

THE BRITISH ASTRONOMICAL ASSOCIATION

# LUNAR SECTION CIRCULAR

Director Alan Wells  
Assistant Director/Editor John Pedler

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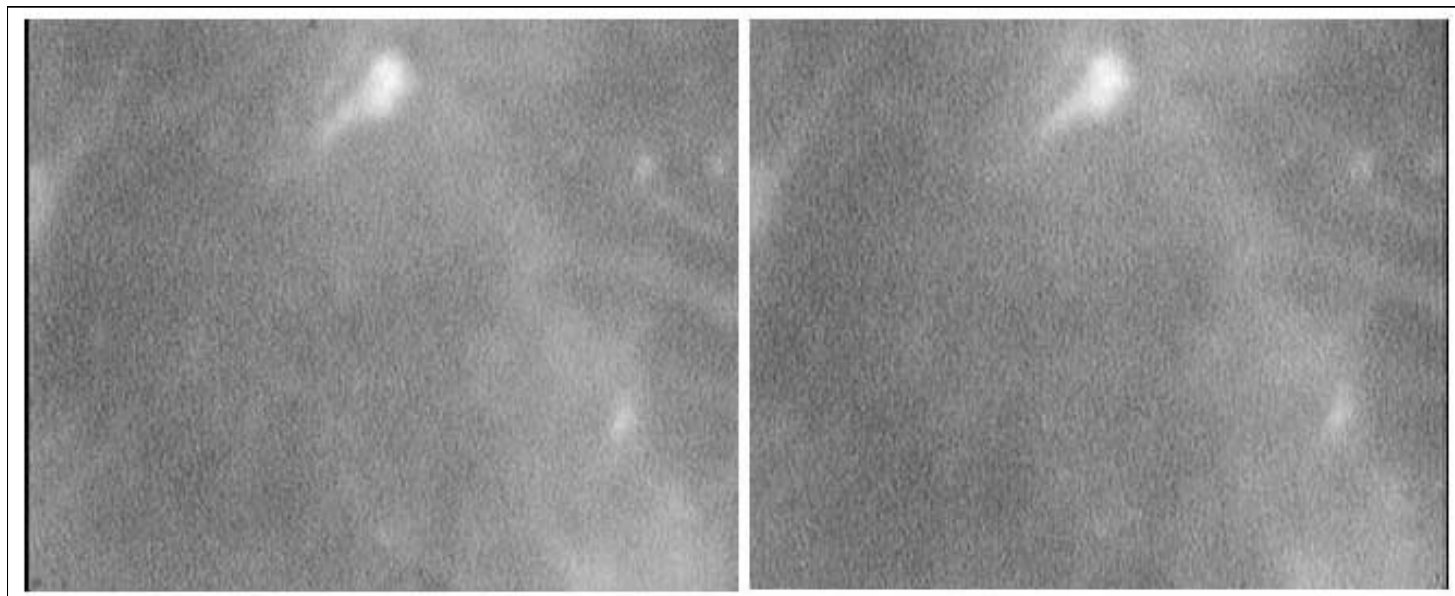
The Ephemeris and Libration details on the back two pages are for May 2008 Luration Nos 1054/1055

## **BAA/ALPO TRANSIENT LUNAR PHENOMENA**

**Tony Cook**

Observations for February 2008 were received from the following observers: Jay Albert (FL, USA), Herbie Bradley (Great Malvern, UK), Clive Brook (Plymouth, UK), myself (Newtown, UK), Marie Cook (Mundesley, UK), and Ken Hall (Warrington, UK). I would like to welcome Herbie and Ken to the TLP team.

I hope that at least some of you had better luck with the lunar eclipse than I did. Newtown, Powys in Wales, I am learning is infamous for it's cloudy weather and strong winds. Was anybody observing on the night of the eclipse at UT 03:20UT? It is at this time that George Varos (USA) recorded a flash in the eclipse shadow. If any of you videoed the eclipse, then please re-examine the recording around this time and look in the south of Oceanus Procellarum, area roughly between Grimaldi and Kepler. If anybody can confirm this then you should let Brian Cudnik [bmcudnik@pvamu.edu](mailto:bmcudnik@pvamu.edu) or myself know as this will be the first time that an impact flash has been seen during a lunar eclipse! On another interesting note was anyone observing west of the Mare Crisium area, near Proclus, on Feb 11 at UT19:21? A report I have received from Herbie Bradley, via Alan Wells, suggests that there might have been a TLP. I will let you have more details later.



During March I was able to try out the Radon emission line Moon Blink device for the first time. The episodic emission of Radon gas is currently the most popular explanation that you will find in refereed published papers that attempt to explain TLP. There were some teething problems with scattered light in my initial experiments, but these will be ironed out and I am sure that the image quality will improve. Below are 1/25<sup>th</sup> sec exposures in 860 nm (Radon) and 840 nm wavebands. Image quality was not good in such short exposures, and

one can see much more detail at the TV frame rate when viewing the recording or live on the monitor at the telescope. However the quality is sufficient to see how similar this region of the Moon was in both wavebands. Altogether five hours of moon blink observations were made using these filters, but unfortunately nothing was detected. I was hoping for a chance of detecting some spectral emission because the equipment is an order or two magnitude more colour sensitive, for detecting Radon emission lines, than the eye (although the eye would detect the deep red 745 nm line instead of the 860nm near IR line). However it is early days yet and I guess a few more tens of hours observing should be enough to prove or disprove the Radon gas theory as being a primary cause of colour TLPs seen from Earth. Optical TLP occur at a rate of one per tens to hundreds of hours of observing, so it is not unreasonable to expect the Radon Moon Blink device to detect more frequent, but fainter, minor emissions that the eye would miss.

Next month I will report the latest findings relevant to TLPs from the 39<sup>th</sup> Lunar and Planetary Science Conference (LPSC) in Houston (League City), Texas. Unfortunately the deadline for writing this article is just a before the conference starts.

Below is a list of repeat conditions for when a feature will exhibit the same illumination and libration as was seen for a historical TLP observation from the past. By re-observing and submitting your observations, we will get a clear understanding of what the feature ought to have looked like at the time. Only this way can we really fully analyze past TLP reports. I have also included some Earthshine observing sessions.

Event: Look for impact flashes in Earthshine: 2008 Apr 08 (19:31-20:18) - [*Lunar phase 10%*]

Event: Look for impact flashes in Earthshine: 2008 Apr 09 (19:33-21:36) - [*Lunar phase 18%*]

Event: Look for impact flashes in Earthshine: 2008 Apr 10 (19:34-22:43) - [*Lunar phase 29%*]

Event: Look for impact flashes in Earthshine: 2008 Apr 11 (19:36-23:28) - [*Lunar phase 40%*]

Event: Aristarchus (observed by Delano, 1967 Sep 17) can be seen on/from (UT): 2008 Apr 18 (19:07-19:44) – [*How bright is a rim top craterlet on the SW compared the the crater’s central peak? – Please check in red and blue light*]

Event: Aristarchus (observed by Moore, 1996 Aug 01) can be seen on/from (UT): 2008 Apr 19 (22:58-03:21) - [*Can you see red on the SW wall?*]

Event: Mare Crisium (observed by Moore, 1948 Jul 21) can be seen on/from (UT): 2008 Apr 21 (03:16-03:53) – [*What features can you detect in the Mare region apart from Peirce and Picard?*]

Event: Atlas (observed by Delmolte, 1954 Mar 23) can be seen on/from (UT): 2008 Apr 24 (00:41-00:59) - [*Any evidence for a violet tint inside the crater?*]

Event: Plato (observed by Corvan, 1966 Aug 06) can be seen on/from (UT): 2008 Apr 25 (01:40-02:44) - [*Monitor for red glows?*]

Further predictions, including the more numerous illumination only events 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 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 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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The only observable grazing occultation in April crosses the SW corner of RoI. Total occultation predictions are in last month's LSC.

**Predictions for 1°44'44.0"W 52°27'41.4"N Alt. 50m, (Birmingham) Tel diam 150mm – May 2008**

Day	Time-UT			Ph	Star No	Sp D	Max Mag V	% Snlt	Elon Alt	Sun Alt	Moon Alt	Az	CA °	PA °	WA °	a	b	Star's <u>apparent</u>					
	h	m	s															R.A.	Dec	o	m	s	
18/21	25	15	d	78368	K2	8.6	16+	47		20	287		64S	116	115	-0.2	-1.7	6	26	54.0	26	8	6
18/22	58	09	d	78451	G8	8.3	17+	48		8	303		53S	127	126	-0.6	-1.4	6	31	10.9	25	52	49
19/21	09	58	d	79426	dA0	8.4	25+	61	-11	30	271		69S	118	111	+0.1	-1.8	7	29	35.7	23	47	9
19/22	14	17	d	79471	F0	8.7	26+	61		20	283		83S	105	98	-0.1	-1.6	7	32	16.7	23	37	55

**DAYLIGHT OCCULTATION OF MARS:**

10/12	16	54	D	Mars		1.3	33+	70	55	28	90		41N	53	42	+0.1	+3.2	8	11	52.5	21	45	55	
Duration of Partial Stage for Disk = 16.7 secs																								
10/12	58	56	R	Mars		1.3	33+	70	54	34	99		-38N	334	323	+1.0	-1.1	8	11	52.5	21	45	55	
Duration of Partial Stage for Disk = 17.6 secs																								
10/23	04	58	d	97883	F8	7.8	37+	75		18	279		59S	135	122	-0.2	-1.8	8	32	10.4	19	26	1	
11/20	51	37	D	1385	A1	6.6	47+	86	-8	41	237		60N	78	62	+1.4	-1.0	9	21	43.6	15	20	10	
12/00	05	26	d	1396	K2	6.8s	48+	88		12	277		60S	138	122	-0.2	-1.9	9	27	24.8	14	16	1	
12/19	09	52	D	1486	dK4	4.4	57+	98	5	47	187		37S	163	144	+0.5	-2.2	10	8	21.7	9	57	21	
1486 = 31 Leonis = A Leonis																								
12/20	08	21	r	1486	dK4	4.4	57+	98	-3	45	207		-66S	267	248	+1.7	-0.7	10	8	21.7	9	57	21	
1486 = 31 Leonis = A Leonis																								
12/22	39	30	d	1497	cG5	7.4	58+	99		28	247		63S	137	118	+0.4	-2.0	10	13	57.4	9	8	38	
13/22	50	57	D	1599	cK1	4.8	68+	111		27	236		52N	74	53	+1.4	-1.3	11	1	0.6	3	34	15	
1599 = 58 Leonis																								
14/16	31	05	d	1685	cG9	4.3	75+	121	29	19	119		85N	107	85	+0.7	+1.0	11	37	23.8	-	0	52	20
1685 = epsilon Leonis																								

**N.B. don't forget to add 1 hour to the above times during British Summer Time!**

**Key to changes and less obvious column entries in new predictions above:**

- There is no longer an 'observability' or 'value' column. Predictions are computed for a telescope aperture of 50mm using a detailed observability algorithm.
- Lower case D, R, Gr in Phase column means the star is within 1 magnitude of observability limit, i.e. less easy to see. M, or m, indicate a bright star miss at the above coordinates, but which may be an occultation nearby.
- Star catalogue, nnnn = ZC, nnnnn or nnnnnn = SAO, Xnnnnn = XZ80, ?nnnn = other catalogue, where '?' is a letter indicating the catalogue.
- Character in 'D' column indicates a double star – careful timing/video recording may reveal the duplicity.
- Character in 'V' column indicates a variable star. (Extra information lines for double/variable stars removed to save space.)
- Other entries are as for the pre-2007 predictions produced by 'OCCMOON' in previous LSC's.

Predictions courtesy of David Herald's **Winoccult** program, version 3.6.  
See LSC 35, 5 (May 1999) for comments on recording observations using the predictions.

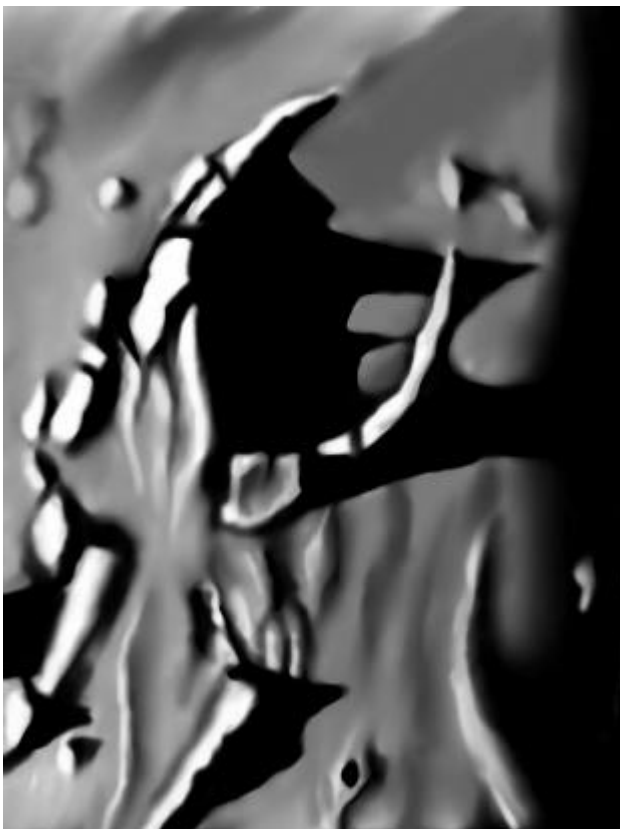
### Observations

A number of visual studies have recently been received, including observations by Colin Ebdon (Fordham Heath, UK), Peter Grego (Rednal, UK), Dale Holt (Hertfordshire, UK) and Phil Morgan (Tenbury Wells, UK).

### Prinz compared

Opportunities to compare observations of the same features made at around the same time by independent observers don't crop up too often – there's so much on offer on the Moon that the chances of two observers choosing the same feature to depict are not that great. However, on the evening of 2008 February 17, both Phil Morgan and me chose to depict Prinz and its immediate surroundings.

My observation, made between 21:30 and 22:15 UT, takes in somewhat less of an area than Phil's observation, which was made between 22:00 and 22:45 UT. My observation, made with a 200 mm SCT, does not show any obvious sinuous rilles – they simply weren't discernable clearly, but the location of several is hinted at on my drawing, which is a PDA sketch. In the time between the commencement of my observation and that of Phil's, the morning terminator has moved obviously onwards, uncovering an area of Oceanus Procellarum between the terminator and the elongated shadows cast by the western wall of Prinz. Phil's observation shows more intricate detail, notably the numerous sinuous rilles emanating from their elongated crater heads. One thing of interest is the observed brightness of the middle portion of the eastern wall of Prinz; Phil depicts it as somewhat duller than in my own observation, yet I distinctly recall its brightness.



### Pitatus follow-up

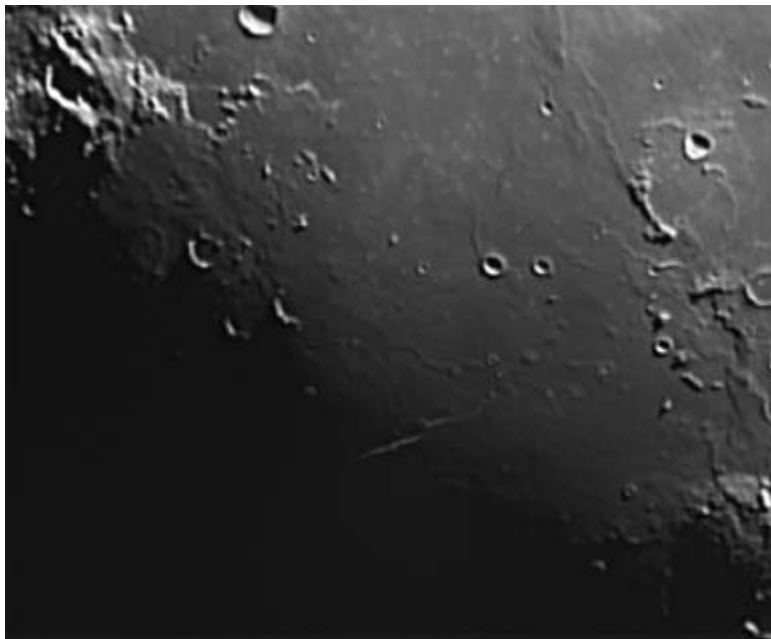
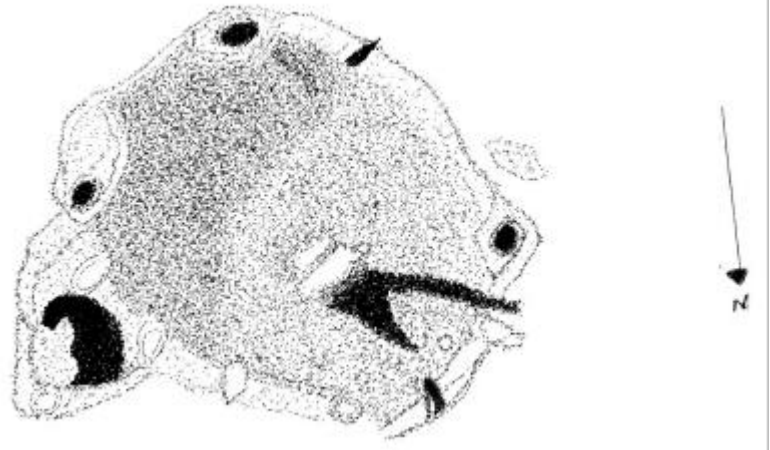
Marie Cook (Mundesley, UK) follows up Phil Morgan's observational drawing and notes on Pitatus (2008 January 16) featured in the March 2008 issue of the *Lunar Section Circular*. Marie's observation of Pitatus, made on 2000 February 13 (18:18-45 UT, Col 14.2-14.4), is featured here. Marie writes:

"I was very interested in the notes which accompanied Mr Morgan's sketch of Pitatus, in particular the apparent double nature of the central peak. With reference to my sketch 2000/2/13 where I noted a second white elongated patch behind it... I do not think he was, as he put it, a victim of 'double seeing' conditions. There are, as images show, a group of lower lying hills close to the central peak which I suppose, on

occasions, might show a 'collection' of a whitish nature? Also, of course, lighter patches are evident, in images, on the floor. I am a believer in reporting what the eye sees at the eyepiece and this is where a sequence of observing one crater etc, under different illumination conditions, makes one very aware of how a feature seems to change in appearance."

### Images

Further to Phil Morgan's interesting observational drawing and notes concerning the dome field to the southeast of Maskelyne F in Mare Tranquillitatis (2005 October 22) which was featured in the March 2008 issue of the *Lunar Section Circular*, Brendan Shaw checked through his image archives of the area in question and located an image that appeared to confirm much of what Phil observed. The image (full version and comparison detail both featured here) was taken on 2004 December 31 at 02:07 UT using a 10-inch reflector and through a red filter. The area in question, like many marial plains, is full of subtle topographic detail when illuminated by a low morning, or in this case, evening, Sun. Nigel Longshaw and other observers, including myself, made studies of the region of the crater Sinas which revealed much low relief detail not depicted on the maps, including dorsa converging on Sinas, low hills and domes in the vicinity. The detail visible on Brendan's image includes some intriguing parallel wrinkle ridges which run perpendicular to the fault scarp of Rupes Cauchy. In the area covered by Phil Morgan's observation, there appear to be a number of dorsa, regular hills and domes in addition to more extensive flattened raised areas and ditch-like features.



### Lunar eclipse

Although I was set up to perform a live webcast of the recent total lunar eclipse on the morning of February 21, the skies at my location in Rednal were perpetually overcast throughout the event, and I was convinced that most of the UK had suffered in this way too. Instead, I webcast a live real-time simulation of the event on Starry Night Pro – oddly, despite labelling it a simulation, a number of people from around the world thanked me for the live images, thinking it was the real thing! I'm happy to say that there were numerous clear spells over the UK on that morning, and I have received several excellent images of the event. So far, the only written account of the eclipse comes from Guy Hurst (Basingstoke, UK) who reports:

02:50UT: Started observing with the moon glimpsed through clouds. Slightly reddish with eclipsed portion bright (Danjon 4) and uneclipsed area yellow.

02:53UT: Used 15x80B to beat the cloud effects and the Moon was bright with most major features visible.

03:04UT: Moon now fully eclipsed but easily seen to the naked eye and still Danjon 4. A beautiful sight visually with Saturn and Regulus also seen nearby.

03:08UT: A rare event as Anne, a non-astronomer, joins me to observe the event visually and is quite impressed!

03:11UT: Reversed binocular estimates failed as Moon too faint with encroaching cloud.

03:20UT: Moon reappears through thin cloud with the main stars of the constellation of Leo visible with Saturn. Danjon 4.

03:31UT: Moon not visible to the naked eye due to cloud but managed one successful image with Canon 10D + Tamron 200mm zoom lens using 4 seconds at f3.5 (ISO 400) although the exposure should perhaps have been longer.

Thereafter the rest of the event totally clouded out and efforts ceased at 04:05 but early sightings very satisfying, especially for a visual observer.

The image featured here was sent in by Jamie Cooper (Northamptonshire, UK) – an interesting comparison between the recent eclipse and the one of 2007 March 3.

### The New Moon

If you have any observations, items or articles concerning anything lunar, then please consider contributing to *The New Moon*; the next issue will be published in July, so please send in your material to me by early June. Previous issues can be downloaded in PDF form from the BAA Lunar Section website at <http://www.baalunarsection.org.uk/tnm.htm>



## CLOUDWATCH

Andrew Bytnar

### Tabulated data for February 2008

<u>Observer and location</u>	<u>Excellent</u> <i>days</i>	<u>Cloudy</u> <i>days</i>	<u>Overcast</u> <i>days</i>	<u>Hazy</u> <i>days</i>	<u>No watch</u> <i>days</i>
P.Burt (Chatham)	11 (38%)	1 ( 3%)	12 (41%)	4 (14%)	1 ( 3%)
A.Bytnar (Mansfield)	11 (38%)	3 (10%)	14 (48%)	1 ( 3%)	-----
M.Cook (Cromer)	12 (41%)	4 (14%)	10½ (36%)	2½ ( 9%)	-----
K.Hall (Warrington)	12½ (43%)	9 (31%)	7½ (26%)	0 ( 0%)	-----
A.Heath (Nottingham)	10 (34%)	8 (28%)	11 (38%)	0 ( 0%)	-----
J.Wrigley (Reading)	10 (34%)	4½ (16%)	12½ (43%)	2 ( 7%)	-----

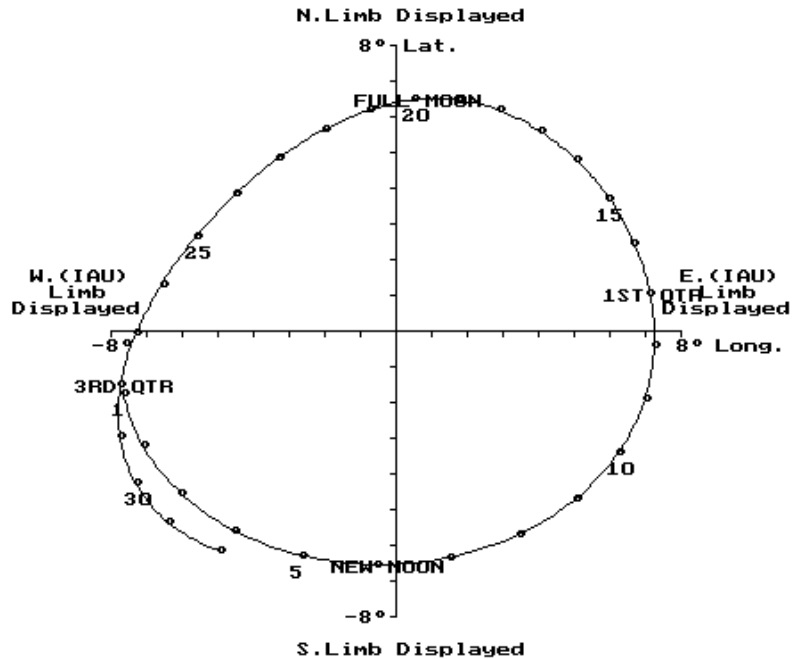
Earthquake reported by a number of correspondents on 2008 February 27 at 00:56:45 UTC. Magnitude given by British Geological Survey as 5.2, although US Geological Survey had it at 4.7. No damage locally here (SK499598), but first floor of building felt moving up and down and side to side for around 10 seconds, with an amplitude of around 20cm, mainly in east-west direction.

## LIBRATION FOR MAY 2008

Date	Libration amount $\circ$	PA $\circ$	Feature presented
1.0	7.5	97	Schluter
2.0	7.4	108	Hohmann
3.0	7.1	121	Wright
4.0	6.6	135	Baade
5.0	6.1	151	Phocylides*
6.0	5.7	171	Klaproth*
7.0	5.5	192	Demonax*
8.0	5.6	212	Hanno
9.0	5.9	231	Gum
10.0	6.3	247	Curie
11.0	6.6	261	Houtermans
12.0	6.9	274	Babcock
13.0	7.1	286	Goddard
14.0	7.3	298	Liapunov
15.0	7.4	309	Rynin
16.0	7.6	319	Zeno
17.0	7.7	328	Endymion
18.0	7.7	337	Strabo
19.0	7.6	346	Arnold
20.0	7.4	355	de Sitter
21.0	7.1	4	Mouchez
22.0	6.8	15	Carpenter
23.0	6.5	28	Cleostratus
24.0	6.3	42	Galvani
25.0	6.4	56	Aston
26.0	6.6	71	Einstein
27.0	7.1	84	Olbers
28.0	7.5	95	Schluter
29.0	7.8	105	Maunder
30.0	7.9	115	Eichstadt
31.0	7.6	125	Shaler

### LUNAR LIBRATIONS - May 2008

Geocentric: —○— The markers show 0:00H UT



Program by Bob Roberts.

Observer at: Lat. 51.0 $\circ$ N, Long. 1.0 $\circ$ W

\* indicates that the feature is not illuminated.

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2008 MAY.	Age d	Phase	Earth's		Sun's		R.A. h m	Dec. °	Rises h m	Sets h m	Transit h m	Alt °
			Selenographic Longø	Latø	Selenographic Colongø	Latø						
1.0	24.8	0.260	-7.7	-1.7	216.4	1.47	22 44	-6.6	02 43	14 17	08 22	33
2.0	25.8	0.169	-7.1	-3.2	228.6	1.47	23 33	-0.3	02 55	15 41	09 09	40
3.0	26.8	0.092	-6.1	-4.5	240.9	1.47	00 23	6.3	03 09	17 09	09 58	47
4.0	27.8	0.036	-4.6	-5.5	253.1	1.47	01 17	12.7	03 24	18 42	10 51	53
5.0	28.8	0.006	-2.7	-6.2	265.3	1.47	02 14	18.6	03 44	20 18	11 49	59
6.0	0.5	0.006	-0.6	-6.5	277.6	1.47	03 16	23.3	04 12	21 50	12 51	63
7.0	1.5	0.036	1.5	-6.3	289.8	1.48	04 22	26.4	04 54	23 09	13 57	65
8.0	2.5	0.094	3.5	-5.7	302.0	1.48	05 29	27.6	05 54	.. ..	15 03	65
9.0	3.5	0.174	5.1	-4.6	314.3	1.49	06 35	26.8	07 10	00 07	16 06	63
10.0	4.5	0.271	6.3	-3.4	326.5	1.50	07 38	24.2	08 36	00 45	17 04	59
11.0	5.5	0.376	7.0	-1.9	338.7	1.51	08 36	20.2	10 02	01 11	17 56	54
12.0	6.5	0.484	7.3	-0.4	350.9	1.52	09 29	15.2	11 24	01 30	18 43	48
13.0	7.5	0.589	7.1	1.1	3.2	1.53	10 18	9.7	12 42	01 44	19 27	43
14.0	8.5	0.688	6.7	2.5	15.4	1.54	11 04	3.9	13 57	01 56	20 09	37
15.0	9.5	0.776	6.0	3.8	27.6	1.56	11 48	-1.9	15 10	02 07	20 50	31
16.0	10.5	0.852	5.1	4.8	39.7	1.57	12 32	-7.5	16 22	02 18	21 32	25
17.0	11.5	0.914	4.1	5.7	51.9	1.57	13 17	-12.7	17 35	02 30	22 14	20
18.0	12.5	0.959	2.9	6.2	64.1	1.58	14 02	-17.5	18 48	02 44	22 59	16
19.0	13.5	0.987	1.7	6.5	76.3	1.58	14 50	-21.5	20 01	03 02	23 47	13
20.0	14.5	0.998	0.5	6.5	88.5	1.58	15 40	-24.6	21 09	03 27	.. ..	..
21.0	15.5	0.991	-0.8	6.3	100.7	1.58	16 31	-26.7	22 09	04 01	00 35	11
22.0	16.5	0.966	-2.1	5.7	112.9	1.57	17 24	-27.5	22 57	04 46	01 27	10
23.0	17.5	0.925	-3.3	4.9	125.1	1.56	18 18	-27.1	23 33	05 44	02 18	11
24.0	18.5	0.867	-4.5	3.9	137.3	1.55	19 11	-25.4	.. ..	06 52	03 09	12
25.0	19.5	0.796	-5.7	2.7	149.5	1.53	20 02	-22.5	00 00	08 05	03 58	16
26.0	20.5	0.711	-6.6	1.4	161.7	1.51	20 52	-18.6	00 20	09 22	04 45	20
27.0	21.5	0.617	-7.3	-0.1	173.9	1.50	21 40	-13.8	00 35	10 39	05 30	25
28.0	22.5	0.514	-7.8	-1.5	186.1	1.48	22 28	-8.3	00 48	11 57	06 15	31
29.0	23.5	0.408	-7.8	-3.0	198.3	1.46	23 15	-2.3	01 01	13 17	07 00	37
30.0	24.5	0.303	-7.3	-4.3	210.5	1.45	00 03	4.0	01 13	14 40	07 46	44
31.0	25.5	0.204	-6.4	-5.3	222.8	1.43	00 54	10.3	01 27	16 08	08 36	50

## JUNE 2008

1.0	26.5	0.118	-5.0	-6.1	235.0	1.42	01 49	16.3	01 44	17 40	09 30	56
2.0	27.5	0.052	-3.2	-6.5	247.2	1.40	02 48	21.4	02 08	19 14	10 30	61
3.0	28.5	0.012	-1.1	-6.4	259.5	1.39	03 52	25.3	02 42	20 41	11 34	64
4.0	0.2	0.002	1.1	-5.9	271.7	1.38	04 59	27.3	03 33	21 51	12 42	65
5.0	1.2	0.023	3.1	-5.0	284.0	1.37	06 08	27.2	04 44	22 39	13 48	64
6.0	2.2	0.072	4.9	-3.7	296.2	1.36	07 14	25.2	06 09	23 11	14 50	61
7.0	3.2	0.144	6.2	-2.2	308.5	1.36	08 15	21.5	07 39	23 33	15 47	56
8.0	4.2	0.233	7.1	-0.6	320.7	1.35	09 11	16.7	09 06	23 50	16 37	50
9.0	5.2	0.333	7.5	1.0	333.0	1.35	10 03	11.2	10 27	.. ..	17 24	44
10.0	6.2	0.436	7.4	2.4	345.2	1.35	10 51	5.3	11 45	00 03	18 07	38
11.0	7.2	0.539	7.0	3.7	357.4	1.35	11 36	-0.6	12 59	00 14	18 49	32
12.0	8.2	0.637	6.3	4.8	9.6	1.34	12 21	-6.3	14 12	00 25	19 30	27

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