No. 505 Registered Charity 271313 February 2015

OASI News

The newsletter of the Orwell Astronomical Society

Flame and Horsehead nebula: Canon 1100d on Skywatcher 200pds. 16x360 second exposures at iso400 with darks and flats, processed with DSS and GIMP. Photo by David Murton

The Grazers

The Grazers on 29 December (see page 20)

Mike O'Mahoney, Paul Whiting, Joe Startin, MartinRH, James Appleton, Alan Smith, Matthew Leeks, Jeremy Startup, Richard Grueber, Martin Cook

Moon

Moon 28 December, stitching a couple of shots, and filling in a missing corner (oops)

Photo by Chris Stevens

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Society Contact details

Observatory (meeting nights only) 07967 519249

Email queries: info@oasi.org.uk

facebook.com/pages/orwell-astronomical

Twitter: @OASIpswich

Forum: forum.oasi.org.uk/index.php

Please send material for the OASI web site and newsletter

e.g. observations, notices of events, general interest articles, to

news@oasi.org.uk

Other contact details will be issued to members on a separate printed list or emailed directly to those who only receive the e-version of the News.

Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds.

Areas out of Bounds

Access to the Observatory is **only via the black doo**r at the foot of the Observatory tower, which leads to the staircase and thence to the spiral staircase up to the Observatory. If the black door is locked, please phone the observatory mobile, 07967 519249 during meeting hours.

Please do NOT explore other routes. When in doubt, ask or call the Observatory mobile.

Remember this is a school and straying into the main part of the school where the pupils reside would cause the society big problems and could see us losing the use of the observatory. Any member found to be anywhere other than the approved access route or the observatory area will face serious sanctions up to and including expulsion from OASI.

Please note that access time for all observatory member nights is now after 20:15

The key to the toilets in the school gym is located in the seating area in the Belvedere room.

Articles for OASI News

News, pictures and articles for this newsletter are always welcome. Please send them to

news@oasi.org.uk

The CLOSING date is the 15th day of the month

Please submit your articles in any of the following formats:–

Text: txt, rtf, rtfd, doc, docx, odt, Pages

Spreadsheets: xls, xlsx, OpenOffice/LibreOffice, Numbers

Images: tiff, png, jpg Please send tables as separate files in one of the above formats.

In Memoriam: Madeline Cox, FRAS

Source: https://societyforthehistoryofastronomy.wordpress.com/2015/01/13/sha-chairman-madeline-cox-passes-away/ dated 13 January 2015

> The Society for the History of Astronomy regrets that we have to announce the passing of our Chairman, Madeline Cox, FRAS, who died in her sleep last night.
>
> The shocking and saddening news came to us from her partner and fellow SHA member, Les Jepson, who contacted the Society's Treasurer, Roger Hutchins.
>
> Madeline had been a little unwell with a bronchial chesty cough since before Christmas, and yesterday her doctor prescribed antibiotics. Her brother and and wife were staying with her and Les last night at her home in Mansfield, and this morning they found that she had passed away.
>
> Mr Jepson will keep us advised of funeral arrangements via Roger Hutchins, and we will pass on any relevant information in due course.
>
> Madeline was one of the very first supporters of the SHA when it was founded at Wadham College, Oxford, in 2002, and as a professional librarian herself, immediately accepted the position of SHA Librarian on the SHA Council, to which she was elected unanimously.
>
> Working with other Councillors, she went on to set up the SHA Library, including the SHA's first postal lending library, the Sir Patrick Moore Library, which is now part of the society's Sir Robert Ball Library at the Birmingham & Midland Institute, the place where we meet every October for our Autumn Conference and AGM.
>
> In later years she oversaw the growing SHA library service as Head Librarian and did a great deal to catalogue, document and promote its collections to members and beyond.
>
> Madeline was a strong-minded, highly intelligent and enthusiastic member of Council, always with a sense of humour and a common sense approach, and when our second Chairman, the late Gilbert Satterthwaite, decided to stand down after years of service in 2010, she also took on the challenge of the Chairmanship, in which she proved herself equally capable.
>
> By her enthusiasm and initiatives, and the pleasure she showed in meeting and dealing with members, she has provided splendid leadership.
>
> The SHA Council plans to compile and publish a suitable obituary for Madeline, and any recollections, appreciation, and anecdotes of her will be most welcome; please email them to our Vice-Chairman kevinkilburn@sky.com or to Roger Hutchins roger.hutchins@btinternet.com
>
> Any brief comments or tributes to Madeline are also welcome using the comments facility on the source web page – thank you.

The Council of the SHA

The Newsletter

We now use an outside printer. The cost of doing so means that only the cover pages can be printed in colour. **The full colour version is now available from the OASI web site.**

Newsletter archive **http://www.oasi.org.uk/NL/NL_form.shtml**

Authors, please note that your articles will now be publicly available worldwide!

Reproducing articles from OASI News

If you plan to reproduce an article exactly as per OASI News then please contact the Editor – otherwise, as a matter of courtesy, please seek permission from and credit the original source/ author. You may not reproduce articles for profit or other commercial purpose.

Committee 2014

Chairman	David Murton	Chair committee meetings, represent OASI to external bodies
Secretary	Roy Gooding	Respond to enquiries, Press & publicity, Outreach meetings, Open days
Treasurer	Paul Whiting FRAS	Finance, Visits by outside groups, Supervision of applications for grants, Taster evenings, Public appreciation of astronomy.
Committee	James Appleton	Web site
	Bill Barton FRAS	Safety & security
	Martin Cook	Membership, Tomline refractor maintenance
	Tina Hammond	Librarian
	Peter Richards	Lecture meetings, Email distribution lists
	Martin Richmond-Hardy	Newsletter
	John Wainwright	Equipment curator
	Mike Whybray	Workshops
	Mike Norris	Newbourne Observing Group

Society Notices

Annual General Meeting Saturday 24th January 2015

Venue Museum Street Methodist Church Hall

Time: 20:00

All members are invited to attend the AGM.

Contacts

A printed list of Committee and other activity contacts is available from the Secretary or the Observatory. Email links are available in the pdf version of this newsletter.

For general enquiries please email info@oasi.org.uk and your enquiry will be forwarded for action.

Welcome to New Members

James Blyth Luke Garham Edward Cramton Toni Cornish

2015 Outreach Meetings

Contact: Roy Gooding

Christchurch Park Star party

Option1: Saturday 31 January
Venue: Westerfield Road gate
Set up time from 18:30

Option2: Saturday 28th February
Alternative if cloudy
Venue: Westerfield Road gate
Set up time from 18:30

Astronomy in the Park (annual solar event)

Option 1
Saturday / Sunday 16th / 17th May
Venue: Reg Driver Centre
Set up time from 10:00
Open to public form 11:00 to 16:00

Option 2
Saturday / Sunday 23rd / 24th May
Same times as for option 1

Debenham Street Fair

Sunday 28th June
More details to follow, but should be the same as in 2014

Holywells Family Day

Wednesday 5th August

Landguard Fort Solar Event (TBC)

Venue Landguard Fort
Date 15 or 16 August (depends on which day has the best weather)
Time 11:00 to 16:00
Setup time from 10:00

Other Outreach Meetings being planned

Contact: Roy Gooding

Partial Solar Eclipse Event

We are organising a solar eclipse event by kind permission of Isaacs on the Quay, Ipswich on 20th March for the best eclipse visible locally for many years. It will be 85%. As it is a Friday morning, members are advised to get it in their diaries now, especially those who have to book leave from work. OASI members who attend will be given a free pair of certified solar glasses to use and keep, plus these will be available for the public to purchase on the day at a very reasonable price.

We are also considering a parallel event at the Observatory as the pupils will not yet have left for half term.

Please contact David Murton if you are able to help on the day at either location.

International Sun Day

OASI along with DASH, LYRA and Breckland are organising a large solar event at the Minsmere visitor centre to coincide with International Sun Day on 21st June next year. There will be solar scopes, lectures, a solar video link onto a large screen, displays, etc. Anyone who can help please let David Murton know. Please note that only scopes with propriety solar filters will be allowed, Unfortunately no homemade filters or solar projection will be allowed due to health and safety restrictions.

Nowton Park, Bury St Edmunds

11 July (12th if cloudy)	Solar Day
19 September	Stargazing

Holywells Park Family Day

5 August.

Society Events Diary

For the latest event details, please see www.oasi.org.uk/Events/Events.shtml

There's a Google Calendar on the OASI web site with the latest dates (and corrections!). If you want to easily add OASI Events to your own computer/phone/tablet calendar application click this button on the website Events page

For other astronomy news and astro pictures try our

Twitter feed https://twitter.com/OASIpswich
Facebook page https://www.facebook.com/pages/Orwell-Astronomical/158256464287623
Discussion Forum http://forum.oasi.org.uk/index.php
Subscribe to the OASI Yahoo group by emailing oasi-subscribe@yahoogroups.com

Date and Time	Location	Contact	Event
Weekly, every Wednesday, 20:15	Orwell Park Observatory	Martin Cook, Roy Gooding	General observation (weather permitting) using a variety of telescopes.
Monday 26 January	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Wednesday 28 Jan 19:30 for 19:45	Nacton Village Hall **IP10 0EU**	Mike Whybray	Workshop by Neil Norman: Comets through the centuries
Saturday, 31 January 14:30	Burlington House Picadilly London W1J 0DU	http://britastro.org/meetings	BAA Ordinary Meeting Dr Joanna Dunkley: The invisible universe Dr Konstantinos Dimopoulos: The Hot Big Bang model Sky Notes: Callum Potter

Date and Time	Location	Contact	Event
Saturday 31 Jan. Set up 18:30 Open to public from 19:00 to 21:00	Christchurch Park, Ipswich Westerfield Road gate	Roy Gooding	Public outreach (option 1) 28 Feb if cloudy
Friday, 6 Feb and Saturday, 7 Feb	Kensington Conference and Events Centre London	http://europeanastrofest.com	European AstroFest 2015
Monday 8 February	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Wednesday 11–16 Feb	North Norway	Paul Whiting, FRAS	OASI aurora observing field trip to northern Norway, 11-16 February 2015.
Tuesday 17 February 20:15	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Monday 23 February	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Friday/Saturday 27/28 Feb	TBA	Alan Smith	Graze of the magnitude 6.3 star ZC970.
Saturday 28 Feb Set up 18:30 Open to public from 19:00 to 21:00	See 31 Jan	Roy Gooding	*Public outreach (option 2)* *Only if 31 Jan was cloudy*
Saturday, 7 March 10:00	Shurdington Social Centre, Bishop Road, SHURDINGTON, Cheltenham, Gloucestershire, GL51 4TB	http://britastro.org/meetings	BAA Deep Sky Section Annual meeting
Saturday, 7 March 19:00	Methodist Church Hall, Black Horse Lane, Ipswich	Peter Richards	**Lecture Meeting.** POSTPONED (was to have been Damian Peach)
Monday 9 March	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Tuesday 17 March 20:15	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Friday 20 March 08:00	Outside Isaacs, 7 Wherry Quay, Ipswich IP4 1AS	Roy Gooding	**Public access event:** Partial Eclipse viewing (maximum eclipse at 09.47 am)
Monday 23 March	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.

Date and Time	Location	Contact	Event
Wednesday, 25 March 17:30	Burlington House Piccadilly London W1J 0DU	http:// britastro.org/ meetings	BAA Special General Meeting and Ordinary Meeting Prof. Jonathan Rawlings (UCL): “Dust formation & novae” Bill Sheehan (USA): “100 years of Pluto" Dr Stewart Moore: “Charles Messier - from Birth to Death” Dominic Ford: Sky Notes
Friday, 27 March Saturday 28 March 19:30	Orwell Park Observatory	Roy Gooding	OASI Open evenings
Sunday 29 March 02:00			**British Summer Time begins**
Monday 6 April (Bank Holiday)	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Tuesday 7 April 20:15	Orwell Park Observatory	Gerry Pilling	Small Telescope Observing Night
Friday, 10–12 April	Sparsholt College, Hampshire	http:// britastro.org/ meetings	BAA Winchester Weekend
Monday 20 April	Newbourne Village Hall	Mike Norris Mike O'Mahony	Newbourne Observing Group.
Saturday, 25 April	Ashford	http:// britastro.org/ meetings	BAA Spring Meeting: "Amateur and Professional collaboration”
16/17 May or 23/24 if cloudy	Christchurch Park	Roy Gooding	Solar Observing event
Wednesday, 27 May 17:30	Burlington House Piccadilly London W1J 0DU	http:// britastro.org/ meetings	BAA Ordinary Meeting and George Alcock Memorial Lecture Denis Buczynski: “George Alcock Memorial Lecture” Title to be confirmed Tony Freeth: “The Antikythera Mechanism - A machine to predict the future” Nick James: Sky Notes
Sunday 21 June	Minsmere	Roy Gooding	Minsmere International Sun Day

Date and Time	Location	Contact	Event
Sunday 28 June	Debenham	Roy Gooding	Debenham Street Fair
Sunday 11 July or 12th if cloudy	Nowton Park, Bury St Edmunds	Roy Gooding	Solar outreach day
Wed 5 August	Holywells Park, Ipswich	Roy Gooding	Holywells Park Families Day Solar
15 or 16 August 11:00 – 16:00	Landguard Fort	Roy Gooding	Public Solar Event (TBC)
Friday Sept 4 - 19:00 to Sunday Sept 6 - 12:00	Rutherford Appleton Laboratory, near Didcot	http://britastro.org/meetings	BAA Autumn Weekend Meeting "Astronomy in Space"
Saturday 19 Sept	Nowton Park, Bury St Edmunds	Roy Gooding	Stargazing event

The Diary includes BAA meetings and other non-local astro events which may be of interest.

From the Membership Secretary

A gentle reminder that sub are due.

A orange renewal form was sent out early January, please return form with monies.

All membership classes are now £20,.

The new membership can be treated as the old family membership.

Martin Cook

DASH Astro Events

EVENT	DATE
An introduction to Dash and Astronomy	31.1.2015
DASH Observing session	14.2.2015
Spectroscopy – Barry Alsop	28.2.2015
DASH Observing session	14.3.2015
Stargazing live – with DASH and RSPB Minsmere	20.3.2015-21.3.2015
How to build an observatory – Jim Slight and Roy Birnie	28.3.2015
DASH Observing session	11.4.2015
History of Galaxies – Dr Steve Hubbard and Dr Malcolm Bbrown	25.4.2015
DASH Observing session	9.5.2015
AstroPhotography –Dave Murton	23.5.2015
DASH Solar Observing session	6.6.2015
International Sun Day – special Speaker Dr Helen Mason	21.6.2015
Astronomical Numbers - Reg and Oliver Hunt	4.7.2015
DASH Solar Observing session	18.7.2015
DASH Summer BBQ	1.8.2015
DASH Solar Observing session	15.8.2015
I.C All – David Gwynn	29.8.2015
DASH Observing session	12.9.2015
International moon night	19.9.2015
Women in Astronomy – Annaliese Matheron	26.9.2015
DASH Observing session	10.10.2015
Revealing the H.R Diagram – Dr Leonard Brundle	24.10.2015
DASH Observing session	7.11.2015
T B C	21.11.2015
DASH Observing session	5.12.2015
THE Astronomical year – Annaliese Matheron & David Gwynn	19.12.2015
DASH Christmas meal	TBC

See http://dash.moonfruit.co.uk/events-calendar/4585090668 for the latest details.

Dark Skies – Square of Pegasus Survey

Please continue to send in your reports to Paul Whiting.

Location (Town/village, Street and postcode rather than “my back garden”)
Date & Time Number of stars seen General conditions
Your name

Newbourne Observing Group

michael.norris17@btopenworld.com omahony.mike@gmail.com

We meet at The Newbourne Village Hall, Mill Lane, Newbourne, IP12 4NP

The Newbourne Observing Group (The NOGs) is a good place to start for beginners. If you are thinking of buying a scope or binoculars, come and try before you buy and talk to owners about the strengths and weaknesses of particular models. If you've already splashed the cash, bring your new scope along to use or for advice on setting-up and adjustment.

All welcome, with or without telescopes.

Newbourne Dates for 2015

Monday 12th January	Monday 9th March
Monday 26th January	Monday 23rd March
Monday 9th February	Monday 6th April (Bank Holiday)
Monday 23rd February	Monday 20th April

All the above meetings start at 7pm

Newbourne Observing Group Meetings 2014

Mike Norris

Of the 20 meetings booked for 2014, 16 winter meetings and 4 summer meetings, only 19 were held as one meeting the 10th February was cancelled due to the muddy condition of the parking area.

According to our signing in book there was a total 377 attendees with 15 visitors although the number of visitors is probably understated. As the tendency is now to direct initial enquiries from prospective members to Newbourne there might be a case for us to have a better strategy so that we are able to know how many of these visits result in membership and agree how we can encourage these members to take a full and active role in the society.

As has already been reported to the OASI committee the character of Newbourne meetings has to some extent shifted away from just 'observing' to a more general club evening and we need to understand what should be provided for these evenings while still not neglecting the needs of those members who attend to carry out observing.

Thanks to the efforts of John Wainwright and Kevin Fulcher we now have an audio/visual set up at Newbourne. We can show films and lectures and with members now producing excellent astro images we have the platform to display and discuss these.

While it is generally agreed that the hall at Newbourne is an ideal location as a club venue the exterior does present some problems for observing in terms of a degree of light pollution from Felixstowe Docks, a field often muddy to set equipment upon and issues with parking. We continue to have good relations with the trustees of the hall who might be open to any propositions to improve these in the future if the society felt it justified and practical.

However the regular numbers attending Newbourne does indicate that it is popular with members and the committee needs to agree how this success can be built on for the future.

Newbourne Committee:

Mike Norris Mike O'Mahony Kevin Fulcher Avtar Nagra

Small Telescope Observing Nights (STONs)

Contact: Gerry Pilling

These currently take place at Orwell Park Observatory starting at 20:15.

2015	Feb 17	March 17	Apr 7

The Future of STONs at the Observatory 2015

These have been organised by Ted Sampson and then myself (plus Paddy O'Sullivan and Dave Robinson) at the observatory for the last 14 years to allow members to compare telescopes, try before buying and learn something of the night sky.

As the main organiser of these nights, I said last year the need for these has been somewhat superseded by the Newbourne Observing Group activities which are held twice a month for most of the year.

During this period a number of changes have occurred in school accessibility, state of the Belvedere balcony windows and the amount of school light pollution etc. I feel therefore it is time for myself to step down from this task from April 2015.

The usefulness of these evenings seems to be still apparent and so Paddy O'Sullivan and Dave Robinson are intending to continue at least for a while and I can attend on an *ad hoc* basis as required. They intend to maintain the current 6 evenings during the winter months and they will choose the dates next year. Interest in continuing STONS should be communicated to Paddy/ Dave.

There will be a more restricted format as all three of us see little point in arriving (based on previous experience) if the weather is poor – so people will need to check with Paddy and Dave that they will be there as they previously did some years ago. It was decided a while back that as a result of car park issues all STONS would be held on moon-less TUESDAY evenings. In the event that people turn up and cannot get access, they should ring the observatory telephone 07967 519249.

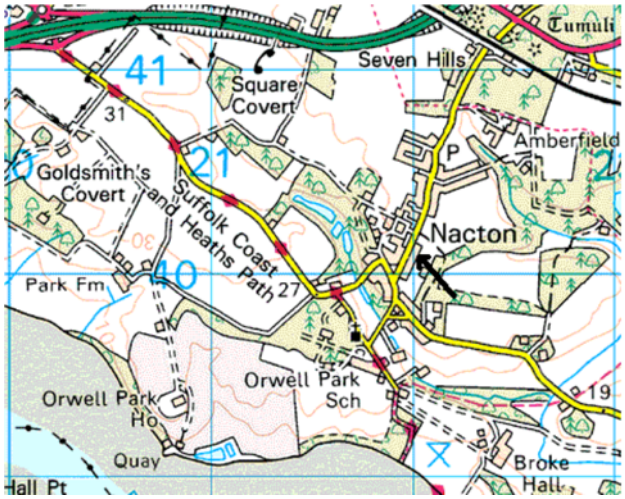
As only three of the Balcony doors are now deemed by us to be safe to open, this is a further concern, so only the East , South and North West be in use.

Gerry Pilling

Workshops

Nacton Village Hall IP10 0EU
Contact Mike Whybray
Doors open at 7:30pm.
Workshop starts at 7:45pm

If you are a new OASI member, or haven't been to one of these informal workshops before, they are a mixture of events of different characters including beginners talks, interactively workshops, films, etc., suitable for all. They are also a chance to chat with other members over a cup of tea and a biscuit, in a venue rather warmer than the observatory dome on a winter's night!



Nacton Village Hall is next to the small village school, just below and left of the N in Nacton on the map. Please park on the same side of the road as the hall, but avoid parking on the white lines which mark clear spaces for various driveways and passing places. The police do occasionally check up on this!

Do you have a subject you could workshop? Give Mike Whybray a call! workshops@oasi.org.uk

28 Jan 2015: Neil Norman – Comets Through The Centuries

A journey through the ages with the heavens' most maverick of visitors; from the ancient Chinese astronomers recording "broom stars" to the landing of a probe on a comet .

Along the way we will see how these objects were feared by the ancients, determined by Newton to assist with his laws of gravity, predicted by Halley to return on repeated perihelia passages and all the way to modern times.

I began my interest in comets when as a 14 yr old I observed Halley's comet in 1986.

In August 2013 I created the Facebook group Comet Watch and also currently provide visual observations for both NASA and ESA as they continue their collective catalogues of cometary data.

I guest blogged for the US magazine "Astronomy" recently on the discovery of comet C / 2014 Q2 Lovejoy, discovered by my good friend Terry Lovejoy in August this year.

I have done also 2 Internet radio shows for Astronomy.Fm's Under British Skies , and also write a monthly piece in my local community magazine about astronomy in general.

Neil Norman

Astronomy.FM http://astronomy.fm/2014/02/16/astronomy-fm-meets-the-comet-experts/

Workshops and Orwell Park School Astronomy Club report

Mike Whybray

Workshops

Workshops continue to be run at Nacton Village Hall. There have been only four since the last AGM:

29th Jan	The Equation of Time	Joe Startin and Matthew Robertson
12th March	Exo-planets	Paul Whiting
22nd Oct	Astronomical Software and Android Applications	David Murton
10th Dec	Rømer Revisited Reprised	James Appleton

All had pretty good attendance - typically 20 plus people. So there appears to be an appetite for these still as a 'non-observing' type of event than can go into considerable depth on a particular topic. However, as with the previous year it has been difficult finding people willing to organise and run them – volunteers welcome!

Three more coming in January, March and April covering comets, aligning binoculars, and report-back from the March solar eclipse respectively.

Orwell Park School Astronomy Club

This year has been similar to last year – running the club 6:45 to 7:45pm on Tuesday in term time during the winter and spring, but only if there is a good prospect of clear skies. Usual attendance is about a dozen children from the school, usually a mix of new children and ones who have been up to the observatory before.

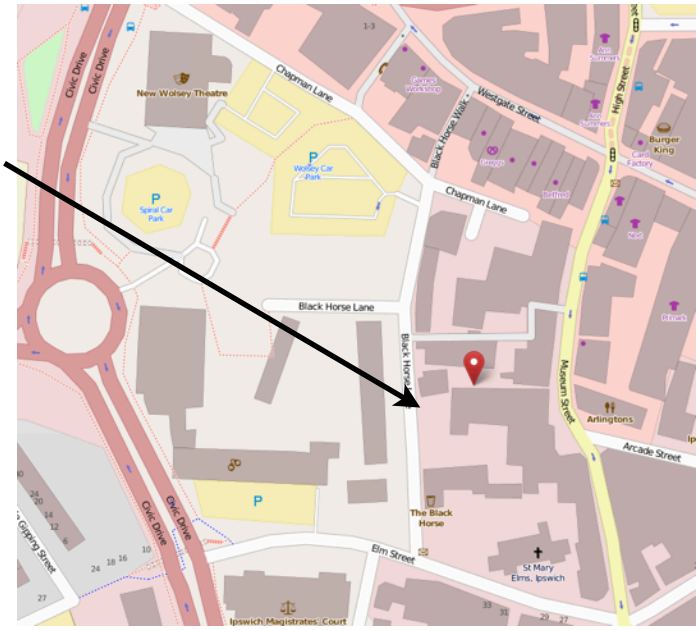
We normally run with Paul & Bill, and myself & Eric as teams, but would welcome anyone else who would like to volunteer to help. However, everyone assisting at these events needs to have a current DBS or CRB check (which OASI can help arrange). Nick Matthews who arranges these nights from the school end has asked if could run on Thursday instead of Tuesday – or even on a mix of these days, arranged week by week. Having consulted with Paul over possible clashes, it seems we should be OK as long as the children are out of the way before 8pm.

My grateful thanks to members who have helped with both the workshops and the school astronomy club. And particular thanks to Pete and Nicky Richards for refreshments at workshops.

Mike Whybray. 14th January 2015

Lecture Meetings

These take place in The Methodist Halls, Upstairs room, Black Horse Lane, Ipswich



Saturday 7th March:

POSTPONED – New date TBA

This was to have been by Damian Peach

"The Giant Planet Jupiter"

When we have a new date it will be

7pm start – earlier than usual

Members – free

Non-members £2-00

There is some parking at the venue but if there is no space at the venue you can drive to the end of Black Horse Lane and turn left to find a pay and display car park which charges (at the time of writing) £2 for parking between 6pm and 6am. There is also the spiral car park by the New Wolsey theatre.

Read about planetary photographer, Damian Peach, here:

www.damianpeach.com/about.htm

Radio Astronomy

Martin Richmond-Hardy G8BHC

While in the Netherlands 17/18 Jan I and some fellow radio hams visited Dwingeloo radio telescope, now restored with a €900k grant. We bounced signals off the Moon.

In the foundations are some of the ashes of the first radio astronomer, Gröte Reber.

www.camras.nl/index.php?lang=en

The Night Sky in February

Martin RH

Times are UTC at Orwell Park Observatory 52.0096°N, 1.2305°E

Moon

Source: http://heavens-above.com/moon.aspx

Full Moon	Last Quarter	New Moon	1st Quarter
03 Feb 23:09	12 February 03:5	18 February 23:4	25 February 17:14

Sun and planets

Source: http://heavens-above.com/PlanetSummary.aspx

Object	Date	Rise	Set	Mag.	Notes
Sun	1	07:36	16:42		
	28	06:44	17:32		
Mercury	1	07:07	16:25	4.6	Mercury is at maximum western elongation on 24 February
	28	06:01	14:50	0.2	
Venus	1	08:39	18:47	-3.8	
	28	07:43	20:14	-3.8	
Mars	1	08:51	19:44	1.2	
	28	07:37	19:58	1.3	
Jupiter	1	17:04	08:02	-2.3	Jupiter is at opposition on 6 February
	28	14:58	06:08	-2.3	
Saturn	1	03:01	11:33	1.2	
	28	01:21	09:51	1.1	
Uranus	1	09:36	22:21	5.9	
	28	07:51	20:41	5.9	
Neptune	1	08:35	18:49	8.0	Neptune is at superior conjunction on 26 February
	28	06:50	17:09	8.0	

Meteor Showers

Source: BAA Handbook 2015 p97-99

Shower	Limits	Maximum	ZHR	Notes
				None this month. Next showers are in April

Visible ISS passes ≥15º max altitude

Martin RH

Source: http://heavens-above.com/PassSummary.aspx?satid=25544

Lots of early evening passes this month. Click on the date to get a star chart and other details.

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
06 Feb	-1.2	18:50:43	10°	SSW	18:52:09	17°	S	18:52:09	17°	S
07 Feb	-0.9	19:34:02	10°	SW	19:35:07	19°	SW	19:35:07	19°	SW
08 Feb	-2.4	18:42:10	10°	SW	18:45:09	33°	SSE	18:45:17	33°	SSE
09 Feb	-1.7	17:50:29	10°	SSW	17:53:08	23°	SSE	17:55:22	12°	E
09 Feb	-1.8	19:26:00	10°	WSW	19:28:02	34°	WSW	19:28:02	34°	WSW
10 Feb	-3.0	18:33:54	10°	WSW	18:37:06	52°	SSE	18:38:03	37°	ESE
11 Feb	-2.4	17:41:54	10°	SW	17:44:57	37°	SSE	17:47:59	10°	E
11 Feb	-2.7	19:17:59	10°	W	19:20:39	56°	WSW	19:20:39	56°	WSW
12 Feb	-3.3	18:25:45	10°	WSW	18:29:00	73°	S	18:30:32	29°	E
12 Feb	-0.5	20:02:11	10°	W	20:03:12	18°	W	20:03:12	18°	W
13 Feb	-3.0	17:33:32	10°	WSW	17:36:45	58°	SSE	17:39:59	10°	E
13 Feb	-3.3	19:09:53	10°	W	19:13:02	81°	WSW	19:13:02	81°	WSW
14 Feb	-3.4	18:17:34	10°	W	18:20:51	85°	S	18:22:51	22°	E
14 Feb	-1.0	19:54:02	10°	W	19:55:31	24°	W	19:55:31	24°	W
15 Feb	-3.4	19:01:41	10°	W	19:04:57	76°	S	19:05:19	65°	SE
16 Feb	-3.3	18:09:18	10°	W	18:12:35	85°	S	18:15:07	16°	E
16 Feb	-1.4	19:45:48	10°	W	19:47:46	29°	WSW	19:47:46	29°	WSW
17 Feb	-2.9	18:53:21	10°	W	18:56:35	56°	SSW	18:57:35	37°	SE
18 Feb	-3.1	18:00:55	10°	W	18:04:11	71°	SSW	18:07:25	10°	ESE
18 Feb	-1.4	19:37:34	10°	W	19:40:05	25°	SW	19:40:05	25°	SW
19 Feb	-2.1	18:44:58	10°	W	18:48:00	36°	SSW	18:49:58	18°	SSE
20 Feb	-2.6	17:52:25	10°	W	17:55:36	51°	SSW	17:58:47	10°	ESE
20 Feb	-0.7	19:29:37	10°	WSW	19:31:32	15°	SW	19:32:36	13°	SSW
21 Feb	-1.1	18:36:37	10°	W	18:38:14	22°	SSW	18:41:50	10°	SSE

There's an app for that: Try ISS Spotter for iPad/iPhone, which alerts you to impending passes of the ISS. For Android-based phones/tablets there's ISS Detector.

If you use Twitter @twisst or @ISS_spotter will send you a tweet when the international space station (ISS) will be visible at your location.

Occultations during February 2015

James Appleton

The table lists lunar occultations which occur during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

Date	Time (UT)	D/R	Lunar Phase	Sun Alt (d)	Star Alt (d)	Mag	Star
01 Feb	18:24:50	D	0.96+	-16	31	3.6	Lambda Gem
	19:33:24	R		-26	41		
02 Feb	03:53:21	D	0.97+	-34	20	5.3	68 Gem
23 Feb	18:26:46	D	0.29+	-11	42	7.0	ZC 376
24 Feb	22:48:58	D	0.41+	-44	16	7.3	Hip 16985
25 Feb	23:45:25	D	0.52+	-47	17	7.2	Hip 21359
27 Feb	19:31:19	D	0.71+	-19	56	5.9	ZC 944
28 Feb	00:16:41	D	0.72+	-46	28	6.9	ZC 975
03 Mar	03:32:14	D	0.94+	-29	15	4.3	Alpha Cnc

At midnight on the night of 27-28 February, there is a graze of the magnitude 6.3 start ZC970. The Sun is at altitude -46°, the star at 30°, the event takes place on the north limb and the lunar phase is 0.72 waxing. The track, which passes Orwell Park at a distance of 38km, traverses Banham, Short Green, Winfarthing, Mill Green, Dickleburgh, Upper Weybread, Fressingfield, Cratfield, Huntingfield, Sibton Green, Darsham, Westleton, and out to sea midway between Sizewell and Dunwich. Full details including a url to activate a Google Earth map of the event are available on the OASI website. See also last month's OASI News page 23.

Weather permitting, the usual band of OASI graze observers will attempt to observe the event. Please contact Alan Smith if you are interested in joining the observing party.

Date	Time (UT)	Lunar Phase	Limb	Sun Alt (°)	Star Alt (°)	Track Dist from OPO (km)	Mag	Star
27 Feb	23:59	0.72+	N	-46	30	38	6.3	ZC 970

Comet 2014 Q2 (Lovejoy)

Source: BAA electronic bulletin

A comet discovered from Australia by Terry Lovejoy on August 16 has brightened quite rapidly. 2014 Q2 (Lovejoy) is currently too far south to be seen from the UK, although it is being imaged with remote telescopes. See for example the image by Damian Peach at www.damianpeach.com/deepsky/c2014_q2_2014_12_14dp.jpg with other images in the Section archive at www.britastro.org/cometobs/2014q2/index.html The comet is heading northwards and might be seen from the UK in about a week's time, but it will be very low down in the south so you will need an unobstructed horizon. By Christmas it will be easier to see, but still low down and highest around midnight. The comet should be at its brightest at around 4th to 5th magnitude in the first half of January when it will be conveniently visible in the evening sky. There are finder charts on the Computing Section web page at britastro.org/computing/charts_comet.html

The comet is unlikely to show much of a tail, but one of a degree or so in length might be seen with binoculars. It will probably show quite a large diffuse coma, with a stronger central condensation. You will need dark skies to see it to best effect, but it will be sufficiently bright that even city dwellers should be able to find it in binoculars when it is higher in the sky in January. Interesting imaging opportunities include the early hours of December 29 when the comet is very close to M79, mid January when it is relatively close to the Pleiades and February 2 when it transects the line between M34 and NGC752.

Please send any images to Denis Buczynski at cometobs@britastro.org

Paul's Astronomy Podcast for February

Paul Whiting FRAS

Podcast, February 2015 www.oasi.org.uk/2015_02_pod.mp3

Observing Report On Graze Of 88 Piscium

On 29 December 2014, a party from OASI successfully observed the grazing lunar occultation of 88 Piscium. The observing report is also available on the Society's website via the link on the front page or directly via:

http://www.oasi.org.uk/Obsvns/20141229_grazing_occs/20141229_grazing_occs.shtml

Many thanks to all observers for assistance in compiling the report.

Observations

In a typical year there are a dozen or so grazing lunar occultations that can be observed from the British Isles, with typically one or two visible from East Anglia. During the early years of OASI, a graze of the magnitude 6.7 star ZC500 occurred on 27 March 1972, with the track passing only 8.7 km from Orwell Park Observatory. Unfortunately, at the time, OASI was not sufficiently organised to mount an observation of the event and it was not until another two years elapsed, in 1974, that the Society made its first serious attempt to observe a graze. In subsequent years, members of OASI have attempted to observe the phenomenon whenever good opportunities arise. Unfortunately, few attempts have succeeded: for more, see the website.

88 Psc, 29 December 2014

Star	88 Psc	Magnitude	6.0
Lunar phase	61% waxing	Limb	North
Date & time	29 December 2014, 17:39 UT		
Distance of track from Orwell Park	2 km		

Observing report by James Appleton & Neil Morley

A grazing lunar occultation of the magnitude 6.0 star 88 Psc was predicted for 17:39 UT on the evening of Monday 29 December 2014. The occultation was a north limb event. The graze track passed through Harkstead, Chelmondiston, Levington, Hemley, Shottisham, Butley Low Corner, Sudbourne and off the coast at Aldeburgh; at its closest, it came within only two km of Orwell Park Observatory.

The majority of OASI observers watched the graze from the UK. The exception was Neil Morley who, in a feat of international cooperation, observed from Tessy-Sur-Vire, Normandy, where he was enjoying an extended Christmas-New Year break.

UK Observations

Report by James Appleton

For the last several years, I have predicted circumstances of grazing occultations using software developed from a suite of programmes provided originally by the famous Belgian amateur astronomer, Jean Meeus. In recent weeks, Martin Cook and Alan Smith have experimented with the occultation prediction package *Occult* developed by the Australian amateur David Herald. The graze track predicted by *Occult* lay approximately 1.3 km S of that which I predicted. *Occult* also produced a very detailed map of the lunar limb profile, based on radar altimeter data provided by the Japanese *Selene* (*Kaguya*) mission 2007-09; its resolution far exceeded that of the Watts limb data, based on a 1963 photographic survey of the Moon, which I use.

Both software packages produce graze tracks as overlays on Google Earth maps. This enabled easy identification of potential observing sites; Alan generated an initial shortlist, choosing sites

between the two graze tracks, off-road, away from sources of light pollution and with an unobstructed southern aspect. He surveyed the sites a couple of weeks prior to the event and quickly selected the most promising: a large hard standing just off the A1093 mid-way between Ipswich and Felixstowe, on the drive to Walk Farm, close to a large solar array. (Coordinates 625762 239990 OS; 52.01240° N, 1.28841° E, h 26 m WGS84.) Figure 1 shows the observing site in relation to the graze tracks.

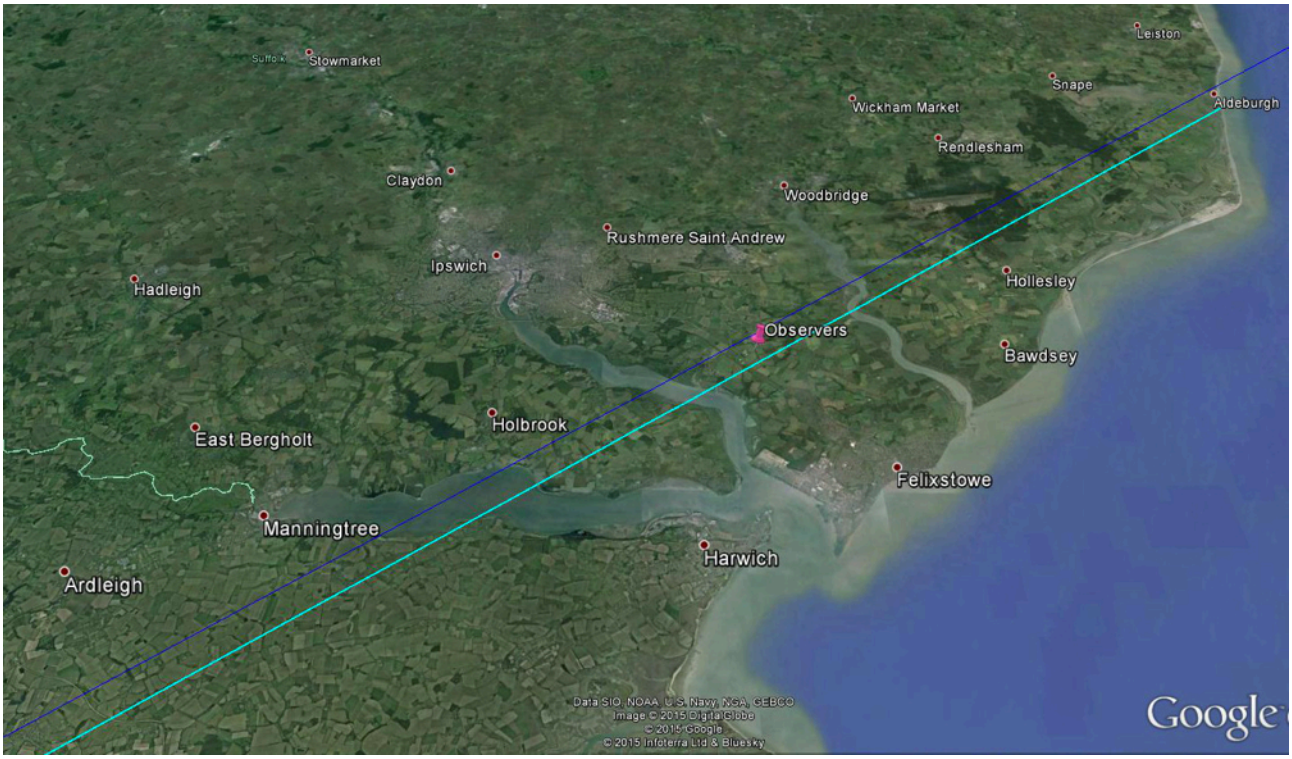


Figure 1. The predicted graze tracks and observing site. (Dark blue by *Occult*, light blue by James Appleton.)

Google Earth plot of predicted graze tracks.

Generally, when Alan recommends an observing site, he finds the landowner and negotiates with him/her our temporary occupation of it for astronomical purposes. Unfortunately, he was unable to locate the landowner of the site selected for observing the graze of 88 Psc, so no permission was granted to occupy it.

The weather throughout the morning of 29 December was promising and the forecast for the afternoon and evening was good. At 15:00 we held the customary telephone conference to make the go/no-go decision: unsurprisingly, the prospective observers agreed unanimously to proceed.

Paul Whiting was first to arrive at the location, at 16:15, pulling just off the public road, followed five minutes later by me. A prominently-displayed notice, advising that the land was private, performed its intended function and deterred us from proceeding onto the hard standing. In addition, the presence of occasional traffic along the track to Walk Farm left us in no doubt that any incursion onto the hard standing could be quickly noticed and reported to the authorities, resulting in the speedy arrival of the police. We therefore initially stayed put, just off the public highway. As more observers arrived, eventually a herd mentality set in and, emboldened by our number, we indulged in a mass trespass and occupation of the hard standing at 16:45. Despite the fears of many, the police did not arrive and neither did a SWAT team parachute onto the site in the middle of our observations...

On arrival on the hard standing, the sky was still light and only the brightest stars were visible. As the observers set up their equipment, inability to find the Pole Star hampered some in alignment of their instruments. This stimulated an innovative approach by Joe Startin, who aligned his

telescope with reference to the alignment of panels in the solar array. He found later, once the Pole Star became visible, that the approach was surprisingly accurate! By 17:00, most were more-or-less set up. The star was easily visible against the dark limb of the Moon. Having acquired the star, the wait began until the graze proper, with the observers watching the Moon draw ever closer and studying detail on the limb.

Table 1 lists the observers, instruments and approaches to timing the event.

Observer	Instrument	Timing
James Appleton	Meade LX200 SCT, 254 mm, F10, 12 mm eyepiece (200x magnification). Meade altaz motor-driven mount.	Eye and stopwatch synchronised to Martin Cook's "Rugby" clock.
Martin Cook	Skywatcher 200 mm PDS, F5, 9 mm eyepiece (110x magnification). Skywatcher HEQ5 Pro mount.	Offline analysis of audio/video recording of "Rugby" clock. Mobile phone recording app as backup.
Richard Grueber	Binoculars. This was Richard's first graze, and he attended to learn what was involved, rather than to make serious observations.	None
Matthew Leeks	Martin Cook's Newtonian, 250 mm, F5.4, 10 mm eyepiece (135x magnification). Dobsonian mount.	Offline analysis of audio recording.
Mike O'Mahoney	Celestron SCT 230 mm, F10, 2.5x Barlow/ Powermate. Skywatcher HEQ5 Pro mount. Canon EOS 60D camera in movie mode (25 frames/sec) @ ISO 5000. Effective magnification approximately 250-300x.	Offline analysis of video by James Appleton, Martin Cook & Mike O'Mahoney.
Martin Richmond-Hardy	Skywatcher 127 mm Maksutov-Cassegrain, F20, 15 mm eyepiece (170x magnification).	Offline analysis of audio recording.
Alan Smith	250 mm Newtonian, F6, 6 mm Orthoscopic eyepiece (250x magnification). Dobsonian mount with experimental azimuth electric drive and manual altitude adjustment.	Offline analysis of audio recording.
Joe Startin	OASI Helios Newtonian, 150 mm, F6.7, 9 mm eyepiece (110x magnification).	Timings by voice recorder synchronised to "Rugby" clock.
Jeremy Startup	Helios Skywatcher 200 p, F5, 8 mm eyepiece and 2x Barlow (250x magnification).	Offline analysis of audio recording.
Paul Whiting	Williams Optics ZS71ED, 71 mm, F5.9, 9.7 mm Plossl eyepiece and 2x Barlow (86x magnification).	Offline analysis of audio recording.

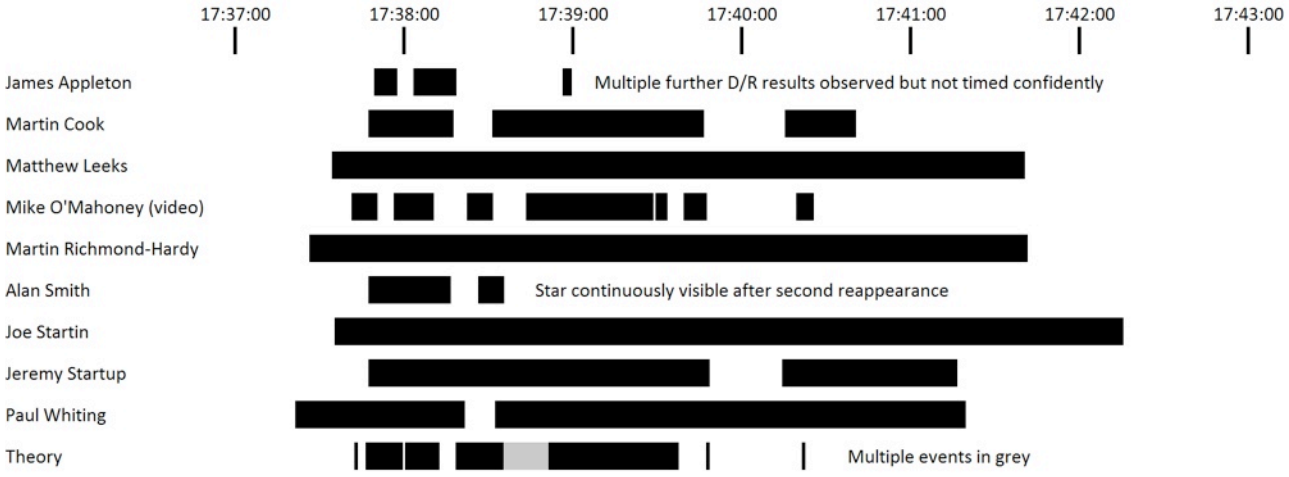
Table 1. Observers, instruments and timing methodologies.

Table 2 lists the timings recorded by the observers and figure 2 displays the data graphically. All but one of the observers made timings by off-line analysis of audio recordings of their observations. The exception was Mike O'Mahoney, who made a video recording. I had hoped initially that Mike's video would enable accurate estimates to be made of event times. In practice, however, this turned out not to be the case, as many of the video frames displayed a fuzzy lunar limb or were compromised by telescope shake, atmospherics or other problems. Figure 3 shows one of the better frames of the video, at 17:37:07, prior to the first disappearance event, with the east rim of the crater Hermite approaching the star. (Other craters in the frame are labelled.)

The video timings below, obtained from detailed frame-by-frame analysis of the video recording, represent a broad initial consensus between Martin Cook, Mike and me as to event timings, but should be regarded as a working estimate pending a more refined investigation.

Observer	D1	R1	D2	R2	D3	R3	D4	R4	D5	R5	D6	R6	D7	R7
James Appleton	37:50	37:57	38:04	38:18	38:57	38:59	-	-	-	-	-	-	-	-
Martin Cook	37:48	38:17	38:32	39:46	40:16	40:40	-	-	-	-	-	-	-	-
Matthew Leeks	37:35	41:40	-	-	-	-	-	-	-	-	-	-	-	-
Mike O'Mahoney (video)	37:42	37:50	37:57	38:10	38:23	38:31	38:44	39:28	39:30	39:33	39:40	39:47	40:20	40:25
Martin Richmond-Hardy	37:27	41:41	-	-	-	-	-	-	-	-	-	-	-	-
Alan Smith	37:48	38:16	38:27	38:35	-	-	-	-	-	-	-	-	-	-
Joe Startin	37:36	42:15	-	-	-	-	-	-	-	-	-	-	-	-
Jeremy Startup	37:48	39:48	40:15	41:16	-	-	-	-	-	-	-	-	-	-
Paul Whiting	37:22	38:21	38:33	41:19	-	-	-	-	-	-	-	-	-	-
Theory	37:52	37:52	38:03	38:07	38:24	38:24	39:11	39:11	39:28	39:31	-	-	-	-

Table 2. Timings recorded by the observers, mm:ss after 17:00:00 UT. (D=disappearance, R=reappearance.) Shading indicates momentary disappearances.



Occultation timings. (Black = star occulted.)

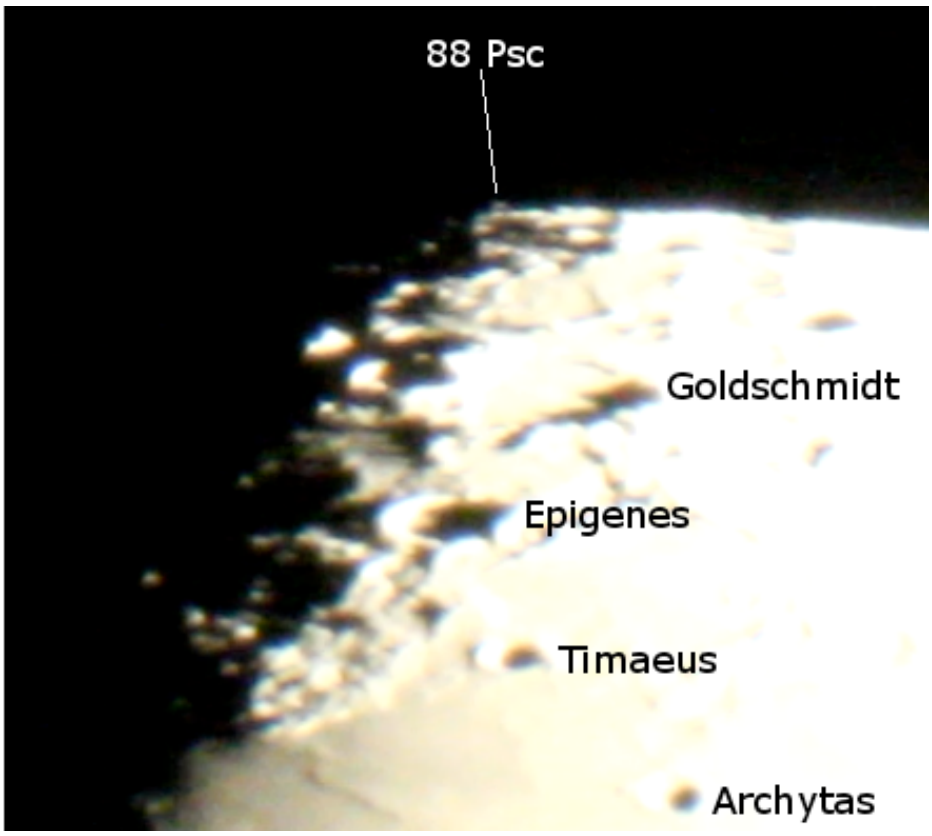


Figure 3. 88 Psc close to the lunar limb.

Figure 4 shows the limb profile provided by the "Occult" programme. The graze line associated with the OASI observers is the horizontal blue line; the corresponding disappearance and reappearance event times are marked.

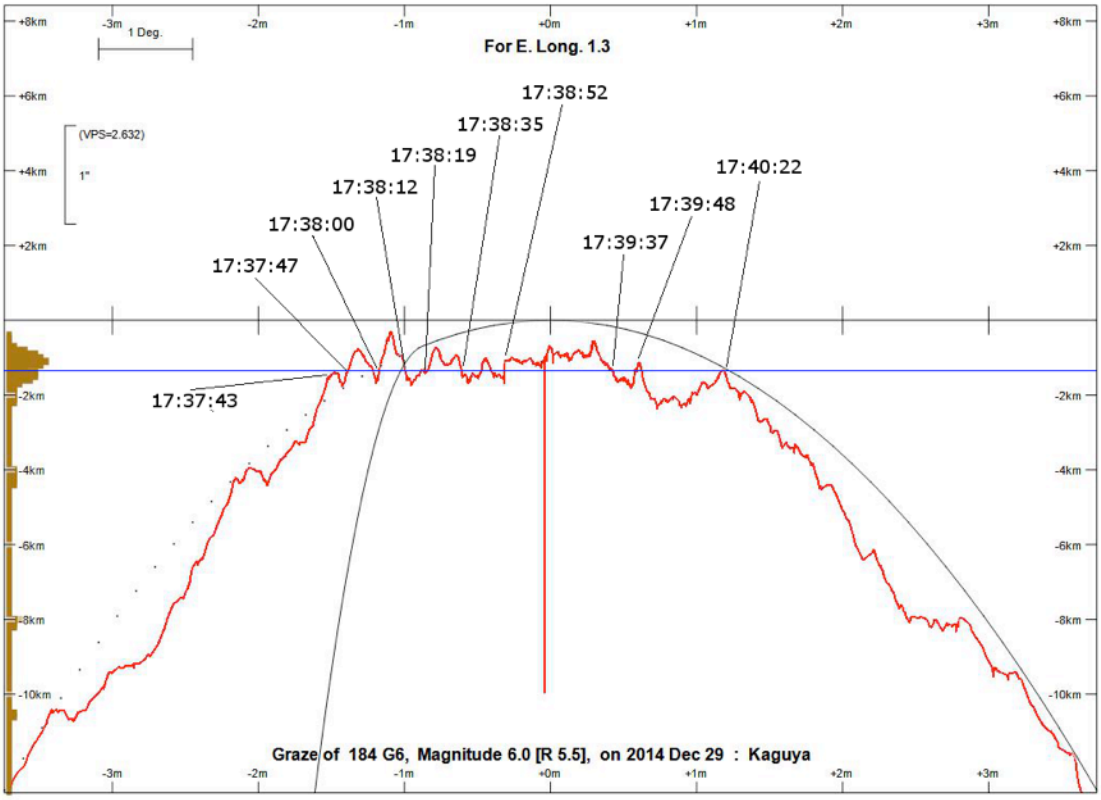


Figure 4. Limb profile from *Occult*.

The most obvious feature of the timings is how different they all are, and how poorly the empirical results agree with theory. In broad terms, observers with larger telescopes recorded a greater number of disappearance and reappearance events than those with smaller instruments.

It is possible to identify approximately the lunar features associated with each of the disappearance and reappearance events. Knowledge of the orientation of the lunar disk during the graze (libration 4.7° in longitude, 1.3° in latitude, PA of axis -23.6°) enables plotting on the lunar surface the visible limb. See figure 5: the blue line denotes the visible limb; also marked are the lunar north pole (NP), the N/S longitude line (0°) and the E/W longitude line (90°). From knowledge of the line, it is possible to identify (approximately!) the major feature associated with each event. Table 3 provides details.

Event	Time (UT)	Feature
D1 – R1	17:37:42 - 17:37:50	E rim of Hermite
D2 – R2	17:37:57 - 17:38:10	W of Peary
D3 – R3	17:38:23 - 17:38:31	W rim of Peary
D4 – R4	17:38:44 - 17:39:28	N rim of Byrd
D5 – R5	17:39:30 - 17:39:33	E rim of Peary
D6 – R6	19:39:40 - 17:39:47	E rim of Peary
D7 – R7	17:40:20 - 17:40:25	Plain E of Peary

Table 3. Lunar feature associated with each disappearance and reappearance event.

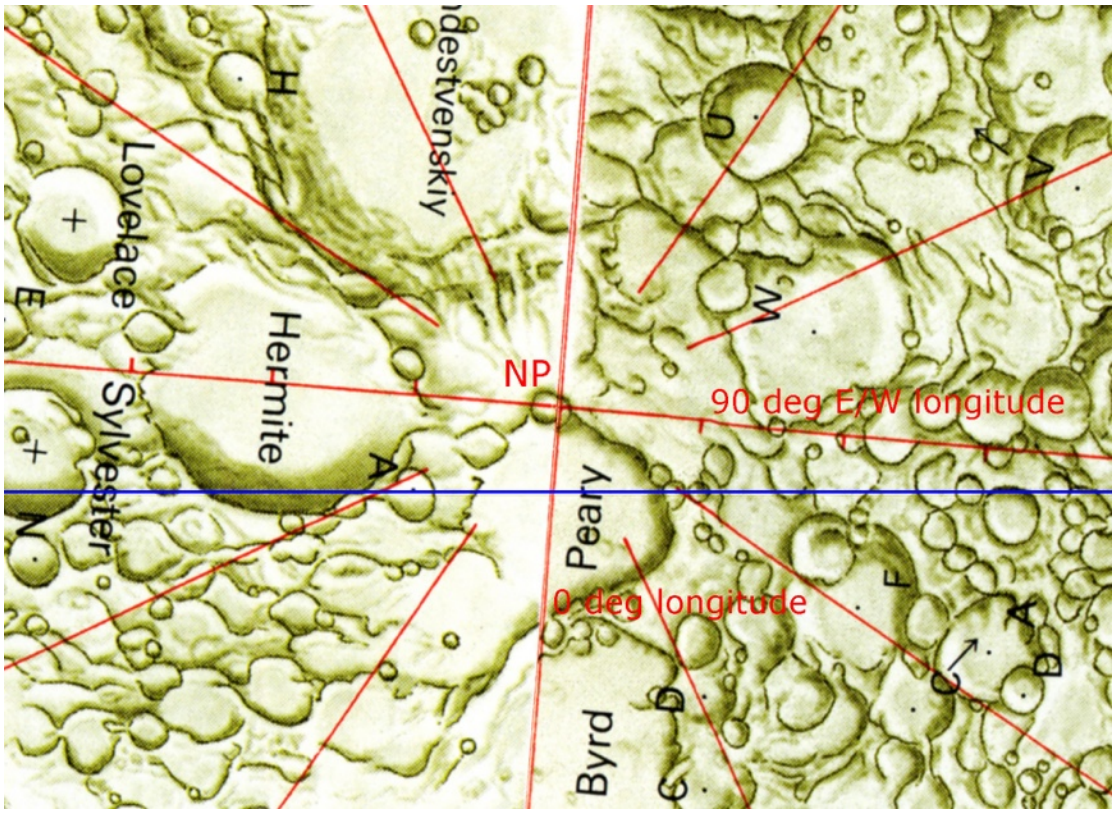


Figure 5 The lunar limb – blue (horizontal) line

Figure 6, (page 2) taken immediately after the graze, shows the observers, left to right: Mike O'Mahoney, Paul Whiting FRAS, Joe Startin, Martin Richmond-Hardy, James Appleton, Alan Smith, Matthew Leeks, Jeremy Startup, Richard Grueber, Martin Cook. Martin Cook's 200 mm Skywatcher PDS is to the right.

James Appleton

Normandy Observations

Report by Neil Morley

From Neil's location in Tessy-Sur-Vire, 215 km south of the graze line, the event was a total occultation, with predicted disappearance and reappearance times 17:19 and 17:47 respectively.

He managed to persuade a friendly local to lend him an equatorially mounted Bresser Skylux 70 mm F10 refractor with two eyepieces, 20 mm and 12 mm, giving 35x and 58x magnification respectively. The instrument gave a sharp image of the Moon. However, the disappearance event at Tessy-Sur-Vire occurred some 20 minutes earlier than the graze at Ipswich, and the sky was accordingly brighter and provided a poor contrast image through the eyepiece, so poor in fact that Neil could not locate the star. His difficulties were compounded by rolling 70% cloud cover which obscured the Moon and necessitated use of the lower magnification eyepiece most of the time simply to keep the Moon in the field of view. Unfortunately, Neil did not, in the end, succeed in observing the event.

Figure 7, taken the following day at the same time as the occultation, shows the brightness of the sky from Tessy-Sur-Vire.

After the event, Neil attributed his experience to locally produced *fine wines and cheeses*. Sounds like a lot of fun!

Figure 7. A clear, bright sky in Tessy-Sur-Vire the day after the occultation, at the same time.

Astrophotography corner

David Murton

Comet Lovejoy C/2014 Q2

Picture taken on 15th January using William Optics 71ED scope with focal reducer/field flattener f4.6. and Canon 1100d. a single 300 second exposure with minimal processing.

M33: 16x360 second exposures at iso400 +darks and flats. 200pds on HEQ5, Canon 1100d

M42

Below is the combination of 17x420 second exposures and 7x 30 second exposures (all at 400iso) + darks and flats. stacked in dss then combined in picturenaut HDR software. This helps to prevent the centre from burning out. Canon 1100d dslr on skywatcher 200pds, HEQ5 + autoguiding with PHD and QHY 5L II camera.