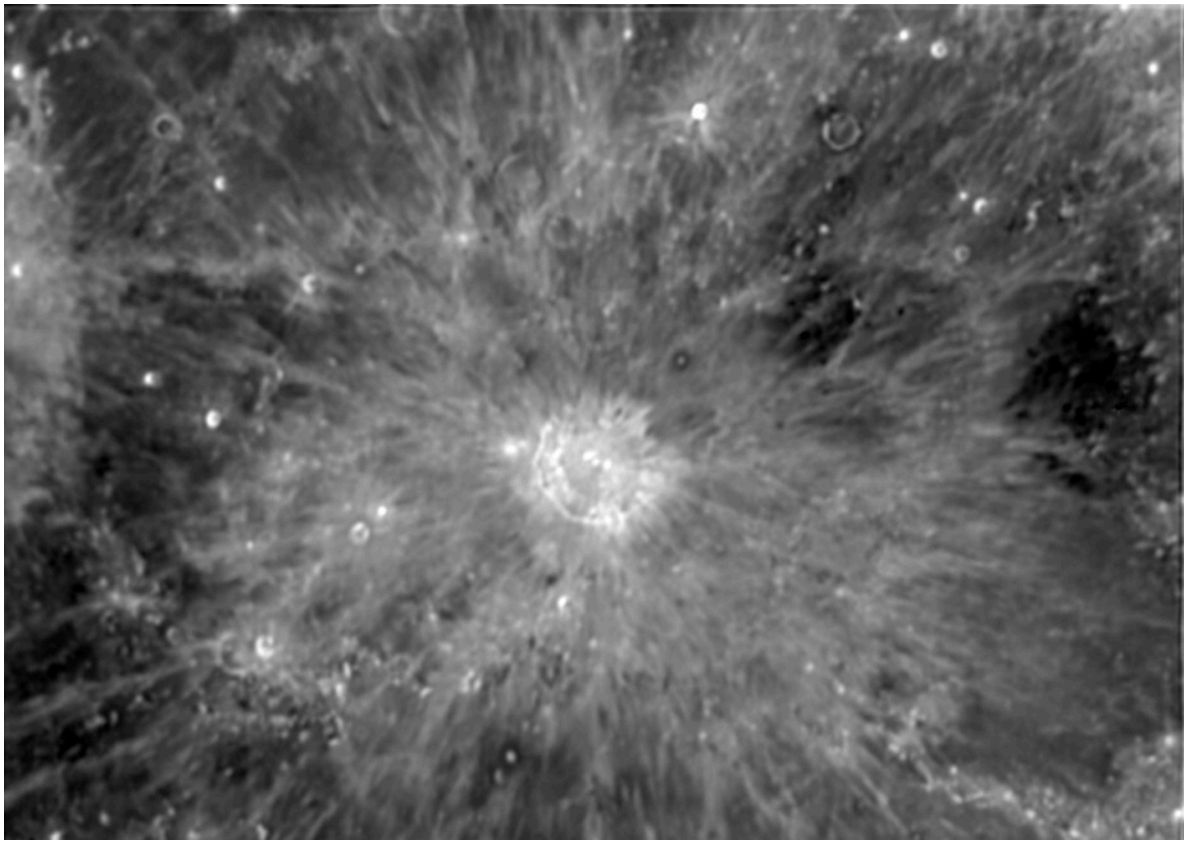
No. 547 Registered Charity 271313 September 2018

OASI News

The newsletter of the Orwell Astronomical Society



Copernicus crater

Photo by Andy Gibbs

:

Trustees: **Mr Roy Adams** **Mr David Brown** **Mr David Payne**

Honorary President: **Dr Allan Chapman D.Phil MA FRAS**

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Society Notices

Society Contact details

Observatory (meeting nights only)
NB new number! 07960 083714

Email queries: info@oasi.org.uk

Facebook: https://www.facebook.com/groups/445056098989371/

Twitter: @OASIpswich

The OASI Facebook pages are proving very popular. Several non-members are active contributors.

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.

Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds by the gym.

Areas out of Bounds

Access to the Observatory is **only via the black door** 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, **07960 083714** during meeting hours. ***Kindly check/amend the number shown on your 2018 membership card.***

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 after 20:15

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, pdf
Spreadsheets: xls, xlsx, OpenOffice/LibreOffice, Numbers
Images: tiff, png, jpg
Please send tables as separate files in one of the above formats.

If you don't feel up to writing a major article, perhaps you might write a short note for OASI News along the lines of *"This month I have mostly been observing/constructing/mending/reading/etc."*?

Newsletter archive 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 2018

Chairman	Paul Whiting FRAS	Set overall agenda for OASI, Chair committee meetings, Press and publicity, Visits by outside groups, Observatory tours, Public appreciation of astronomy, Outreach activities.
Secretary	Roy Gooding	Outreach meetings (jointly with Chairman), observatory decoration.
Treasurer	Paul Whiting FRAS	Finance, Supervision of applications for grants.
Committee	James Appleton	Committee meeting minutes, Web site
	Martin Cook	Membership, Tomline refractor maintenance & user testing
	Peter Richards	Lecture meetings, Email distribution lists
	Martin Richmond-Hardy	Newsletter, OASI @ Newbourne
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club.
	Matt Leeks	Safety & security
	Andy Gibbs	
	Andy Wilshere	Librarian

Signing in and out

Please ensure you sign in and out when visiting the Observatory and/or Newbourne. This is for fire safety precautions and also provides an historic record.

Next Committee Meeting

Friday 7 September at Museum St Methodist Church rooms, Black Horse Lane.

Vale – Peter Thomas Grimer

GRIMER – Peter Thomas, widower of Margaret Ventris Grimer (nee Howick), and known to his family as “Frog”, has died on 8th August 2018, aged 90. A service will be held at St Thomas of Canterbury Church, Woodbridge on Thursday 30th August at 11.00am. No flowers by request, donations if desired for The Cardinal Hume Centre for the Homeless or Médecins Sans Frontières c/o E B Button & Sons Ltd 24 St John’s Street, Woodbridge IP12 1EB

Dear star gazers

I am emailing you to let you know that my dear Dad, Peter Grimer, died last Wednesday. He is, I am sure, now enjoying the astronomical secrets that all of us wonder about as we gaze skywards. One of the last things he said was "no doubt the universe is unfolding as it should".

Thank you all for your companionship and your kindness. Dad was truly happy I your company and you kept his big brain exercised!

Do get back to me if you would like details of the funeral etcetera. A card to his home address would comfort the family.

With love and best wishes

Frances Woodcraft (daughter), 13 August 2018

OASI and BAA Events

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

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 or use this address to access this calendar from other calendar applications.

https://calendar.google.com/calendar/ical/1jhs9db71ncki4sojo7092vfvc%40group.calendar.google.com/public/basic.ics

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

Subscribe to the OASI Yahoo group by emailing oasi-subscribe@yahoogroups.com

Date, Time & Location	Contact	Event
Weekly, every Wednesday, 20:15–22:00 Orwell Park Observatory	Martin Cook, Roy Gooding	General observation (weather permitting) using a variety of telescopes. Entry via the third gate left. NOT the main gate
Mon 03 Sep, 02:30 Location TBD	James Appleton info@oasi.org.uk	Field trip to observe the graze of H 21630. More info.
Fri 07 Sep – Sun 9 Sep Christchurch Junior School, Clarendon Road, Christchurch BH23 2AA	http://britastro.org/node/11256	*BAA Weekend Meeting, Christchurch, Dorset.* *'Cosmology: Theories and observations of the Universe'* *Closing date for this meeting is 24th August - please book early to avoid disappointment*
Sun 09 Sep 2018, 10:00-16:00 Bentley Village playing field (bottom of Case Lane).	Roy Gooding secretary@oasi.org.uk	**Public access event.** Solar observing. Booking not necessary.
Mon 10 Sep, 19:00-late Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. 19:30 Talk by Bill Barton on the night sky. Book swap: bring any books or DVDs concerning astronomy, space-travel, sci-fi or popular science and swap them for something different. Observing or informal talks, depending on the weather. Bring your telescope to our dark-sky site.

Date, Time & Location	Contact	Event
Thurs, Sep 20 – Sun 23 Sep ExCeL, London, E16 1DR	https://britastro.org/node/14072	*New Scientist Live – A 4 day festival of science*
Fri 21 Sep 2018, 20:00 St Augustine's Church Hall	Pete Richards lectures@oasi.org.uk	Lecture Meeting. Dr Lorne Whiteway, Honorary Research Associate at University College London, *Can the World's Largest Digital Camera Answer Cosmological Questions?*
Mon 24 Sep 2018, 19:00-late Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Workshop 19:45: Astronomy Workshop presented by Nigel Evans: The Summer Sky from The Canaries and Namibia. Spectacular images from recent visits to two dark-sky locations.
Fri 28 Sep 2018, 19:00-late Broomhill Library	Paul Whiting, FRAS chairman@oasi.org.uk	Talk and telescopes evening.
Sat 29 Sep 10:00 to 17:30 Burlington House, Piccadilly, London, W1J 0DU	http://britastro.org/node/11257	*BAA Observers' Workshop - Variable Stars, Photometry and Spectroscopy.*
Mon 8 Oct from 19:00 Newbourne VH	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. 19:30 Skynotes by Bill Barton. Book swap. Bring your telescope to our dark-sky site. (Talks on astronomy if weather unsuitable for observing.)
Mon 22 Oct, 10:00-16:00 Norwich Science Festival, Astronomy Day.	Roy Gooding secretary@oasi.org.uk	**Public access event.** OASI display. Booking not necessary.
Mon 22 Oct from 19:00	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Bring your telescope to our dark-sky site. (Talks on astronomy if weather unsuitable for observing.)

Date, Time & Location	Contact	Event
Fri 26 Oct 2018, 20:00 St Augustine's Church Hall	Pete Richards lectures@oasi.org.uk	Lecture Meeting. Dr Matt Bothwell, Institute of Astronomy, University of Cambridge, *Monsters in the Dark: Searching for the Most Massive Galaxies in the Universe*.
Mon 12 Nov from 19:00 Newbourne VH	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. 19:30 Skynotes by Bill Barton. Book swap. Bring your telescope to our dark-sky site. (Talks on astronomy if weather unsuitable for observing.)
Fri 23 Nov 2018, 20:00 St Augustine's Church Hall	Pete Richards lectures@oasi.org.uk	Lecture Meeting. Martin Lewis, *Imaging with a Dobsonian*.
Mon 26 Nov from 19:00 Newbourne VH	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Bring your telescope to our dark-sky site. (Talks on astronomy if weather unsuitable for observing.)
Tue 27 Nov 2018, 04:00 Location TBD	James Appleton info@oasi.org.uk	Field trip to observe the graze of 85 Gem. More info.
Tue 27 Nov 2018, 22:15 Location TBD	James Appleton info@oasi.org.uk	Field trip to observe the graze of δ Cnc. More info.

Outreach meetings

28 September Broomhill Library. Paul Whiting is not available to attend, so Martin RH will attend and give a presentation aimed at children. Please help, with or without telescope.

22 October Norwich Science Festival Astronomy Day, 22 October.

Lecture Meetings

Contact: Peter Richards
lectures@oasi.org.uk

We have an exciting and interesting set of lectures by guest speakers for the Autumn.

There is a new venue for lectures this year which is:

St Augustine's Church Hall
Bucklesham Road
Ipswich IP3 8TH.

The start time for all talks will be 8pm and, as usual, the talks will be held on Friday evenings.

OASI Guest Speaker Lectures for 2018

Friday 21st September	"Can the World's Largest Digital Camera Answer Cosmological Questions?" Dr Lorne Whiteway, University College London,
Friday 26th October	"Monsters in the Dark: searching for the Universe's most massive galaxies" Dr Matt Bothwell, Institute of Astronomy, University of Cambridge.
Friday 23rd November	"Imaging with a Dobsonian" Martin Lewis, Lunar and Planetary Imager.

OASI @ Newbourne

Martin Richmond-Hardy newbourne@oasi.org.uk

We normally meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays (with a few exceptions, like December and January).

OASI @ Newbourne 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. We would like visitors to join OASI to enjoy the full benefits of membership.

There are also **Stagazers' Guide (Sky Notes), Astronomy Workshops and the Book Swap.**

Stargazer's guide

On the first meeting each month Bill Barton FRAS will give a short presentation of what can be viewed in the following 4 weeks. For armchair stargazers (on those cloudy nights) there is a small branch of the OASI Library held at Newbourne and a copy of the full catalogue.

OASI@Newbourne Meetings in 2018

10 Sept (S+B)	24 Sept (W+B)	8 Oct (S+B)	22 Oct
12 Nov (S+B)	26 Nov		

We open up for all meetings at 7pm. Star Guide (S) at 7:30pm and Workshops (W) at 7:45pm. B = Book Swap night (see below).

Astronomy Workshops

Contact Mike Whybray **Location: Newbourne Village Hall IP12 4NP**

Doors open at 7:00pm. **Workshops start 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, interactive 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!

Given a clear night, we can make use of the field for a workshop or continue afterwards with some observing – something not possible at the previous venue, Nacton village hall.

Do you have a subject you could workshop? You could do a short one, or share the effort with a partner. Drop Mike Whybray a line! workshops@oasi.org.uk

24 September 19:45:
Astronomy Workshop presented by Nigel Evans: The Summer Sky from The Canaries and Namibia. Spectacular images from recent visits to two dark-sky locations.

TBA Martin Cook on Tomline Refractor Training (at the Observatory)

Astronomy Book Swap

Pete Richards

If you are anything like me you'll have a bookcase or two full of astronomy books and no room for any more but you know the next time you are at an astronomy event you'll be tempted again. OASI will be hosting an astronomy book swap event at Newbourne on a Monday evening help you to clear some space or maybe you can provide a home for someone else's unwanted books.

If you bring any books and they are not taken you will need to take them home again as OASI has no spare storage space for books.

You can take away any books you are interested in but if you have not provided any books yourself you might like to make a small cash donation to OASI.

Any cash donations will help towards running OASI @ Newbourne.

The books can be on any area of astronomy, or space exploration, or related subjects. They can be factual or works of fiction including space related science fiction. As well as books you could bring DVDs on similar subjects, or maybe you have an astronomical jigsaw puzzle you'd like to give away or exchange.

The book swap will be held at Newbourne Village Hall on Monday Star Guide/Workshop nights (a normal oasi @ newbourne night).

Other local astronomy society meetings

Athaneum Astro Soc

www.3a.org.uk/index.htm

We meet fortnightly on Thursdays, from 7.30pm, at our dark-sky site in the Walled Garden at Nowton Park, just outside Bury St Edmunds. If you're planning on joining us for the first time, please contact us in advance, just to make sure the meeting is going ahead. We recommend that you wear warm clothing (even summer nights can be chilly, especially when the skies are clear!) and bring a flask, or insulated mug, for a warm drink. We have tea and coffee-making facilities on-site. Events are listed here http://www.3a.org.uk/events.htm

Thursday, 30 August	Variable stars
13 September	The formation of The Universe (TBC)
	What's topical in astronomy

27 September	Mysteries of Mars
	What's in the night sky
11 October	Star Shadows - all about sundials
	What's topical in astronomy

LYRA Lowestoft & Yarmouth Regional Astronomers

www.lyra-astro.co.uk

LYRA Programme and Local Events 2018 – All talks (unless other wise stated) will commence at 7.30pm in the Coach House Room at Parkhill Hotel, just outside Oulton Village on the B1375 (Oulton Broad to Gt. Yarmouth Road) NR32 5DQ

All Talks £2.50 For Non Members

11 Sept	Talk by Jonathan Gale, Webb Society Committee "Observing Astronomical Asterisms"
25 Sept	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7:30pm
9 Oct	Talk by Dr John Rogers, BAA Jupiter Section Director "Jupiter and the Juno mission"
23 Oct	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7:30pm
13 Nov	Talk by Bob Argyle, President of the Webb Society "Observing Double Stars Past & Present"
27 Nov	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7:30pm

DASH Astro

Darsham And Surrounding Hamlets

http://dash-astro.co.uk

All DASH Astro observing sessions will take place at WESTLETON COMMON. ASOG observing sessions and locations may be arranged at the time of observation.

Unless stated all group meetings will take place at WESTLETON VILLAGE HALL from 7:30 pm.

Note these are now on Sundays.

09 Sept	Dash Observing Session (Sunset 19:23 Moonset 19:39 0.2% Moon)
23 Sept	Meeting – Bob Greef. Title tbc.
07 Oct	Dash Observing Session (Sunset 18:17 Moonset 18:04 4% Moon)
21 Oct	Meeting – S.Hubbard / D.Gwynn: Colliding Neutron Stars ... evidence?
11 Nov	Dash Observing Session (Sunset 16:06 Moonset 18:59 16% Moon)
25 Nov	Meeting – Dave Green: Distances to Stars and Galaxies. How do we measure?
08 Dec	(Saturday) DASH Christmas Social – Irene's confirmed (Members and Guests only)

The Night Sky in September

Martin RH

All event times given are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E

Times are in BST unless otherwise stated

Moon

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

New Moon	1st Quarter	Full Moon	Last Quarter
		26 August 12:56	03 Sept 03:37
09 Sept 19:02	17 Sept 00:15	25 Sept 03:52	

Sun, Moon and planets

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

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:07	19:42		Autumn equinox Sep 23, 02:54
	30	06:54	18:35		
Moon	1	22:29	12:28		Perigee 361,351 km 08 Sept 02:21 Apogee 404,876 km 20 Sept 01:54
	30	21:40	12:45		
Mercury	1	04:30	19:11	-0.7	Perihelion 02 Sept
	30	07:37	18:46	-0.9	
Venus	1	10:40	20:30	-4.3	Aphelion 05-Sept
	30	10:39	18:39	-4.4	
Mars	1	18:54	01:47	-2.1	Perihelion 16-Sept
	30	17:03	00:45	-1.3	
Jupiter	1	12:38	21:44	-1.8	
	30	11:12	20:00	-1.7	
Saturn	1	16:32	00:15	0.4	
	30	14:40	22:19	0.5	
Uranus	1	21:10	11:15	5.7	
	30	19:15	09:16	5.7	
Neptune	1	19:53	06:45	7.8	Opposition 07-Sept
	30	17:58	04:46	7.8	

Paul's Astronomy Podcast for September

Paul Whiting FRAS Podcast, September 2018 www.oasi.org.uk/2018_09_pod.mp3

Occultations during September 2018

James Appleton

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

The events should be readily visible in small telescopes or binoculars. The first two columns list the date and time (UT) of the occultation. Column three gives the phenomenon: 'D' denotes a disappearance and 'R' a reappearance. The table lists circumstances of disappearances and reappearances as dictated by the visibility of each phenomenon (determined by altitude, lunar phase, etc). Column four details the lunar phase ('+' for waxing and '-' for waning). Columns five and six give the altitude of the Sun and the star, both in degrees. (A negative solar altitude means that the Sun is below the horizon.) Columns seven and eight provide the star's magnitude and catalogue number.

Only one lunar occultation occurs during July under favourable circumstances, detailed below.

The data relates to Orwell Park Observatory, but will be similar at nearby locations.

Please note that **times are shown in UTC**.

Date	Time (UT)	D/R	Lunar Phase	Sun Alt(°)	Star Alt(°)	Mag	Star
13 Sept	19:21:28	D	0.20+	-11	7	7.1	Hip 72596
18 Sept	21:58:32	D	0.68+	-32	8	6.4	ZC 2802
20 Sept	18:34:11	D	0.83+	-6	13	6.8	ZC 3035
20 Sept	22:38:23	D	0.84+	-35	15	7.5	Hip 103166
20 Sept	23:00:10	D	0.84+	-36	14	6.7	ZC 3057
21 Sept	20:29:13	D	0.90+	-23	20	3.7	40 Cap, γ Cap
	21:21:16	R		-29	21		
23 Sept	21:08:22	D	0.98+	-29	24	4.2	91 Aqr, ψ1 Aqr
23 Sept	21:43:43	D	0.98+	-32	27	4.4	93 Aqr, ψ2 Aqr

On 03 September at 02:32 there is a northern limit graze of the magnitude 7.9 star Hip 21630. Details are on the OASI website: http://www.oasi.org.uk/Occs/Occ_summary_2018.php. An observing trip will be organised if weather conditions are favourable: details will be provided via the OASI email list.

Meteor showers

Source: BAA Handbook 2018 p97-99

Shower	Maximum	Normal limits	ZHR at Max	Notes
Piscids	Sept 9 Sept 21 Oct 13	Sept – Oct	10 5 ?	A multiple-radiant ecliptic complex with low rates

Visible ISS passes ≥15º max altitude

Martin RH

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

Times are BST. Predictions are approximate (26 August) due to craft adjustments. Check the day before.

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
03 Sep	-2.1	04:42:19	15°	SSW	04:44:05	24°	SSE	04:46:48	10°	E
04 Sep	-1.6	03:52:20	16°	SE	03:52:20	16°	SE	03:54:17	10°	ESE
04 Sep	-3.4	05:25:00	10°	WSW	05:28:11	54°	SSE	05:31:23	10°	E
05 Sep	-3	04:34:57	28°	SSW	04:36:08	39°	SSE	04:39:13	10°	E
06 Sep	-2	03:44:53	25°	SE	03:44:53	25°	SE	03:46:58	10°	E
06 Sep	-4	05:17:33	13°	WSW	05:20:20	74°	S	05:23:36	10°	E
07 Sep	-3.7	04:27:27	43°	SW	04:28:13	59°	SSE	04:31:28	10°	E
08 Sep	-2.2	03:37:20	29°	ESE	03:37:20	29°	ESE	03:39:16	10°	E
08 Sep	-3.9	05:09:59	16°	W	05:12:30	86°	S	05:15:47	10°	E
09 Sep	-3.9	04:19:52	62°	WSW	04:20:19	78°	S	04:23:36	10°	E
10 Sep	-1.9	03:29:45	27°	E	03:29:45	27°	E	03:31:25	10°	E
10 Sep	-3.9	05:02:25	19°	W	05:04:37	84°	S	05:07:53	10°	E
11 Sep	-4	04:12:20	85°	SW	04:12:24	86°	S	04:15:42	10°	E
11 Sep	-3.6	05:45:36	10°	W	05:48:48	53°	SSW	05:52:01	10°	ESE
12 Sep	-1	03:22:18	20°	E	03:22:18	20°	E	03:23:29	10°	E
12 Sep	-4	04:54:58	26°	W	04:56:39	69°	SSW	04:59:54	10°	ESE
13 Sep	-3.4	04:05:01	57°	ESE	04:05:01	57°	ESE	04:07:43	10°	E
13 Sep	-3	05:37:42	10°	W	05:40:43	34°	SSW	05:43:43	10°	SE
14 Sep	-4	04:47:50	38°	WSW	04:48:36	48°	SSW	04:51:45	10°	SE
15 Sep	-2	03:58:07	25°	ESE	03:58:07	25°	ESE	03:59:38	10°	ESE
15 Sep	-2.3	05:30:49	15°	WSW	05:32:29	21°	SW	05:35:00	10°	SSE
16 Sep	-3	04:41:16	26°	S	04:41:16	26°	S	04:43:18	10°	SE
23 Sep	-2.1	20:03:54	10°	S	20:06:08	17°	SE	20:06:18	17°	SE
24 Sep	-3	20:46:42	10°	SW	20:49:04	34°	SSW	20:49:04	34°	SSW
25 Sep	-2.8	19:54:40	10°	SSW	19:57:34	29°	SSE	19:58:59	20°	ESE
25 Sep	-1.5	21:30:29	10°	WSW	21:31:39	20°	WSW	21:31:39	20°	WSW
26 Sep	-4	20:38:09	10°	WSW	20:41:25	61°	SSE	20:41:26	61°	SSE
27 Sep	-3.4	19:45:54	10°	SW	19:49:03	46°	SSE	19:51:09	19°	E
27 Sep	-1.9	21:22:07	10°	W	21:23:48	27°	W	21:23:48	27°	W
28 Sep	-3.9	20:29:42	10°	WSW	20:33:00	79°	S	20:33:25	64°	ESE
29 Sep	-4	19:37:19	10°	WSW	19:40:36	67°	SSE	19:43:00	17°	E

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
29 Sep	-2.1	21:13:43	10°	W	21:15:38	32°	W	21:15:38	32°	W
30 Sep	-3.9	20:21:16	10°	W	20:24:35	86°	S	20:25:10	57°	E

Iridium flares

Too many to list but see http://heavens-above.com/IridiumFlares.aspx

Iridium flares to cease by end of 2018 | BBC Sky at Night Magazine

Astronomy on the radio

Bill Barton's Radio Broadcast

ICRFM (Ipswich Community Radio) 105.7 MHz at about 08:25 in the morning of the first Wednesday of each month. I aim to cover what there is to see in the sky and then a little bit on something topical. ICRFM is also available to listen to over the Internet and there is a listen again option on their website. http://www.icrfm.com

David Murton's Radio Broadcast

On 1st Tuesday of the month, 1.40pm on the Lesley Dolphin show on BBC Radio Suffolk – now digital (channel 10c) and FM 103.9 (Ipswich), 104.6 (west Suffolk), 95.5 (Lowestoft), 95.9 (Aldeburgh) and the internet. https://www.bbc.co.uk/radiosuffolk

BAA news

September

Friday 7 September - 19:00

BAA Weekend Meeting, Christchurch, Dorset

Thursday, 20 September (All day)

New Scientist Live A 4 day festival of science

Saturday 29 September - 10:00

Observers' Workshop - Variable Stars, Photometry and Spectroscopy.

Burlington House, Piccadilly, W1J 0DU. Details to be released soon.

October

Saturday 6 October - 10:00

Back to Basics Workshop, Bexleyheath

Saturday13 October (All day)

'The Astronomer' magazine Annual General Meeting

Annual meeting of TA, open to all BAA members

Wednesday 31 October 31 - 17:30

BAA Annual General Meeting and Ordinary Meeting

Next year – Practical Astronomy Show

Venue: Kettering Conference Centre, Thurston Drive, Kettering, Northamptonshire, NN15 6PB

Date: Saturday 9 March 2019 - 09:30

The Practical Astronomy Show is a free one-day event at the Kettering Conference and Exhibition Centre.

There will be free talks about the practical aspects of astronomy, with an emphasis on using and getting the best out of astronomy products.

The show caters for all levels of practical astrophotography and visual astronomy.

Organisations involved in astronomy education, outreach and tourism will be available to meet and greet the general public.

Please note the Practical Astronomy Show is not run by the BAA, but the BAA will be present as an exhibitor.

Astronomy Course at Ipswich Institute

Paul Whiting FRAS

Once again Paul will be running an evening astronomy course at the Ipswich Institute starting 9th October running for 10 weeks. If interested please contact the Ipswich Institute directly:

http://www.ipswichinstitute.org.uk/course.php?id=212&cat=5

With Astronomy featuring more and more on our TV screens have you ever wondered what it is all about? This course will introduce this interesting science and hobby. You do not need a telescope to take part (although you will probably want to get one afterwards!). You just need an enquiring mind. There will be an optional visit to Orwell Park Observatory on Thursday 6 December at a small extra cost.

Terms & Conditions

Course Tutor: Paul Whiting
Course Duration: 10
Course dates: 09 Oct – 11 Dec
Half Term: n/a
Price: £80
Members Price: £52
Concessions*: £60
Additional Information:
Optional visit to Orwell Park Observatory on Thursday 6 December at a small extra cost.

*The concessionary rate is available to anyone in receipt of means-tested benefits.

FAS 2018 Convention and AGM

at University of York on Saturday, 22nd September

On Behalf Of Dr Paul A Daniels (FAS) via Allfassocs

I'm pleased to be able to announce the FAS 2018 Convention and AGM which will be held at the Spring Lane venue of the University of York on Saturday, 22nd September. We have use of the modern 350 seat lecture theatre as well as four side rooms and the ground-floor of the atrium. Unlike previous years, however, the Convention part of the day will also be open to the public – hopefully lots of them!

Booking is now open on the FAS 2018 Convention and AGM webpage. You may also be able to pay at the door on the day but, since we're now inviting the public, it would be better for you to book in advance to avoid disappointment.

As with previous years we've managed to keep the cost low so that it's just £6 for members of FAS societies and £8 for non-members. It's half-price for those under 16 years-old or, on presentation of a current student ID card, students from the University of York.

Yes, we're hoping to have trade stands at the venue where you can get books and astro-bits but we're also hoping that FAS societies (especially those reasonably local to York) will take up the free opportunity to put up display boards to show what you do and attract new members. If you'd like to avail yourself of a display area please let us know when you book.

Last year we had five fabulous talks and this year we've gone one better with six great talks lined up for you during the day. Here's the programme:

Time	Speaker	Topic
09:00	FAS President	Welcome & Introduction
09:05	**Prof Mike Cruise** University of Birmingham President, Royal Astronomical Society	***The Gravitational Sky*** In 2015 the search for the gravitational waves predicted in 1916 by Albert Einstein finally achieved success. The LIGO collaboration published the first direct evidence of black holes colliding far away in the cosmos. Since then a series of such violent events has been studied using the new technique of gravitational wave astronomy. As with electromagnetic astronomy, different frequency bands will bring us information on different objects and allow us to explore the physics of massive objects. This talk will give an introduction to the Gravitational Sky and what we may expect to learn about our Universe using these new instruments.
10:05	**Prof Katherine Blundell OBE** University of Oxford	***Black holes & spin offs*** The popular notion of a black hole "sucking in everything" from its surroundings only happens very close to a black hole. Far away, the pull of the black hole is identical to that of anything else of the same mass. However, black holes do give rise to many remarkable phenomena such as extragalactic quasars and, in our own Galaxy, micro quasars. This is because gravity is not the only law of physics that must be obeyed. Matter can be spun off from near black holes in the form of winds and jets that spread through their surroundings and thus cause black holes to have tremendous cosmic influence many light years beyond their event horizons. I will describe various approaches that I employ to investigate these phenomena, and their spin-offs.
11:05	**Break 1**	
11:30	**Prof Brad Gibson** University of Hull	***How the Universe Will End…*** One of the most exciting questions in all of science remains "How did the Universe begin?"; less often spoken about is the opposite end of the life-cycle: "how the Universe will end…". Over a rollicking and interactive hour, Professor Gibson will walk you through our Universe, from its birth and toddler phase, to the rough teenage years and mid-life crises, and ultimately, its mysterious fate, billions of years from now.
12:30	**FAS AGM**	**(Members Only)**
13:00	**Lunch**	

Time	Speaker	Topic
14:15	**Charles Barclay** Director, Blackett Observatory, Marlborough College Vice-President, Royal Astronomical Society	***Reaching the stars - developing the British entry for the Astronomy and Astrophysics Olympiad*** Following a trial entry in 2015, the British teams have won 1 Gold, 4 Silver and 2 Bronze medals in 3 annual International Olympiads, finishing as high as 6th in the country medal table out of 45 competing. Publicity and finance are now needed to ensure our best students are selected, regardless of background or location. The talk will detail the development of this new venture for aspiring secondary level students.
15:15	**Break 2**	
15:45	**Prof Ian Robson** STFC	***The Changing Scene in Astronomy*** Since the first use of the telescope in 1609 astronomers have made amazing discoveries about the Universe in which we live. Technological improvements have meant bigger and better telescopes and novel instruments spanning the entire electromagnetic spectrum and beyond. This talk gives an illustrated overview of this development and the discoveries that have led to our current knowledge of the Universe and concludes with the onset of 'Big Data' in modern astronomy and the changing scene facing astronomers today.
16:45	**Prof John C Brown OBE** Emeritus Professor of Astronomy, Glasgow University Astronomer Royal for Scotland	***Sun Plunging Comets (Hypersonic Snowballs in Hell)*** In times gone by *Sun-Grazing Comets* were loosely defined as those going nearer the sun than Mercury, and were thought very rare. From around 1980, spacecraft with white light coronagraphs (artificial eclipses) enabled detection of comets of much smaller size and much closer to the sun and proved close approaches to be in reality very common - several per week. The interaction of dusty dense hypersonic snowballs and their vaporising tails with the sun's intense radiation field and the hot super-tenuous magnetised coronal plasma has proved to be a potential rosetta stone for the study not only of comets but of the inner solar atmosphere when viewed on the ultraviolet by SDO etc. In the last few years alone a couple of cometary nuclei with masses large enough not to vaporise fully in the sunlight have survived to distances 100-1000 times closer to the sun's surface than NASA's Parker Probe will reach 7 years hence, and acted as in situ solar plasma probes. In parallel, studies of cometary infall onto white dwarf stars is yielding new insights into post Main-Sequence exo-planetary systems.
17:45	FAS President	Closing Comments
17:50	Departure	

The University's outreach team would also like to invite you to visit their Astrocampus with both optical and radio observatories.

The OASI Christmas Meal

Roy Gooding

I have booked the Coach & Horses in Melton for this year's Christmas meal and will be taking orders up to the middle of November.

Coach and Horses, Melton Wednesday 12th December at 20:00

Christmas Party Menu 2018

2 Courses £18 3 Courses £22 Deposit £5

Starters

Roasted Squash & Sweet Potato Soup

Soup Served with fresh bread

Shredded Slow cooked Lamb Shoulder

Slow cooked with honey & rosemary. Served with tomato pearl & crisp green salad

Creamy Garlic & herb Mushrooms

Served with grilled brioche

Prawn & Crayfish Cocktail

Bound with fresh tomato & chilli salsa with fresh bread

Filo Wrapped Tiger Prawns

Tiger prawns wrapped in filo pastry with a sweet chilli dip

Main Course

Traditional Roast Suffolk Turkey

Roasted Suffolk turkey breast served with rich sage & onion stuffing, Procter's Cumberland chipolata wrapped in smoked bacon, golden roasted potatoes, fresh vegetables & rich gravy

Slow Roasted Belly of Pork

Served upon gratin potatoes with Aspalls cider gravy & vegetable medley

Seafood Filo strudel

Served with rich cheese sauce & vegetable medley

Roasted Winter Vegetable Bake

Medley of winter vegetable layered with parmesan cream sauce with gratinated potato topping. Served with mixed salad

Roasted Sirloin Steak (£5 sup)

Served with garlic buttered mushrooms, coleslaw, onion rings & chips

Desserts

Traditional Christmas pudding

Served with brandy sauce

Chocolate Gingerbread Cake

Served with chocolate sauce & vanilla ice cream

Selection of Fine Cheese & Biscuits

Served with selection of crackers & apple

Lemon & Clementine Posset

Served with spiced flapjack

Mince Pies to Finish

EME2018

Martin RH

I recently attended EME2018 in Egmond aan Zee in the Netherlands. Most of the presentations concerned radio communication via the Moon (**E**arth-**M**oon-**E**arth) but one paper in particular was of interest to radio astronomers.

Hunting for Pulsars

I0NAA, Mario A. Natali, I1NDP, Nando Pellegrini IW5BHY, Andrea Dell'Immagine OE5JFL, Hannes Fashing

Abstract

The detection of pulsars is one the most challenging and rewarding activity for an amateur radio station and facts are showing that amateurs well equipped for EME have good possibility to achieve this important result.

In 2016, after the WW EME conference in Venezia, a small "Euro Pulsar Working Group" with Andrea IW5BHY, Nando I1NDP, Hannes OE5JFL and Mario I0NAA was established exchanging experiences, information and best practices.

After few months, thanks to the software released by Andrea IW5BHY, all members of the group started to see the first objects and Mario I0NAA released a program that allowed precise prediction of possibility of detection. Also, in order to avoid fake detections, the group established a peer-to-peer review process.

As of today, Hannes OE5JFL was able to detect >50 Pulsars and few months ago Nando I1NDP released new detection programs that allow to use high bandwidth SDR opening the door to even more challenging results.

In the presentation all details and results of this exciting journey will be given from the members of the group.

A copy of the presentation slides can be downloaded from here:

www.vhf.cz/soubory/dokumenty/oe5jfl-i0naa-i1ndp-hunting-for-pulsars-rev-071518.pdf

Extract from the paper

At EME 2016 the detection of pulsars was just a dream, but in less than two years thanks to a strong team effort (IW5BHY, I1NDP, OE5JFL, I0NAA) we have established a methodology that includes peer review. The best performing station has detected more than 50 Pulsars!

The chief enabler for this success was Andrea, IW5BHY who has created a suite of programs that uses popular low cost SDRs such as RTL-SDR and AirSpy. The application can then perform numerical analysis and organize the received data into the 'filterbank' format which allows the use of professional radio astronomy programs such as PRESTO[1], SIGPROC[2] and TEMPO[3].

Andrea also made his radio telescope available online. It is configured in drift scan and continuously receive the Pulsar B0329+54.

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1 PRESTO https://www.cv.nrao.edu/~sransom/presto/ is a large suite of pulsar search and analysis software developed by Scott Ransom mostly from scratch. It was primarily designed to efficiently search for binary millisecond pulsars from long observations of globular clusters (although it has since been used in several surveys with short integrations and to process a lot of X-ray data as well). It is written primarily in ANSI C, with many of the recent routines in Python. According to Steve Eikenberry, PRESTO stands for: PulsaR Exploration and Search TOolkit!

2 SIGPROC http://sigproc.sourceforge.net is a package designed to standardize the initial analysis of the many types of fast-sampled pulsar data.

3 TEMPO Predictions of pulsar pulse frequency calculated using TEMPO CALC provided by Joe Taylor (K1JT) and hosted by Joe Martin K5SO. [MS WIndows only].

It is interesting to note that the vast majority of amateurs that are able to detect Pulsars are also avid EMErs. This is highlighted in Neutron Star Group web site maintained by Steve Olney.

The successful reception of Pulsars requires careful optimisation which in turn improves the effectiveness of an EME station. The requirement to squeeze every single 'electron' from the receive set-up allowing results in a truly state-of-the art system.

A Pulsar is the remnant of a catastrophic stellar explosion (Supernova) that due to a fortunate sequence of events behaves like a 'cosmic lighthouse'. The resultant noise bursts have a very regular interval. This pulse interval can be from milliseconds to seconds.

If an observer is lucky and the direction of the 'noise beam' is Earth bound we can then try to detect the Pulsar.

The 'noise spectrum' emitted from the Pulsar is very wide, but it is stronger at lower frequencies (down to a few MHz) and weaker at higher frequencies (in the GHz range).

The 'energy' of the 'noise' signal emitted is VERY LOW and this is the thing that makes this activity both stimulating and interesting!

In radio astronomy the intensity of signals is measured with the concept of 'Flow' due to the intrinsic nature of signals that are wide band and incoherent ; the unit of measure is the 'Jansky' or Jy (named after Karl Guthe Jansky who discovered galactic radiation in 1932) and is equal to 10^{-26} W/m^2/Hz.

To put the strength of a Pulsar signal into perspective we can use EME at 1.3GHz as an example: the path loss is approximately 270 dB which means that a 1W EIRP signal will be return to Earth at -240dBm equivalent to 3,000 Jy in a 3 kHz bandwidth. The strongest Pulsar at 1.4GHz has a Flux intensity of 1 Jy (but all others are in the range of mJy), The sun has a Flux intensity of 400,000 – 500,000Jy and the moon is approximately 800Jy.

The example above makes it clear that the Pulsar signals cannot be heard with amateur equipment in real time and so it is necessary to make long recording of a large chunk of the RF spectrum (minimum 2 MHz) to collect more 'noise' and perform a numerical analysis 'FOLDING' the received data with the right 'TEMPO'.

Interstellar path loss – MURMUR

Interstellar path loss is much more complex and unpredictable than EME path loss. Also the intermittent pulsed nature of the emitted noise burst makes things even more complicated .

Fortunately the radiometer equation allows good prediction of the detectability of a Pulsar by comparing station characteristics and Pulsar distinctive elements:

$$S_{min} = \beta \frac{2k_b(\frac{S}{N}_{min})T_{sys}}{A_e\sqrt{n_p t_{int}\Delta f}} \sqrt{\frac{W}{P-W}}$$

S_{min} = Minimum Detectable Signal (Jansky)

β = Factor to take in account system imperfections. >=1 (dimensionless)
k_b = Boltzmann's constant (1.38 * 10^{-38} joule K^{-1})
A_e = Effective aperture of antenna (m^2)
$\frac{S}{N}_{min}$ = Minimum S/N threshold (dimensionless)
T_{sys} = Total system noise temperature (K)
n_p = 1 for single polarization, 2 for two polarizations (dimensionless)
t_{int} = Integration time (sec)
Δ_f = Detection bandwidth (Hz)
W = Pulsar pulse width (msec.)
P = Pulsar pulse period (msec.)

D. Lorimer, M. Kramer, Handbook of Pulsar Astronomy
Cambridge University Press, pp262-265

The equation it is not so difficult to calculate, but there are many parameters involved. The program MURMUR provides an automatic solution by just entering basic station parameters.

MURMUR is available from the web site http://i0naa.altervista.org and has an installer that creates a directory used to store configuration and local parameters.

MURMUR also provides real time tracking of the Pulsars under scrutiny as well as the most important radio sources. Additionally the visibility of the Pulsars for the next 24 hours and the next month, the culmination data of the radio sources and a list of the strongest 60 Pulsars (by flow) with the main characteristics.

The rest of the paper/presentation describes improvements in antenna, receiver and software systems.

Detecting pulsars is not easy but cheap Software Defined Radios such as the RTL-SDR can be used.

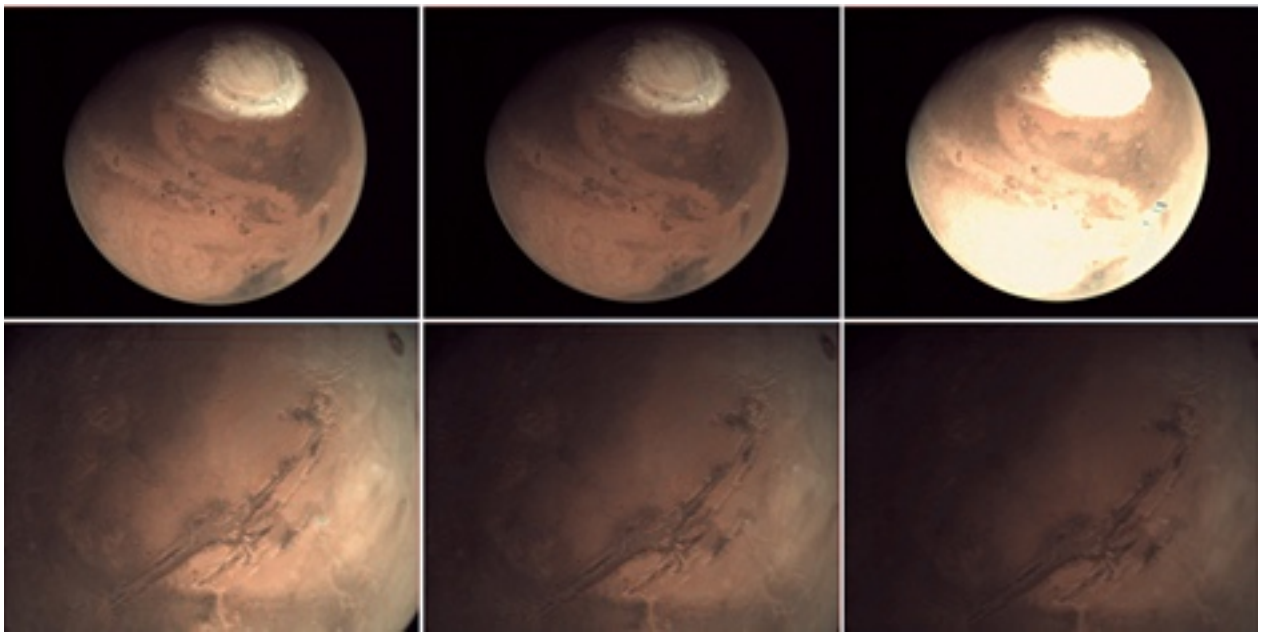
News from the Interweb

Mars webcam images

http://blogs.esa.int/vmc/vmc-data-archive/

The files are arranged in folders (Year/Month) as zip archives, oldest to newest, with one archive for each individual observation. Scroll below and click through to the archive you wish to access.

To see the latest processed versions visit our Flickr page.



For instructions on how to open the RAW image files, see the ESA webpage above

A giant radio flare from SS433 again

S. A. Trushkin, N. A. Nizhelskij, P. G. Tsybulev, A. Erkenov
25 Aug 2018; 21:38 UT

In long-term monitoring program of microquasars with the RATAN-600 radio telescope we have detected the bright flare from the well known X-ray binary SS433. On 25 August (MJD 58355.76) the flux at 2.3 GHz reached a level of 3.2 Jy and the total spectrum is well fitted by the power law: S_nu[Jy]=6.4nu^(-0.81)[GHz] at frequencies higher 2.3 GHz, almost the same spectrum as we have detected in October 2012 (ATel #4484). In the light curves of Swift/BAT and MAXI we can see the obvious signs of activity. It is interesting that during last 70 days there were three powerful flaring events in SS433 (the link on the RATAN light curves are given in ATel #11870). Second one consisted of two radio peaks, first one was associated with the bright optical outburst by Goranskij et al. (ATel #11870), the second radio peak was observed in follow-up observations with Swift/XRT by Khabibullin et al. (ATel #11975). We continue observations, possibly SS433 will brighten, additional multi-wavelength observations are encouraged.

Not the Perseids!

James Appleton

I pointed my camera skywards on Friday 10 August, hoping to catch images of a few early Perseids. (The peak of the shower occurred in the early hours of 13 August, but the weather forecast indicated that 10 August was the only evening likely to enjoy a reasonably clear sky). The sky on 10 August was very transparent, heavy rain in the previous two days having washed out the dust.

Attached is a montage of the meteor trails that I recorded (aligned and superimposed by hand):

[Negative image to save ink for those who print. Ed.]

Alas, I captured at most perhaps one Perseid, but also a handful of sporadic meteors. All are pretty faint (you need to zoom into the image to see some of them). However, one pair of meteor trails (no. 6 in the image), captured in consecutive frames, is interesting, perhaps representing a meteor with a gap in its trail, or maybe just a coincidence of two independent tracks with the same alignment.

Details as follows:

Camera running 10 August 2018, 21:39:15 to 23:56:26 UT.

Image duration 8 sec. Inter-image gap 10 sec.

Canon 6D Mk II 24mm lens ISO 4000

Times of trails (start times of images) as follows (to the nearest minute, UT):

1	21:43	4	22:12	7	23:38
2	21:48	5	22:43		
3	21:52	6	23:15		

Did anyone else enjoy any better luck?

Martin RH – at Newbourne 13 August

We heard a few (some quite loud and prolonged) on the wireless (Graves radar echoes 143.05MHz) at Newbourne but the few visible ones were mostly behind the Chairman.

Andy Gibbs

I was at Newbourne last night. As Martin RH said, quite a few prolonged pings heard on the Graves radar. As I was packing up at 22.30, I saw three Perseids in five minutes. I left Bill to carry on the observations from his deck chair. It became progressively more cloudy as I headed back towards Ipswich.

Paul Whiting

One I took on 6th August from a reasonably dark site in Somerset. Looking overhead.

Negative image: Nikon D3200 f/3.2 ISO1600 20s using Sam Yang wide angle lens

The Ring Nebula M57

Mike O'Mahoney

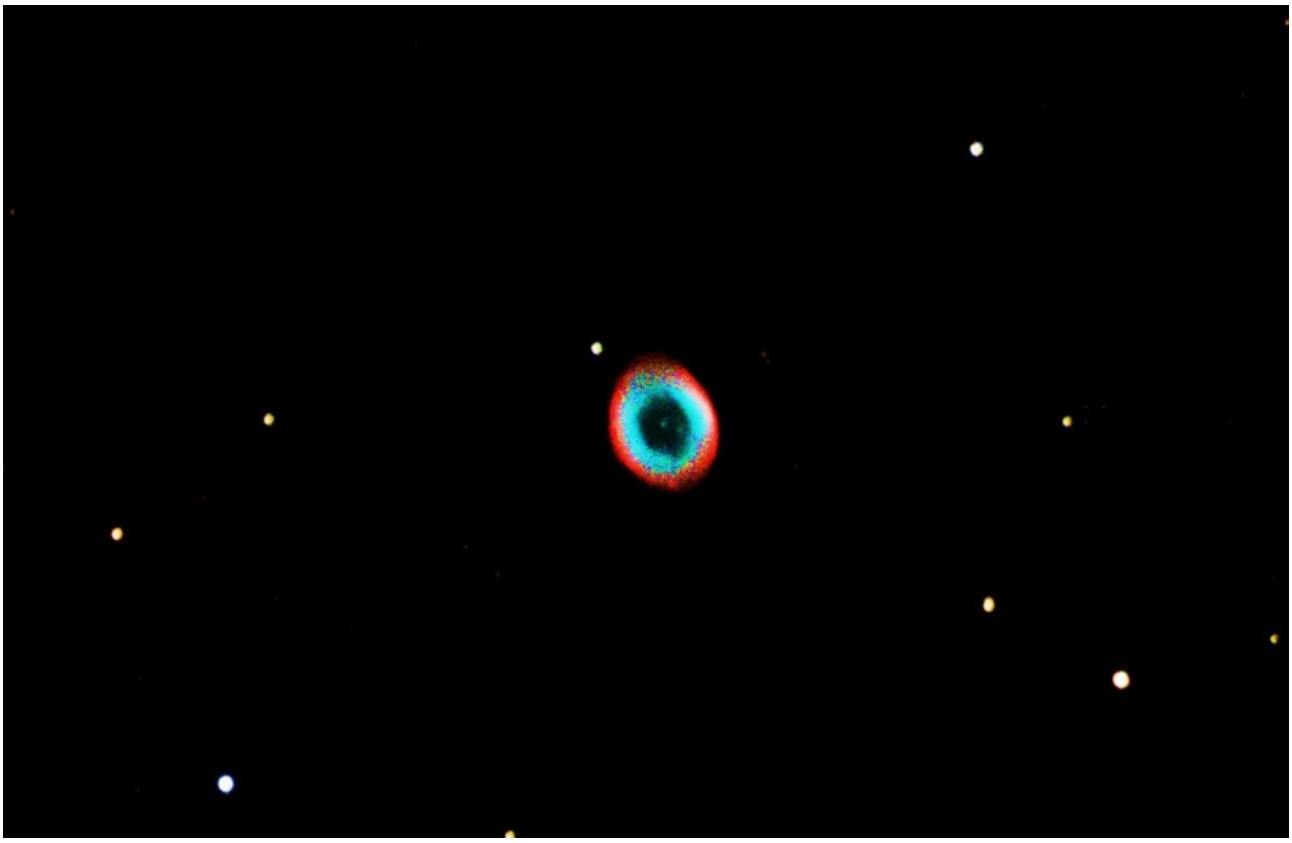
Time of the year to look overhead.

M57 (Ring Nebula) Lies within the constellation of Lyra (whose brightest star is Vega), almost directly overhead during August. It is a planetary nebula with radius about 1 ly lying at a distance of approx 2000 lys from Earth.

Formed about 4000 years ago, roughly the beginning of recorded history when writing first invented.

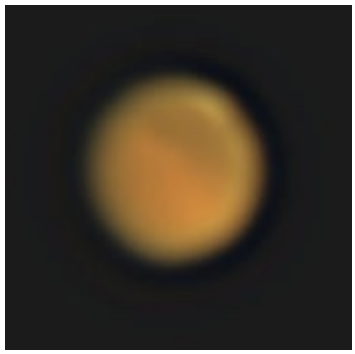
Celestron 235 mm + Canon 60Da 8 exposures @20" , ISO 3200

DSS



Mars & the Moon

Andy Gibbs



Attached are a couple of images taken on Sunday 25-08-18.

It was quite a battle to capture Mars, there was some troublesome cloud, and due to the planets low elevation, it kept disappearing behind trees and buildings. The global dust storm seems to be clearing.

Mars was shining at mag -2.27, 11.2 degrees in elevation and the disc size was 21.9 arcseconds.

Equipment used; QHY 5 II L camera, ZWO Atmospheric Dispersion Corrector, Meade LX200, 200mm telescope.

I also imaged the nearby Moon, which was almost full. Capturing Copernicus crater and its ray system. See cover picture.