

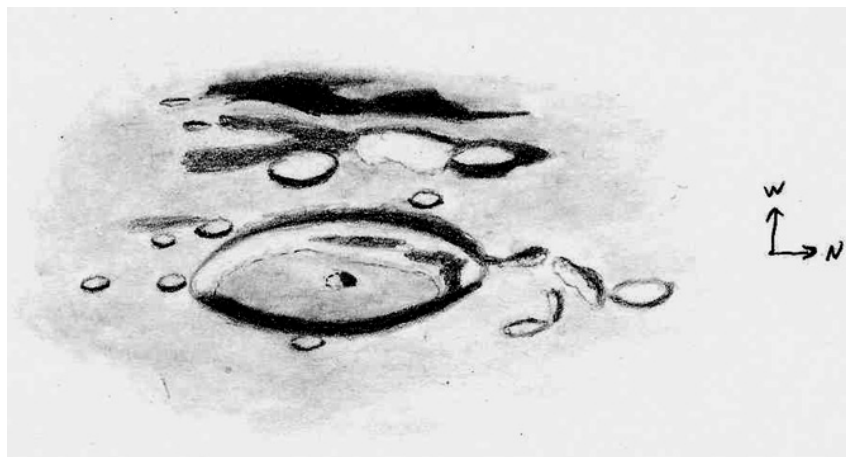


THE LUNAR OBSERVER

RECENT BACK ISSUES: http://www.zone-vx.com/tlo_back.html

A PUBLICATION OF THE LUNAR SECTION OF THE A.L.P.O.
EDITED BY: William M. Dembowski, F.R.A.S. - dembowski@zone-vx.com
Elton Moonshine Observatory - <http://www.zone-vx.com>
219 Old Bedford Pike (Elton) - Windber, PA 15963

FEATURE OF THE MONTH - APRIL 2007



BETTINUS

Sketch and text by Robert H. Hays, Jr. - Worth, Illinois, USA
January 2, 2007 - 01:20 to 01:56 UT
15cm Newtonian - 170x - Seeing 6-7/10

I sketched this crater and vicinity on the evening of Jan. 1/2, 2007. This is one of several fairly large craters just northeast of Bailly. The libration that evening was favorable for this area. Bettinus has a peak near its center, but the interior walls toward the southwest come near this peak. There appears to be a large slump or landslide in that area. I did not see any other detail on its floor. Bettinus B is the moderately large crater west of Bettinus' north end. Bettinus A is the similar crater farther south, but it does not appear to be as deep as B. There is a relatively bright area, partly outlined by shadow, between A and B, and chaotic terrain lies farther west toward Bailly. There is a small unlabeled pit near Bettinus B, and Zuchius C is probably the large, shallow crater north of Bettinus. There are several elevations between Zuchius C and Bettinus. The shallow crater on the east rim of Bettinus is Bettinus E, and Bettinus H and D are farther around the rim of Bettinus toward A. There is an unlabeled pit near Bettinus D, and Kircher B is south of Bettinus H. These last two named craters both have bright interiors, more so than D or A for example. A modest wrinkle is near Bettinus D and the nearby unnamed pit.

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. Several copies of recent journals can be found on-line at: <http://www.justfun.org/djalpo/> Look for the issues marked FREE, they are not password protected. Additional information about the A.L.P.O. can be found at our website: <http://www.lpl.arizona.edu/alpo/> 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.lpl.arizona.edu/~rhill/alpo/member.html> which now also provides links so that you can enroll and pay your membership dues online.

LUNAR CALENDAR - APRIL 2007 (UT)

Apr. 02	17:15	Full Moon
Apr. 03	09:00	Moon at Apogee (406,326 km - 252,479 miles)
Apr. 08	08:00	Moon 5.9 Degrees S of Jupiter
Apr. 10	18:04	Last Quarter
Apr. 13	01:00	Moon 1.9 Degrees SSE of Neptune
Apr. 14	01:00	Moon 0.49 Degrees NW of Mars
Apr. 16	06:00	Moon 4.3 Degrees NNW of Mercury
Apr. 17	06:00	Moon at Perigee (357,137 km - 221,915 miles)
Apr. 17	11:36	New Moon (Start of Lunation 1043)
Apr. 20	07:00	Moon 3.3 Degrees N of Venus
Apr. 24	06:35	First Quarter
Apr. 25	10:00	Moon 1.0 Degrees NNE of Saturn
Apr. 30	11:00	Moon at Apogee (406,208 km - 252,406 miles)

CALL FOR OBSERVATIONS - FOCUS ON: PLATO

Focus on is a bi-monthly series of articles which includes observations received for a specific feature or class of features. The subject for the May 2007 edition will be the crater **Plato**. 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 one of the addresses shown in the banner on Page One.

Deadline for inclusion in the Plato article is April 20, 2007

Be sure to check the March issue of TLO for information on Plato LTP observations.

<http://www.zone-vx.com/TLO200703.pdf>

DARK HALOED CRATERS

The call for participation in a Dark Haloed Crater Program in the November 2006 issue of TLO has, to date, met with little response. If you are still undecided, you might want to visit Kurt A. Fisher's personal website. It has finder charts, an updated observing list, and a treasure trove of information on dark haloed craters on the nearside face of the Moon. He has even expanded the 1976 ALPO Dark Halo Crater Catalogue from 83 to 194 entries.

Website:

<http://members.csolutions.net/fisherka/astronote/plan/dhccat/DarkHaloCraters.html>

Observing List:

<http://members.csolutions.net/fisherka/astronote/plan/dhccat/html/DHCCatLatLong.html>

E-mail (Kurt A. Fisher - Member, Salt Lake Astronomical Society): fisherka@csolutions.net

Report on March Total Lunar Eclipse

By Robert H. Hays, Jr. - Worth, Illinois, USA

I had a very good view of the end of the March 3/4 lunar eclipse. I watched this event from a roadside near Plain View, Iowa (about 15 miles northwest of Davenport). I had traveled there from the Chicago area in a successful effort to find clear sky. I used an 80mm refractor at 38x for most visual observing and a 5-inch Celestron for photography. I also used 10x50 binoculars. It was a chilly evening with the temperature about 20° F and a stiff breeze from the northwest, but I had no clouds during my observing. I arrived at this site just before sunset after having traveled farther than I'd expected or intended. Sunset, moonrise and the end of totality were to occur at almost the same time from this area.

I first noticed the emerging moon at 0:13 UT. The portion inside the umbra could not be seen without optical aid until a few minutes later. Binoculars gave an attractive view around 0:20. The brightest areas inside the umbra were along the celestial northwest and southern limbs adjacent to the emerging crescent. These areas were a fairly bright red; most of the moon inside the umbra was a dusky reddish-brown. This color pattern was much the same around 0:40 with the 80mm scope. The maria were fairly obvious, but craters were usually not noticed until perhaps 1-3 minutes before their exits. I did notice a reddish tint inside the umbra as late as 1:00, but the umbra had a muted appearance overall/ probably due to low altitude and the emerging moon. Sky transparency was no problem.

I timed six crater exits with the refractor. I had WWV playing continuously, and I would listen to the time signals while the shadow edge was passing over the craters. Their estimated accuracy is about 10-15 seconds, though the ones of Plinius and Dionysius may be closer to 20 seconds. Those two exits occurred close together, and those features were not as conspicuous as the others were. I also timed last umbral contact (Contact IV) at 1:11:35 UT.

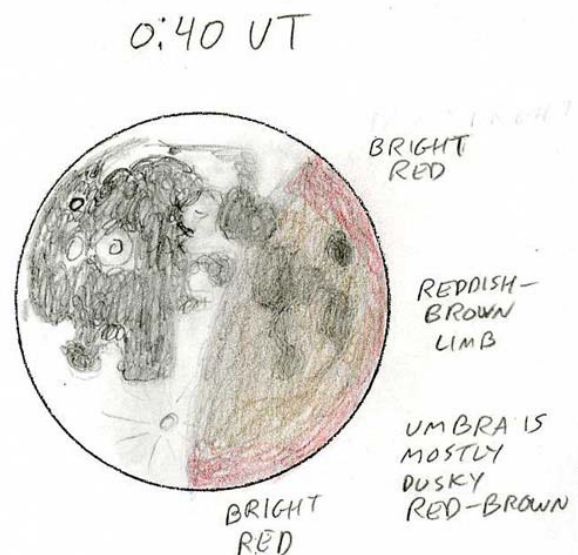
After the partial phases ended, I followed the grayish penumbral shading until 1:49 UT when I lost it with both the binoculars and the 80mm refractor.

Timings made near end of Lunar Eclipse March 3/4, 2007 (UT Times)

CRATER EXITS

Manilius ----- 00:37:40
Menelaus ----- 00:41:10
Plinius ----- 00:44:55
Dionysius ----- 00:45:05
Proclus ----- 00:56:20
Langrenus ----- 01:07:10

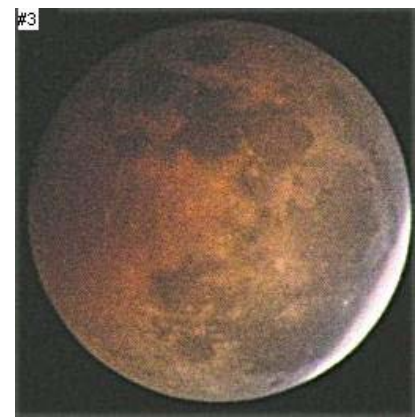
Contact IV ---- 01:11:35



Images of March Total Lunar Eclipse

By Michael Boschat - Halifax, Nova Scotia, Canada

Name: Michael Boschat
Location: Halifax, Nova Scotia, Canada
Feature: Lunar Eclipse
Date: March 3/4, 2007
Time: 2205-0010 UT
Telescope: Antares 105mm, f/10, refractor
Magnification: 25x
Seeing: 4/10
Transparency: 3/6
Medium: Olympus C-750 Digital Camera mounted over eyepiece



The #1 image was at about 2206 UT was with camera and tripod only, at 1.6 seconds f/3.5 and ISO 400 and at 35x zoom. The bright star near bottom is 59 Leonis.

The #2 image was at about 2340 UT and shot through the telescope at 5x zoom 1.6 second exposure, f/3.5, ISO 400

The #3 image at 2359 UT was at about 15x zoom, 1.6 second exposure, ISO 400 and using Registax I stacked 3 images to enhance it.

Notes on March Total Lunar Eclipse

By Michael Amato - West Haven, Connecticut, USA

I observed the lunar eclipse after the skies cleared. Transparency was 6, seeing was 7. At mid totality the color of the moon was mostly gray with just a slight hint of a ruddy tint. I gave the eclipse a Danjon rating of L=1.4. With 10x50 binoculars the ruddy color was easier to see. When the eclipse went into the partial phase, I noticed the earth's shadow looked more curved than the last time I observed a total lunar eclipse

VENDELINUS – Past and Present

By Nigel Longshaw - Chadderton, Lancashire, England

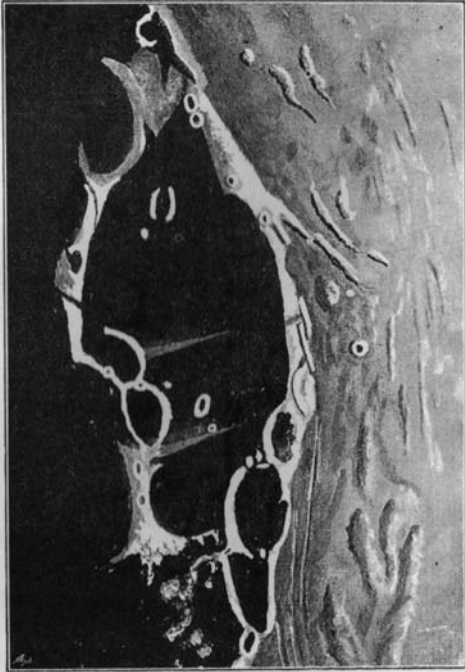
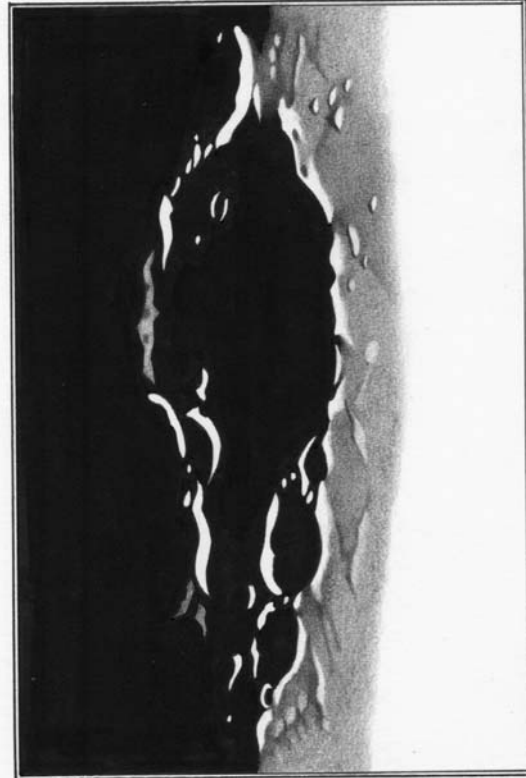


FIG. 5. VENDELINUS (1892, November 6, 10 h.
to 11 h.).
By T. Gwyn Elger, F.R.A.S.



VENDELINUS (2007, February 4 - 22:10 to 22:40 UT)
By Nigel Longshaw

A casual glance at the two drawings of Vendelinus is immediately suggestive of repetition; there is no apparent difference, maybe the same drawing printed twice? The summation is in essence of course correct, the Moon remains a changeless orb, a 'cinder' left behind from the formation of the solar system, its topography 'frozen' in time, the activity which shaped its surface resides in the distant past on timescales too immense for the human mind to comprehend.

Yet closer examination reveals that the two drawings are not exactly the same, there are subtle differences in the visible details which in part are attributed to the slightly different conditions of libration, illumination, instrumentation and observer. However despite the probable disappointment that these differences do not represent physical changes of our nearest celestial neighbour, there remains the in-escapable fact that these two drawings of Vendelinus at sunset represent a timeframe of 115 years.

During this period, without question immeasurably short in terms of the life of the solar system, the Moon has remained an ever present changeless face watching over an ever changing world below. The prospect of Real physical changes can be discounted, however the perception of our ‘sister planet’ during this period has changed irreversibly. When T.G.E.Elger ventured to his telescope on the night of 1892 November 6th, the Moon which peered back at him through the ocular was still one of infinite possibilities. Its surface insufficiently mapped to avoid any suggestions of possible changes, it was a body constantly under scrutiny by amateurs across the globe whose work submitted to fledgling BAA Lunar Section under the directorship of Elger, began to compile an archive comprising detailed drawings of every facet of the lunar surface. Yet as Vendelinus glided into the field of view of my small telescope on 2007 February 4th my Moon was a wholly different one to Elger’s. My Moon now carried with it human footprints impressed into its surface, a surface now mapped in unprecedented detail, the mechanisms which have shaped its surface understood and even its surface rocks analyzed in detail in laboratories back here on Earth.

It is clear from the two drawings our general eyepiece impressions, irrespective of the intervening time frame, remain the same, yet we might also ask what of the world around us, our respective ‘Earth’s’ and of our neighbours who sleep while we journey to the Moon by telescope. Elger’s world was one of rapid change, the height of the Victorian age, unstoppable industrialisation when fortunes were made and traditional working practices were sidelined in favour of opportunity. A world of Empires and servants before the horrors of two world wars inflicted irreversible change on our planet and its people. The world in which I carry out my daily life is also ever changing; we are living through a technological boom time, comparable with the industrial revolution in terms of its effect on the population and working practices. Knowledge is available to everyone with the means to exploit current systems. Borders are being broken down, while others are being constructed, nothing remains the same, buildings torn down, transport links constructed all in the name of progress. I wondered what Elger made of the changes taking place in his life time, and wondered how the world we are busily creating will be viewed by future generations of amateur astronomers as they brave the cold night air to spend an evening under the stars.

The past can often be obscured by our involvement in the present, an appreciation of the true worth of history difficult to attain when we are caught up in the rigors of everyday life, however the quiet solitude of a night at the eyepiece can often bring benefits beyond the obvious. Whilst I found it difficult to reconcile my earthly world with that which would have been known to Elger, and doubted if either of us would be comfortable with life in each others time, however it is an inescapable fact while observing the Moon that we record its surface features exactly as Elger did. It is therefore possible by spending time at the eyepiece to make a tangible connection with the past, a ‘meeting’ of two people sharing a common interest, yet separated by a void representing the passage of time which in real terms is impossible to bridge.

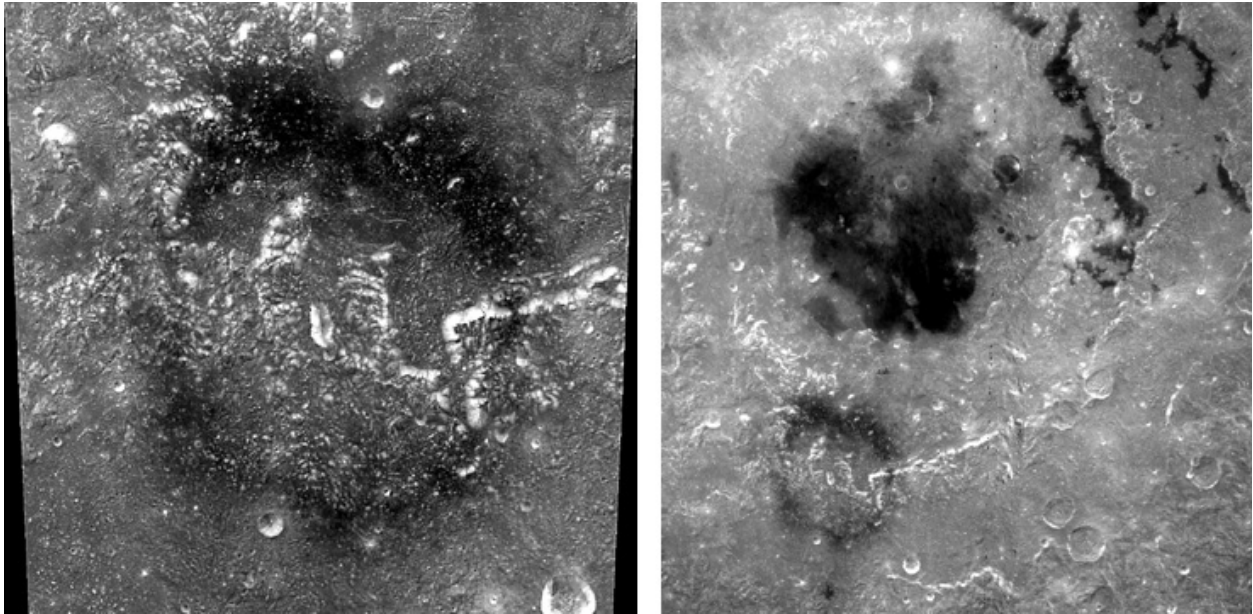
Drawing details:

T.G.E.Elger; In his own words the drawing was made “under good conditions, with a power of 284 on an 8.5 inch Calver reflector between 10h and 11h on November 6th 1892” – from B.A.A. Lunar Section Memoir Vol II part 2 ‘Second report of the section for the observation of the Moon’ 1891-93.

N.Longshaw; Drawing made under average seeing conditions (Ant. III) with a power of x97 on a William Optics 66mm Apo refractor between 22.10 and 22.40 (U.T.) on 2007 February 4th.

ASH RING: Southern Mare Orientale

By Howard Eskildsen - Ocala, Florida, USA



Figures 1 & 2 - NASA Clementine

The dark circle draped over the Rook Range on the southern edge of Mare Orientale has me quite puzzled. I first noticed it after the October 18 LPOD featuring a Zond 8 photo of Mare Orientale, and I have been thinking about it ever since. I had initially visualized the oblong crater in the center as a very low angle impact, maybe a degree or two, that somehow ejected dark underlying material (a very tenuous hypothesis), but in the article it was pointed out that it is actually a volcanic formation. It certainly seems like the central crater ought to be the source of the ring, but I have a hard time imagining how either an ash eruption or an impact could spew forth a distinct ring instead of a large oval filled with dark material. It seems isolated from other obvious volcanic formations in the area, such as the mare lava at the foot of the Rook Range that the ring partially covers. Perhaps the oblong crater is actually a line of vents, rather than a single crater, but it seems strange for it to be located in a mountainous basin ring. Note copies of Clementine photos (Figures 1 & 2) showing the area around Mare Orientale.

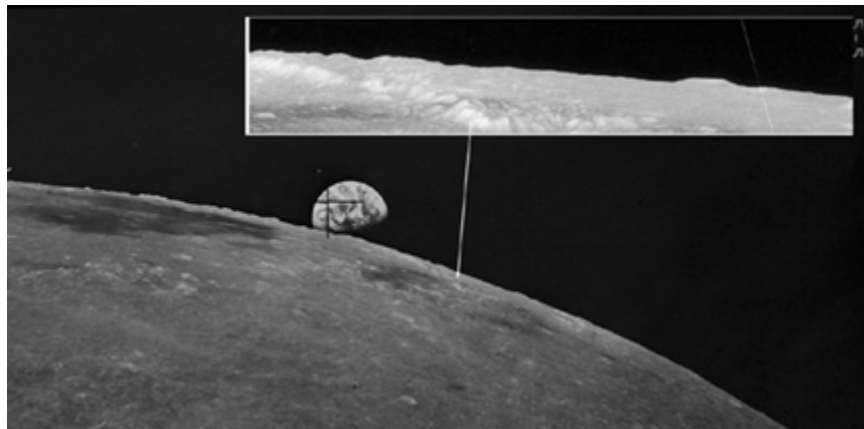


Figure 3 - Zond 8 Image

The only mountain ridge that I could positively identify on the Zond 8 image (Figure 3) was the bluff in the eastern side of the ash circle and the associated ridge. Finally, I believe that I actually photographed the most prominent part of the ash ring during past favorable librations of Mare Orientale (Figure 4). When the next favorable libration occurs, I hope to get more and better photos of this fascinating area.



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)

LUNAR TOPOGRAPHICAL STUDIES

Coordinator - William M. Dembowski, FRAS

dembowski@zone-vx.com

OBSERVATIONS RECEIVED

MICHAEL AMATO - WEST HAVEN, CONNECTICUT, USA

Ray maps of Kepler, Aristarcus, Messier

Drawing of lunar eclipse

WAYNE BAILEY - SEWELL, NEW JERSEY, USA

Digital images of Plato (5)

MICHAEL BOSCHAT - HALIFAX, NOVA SCOTIA, CANADA

Digital images of lunar eclipse (3)

MAURICE COLLINS - PALMERSTON NORTH, NEW ZEALAND

Numerous written observations from February 24 through March 11

Digital images of Mare Imbrium (6), NE Quadrant, SE Quadrant

Drawing of Plato

ED CRANDALL - WINSTON-SALEM, NORTH CAROLINA, USA

Digital images of Rosse, Messier Ray, Proclus Ray, Plato (3)

HOWARD ESKILDSEN - OCALA, FLORIDA, USA

Banded Crater Reports of Aristarchus (2), Silberschlag, Aristillus (2), Burg (5)

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

Report of lunar eclipse including drawing and crater timings

PAULO LAZZAROTTI - MASSA, ITALY

Digital images of Theophilus & Cyrillus, Posidonius, Agrippa to Albatagnius, Walter & Werner & Aliacensis, Stofler & Maurolycus, Lacus Regions of the Apenninus, Bullialdus & Kies, Reinhold & Gambart, Archimedes & Autolycus & Aristillus, South Polar Region

GUIDO SANTACANA - SAN JUAN, PUERTO RICO

Digital images of Clavius, Copernicus

RECENT TOPOGRAPHICAL OBSERVATIONS



ARISTOTELES & EUDOXUS TO HERCULES & ATLAS

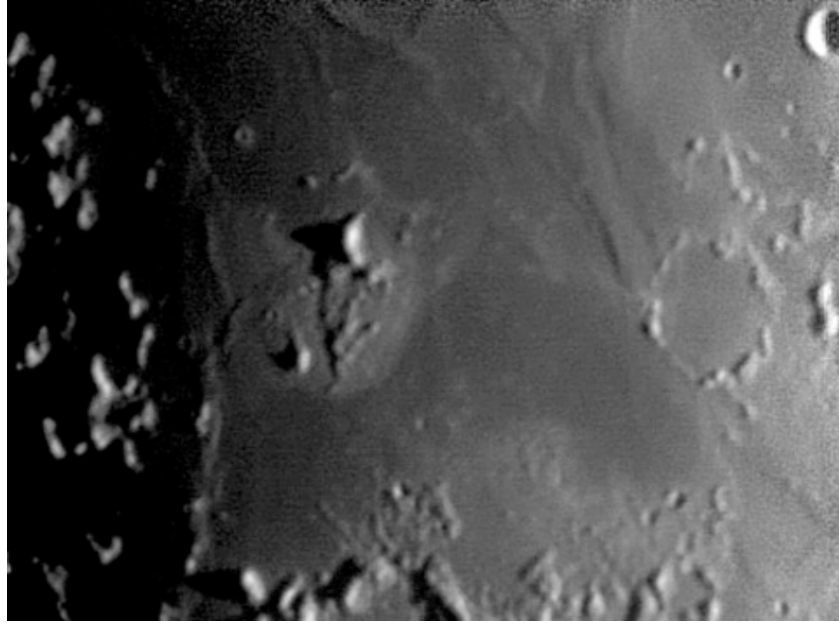
Digital image by Wayne Bailey - Newell, New Jersey, USA
December 28, 2006 - 00:44 UT - Colong: 122.1 - Seeing 4/10 - Trans 5/6
Celestron C-11 f/10 SCT - Lumenera Skynyx 2-1M - Schuler IR72 filter



MARE IMBRIUM

Digital image by Maurice Collins - Palmerston North, New Zealand
March 10, 2007 - 18:25 UT
Meade ETX-90 - 9mm EP - 2MP Oregon Scientific digital camera, afocal

RECENT TOPOGRAPHICAL OBSERVATIONS

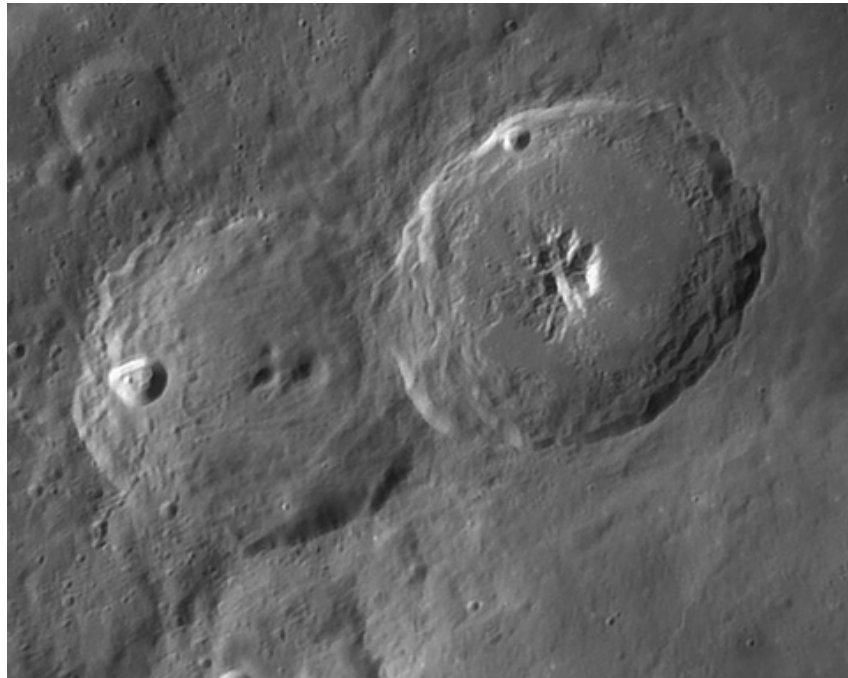


THE HELMET & LUBINIEZKY-A

Digital image by Howard Eskildsen - Ocala, Florida, USA

January 29, 2007 - 02:19 UT - Seeing 8, Trans 5

Meade 6 inch f/8 Refractor - 5x Barlow - IR Block filter - Neximage camera



THEOPHILUS & CYRILLUS

Digital image by Paolo Lazzarotti - Scansano (GR), Italy

December 27, 2006 - 18:59 UT - Seeing 5-6/10 - Trans 4/5

Gladius CF-315 Lazzarotti Opt. scope - Lumenera Infinity 2-1M camera

0.12 arcsec/pixel image scale - 100/2000 frames - 50msec. exposure

RECENT TOPOGRAPHICAL OBSERVATION



CLAVIUS

Digital image by Guido Santacana - San Juan, Puerto Rico
January 27, 2007 - 00:58 UT - Seeing 6/10 - Trans 4.5
Orion 150mm Mak - 2x Balow - Stack of 400 images with Registax

BRIGHT LUNAR RAYS PROJECT

Coordinator - William M. Dembowski, FRAS

RECENT RAY OBSERVATION



PROCLUS

Digital image by
Ed Crandall
Winston-Salem, NC, USA
February 23, 2007 - 23:49 UT
Seeing 3-4/10 - Trans 4/6

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

BANDED CRATERS PROGRAM

Coordinator: William M. Dembowski, FRAS

dembowski@zone-vx.com

Howard Eskildsen has designed a generic template for Banded Crater observations and has been using it for his submissions to the Program (See below). Anyone wishing to have a copy of the template should contact the Coordinator at the email address above. The template is in PSD format and can be used by anyone having either Photoshop or Photoshop Elements. Unfortunately, my ISP does not accept PSD formatted documents so a sample of the template cannot be furnished here. The completed observing report should be converted to JPG format before submission.

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

Crater Observed: Conon

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: NexImage, 5X TeleXtender Filters: IR Block Filter

Seeing: 8/10 Transparency: 5/6

Date (UT): 2007/01/29 Time (UT): 02:06

Colongitude: 35.3

Position of crater: Selen. Long. Selen. Lat.
2.0° East 21.6° North

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

Image (north up):

Comments:



LUNAR TRANSIENT PHENOMENA

Coordinator – Dr. Anthony Cook – acc@cs.nott.ac.uk

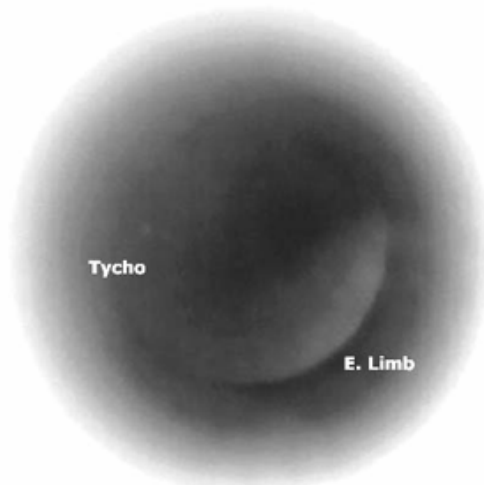
Assistant Coordinator – David O. Darling - DOD121252@aol.com

LTP NEWSLETTER - APRIL 2007

Dr. Anthony Cook - Coordinator

Observations were received from the following observers for February: Jay Albert (FL, USA), Marie Cook (Mundesley, UK), myself (University of Nottingham, UK), and Maurice Collins (New Zealand). No LTP were reported for February.

I am afraid that this month's article will be short due to pressure of teaching material I have to give to students and an impending LPSC conference in Houston in the coming week, I did though manage to get some observations of the 2007 Mar 3-4 total lunar eclipse and present a thermal IR image of the Moon below:



Probably you will not be very impressed by this rather blurry image taken on 2007 Mar 03 UT at 22:25. It was taken with an Indigo Omega (sometimes known as a ThermoVision™ A10) camera operating at 8-13.5 microns in wavelength. White is hot and dark is cool – the camera can in theory measure temperature differences as small as 0.1C, but in the unconventional way that I used it, the precise sensitivity is probably much poorer. The image size was only 160x128 pixels and the camera had a fixed focus lens that I could not remove. Such cameras cannot see through ordinary glass so I had to improvise and use a spare Germanium lens as an eyepiece and do eyepiece projection on a 8” Newtonian reflector. The set up far from ideal – the telescope mirror was aluminum coated instead of the more traditional gold coating that one finds on professional scopes, and I had heat radiating off the telescope tube and the sides of the draw tube – hence why the image has the white border around it. Furthermore I had to turn the automated calibration and flat fielding off once the Moon was well into the eclipse as the heat from the Moon was fading fast and the telescope heat started to dominate. Anyway despite this I was able to detect the radiated heat from the Moon falling away fast once the penumbra, and umbra started to cover. What was really fascinating for me was how Tycho sits there glowing hot, eventually becoming the hottest remaining object on the Moon – you can see it as a white blob just up from the “o” in “Tycho” above. This has been known about since the 1960’s when professional

astronomers started imaging the Moon in the thermal IR and is due to the thermal properties of the rocky boulder like debris around Tycho. Other craters were also slightly visible later such as Copernicus and Kepler. But Tycho was definitely the star of the eclipse at thermal IR wavelengths – I guess if future astronauts want to warm their feet just after sunset, then this would be the place to head for on the Moon! When I get some free time for analysis I will see if I can pull something more useful out in terms of science from the thermal video collected i.e. lunar temperature drops – or if anybody with some image processing and/or thermal vision background would like to do this themselves then I can send you the 2 DVD's of video to process.

Predictions, including the more numerous illumination only events can be found on the following web site: <http://www.lpl.arizona.edu/~rhill/alpo/lunarstuff/ltp.html>. 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!

Dr Anthony Cook, School of Computer Science & IT, Nottingham University, Jubilee Campus, Wollaton Road, Nottingham, NG6 1BB, UNITED KINGDOM. Email: acc@cs.nott.ac.uk

THE MOON IN THE NEWS

(ESA) Crater Plaskett as possible site of Moon base:

http://www.esa.int/esaSC/SEMEYGN0LYE_index_0.html

(ASTRO-BIOLOGY MAGAZINE) Problems with lunar dust:

<http://www.astrobio.net/news/modules.php?op=modload&name=News&file=article&sid=2281&mode=thread&order=0&thold=0>

(BBC) Beagle 2 could go to the Moon:

<http://news.bbc.co.uk/1/hi/sci/tech/6459581.stm>

(ESA) SMART-1 Views edge of Luna Incognita:

http://www.esa.int/SPECIALS/SMART-1/SEMEYGN0LYE_0.html

(ESA) SMART-1 Bridge to future exploration of the Moon:

http://www.esa.int/SPECIALS/SMART-1/SEMEZ2N0LYE_0.html

(MoonToday) NASA Seeks to readjust lunar robotic program:

<http://www.moontoday.net/news/viewnews.html?id=1199>