No. 569 Registered Charity 271313 September 2020

OASI News

The newsletter of the Orwell Astronomical Society

Taken on the 11th August at 23:12 hrs. using a Sony a7r iii, Sigma 14mm F/1.8 lens at aperture F/2, ISO 1600 and shutter speed 15 seconds.

Photo by Duncan Arnold

Table of Contents

Society Notices

Dear Members,

Since all OASI gatherings were suspended on 16 March, due to the COVID 19 Pandemic, I have been heartened by OASI members efforts to keep the Society functioning during the lockdown.

Our Skype meetings on Wednesday's and Newbourne Monday's have proved popular. On Wednesday evenings, we have watched a live SpaceX launch, had impromptu astro imaging tutorials and have watched the ISS live on Alan Smith's all sky camera. On our Newbourne Monday's, we still have our monthly "Sky Notes", plus we have presented two talks. We have 27 members in our Skype group.

We are moving to using a Zoom Pro account. If you would like to join in, email Paul Whiting, treasurer@oasi.org.uk

As a result of staying at home, plus many clear days and nights during the last three months, we have had many observations and astro images submitted.

In the coming months, we will be guided by advice from the Government and Public Health England, as to when we can resume some of our activities. These are likely to be very limited at first, the Committee will decide what could be done, with the health and safety of everybody being the highest priority.

I would like to wish everybody clear skies, stay safe and I hope to see you soon.

Andy Gibbs, Chairman

Society Contact details

Email queries: info@oasi.org.uk

Facebook: Orwell Astronomical

Twitter: @OASIpswich

YouTube https://www.youtube.com/channel/UCHgxe3QAeRVWf7vkjKkCl2Q

Members-only message board

https://groups.io/g/OASI

Observatory (meeting nights only)
07960 083714

Please send material for the OASI

web site and newsletter

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

news@oasi.org.uk

Access into the School Grounds and Observatory Tower

The Observatory is closed.

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 2020

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

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.

Committee Meeting

This will be held on **Friday 4 September,** 8pm by Zoom. Please join the **OASImembers** Zoom group to attend. Contact Martin Cook for details.

We wish all our readers and their families good health during this difficult time. Clear skies!

Daphne Randle 1929-2020

I have recently received the sad news that one of OASI's early members, Daphne Randle, has passed away.

Daphne was born in Romford in 1929 and moved to Ipswich in 1956, firstly to teach at Whitton Infants School, then moving to Sprites Primary School in 1959. She became Deputy Head in 1963, remaining in that role until her retirement in 1989.

Daphne and her sister Phyllis, (1931-2018), had a keen interest in astronomy, both having telescopes and star charts. More recently, Phyllis moved to Worthing, where Daphne used to frequently visit her.

Daphne joined OASI in 1973, reporting on the BAA Centenary Meeting in 1990. She remained an avid reader of the Newsletter as she became less active in her later years.

I would like to thank Peter Bushby and Bill Barton for providing the information on Daphne.

Andy Gibbs.

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 (bottom right of the calendar) 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 feedhttps://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

Key:

OASI public events *BAA & SPA events* *Other events*

Date, Time & Location	Contact	Event
Weekly, every Wednesday, 20:15–22:00 Orwell Park Observatory	Martin Cook, Roy Gooding	OBSERVATORY CLOSED Meet via Zoom.
Friday 4 Sept 20:00	Roy Gooding	OASI Committee meeting via Zoom
Saturday, 5 Sept (All day)		*BAA Autumn Webinar*
Monday 14 Sept from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne.
Monday 21 Sept from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Sky Notes by Bill Barton
Friday 25 Sept 19:30 via Zoom	Mike Whybray	Nik Szymanek "Adventures in Deep Sky Astrophotography"

Date, Time & Location	Contact	Event
Monday 28 Sept from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Sky Notes by Bill Barton FRAS
Monday 12 Oct from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne.
23 Oct Location TBA/Zoom	Peter Richards lectures@oasi.org.uk	Lecture by Sonali Shukla: "Brown dwarfs: Linking stars and planets"
Monday 26 Oct from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Sky Notes by Bill Barton FRAS

Please note that the listed events may change depending on the progress of the pandemic.

Meetings via Zoom

Paul Whiting has set up an OASI account on Zoom Pro which allows us to accommodate more participants.. To join, please first contact Paul, treasurer@oasi.org.uk – OASI members only. Be sure to install the latest version of Zoom – there's no need to set up an account. Go to https://zoom.us/join and enter the meeting ID or personal link name. You will have received a link from the meeting organiser.

We meet on Wednesday evenings from 19:30 and on Newbourne evenings (see below) from 19:30.

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). **BUT In view of the COVID-19 situation all meetings at Newbourne are suspended. If OASI members would like to meet up via Zoom on those evenings, please first contact Martin Cook with your email address to receive an invitation. Members only, please.**

OASI@Newbourne Meetings

Subsequent meetings will be assessed in line with the current Government Guidelines in place at the time. Thank you for your understanding.

Sept 14	Sept 28 (S)	Oct 12	Oct 26 (S)
Nov 9	Nov 23 (S)	Dec 14	Dec 28 (S)

We open up for all meetings at 7:30pm. Star Guide (S) at 7:30pm and Workshops (W) at 7:45pm.

Stargazer's Guide

On the last meeting each month Bill Barton FRAS will give a short presentation of what can be viewed in the following 4 weeks plus a reminder of OASI events. During the COVID-19 isolation period these will be available on our website and in OASI News.

Astronomy Workshops/Informal talks

Meetings will depend on COVID-19 situation. Talks will be via Zoom during lock-down..

Contact Mike Whybray Location: Newbourne Village Hall IP12 4NP (currently via Zoom)

Doors open at 7:30pm. 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.

Paul Whiting, Bill Barton and James Appleton have offered to lead workshops as follows:

- Paul Whiting: *Galaxy Collisions*, date TBA.
- Bill Barton: *Celestial Coordinates*, date TBA. New members at Newbourne have requested this workshop; Bill is willing to lead it but will defer if anyone else would rather do so.
- James Appleton: *Update on OASI All-Sky Meteor Cameras*, date TBA.

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

Lectures – From September at St Augustines Church Hall

As ever, subject to COVID-19 restrictions

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.

Friday 25th September **(via Zoom)**

Nik Szymanek

"Adventures in Deep Sky Astrophotography"

Friday 23rd October

Sonali Shukla: "Brown dwarfs: Linking stars and planets"

Stars and planets are fundamentally different astronomical object yet the formation processes for each of these types of objects are heavily intertwined. Brown dwarfs straddle the realm of both stars and

planets, exhibiting characteristics of both but not fully fitting into either category. I will explore the history, discovery and latest results from our study of brown dwarfs and relate them to our lowest mass dwarf stars and biggest known planets. Understanding brown dwarfs can lead us to better understand how stars and planets form in tandem, both in our solar system and beyond.

Friday 20th November

Matt Bothwell: “Big bangs to big rips: a history of 20th century cosmology”".

On 19 August we had an interesting lecture via Zoom by Chris Lintott on “The Crowd and the Cosmos” – the subject of his new book.

Other local astronomy society meetings

Athaneum Astro Society

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

Meetings suspended during the Covid-19 situation.

We normally 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

LYRA Lowestoft & Yarmouth Regional Astronomers

www.lyra-astro.co.uk

Due to current Corona Virus outbreak all LYRA meetings are cancelled until further notice.

DASH Astro

Darsham And Surrounding Hamlets http://dash-astro.co.uk

Meetings are normally held at New Darsham Village Hall and 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 from 7:30 pm. on Sundays

Meetings will be assessed in line with the current Government Guidelines in place at the time. Thank you for your understanding at this time. Stay Safe.

Note * Guest Speaker Evenings - Admission Fees:- Members Free, Non Members £ 2:00

Meetings are now on Sundays.

04 Oct*	**Meeting:- Stewart Moore – Globular Clusters**
18 Oct	Dash Observing Session (Sunset 17:50 Moonset 18:57 4.7% Moon)
01 Nov	Meeting:- Chris Bailey – Meteors and How to detect them by Radio.
15 Nov	Dash Observing Session (Sunset 15:59 Moonset 16.21 0.2% Moon)
29 Nov	Meeting:- David/Ian/ Steve on Multi Messenger Astronomy and Gravitational Waves
12- Dec	(Saturday) DASH Christmas Social (Members and Guests only)

BAA news

For full details of all meetings or cancellations, please go to https://britastro.org/meetings.

BAA Webinars

Saturday, 2020, Sept 5 (All day)	BAA Autumn Webinar
11:00 Prof Christine Done	*The life and death of Black Holes* Prof Christine Done is a researcher at Durham University.
14:30 Dr Andreea Font	*Stumbling in the dark: the search for the Universe's missing mass* Dr Andreea Font works in the Astrophysics Research Institute at Liverpool John Moores University.

From the interweb

AAVSO Spectroscopy observing webinar

https://youtu.be/OstP5rK2530 This was a 2-hour webinar featuring Tom Field and two other speakers.

Other AAVSO observing section webinars and YouTube links to past webinars are here:

https://www.aavso.org/2020-observing-section-webinar-series

Aug. 29th, Young Stellar Objects, host Michael Poxon

Sept. 5th, Solar, host Rodney Howe

Sept. 12th, Cataclysmic Variables, host Shawn Dvorak

Sept. 19th, Instrumentation & Equipment I: The Tools of the Trade, host Richard Berry

Sept. 26th, Instrumentation & Equipment II: Focus on CMOS Cameras, host Richard Berry

Starlink

https://eandt.theiet.org/content/articles/2020/08/satellite-constellations-will-fundamentally-disrupt-astronomy/

Amazon given permission to launch over 3,000 broadband satellites

https://eandt.theiet.org/content/articles/2020/07/amazon-given-permission-to-launch-over-3-000-broadband-satellites/

'Sleeping giant' Jodrell Bank reawakening after historic lockdown to again reveal more about the great mysteries of the cosmos

https://www.manchester.ac.uk/discover/news/sleeping-giant-jodrell-bank-reawakening-after-historic-lockdown-to-again-reveal-more-about-the-great-mysteries-of-the-cosmos/

Watch: Lockdown Lectures | The University of Manchester

https://www.manchester.ac.uk/coronavirus-response/coronavirus-home-learning/lockdown-lectures/

A Broken Cable Has Wrecked One of Earth's Largest Radio Telescopes

https://www.vice.com/en_ca/article/9358be/a-broken-cable-has-wrecked-one-of-earths-largest-radio-telescopes?fbclid=IwAR0V3nW8zEAIO7yRWfTwh-NmX92uknO56iDTnOVqI21A9qkOw9Z5wFyXMHk

The Night Sky in September 2020

Martin RH

All event times (**BST unless otherwise stated**) are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E.

Sun, Moon and planets

Sources: http://heavens-above.com/PlanetSummary.aspx
http://heavens-above.com/moon.aspx

Times are BST (UTC+1).

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:07	19:41		Autumn Equinox 22 Sep, 14:30
	30	06:55	18:34		
Moon	1	19:59	04:44		Full 2 Sep 06:22 Last Quarter 10 Sep 10:26 New 17 Sep 12:00 1st Quarter 24 Sep 02:55 Apogee 6 Sep 07:30 Perigee 18 Sept 14:49
	30	18:40	04:55		
Mercury	1	07:24	20:03	-0.6	Aphelion 19 Sept
	30	09:37	18:55	0.1	
Venus	1	02:08	17:42	-4.1	
	30	03:05	17:20	-4	
Mars	1	21:23	10:32	-1.8	
	30	19:21	08:27	-2.5	
Jupiter	1	17:35	01:18	-2.4	
	30	15:42	23:22	-2.2	
Saturn	1	18:00	02:04	0.3	
	30	16:05	00:06	0.5	
Uranus	1	21:24	12:00	5.7	
	30	19:29	10:02	5.7	
Neptune	1	19:59	07:08	7.8	Opposition 11 Sept
	30	18:04	05:10	7.8	

Occultations during September 2020

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.

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(º)	Star Alt(º)	Mag	Star
13 Sep	02:07:49	D	0.23-	-27	18	5.9	ZC 1161
	02:47:45	R		-23	24		
26 Sep	20:42:46	D	0.77+	-27	15	7.2	Hip 102280
27 Sep	21:14:22	D	0.85+	-31	19	4.5	39 Cap, ε Cap
27 Sep	22:00:37	D	0.85+	-35	18	7.4	Hip 106768
27 Sep	23:57:41	D	0.86+	-40	10	7.3	Hip 107032
30 Sep	23:42:42	D	0.99+	-41	32	4.4	30 Psc, YY Psc

There is a grazing lunar occultation with track passing close to Orwell Park Observatory at 02:43 UT on 15 August. Further details are on the OASI website: http://www.oasi.org.uk/Occs/Occ_summary_2020.php.

Meteor showers during September 2020

Source: BAA Handbook 2020 p100-101

Shower	Normal limits	Maximum	Max Dec.	ZHR at Max	Notes
α-Aurigids	Aug 28–Sept 5	Aug 31	+39º	5	Short-lived outbursts in activity in 1994 and more recently in 2007. Unfavourable.
September ε-Perseids	Sept 5–21	Sept 9	+40º	5	Stronger than usual display seen in 2013. Moonlight interferes.

For radio observation, use reflections from Graves radar on 143.050MHz or the Brams transmitter in Belgium on 49.97MHz.

Visible ISS passes ≥15º max altitude

Martin RH

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

Times are BST. Predictions are approximate (23 July) due to craft adjustments. Check the day before.

Date	Bright–ness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01 Sep	-3.2	04:28:37	29°	SSW	04:29:53	45°	SSE	04:33:08	10°	E
02 Sep	-2.5	03:42:49	32°	SE	03:42:49	32°	SE	03:45:24	10°	E
02 Sep	-3.8	05:15:45	12°	WSW	05:18:54	80°	S	05:22:17	10°	E
03 Sep	-3.8	04:29:56	34°	WSW	04:31:14	70°	SSE	04:34:35	10°	E
04 Sep	-3.2	03:44:06	50°	ESE	03:44:06	50°	ESE	03:46:54	10°	E
04 Sep	-3.8	05:17:03	11°	W	05:20:19	86°	S	05:23:41	10°	E
05 Sep	-1.2	02:58:17	17°	E	02:58:17	17°	E	02:59:11	10°	E
05 Sep	-3.8	04:31:14	33°	W	04:32:37	86°	S	04:36:00	10°	E
06 Sep	-3.4	03:45:26	60°	E	03:45:26	60°	E	03:48:17	10°	E
06 Sep	-3.8	05:18:23	10°	W	05:21:41	73°	SSW	05:25:02	10°	ESE
07 Sep	-1.1	02:59:40	17°	E	02:59:40	17°	E	03:00:34	10°	E
07 Sep	-3.9	04:32:38	34°	W	04:33:58	82°	S	04:37:21	10°	E
08 Sep	-3.2	03:46:55	54°	E	03:46:55	54°	E	03:49:37	10°	E
08 Sep	-3.4	05:19:53	11°	W	05:22:56	47°	SSW	05:26:11	10°	SE
09 Sep	-3.8	04:34:16	40°	WSW	04:35:14	60°	SSW	04:38:34	10°	ESE
10 Sep	-2.5	03:48:48	35°	ESE	03:48:48	35°	ESE	03:50:53	10°	ESE
10 Sep	-2.6	05:21:47	14°	W	05:24:00	27°	SSW	05:26:53	10°	SSE
11 Sep	-3.1	04:36:28	36°	SSW	04:36:28	36°	SSW	04:39:29	10°	SE
18 Sep	-2.4	20:34:52	10°	SSW	20:37:13	23°	SSE	20:37:13	23°	SSE
19 Sep	-2	19:47:41	10°	S	19:49:57	17°	SE	19:51:41	12°	ESE
19 Sep	-2.1	21:22:56	10°	WSW	21:24:39	27°	SW	21:24:39	27°	SW
20 Sep	-3.3	20:35:14	10°	SW	20:38:27	43°	SSE	20:38:55	40°	SE
21 Sep	-2.8	19:47:37	10°	SW	19:50:40	32°	SSE	19:53:05	14°	E

Date	Bright–ness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
21 Sep	-2.5	21:23:51	10°	WSW	21:26:01	37°	WSW	21:26:01	37°	WSW
22 Sep	-3.8	20:35:59	10°	WSW	20:39:21	68°	SSE	20:40:04	49°	ESE
23 Sep	-3.5	19:48:11	10°	WSW	19:51:29	55°	SSE	19:54:03	16°	E
23 Sep	-2.4	21:24:49	10°	W	21:26:58	37°	W	21:26:58	37°	W
24 Sep	-3.9	20:36:54	10°	W	20:40:17	85°	S	20:40:53	57°	E
24 Sep	-0.4	22:13:41	10°	W	22:13:49	11°	W	22:13:49	11°	W
25 Sep	-3.8	19:49:00	10°	WSW	19:52:22	78°	S	19:54:46	18°	E
25 Sep	-2	21:25:45	10°	W	21:27:41	31°	W	21:27:41	31°	W
26 Sep	-3.9	20:37:50	10°	W	20:41:13	83°	S	20:41:32	70°	ESE
27 Sep	-3.8	19:49:53	10°	W	19:53:16	87°	S	19:55:23	21°	E
27 Sep	-1.7	21:26:40	10°	W	21:28:18	25°	W	21:28:18	25°	W
28 Sep	-3.7	20:38:42	10°	W	20:42:03	64°	SSW	20:42:08	63°	S
29 Sep	-3.7	19:50:44	10°	W	19:54:06	76°	SSW	19:55:58	24°	ESE
29 Sep	-1.2	21:27:38	10°	W	21:28:53	18°	WSW	21:28:53	18°	WSW
30 Sep	-3.7	19:02:45	10°	W	19:06:08	84°	S	19:09:31	10°	E
30 Sep	-2.9	20:39:35	10°	W	20:42:44	39°	SSW	20:42:44	39°	SSW

Starlink passes

https://heavens-above.com/AllPassesFromLaunch.aspx

For a dynamic 3-D display, see https://heavens-above.com/StarLink.aspx

Comets with magnitude brighter than magnitude 10

Source: https://heavens-above.com/Comets.aspx and BAA Handbook p95.

Click on the comet name for more information (remember to set your location in heavens-above.com).

Comet	Brightness	Constellation	
		1 Sept	30 Sept
C/2020 F3 NEOWISE	7.6	Libra–Virgo	Libra
88PHowell	9.6	Libra	Scorpius

Astronomy on the radio

During virus isolation these slots will either be reports read by the host or via phone to the studio.

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, 2.40pm (note change of time) 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

Not The Perseids

Paul Whiting

One reasonable meteor record from our trip to the Sutton Heath Car Park. Alas it is not a Perseid but a sporadic. It's path runs at right angles from the radiant of the Perseids and the Kappa Cygnids (the only other nearby current shower radiant). Also a nice shot of Cassiopeia!

Picture details: Samyang 14mm wide-angle lens, f/2.8, ISO-1600, 6s.

The Perseids

James Appleton

I've compiled a report on OASI observations of the 2020 Perseids, based on all the observations that people have shared by email to date:

http://www.oasi.org.uk/Obsvns/20200813_Perseids/20200813_Perseids.php

A Brief Rummage into Ultra-luminous X-ray Sources.

Short Library study.by Andy Willshere

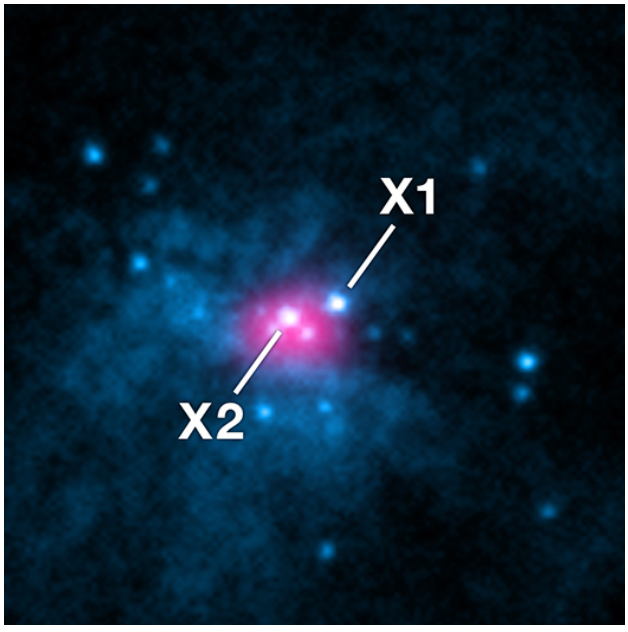
An Ultra-luminous astronomical X-ray source (ULX) was first discovered in the 1980's by the Einstein Observatory (HEAO-2) which was the first fully imaging X-ray telescope sent into space. This phenomenon was noted to be continually brighter than any other stellar activity because it radiated with the same power in all directions (isotropic). ($>L_x$ = $1.26*10^{38}$ erg/s). Recently with more scientific evidence to hand, several other theories have been considered.

ULX's do not appear in all galaxies, which include ours, although some have several, and they exist between X-ray binaries and active galactic nuclei. For astronomers their main interest is with Eddington luminosity (limit) of neutron stars, and whether ULX's exceed this level. Matter accretion is a balance linking the force of radiation reacting outward and the gravitational force acting inward, and is known as hydrostatic equilibrium. A rotating star in hydrostatic equilibrium constitutes an oblate spheroid depending on its angular velocity. The star Vega is one example. The maximum luminosity a star can obtain is described as the Eddington Limit (critical luminosity), which is linearly proportional to mass and when exceeded causes an extreme radiation driven stellar wind. It has a value of L_{edd} = $1.26*10^{38}$ erg/s for a solar mass star which will give about 10^3 times brighter than the luminosity of our Sun.

Eddington's limit specifically holds true for isotropic accretion. There is a specific rate of black hole accretion set by Eddington's limit that due to outward radiation pressure it slows and then ceases. Taking this into account, if we have a ULX where $L_x > L_{edd}$ and anisotropic emission we should be considering stellar-mass black holes and neutron stars. M82-X_2 was found in 2014, reaching a luminosity greater than 10^{+41} erg/s and was classed as the second brightest X-ray source. Its spectral type is P and sits in the constellation Ursa Major. This is a binary system whose pulsation period was calculated at 1.37s, with a spin up rate of Ps = $2*10^{10}$ s/s and an orbital period of 2.5 days, found in the 3-30 keV range. The source comprises a neutron star that is accumulating gas from a gigantic counterpart star. A supernova explosion SN2014J was spotted in 2014, which meant that astronomers had long periods to observe. During this time, the pulsation of M82-X2 was noted. Over the period of the last 15 years M82-X_2 has demonstrated at least 4 super-Eddington outbreaks, but generally it radiates just under the Eddington boundary, in what is described as its 'propeller line'.

Picture credit:NASA

https://chandra.harvard.edu/photo/2014/m82nu/



More recently (2016), a group of astronomers from the Max Plank Institute at Garching, Germany with lead scientist Chandreyee Maitra, reported that they had detected pulsations from the origin NGC 300 ULX_1 . This is situated approximately 6.1 million light years away from Earth in a spiral galaxy. It was originally discovered in 2010 and classified as a supernova, but changed later to a high mass X-ray binary. The team found pulsations from NGC 300 ULX_1 whilst acquiring data from observations using XMM-Newton/NuSTAR (Dec.2016) as well as NICER. XMM-Newton is an X-ray space observatory and NuSTAR a nuclear spectroscopic telescope array. The study also showed that the spin period was approximately 31.74 seconds when the NuSTAR observations were commenced, ending after a few days at 31.54s. Over a period of four years, analysing group data from different scientific observations, it was noted that the spin period of the pulsar changed from 126s to just 20s. These figures are compatible with a stable mass accretion rate. The X-ray to flux ratio of NGC300 ULX_1 is similar to X-ray binaries, where the accretion disc controls the optical emission. It was also suggested that the accretion system was radically altered during the Super Nova event of 2010. Before this episode, the neutron star would have obtained its fuel via wind accretion.

Other papers describing more ULX sources:

In 2004 Gilfanov et al., established that their ULX sources luminosities were suspended at $L_X \sim 3*10^{40}$ erg s^{-1}.

In 2014 Luangtip et al., suggested that the spectral index of ULX spectra transforms at $L_X \sim 2*10^{39}$ erg s^{-1}.

In 2015 Laycock et al., found by utilising the radial velocity curve of IC10 X-1 that a neutron star would be the ideal candidate.

Significant ULXs

a HolmbergII X-1: Exists in a dwarf galaxy as a possible X-ray binary.

b M82 X1: One of the most luminous of all ULXs.

c M82 X2: A pulsar discovered in 2014.

d M101 X1: Luminosities up to 10^{34}W.

References:

https://en.wikipedia.org/wiki/M82_X-2

https://www.universeguide.com/star/122562/m82x2

https://www.mdpi.com/2075-4434/8/1/17/htm

https://www.cosmos.esa.int/documents/332006/1402684/FFuerst_t.pdf

https://arxiv.org/abs/1606.07096

Light Pollution and Viruses

Pete Richards

As well as creating problems for astronomers it has been long known that light pollution has some negative effects on health and the ecology of the local environment. Recently published research in the field of virology in birds has identified a new unexpected problem created by light pollution.

Zoologists at the University of South Florida looking at animals living alongside humans have found that sparrows carrying a common but dangerous disease called West Nile Virus carry higher levels of the virus and carry it for longer when exposed to light pollution. There are a number of potential mechanisms which explain why sparrows that are exposed to light at night have much higher amounts of virus in their blood. The hormone melatonin might be involved. This hormone is normally secreted at night, but exposure is suppressed in birds that are exposed to light at night. Since melatonin is a regulator of the immune system the lack of melatonin will weaken the immune system. Another mechanism is that the immune system fluctuates in numbers and types of cells throughout the day so this lack of differentiation of night and day may also reduce the effectiveness of the immune system.

With the current concern about zoonotic pathogens (pathogens which can pass between species including to humans) such as the Covid 19 coronavirus, this particular issue is particularly pertinent today.

This research has been published in Ornitological Applications

https://bioone.org/journals/the-condor/

CLEARANCE SALE

OASI branded clothing. Just right for the autumn / winter

Navy Fleece (M)	was £23	**now £20**
Grey Sweatshirt (XL)	was £18	**now £15**
Grey Sweatshirt (M)	was £18	**now £15**
Navy Sweatshirt (M)	was £18	**now £15**
Baseball Hat (Navy)	was £8	**now £6**

contact Paul Whiting via treasurer@oasi.org.uk

NGC 7023 part 2

John Hughes

I now have an image which I am happy with so I am reposting the final version along with the capture and processing details for members who may find that useful.

This project commenced on 29 May 2020 and continued across four separate nights when the sky was clear finally concluding on 6 August 2020.

The imaged captures the Iris Nebula in LRGB using the ZWO ASI1600mm Pro camera. Over 20 hours of data was captured, however, some exposures were binned mainly due to Starlink.

Data

Overall the following data was used to create this LRGB image;

Luminance - 360 frames x 90 seconds exposure

Red - 134 x 90 Green 131 x 90 Blue 118 x 90 All Bin 1x1

18.8 hours of integration time.

Equipment Used

William Optics Z103 ZWO ASI1600m Pro SkyWatcher EQ6-R Pro

Chroma LRGB filters & ZWO electronic filter wheel Sesto Senso motor focuser.

William Optics 50mm guidescope ZWO ASI290mm mini guide camera

Pegasus Ultimate Powerbox V2 Sequence Generator Pro for acquisition

PHD2

Processing with PixInsight

Darks, Flats and Flat Darks x 50 each. Dark Flats integrated to create Master.

Flats calibrated with Dark Flat Master. Flats Integrated to create Master Flat.

Lights calibrated with Master Flat and Master Dark. (Remove noise and vignetting)

Cosmetic Correction applied to calibrated lights. (Remove hot & cold pixels)

Weightings calculated for each light sub frame.(Calculate best image with signal to noise ratio for luminance, red, green and blue)

All images registered against best luminance sub. (Align all light frames with the luminance image with the best signal to noise ration)

Each separate channel integrated. Drizzle data was captured but not yet processed. (Each channel is stacked with the best signal to noise ration image in that colour. I ‘dither’ every third image when capturing light frames. This allows me to use drizzle to improve the resolution of the final image).

Local Normalisation data generated but scrapped as it made image worse.

Crop applied to each LRGB master.

ABE applied to each master. (Remove remaining vignetting and any gradients)

LRGB masters stacked to create a Super Luminance Master.

Linear Fit applied to R & G channels using Blue channel as reference. (Identify which is the brightest colour image, in this case blue, then match the histogram levels of red and green against blue to ensure good colour balance)

RGB combined, Photometric Calibration, noise reduction, permanent stretch applied. (Further colour calibration using Photometric calibration, remove noise then stretch the image so it is permanent).

RGB Image combined with denoised, stretched Super Luminance then contrast enhancement, colour saturation and sharpening applied. (Luminance holds the ‘detail’ of the image. An RGB image works well but adding luminance makes it ‘pop’ out).

Border applied to image and annotated.

ICCProfile corrected for web publishing and resolution adjusted. (I calibrate my computer screen to make sure the colours are in balance and use the web based colour profile as default. Bit of an unnecessary action but work checking it is still using the right profile).

Members' astropictures

Nicci Barrett

Hello, I've just been added to your FB page, I live in Kesgrave and have been scoping and having a go at astrophotography for about 5 years. Jupiter and Saturn are about just after dark at the mo. Here are my photos from Tuesday evening. I've moved from taking pictures using my iPhone clamped to my scope, to using an Altair eyepiece camera so it's been a bit of a learning curve these last couple of weeks! Clear skies tomorrow night hopefully so moon, Saturn and Jupiter and maybe Mars in the agenda.

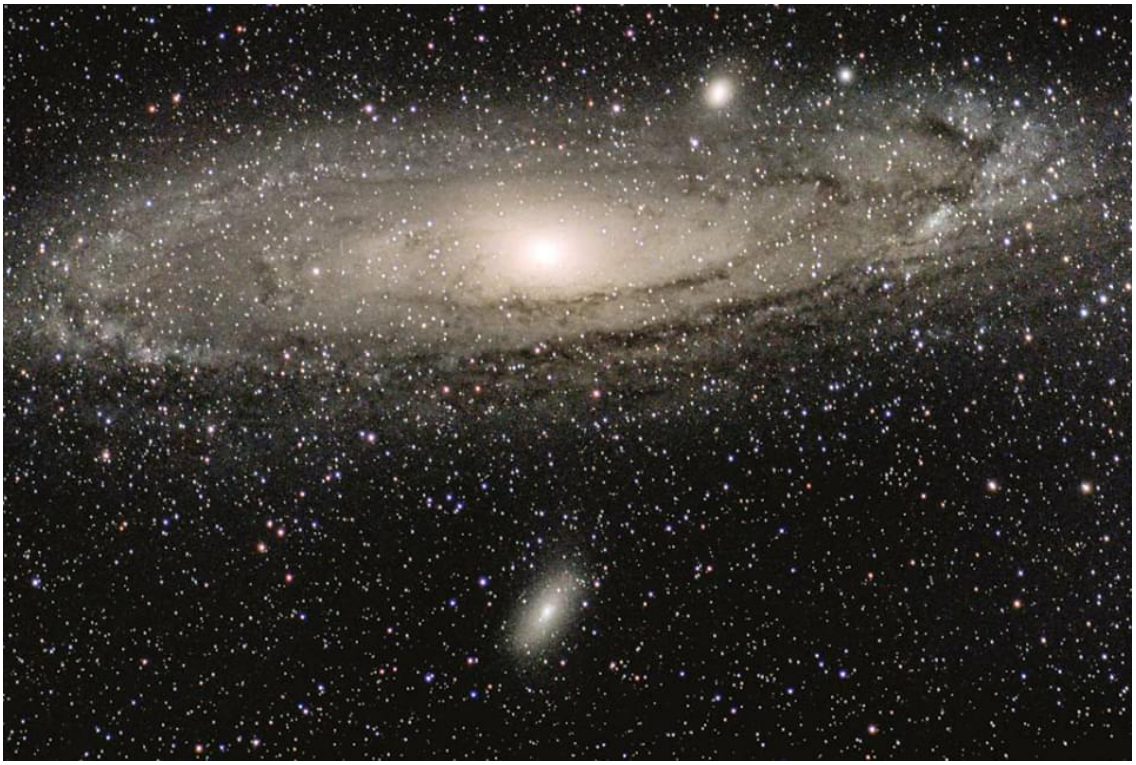
Last night's [6 Aug] delights from Kesgrave with my Skywatcher 200p — my best Saturn yet — 6000 frames, pipp 10% and AS 50%. Jupiter with GRS and my first ever Mars.

Stephen Olley

A couple of recent images taken from my back garden in Ipswich (Bixley)

Skywatcher Evostar 72ed pro / Skywatcher Altaz Goto, Nikon D3400

Neowise - 10 X 20 sec exposures. Processed in DSS/ Gimp



M31 - 290 X 30 sec exposures @ 800iso. Processed in Astro Pixel Processor/Lightroom.

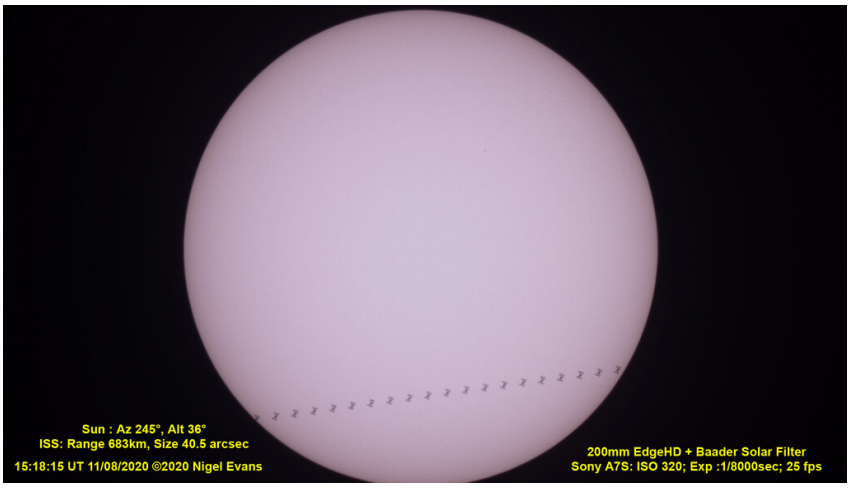
Duncan Arnold (FocusBug)

This image of Happisburgh lighthouse was taken on the 11th August at 23:12 hrs. It was taken on a Sony a7r iii, Sigma 14mm F/1.8 lens at aperture F/2, ISO 1600 and shutter speed 15 seconds. Saturn and Jupiter are the bright objects left and right of the top of the lighthouse.

The ISS transits the Sun

Nigel Evans

ISS solar transit



It has been quite a while since the ISS transited the Sun as seen from my home location. Fortunately one was predicted in this rather warm, suffocating heatwave we are currently having. Focusing on the Sun is normally made easier with some sunspots, but I could not see any. A check on spaceweather.com revealed there was a single small spot - it took a while to find it (it is about half a solar radius out, at about 1 o'clock)

As transits usually last less than a second, this one has been looped a few times

Nova in Cassiopeia

Nigel Evans

Well, it is not often that a nova is in range. Once it had cleared the neighbour's tree it was easily recorded in a 60 second exposure. It is currently around Magnitude 12.