD photo: <http://www.lpod.org/?m=20070924>**



**NASA - Lunar Orbiter photo IV-122-H3**

Wes's photo also shows the craters denoted as "double impact craters" in my image. While they appear as nothing special on my photo, Wes's photo shows two craters with rims in contact and a compressed ridge tangential to the intersection of the two craters. They also show very clearly in the Lunar Orbiter photo IV-122-H3. Initially this reminded me of extremely low angle impact that formed the Messier pair of craters. In The Geologic History of the Moon, page 33, Figure 3.7, Set C shows an experimentally produced crater pair which looks very nearly the same. It was made by a nearly simultaneous impact of two projectiles traveling 0.77Km.second at an angle of 75 degrees from normal to the surface. This is a bit higher angle than the Messier impact and much slower (presumably). Primary impacts would have been traveling on the order of tens of Km/second, so if the speed is actually a limiting factor, this pair would have to be a secondary impact group. It seems unlikely, though, that higher speed impacts could not produce similar results.

Some rilles are visible in this photo, due to their bright albedo. This is surprising since rilles are usually best seen at lower sun angles. There is even a hint of the central rille in Vallis Alpes. Finally, dark-halo craters, appear in ray-covered portions of Mare Frigoris. A few are marked with arrows radiating from the letter "d".

Seeing was not particularly good this evening and it will be interesting to see what better conditions allowing higher magnification might add to these observations.



# **LUNAR TOPOGRAPHICAL STUDIES**

Coordinator - William M. Dembowski, FRAS

[dembowski@zone-vx.com](mailto:dembowski@zone-vx.com)

## **OBSERVATIONS RECEIVED**

WAYNE BAILEY - SEWELL, NEW JERSEY, USA

Digital images of Copernicus (4), Deslandres, Atlas & Hercules, Tycho, Hipparchus & Descartes, Agrippa & Lade, Aristoteles/Eudoxus/Burg,

Banded crater report forms with digital images of Aristillus (3), Menelaus (3), Menelaus & Dawes, Burg (4), Aristillus & Thaetetus (2), Aristillus/Brayley/Bessarion/Pytheas, Theaetetus, Bode, Birt, Pytheas, Conon, Kepler, Proclus, Agatharchides A, Aristarchus, Hipparchus K

MARK BRADBURY - GREENWOOD, INDIANA, USA

Written observation of Langrenus

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND

Digital images of Mare Humorum, Sinus Iridum, Copernicus, 4-day Moon, 10-day Moon (2), 8-day Moon

FRED CORNO - SETTIMO TORINESE, ITALY

Drawings of Marius and vicinity (2), Bands within Aristarchus (4), Copernicus

ED CRANDALL - WINSTON-SALEM, NORTH CAROLINA, USA

Digital images of Janssen, Lacus Mortus, Menelaus Ray

HOWARD ESKILDSEN - OCALA, FLORIDA, USA

Digital images of Thales, Vlacq, Birt, Rima Archytis, Montes Alpes, Montes Cordillera, Plato (2), Grimaldi, Phycylides, Rimae Sirsalis, Dionysius

Banded crater report forms with digital images of Aristarchus (2), Aristillus, Dawes, Kepler (2), Menelaus (2), Thaetetus, Proclus, Pytheas (3), Bode (2), Damoiseau E, Birt,

GUILHERME GRASSMANN - AMERICANA, BRASIL

Digital images of Copernicus, Clavius, Eratosthenes, Plato

ROBERT H. HAYS, JR. - WORTH, ILLINOIS, USA

Drawings of Mosting & Sommering, Gambart, Ramsden  
Photographs of lunar eclipse(2)

RIK HILL - TUCSON, ARIZONA, USA

Digital images of Apollo 11 landing site, Apollo 15 landing site, Apollo 17 landing site

PAULO LAZZAROTTI - MASSA, ITALY

Digital images of Pytheas/Lambert/Timocharis, Ptolemaeus/Albategnius/Hipparchus, South Polar Region

MIKE MATTEI - LITTLETON, MASSACHUSSETS, USA  
Digital image of Copernicus

ANDY MILLER - CONNEAUT, OHIO, USA  
Digital image of Copernicus

GARY MORTON - EASTBOURNE SOUTH EAST, UK  
Digital image of Copernicus

### **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)

### **A.L.P.O. LUNAR COORDINATORS**

Dr. Anthony Cook – Coordinator, Transient Lunar Phenomena [atc@aber.ac.uk](mailto:atc@aber.ac.uk)

Brian Cudnik – Coordinator, Lunar Meteoritic Impact Search [cudnik@sbcglobal.net](mailto:cudnik@sbcglobal.net)

David O. Darling – Asst. Coordinator, Transient Lunar Phenomena [DOD121252@aol.com](mailto:DOD121252@aol.com)

William M. Dembowski – Coordinator, Lunar Topographical Studies  
& Selected Areas Program [bill.dembowski@alpo-astronomy.org](mailto:bill.dembowski@alpo-astronomy.org)

Marvin W. Huddleston – Coordinator, Lunar Dome Survey [kc5lei@comcast.net](mailto:kc5lei@comcast.net)

## **RECENT TOPOGRAPHICAL OBSERVATIONS**



### **JANSSEN ON THE TERMINATOR**

**Digital image by Ed Crandall - Winston-Salem, North Carolina, USA**

**September 30, 2007 - 09:15 UT - Seeing: 3-4/10 - Trans: 3/6**

**110mm f/6.5 APO Refractor - 3x Barlow - Philips Toucam**



### **PTOLEMAEUS - ALBATEGNIUS - HIPPARCHUS**

**Digital image by Paolo Lazzarotti - Massa, Italy**

**August 5, 2007 - 04:04 UT - Seeing: 4-6/10 - Trans: 4/5**

**Gladius CF315 Lazzarotti Opt. Scope - LVI-1392 PRO (Experimental Camera)**

**31 msec. exposure - 0.18 arcsec/pixel Image Scale - 80/2000 frames**



# **BRIGHT LUNAR RAYS PROJECT**

**Coordinator - William M. Dembowski, FRAS**



## **Ray patterns near Tycho and Deslandres**

**Digital image and observing notes by Wayne Bailey - Sewell, New Jersey, USA**

**September 29, 2007 - 06:01 UT - Colongitude: 122.1 - Seeing: 3/10 - Trans: 4/6**

**C11 f/10 SCT - Schuler IR72 Filter - Lumenera Skynyx 2-1M**

### **OBSERVING NOTES:**

A feature I found interesting on this image is the ray structure around the crater Hell (which is about midway between Cassini's bright spot near the center of the image, and Pitatus in the upper left corner). The entire area is overlain by the rays radiating from Tycho in the lower left corner. But there appears to be a fan shaped section of ray material that overlays and extends to the southwest from Hell, that fans outward to the southwest in a direction that passes to the west of Tycho. So both the orientation and divergence of the rays are wrong for rays originating from Tycho. The material overlays Hell and the apex of the fan lies in Deslandres, northeast of Hell, but there's no obvious source crater in the area. Is this an illusion caused by overlapping Tycho rays, an example of bent (Tycho) rays, or a small independent ray system?



## **TYCHO RAYS**

**Digital image (1/4 of full frame)**

**Bill Dembowski - Elton, Pennsylvania, USA**

**July 3, 2007 - 05:20 UT**

**Colongitude: 126.8 - Seeing: 3/10**

**8 inch f/10 SCT**

**Orion StarShoot II Camera**

# **BANDED CRATERS PROGRAM**

**Coordinator - William M. Dembowski, FRAS**

**Banded Craters Program Website: <http://www.zone-vx.com/alpo-bcp.html>**

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

Crater Observed: Hipparchus K  
Observer: Wayne Bailey Observing Station: Sewell, NJ  
Mailing Address: 17 Autumn Lane, Sewell, NJ 08080  
Telescope: Celestron SCT 28 cm f/10  
Imaging: Skynyx 2-1M Filters: Schuler IR72  
Seeing: 5/10 Transparency: 4/6  
Date (UT): 2007/09/26 Time (UT): 03:48  
Colongitude: 84.4 Latitude: -0.7  
Position of crater: Selen. Long. Selen. Lat.  
2.2° East 6.9° South  
Lunar Atlas Used as Reference: Rukl, Atlas of the Moon, Revised Updated Ed.

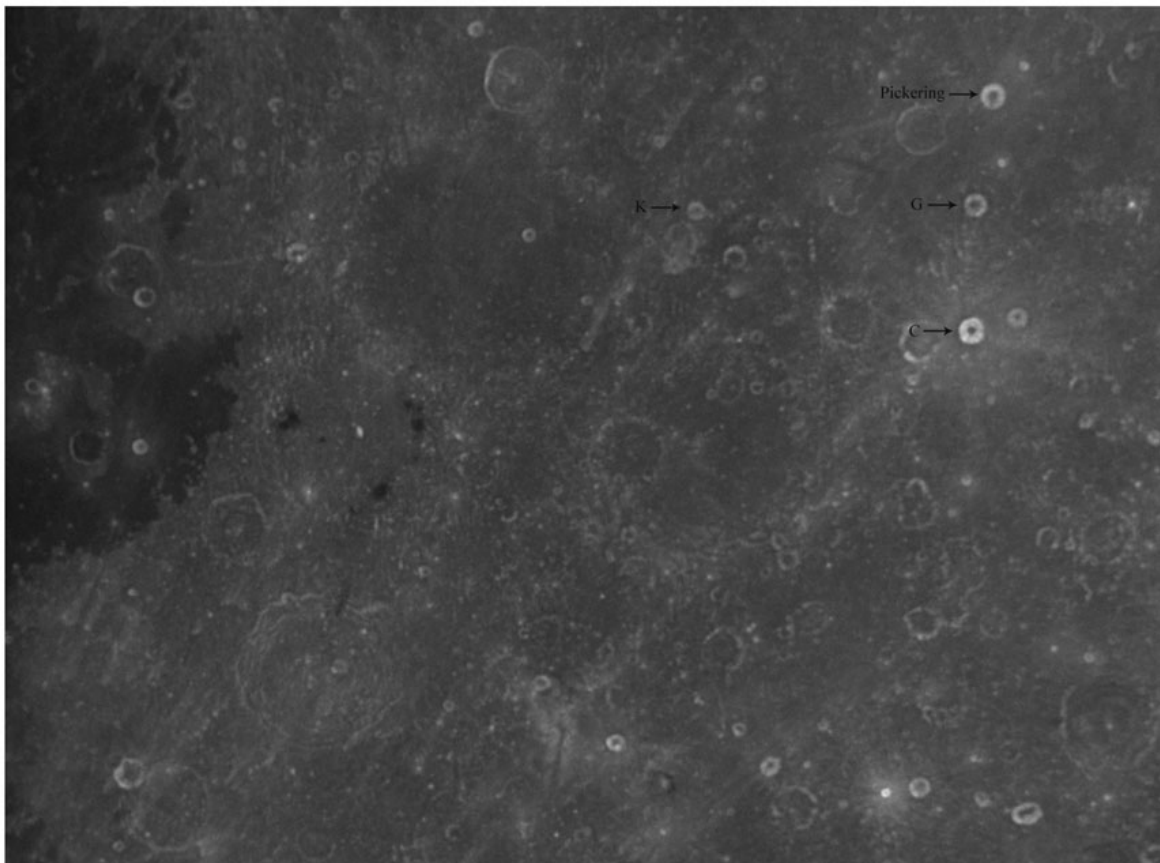
Image (North up): (East right):

Comments:

Hipparchus K shows two dark radial bands, on the east and southwest walls.

Three other craters near Hipparchus appear to be banded, Hipparchus C & G and Pickering. C shows several dark narrow bands radiating from a small, dark central floor. G appears similar to C although the bands are less distinct and the SW wall appears duller than the remainder. Pickering shows one dark radial band on the south wall.

Other banded craters on this image include Davy A&G, Herschel C, Palisa C,D,T&W, and an unnamed feature at E0.9 S18.0.



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

Crater Observed: Pytheas

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: Orion Starshoot II, 5X Barlow, Filters: None

Seeing: 6/10 Transparency: 4/6

Date (UT): 2007/09/25

Time (UT): 00:46

Colongitude: 71.4°

Position of crater:

Selen. Long.

Selen. Lat.

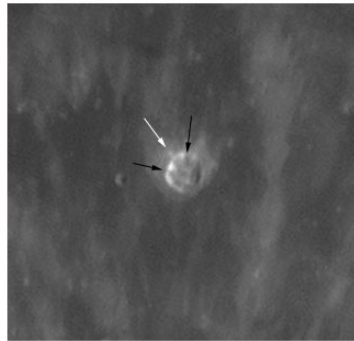
20.6° West

20.5° North

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

Image (north up):

Comments:



Black arrows point towards dark bands in the crater wall. The white arrow shows a curious white band that tails off a dark band that ascends part way up the wall of the crater. The white mark crosses the rim and extends a short distance beyond. This complex dark/light band seems to be associated with a bright ridge running nearly east to west across the upper center of the crater. A similar parallel ridge in the lower half of the crater seems to extend towards the band indicated by the lower dark arrow. I suspect that the ridges are structurally related to the bands.

## KEY TO IMAGES IN THIS ISSUE

1. Archytas, Rima
2. Copernicus
3. Hipparchus K
4. Janssen
5. Mosting
6. Ptolemaeus
7. Pytheas
8. Tycho

**X = Alphonsus**  
**(Subject of next Focus On)**

