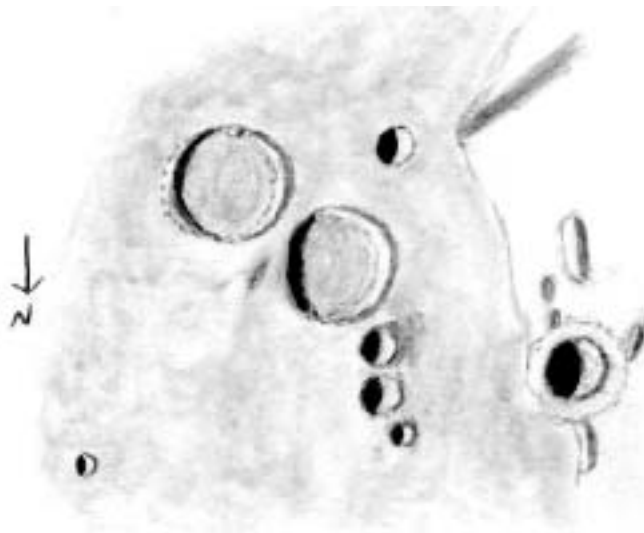


THE LUNAR OBSERVER

A PUBLICATION OF THE LUNAR SECTION OF
THE ASSOCIATION OF LUNAR AND PLANETARY OBSERVERS
EDITED BY: William M. Dembowski, F.R.A.S. - Elton Moonshine Observatory
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FEATURE OF THE MONTH - JUNE 2004



SABINE, RITTER, SCHMIDT, DIONYSIUS

December 31, 2003 – 1:18 to 1:40 UT
15 cm Newtonian – 116x – Seeing 5/10

I observed this area in southwest Mare Tranquillitatis on the evening of Dec. 30/31, 2003 after timing the occultation of a faint star. The seeing wasn't too good and I used a lower magnification than usual, but this is a varied group of craters so I decided that they were worth a sketch. Sabine and Ritter are the two largest craters in the area. Sabine is very symmetrical and regular except for a small peak on its south rim, while Ritter has a slightly flattened east rim and more interior shadow. Sabine also shows a raised rim more than Ritter. Ritter C and B are fair-sized craters northwest of Ritter, while Ritter D is smaller and to the northwest of Ritter B. Sabine and Ritter have the same tint as Mare Tranquillitatis, and Ritter C, B, and D probably do also.

The crisp crater south of Ritter is Schmidt. This crater has a relatively bright interior. The smaller crater northeast of Ritter is Arago B, according to the Lunar Quadrant Map; its interior also seemed relatively bright. The edge of Mare Tranquillitatis is fairly well defined west of Schmidt and Ritter. The large, crisp crater just within the highlands is Dionysius. This crater has a very bright interior, and also has a halo. It is bright at full moon, and is a good target for lunar eclipse crater timings. I did note several hills near Dionysius, but more detail may have been seen if the air had been steadier. Probably for that reason, I did not see any of the rilles that the map shows in that area.

LUNAR TOPOGRAPHICAL STUDIES

Acting Assistant Coordinator – William Dembowski, FRAS

Dembowski@zone-vx.com

OBSERVATIONS RECEIVED

MICHAEL AMATO - WEST HAVEN, CONNECTICUT, USA
Ray Maps of Proclus (2), Messier, Menelaus, Kepler, Aristarchus

STEVE BOINT – SIOUX FALLS, SOUTH DAKOTA, USA
Measurements of the vertical displacements of Arzachel central peak (6), Ptolemaeus east rim (2), Alphonsus east rim, Alphonsus central peak.

DANIEL DEL VALLE - AGUADILLA, PUERTO RICO
Sketches of Langrenus, Maskelyne, Alfraganus, Almanon, Arzachel, Timocharis, Cichus, Billy & Mons Hansteen, Mons Rumker

WILLIAM ELSBURY – MASON CITY, IOWA, USA
Digital images of Lamont, Bessel, Menelaus, Burg, Rosse, Rheita Valley, Hyginus Rille, Menelaus, Proclus, Madler, Arzachel, Alphonsus

HOWARD ESKILDSEN – OCALA, FLORIDA, USA
Digital images of Northeast Quadrant, Lacus Mortis & environs, Sacrobosec, Maurolycus, Taurus Littrow & environs

K. C. PAU – HONG KONG, CHINA
Digital images of Hypatia, Romer, Altai Scarp, Theophilus, Rheita Valley, Riccius, Aristarchus, Prinz, Rimae Mersenius, Rima Marius

RODRIGO VIEGAS – MONTEVIDEO, URUGUAY
Sketches of Moretus, Otto Struve & Eddington, Petavius, Piccolomini, Posidonius

ROBERT WLODARCZYK – CZESTOCHOWA, POLAND
Sketches of Mercator & Campanus, Region from Lubiniezky to Kies

Observations submitted should include the following:

Name and location of observer

Name of feature

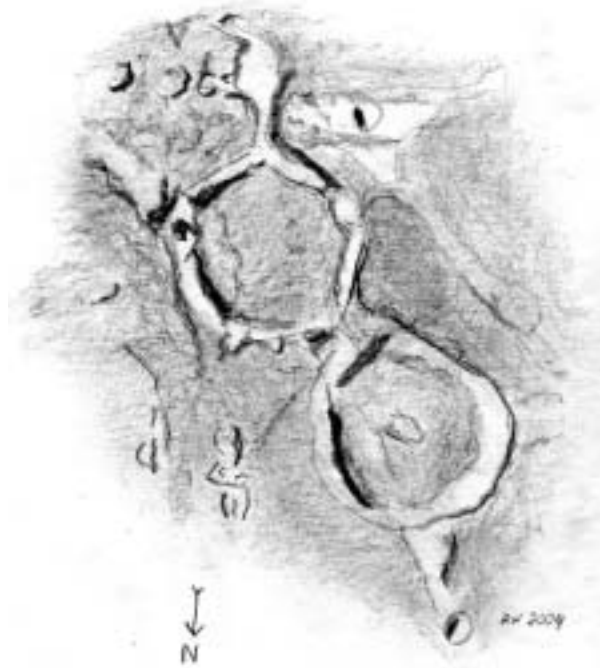
Date and time (UT) of observation

Size and type of telescope used

Magnification (for sketches)

Medium employed (for photos and electronic images)

RECENT OBSERVATIONS

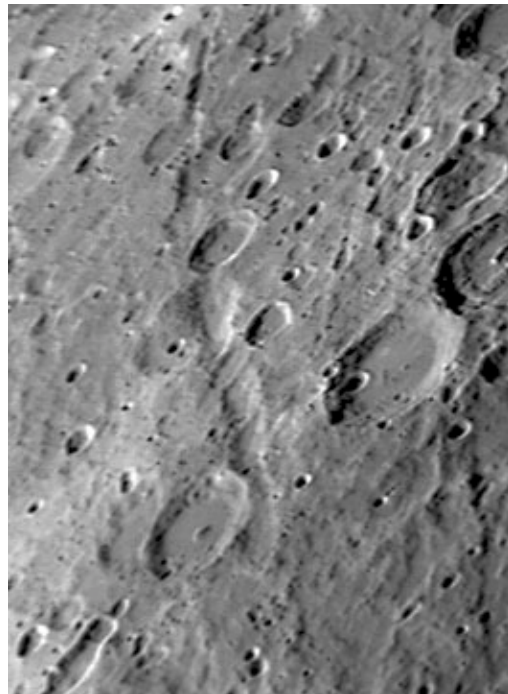


MERCATOR & CAMPANUS

Sketch by Robert Włodarczyk – Czestoshowa, Poland

April 30, 2004 – 24:30 UT

15cm f/6 Newtonian – 150x – Seeing III (Ant.)



VALLIS RHEITA

Digital image by K.C. Pau – Hong Kong, China

February 26, 2004 – 12:13 UT – Colong. 339 – Seeing 4/10

10 inch f/6 Newtonian – 2.5 Barlow – Philips Toucam Pro – 108 frames stacked

RECENT OBSERVATIONS



BILLY & MONS HANSTEEN

Digital image by Daniel del Valle – Aguadilla, Puerto Rico

May 1-2, 2004 – 23:19 to 00:25 UT

120mm Refractor – 222x – Orion V-Block filter – Seeing 8/10



SACROBOSCO

Digital image by Howard Eskildsen – Ocala, Florida, USA

March 28, 2004 – 00:55 UT

**10 inch f/16 Refractor (owned by Jose Olivarez) – 2x Barlow
Afocal w/40mm MaxView - Nikon Coolpix 4300**

INTERNATIONAL BRIGHT LUNAR RAYS PROJECT

EXCERPT OF THE MONTH:

Observing the Moon: The modern astronomer's Guide
Gerald North – Cambridge University Press, 2000

“The ray systems associated with craters had long puzzled selenographers and a wide range of theories were 'cooked up' to explain them. We now know that they were generated by the impact explosion that created each parent crater. The rays are composed of a very fine sprinkling of pulverised ejecta (mainly glassy beads) spattered ballistically across the Moon. In the space of a few hundred million years the rays fade away because of the effect of solar-wind bombardment, micrometeorite impacts and, particularly, the 'gardening' (churning) of the topsoil that results from micrometeorites and the diurnal thermal stresses.

The obvious rarity of large craters with ray systems lends support to the idea that no large meteorites have struck the Moon for a very long time. In fact, with the possible exception of the crater Giordano Bruno, Tycho is reckoned to be the youngest large crater on the Moon. One of the rays from Tycho passes across the *Apollo 17* landing site. It was from the samples brought back that the nature of the rays was finally settled. Also the impact that created Tycho was determined as having happened about 100 million years ago.”

COORDINATOR - It is well known that the crater Clavius is not the center of a ray system. It does, however, lie close enough to Tycho that several of that crater's rays cross its floor. A very popular crater with lunar imagers, Clavius is not usually photographed under lighting conditions which show these rays well. I would like to see more coverage of the floor of Clavius that show the rays which cross it.



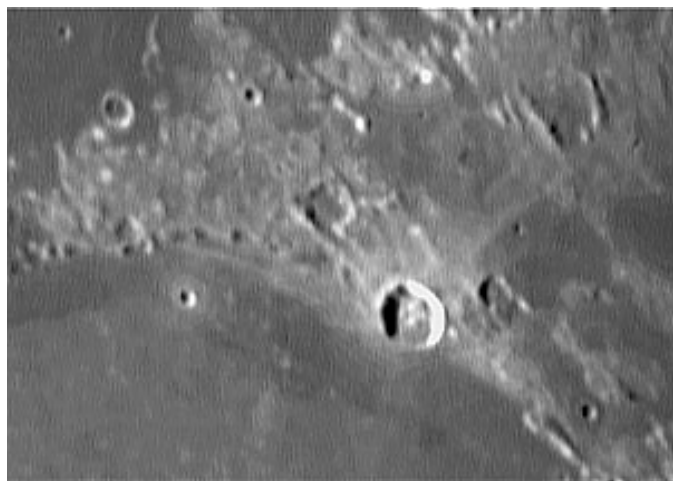
TYCHO RAYS CROSSING CLAVIUS

Digital Image by Jack Kramer – Lily Lake, Illinois, USA
April 2, 2004 – 20:40 pm CST – 6 inch Refractor

RECENT RAY OBSERVATIONS



PLACEMENT OF TYCHO RAYS AT KIES & KONIG
Sketch by Robert Wlodarczyk – Czestoshowa, Poland
April 30, 2004 – 21:00 UT
12cm f/6 Newtonian – 112x – Seeing III (Ant.)



MENELAUS

Digital image by William Elsbury – Mason City, Iowa, USA
April 28, 2004 – 01:40 UT
12.5 inch Cassegrain – Philips 740 PC Camera

TRANSIENT LUNAR PHENOMENA

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

Assistant Coordinator – David O. Darling – DOD121252@AOL.COM

BAA/ALPO TRANSIENT LUNAR PHENOMENA NEWSLETTER by David Darling

I am writing this month's report as Tony Cook is still busy marking his student exams and coursework. For April observations received were from: Jay Albert (USA), Clive Brook (Plymouth, UK), Tony Cook (Nottingham, UK), Marie Cook (Mundesley, UK), David Darling (Sun Praire, USA), Robin Gray (Winnemucca, USA), Antonio Marinio (Italy), Gerald North (Norfolk, UK), Brendan Shaw (UK), and Daniel del Valle (Puerto Rico). Preliminary May 04 lunar eclipse reports/images have been received from UK observers: Marie Cook and Tony Cook, Maurice Gavin, and Martin Mobberley - cloud was a big problem for most of the UK.

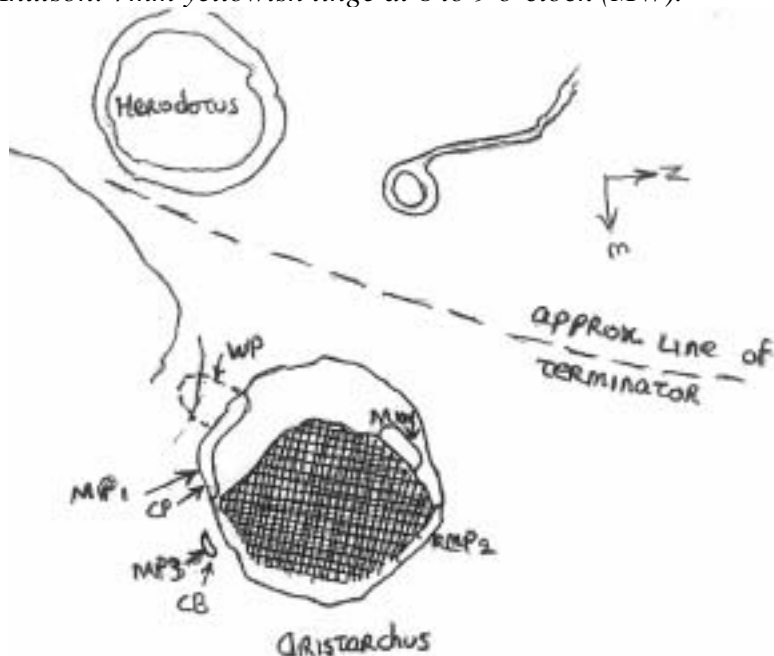
The latest news from the Smart 1 mission is that it is still on track to the Moon, achieving its 278th Earth orbit and is in good health. When it achieves lunar orbit we will commence ground based observations of the selected lunar transient phenomena sites. The launch took place on 2003 Sep 27 and it takes 15 to 17 months before it achieves lunar orbit. I have made contact with the principle investigator Dr. Giuseppe D. Racca and he very excited about having us collaborate with their mission. Concerning the Japanese Lunar-A mission, I have also contacted Prof. Hitoshi Mizutani the Lunar A project manager and he said that he very interested in my proposal and fully agrees that the opportunity to add to our knowledge about the Moon should be used to its fullest extent. Lunar A will be placing two penetrators into the lunar surface, one for the near side and one for the far side, however the orbiting bus will also carry a camera for surface imaging. The probes will be monitoring the lunar seismic activity and heat flow probe. The craft was due for launch in Aug/Sep but is being delayed for redesign following technical problems with the projectiles on a 300m drop test. Hopefully this problem will be corrected soon so the mission can get off the ground. In the latest news "The Space Review" has announced a new upcoming NASA mission: Lunar Reconnaissance Orbiter (LRO), scheduled for launch in late 2008. The primary goal is to map the Moon's usable resources at 1m resolution. This will help develop the technologies needed for in-situ resources utilization (ISRU). The need for this kind of mission is that relatively little is known about the potential minerals except for the sites where the Apollo spacecraft have landed. The most important resource that would be sought is ice in permanently shadowed craters near the poles.

As we have not had a very distinctive TLP report for some time now, I thought that it would be interesting to recap on an event that really stood out from most of the other TLP reports. This event took place on 15 July 1989 UTC 21:00-22:00 and was observed from three geographical locations, and by 11 different observers. This particular observation proved that the color effects reported on the Moon are not always atmospheric related and that not all observers have the same color perception. Observers who participated were: Robert Manske, David Weier, Keith Curtis, Joe Keyes, LeRoy Yanna, Eric Norman, Gene Knutson, Jerry Sullivan, Tom Eichman, and Craig Radi who all observed through the SCT C11 located at the Carl Fosmark Jr. Memorial Observatory.

The story begins when Robert Manske of the Madison Area Astronomical Society observed a pinkish tinge to the rim of Aristarchus. The following is his report: *"I was the first one to observe a pinkish tinge to the rim of Aristarchus in the area marked MP1 in the accompanying sketch. I was using the 8mm Clave. I called for Dave Weier to observe, and we then called others who were present. The pinkish color was made much more pronounced when we began to use the 7mm Nagler. The accompanying sketch combines the observation of myself, Weier, and Keith Curtis. MP1, MP2, and MP3 represent areas where I saw a pinkish color. The M prefix indicates Manske, the P represents pink,*

the numeric suffixes indicates relative brightness with area MP1 being the brightest. Regions MP1 and MP2 appeared to extend along the top of the ring wall. Region MP3 existed on the outside of the ring wall. I also saw an area MW, white in color, on the inside of the ring wall. The arrow from CP points to the region where Keith Curtis saw perhaps a hint of pink. It seems to be identical to the eastern most tip of region MP1. CB points to an area which Curtis thought was greenish-blue! It seems to be identical to the region MP3, the region which I thought was the weakest shade of pink. WP points to an area which Weier thought was slightly pinkish. This area is clearly on the outside of the ring wall and seems to extend beyond the ejecta blanket. The approximate location of the terminator is drawn in. This is from memory, so it is not particularly accurate. It is meant to display the fact that sunrise has just occurred for Aristarchus and not yet for Herodotus or the Cobra Head. The drawing was developed from the original sketches made by myself and Keith Curtis at the C-11 using the 7mm Nagler.

I will now report on other observers and their comments. This part of the report is developed from notes taken at the scene by David Weier. The orientation generally had Herodotus roughly by the 11 and 12 o'clock position. Due to the right-angle on the C-11, the region MP3 was at about the three o'clock position. Most observers got a chance to observe with both the 7mm and 8mm lenses. The 8mm was used from 0200 until about 0230 at which time the 7mm was put in. The parentheses suggest identifications with areas on the sketch. Jerry Sullivan: 7mm: Two white spots, one at 9 o'clock (perhaps MW), the other at 1 o'clock (MP1?). 8mm: yellowish, perhaps borderline pink region at 3 o'clock (MP3?). Tom Eichman: 8mm: nothing outstanding. 7mm: a bright area at 1 o'clock, no color (MP1?) Joe Keyes: 8mm: nothing outstanding. 7mm: slight color along the rim. He did not note where on the rim. LeRoy Yanna: 8mm: pink on bottom at 2 o'clock (near MP1 but apparently further down the inside of the ring wall). Pink on the ridge at 2 to 3 o'clock (in the area of MP1 and MP3). Eric Norman: 7mm nothing outstanding. Eric was at the eyepiece for only a few seconds. Craig Radi: 7mm nothing outstanding. Gene Knutson: 7mm yellowish tinge at 8 to 9 o'clock (MW)."



At about 03:00UTC thickening clouds precluded further observations and so David Darling (Sun Prairie, WI, USA) of the ALPO TLP Network was alerted. David had not gone with the observing group since at the time he was waiting for daughter #4 to be born and did not dare travel. The sky at Sun Parire was cloudy so telephone calls were made to individuals on the ALPO TLP network. Here are the reports received: Mr. Spain (Fairdale, KY, USA) was using a 90mm Maksutov at 30X & 60X. Observed 03:59-04:15 UTC: "I received a call from David Darling at about 03:30 UT about the possibility of a TLP event at, or near, Aristarchus. He said it was a color TLP but that was all he knew as he had received the report from a member of the TLP network and he, David, was clouded out. I quickly set up my scope and observed the Aristarchus area. There "appeared" to be a pinkish or light red "glow" along the

western wall, not unlike the color fringe from a poorly corrected refractor, except there was no corresponding blue fringe. I checked other bright areas, Tycho, Jura Mts., and Schiller, but none showed any sign of color. This would seem to indicate that a true TLP was occurring. The only problem I have with the observation is the terrible seeing and cloud conditions. Still I will give the event an 80% probability of being a true TLP. Since I have no idea of what the other network member(s) saw a close comparison should confirm or deny my observation. Personal note: The observing conditions were sort of like a poor Hollywood horror movie. Streamers of dark clouds drifted in front of the moon through out the observation giving a rather eerie effect.” Mr. Smith (Los Angeles) was using an 8 inch Newtonian Reflector at 370X. Observed at 4:20 UTC.: “I saw orange or reddish orange on southern rim or crater, my two friends saw pink. The phenomena was easily visible but averted vision seemed to help. Color fringe observed by friend around other bright areas at same time. Confirmed by me, but not as obvious as around Aristarchus. Rising sun illuminating west wall, but crater’s shape very distinct. From similar phenomena observed around Jupiter at low altitude, would guess atmospheric refraction as cause.”

This TLP report is in my opinion, a five star event. Between the three reports 11 people looked through a telescope and not every individual saw the same thing. Several important things are shown with this observation. The first factor being that the changing of the eyepiece from an 8mm Clave to a 7mm Nagler, this made considerable difference in their ability to resolve the color on the formation. The second factor is that not all the observers at the observatory with Robert Manske could see the color effect, or they saw it as a different color. It is an important factor that individuals are unique in their color perception and not every one see color the same. The third factor is the great distance between the three observing sites. The distance between southern Wisconsin and Louisville, KY is 464 miles. Between Southern Wisconsin and Los Angeles, CA it is about 2000 miles. We have 2000 miles distance between Louisville, KY and Los Angeles. Such a great separation distance eliminates the possibility of it being an atmospheric effect. The fact that I had very little information provided to me when I activated the alert prevented me from biasing the observers on what to expect. They all peg the location on the southwest rim of the crater independently from each other. The most important thing that is shown by this observation is how important it is to establish and observing network so that confirmations can be conducted. This could have been an observation that did not carry the weight it does and could be easily dismissed as atmospheric or poor collimation of the telescope. This was even expressed by one of the observers as a possible cause. But the fact that so many observers were able to see the same phenomena gives credibility to this effect being real and on the lunar surface.

Few repeat illumination and libration events occur for June, so please observe any that you can:

Event: 66E, 44S (Unknown observer, 1920 Nov 23) can be seen on/from (UTC): 2004 Jun 01 Italy (00:47-01:45) [*look for bright spots or rays in this area at low magnification*]

Event: Aristarchus (Bartlett, 1964 Jul 23) can be seen on/from (UTC): 2004 Jun 01/02 Atlanta, DC, New York, Pittsburgh (01:00-01:08); Germany (21:13-21:59); Puerto Rico (23:00-01:08); UK (21:13-23:31) [*check colour and texture of floor*]

Event: Aristarchus (Bartlett, 1959 Mar 24) can be seen on/from (UTC): 2004 Jun 02 New Zealand (13:34-16:52) [*look for colour on E.rim and changes in blue/violet cast of the crater*]

Event: Aristarchus (Moore, 1969 Jul 01) can be seen on/from (UTC): 2004 Jun 04 LA, Winnemucca (05:35-08:04); Phoenix (05:57-06:35) [*check for colour on SE wall and signs of blurring around the crater*]

Event: Aristarchus (Bartlett, 1955 Jan 12) can be seen on/from (UTC): 2004 Jun 06 New Zealand (09:55-12:00) [*look for blue-violet glare on E. rim of crater*]

Event: East of Piccard (Noble, 1878 Mar 10) can be seen on/from (UTC): 2004 Jun 24 New Zealand (09:30-08:59) [*look for a defined white patch*]

Event: Censorinus (Nicolini, 1969 May 24) can be seen on/from (UTC): 2004 Jun 26 Atlanta, DC, New York, Pittsburgh (01:00-04:51); Houston, Madison (02:00-04:59); LA, Winnemucca (04:00-04:59); Las Cruces, Phoenix (03:00-04:59) [*compare brightness with Proclus over time*]

Event: Clavius (Cook, 1915 Apr 23) can be seen on/from (UTC): 2004 Jun 26 UK (23:09-23:53) [*look for a narrow straight beam of light from crater A to B*]

Further 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 TLP 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 TLP, please call on Tony Cook's mobile: +44 (0)798 505 5681 and he 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!

David Darling, 416 Wilson Street, Sun Prairie, Wisconsin, 53590-2114. UNITED STATES OF AMERICA. Email: DOD121252@AOL.COM

CALL FOR LUNAR OBSERVERS

Assistant L.T.P. Coordinator – David O. Darling – DOD121252@AOL.COM

I am sending this invitation for lunar observers to participate in a global effort to monitor the Moon for Lunar Transient Phenomena. Lunar Transient Phenomena is short lived changes detected on the Moon and can consist of glows, flashes, darkening of lunar features and red and blue color phenomena. My goal is to coordinate and combine the talents and efforts of the professional and amateur astronomical community from around the world to monitor the Moon during upcoming spacecraft missions to the Moon. This concerted effort will be to assist all observers who choose to participate with the latest information about lunar transient phenomena and the latest information on reported events. There will also be coordinated observing programs to examine the behavior of historical lunar transient phenomena sites under similar lighting conditions.

This L. T. P. Research web site will also be an effective tool for observers with similar interests to communicate with each other concerning their own study of these phenomena and to present ideas on other lunar topics by utilizing the Internet and email as a cost effective conduit.

The primary function though is to attempt to establish a world wide network of observers that can be contacted when a lunar transient phenomena event takes place. Due to cost involved the use of Internet can be extremely effective and allow almost immediate notification to observers all over the world. Also being part of this network will help people learn of other observers within their region who also share an interest in these phenomena.

I have had the pleasure of establishing and running two major ground based operations in coordination with the Clementine mission and the Lunar Prospector mission. With both of these programs I had about 150 observers in many different countries participate with great success. What I did not have was a WEB Site to allow more interaction with the observers and have the ability to post the latest information about recently observed phenomena. The information about these two missions is located on my web page under Past Ground Based Observing Programs.

It is generally expected that observers participating with this program would have a background in lunar observing. This is very helpful but should not discourage the newcomer to lunar observing. I have established a manual for frequently asked questions about how to observe and document lunar transient phenomena. Also there are many books on lunar observing that have been published that will assist the observer in a better understanding of this subject.

You are probably wondering what is this going to cost you. In the form of money, nothing. I require no dues or fees for your participation. I only require that you observe, document, and submit observations. The time commitment to the program is up to you. There are generally four levels of participation. The first level is to just monitor the Moon whenever out observing and if you detect something unusual you submit a report and if possible activate the lunar transient phenomena network to attempt to get a confirmation. The second level is to systematically observe selected features on the Moon monitoring them for any changes or abnormal appearance. The third level is to participate in coordinated observing sessions of a specific lunar feature, recording and documenting what is observed during that observing window and submitting your reports to be evaluated and analyzed. The fourth level would be to monitor the Moon during a space mission to the Moon. Presently there are no missions at the Moon. The Lunar Prospector was the last and the observations from that have been posted on my web page under Past Ground Based Observing Programs.

Future missions on the drawing table are the Smart 1 by the European Space Agency, planned arrival to the Moon in December 2004, and the Lunar A to be launched in 2004 or 2005 by the Japanese Space Agency. Both of these missions I have contacted the Principle Investigator and they have endorsed our participation by monitoring the Moon during their time in orbit around the Moon. The third mission called Lunarsat will happen in 2005 and is by the European Space Agency. The fourth mission on the table is again by the Japanese and is called Selene and expected to launch in 2004 or 2005. There is also a private company called Trans Orbital which is planning a Moon shot to conduct live video and high resolution imaging of the lunar surface, December 2004. This mission will only last for three months. Those who decide to participate with the program at what ever level you chose will be kept informed by monthly newsletters and updates being placed onto the LTPRESEARCH web site.

If you want to become a part of this international program click on the my web site and complete the registration form and join the great adventure.

Thank you for taking the time for reading this request and I hope to hear from you soon.

My Web Site is: <http://www.ltpresearch.org/> you then go to Observer Registration and complete the form.

Thank You,
David O. Darling

Association of Lunar & Planetary Observers & British Astronomical Association
Assistant Lunar Transient Phenomena Recorder