OASI News

The newsletter of Orwell Astronomical Society (Ipswich)

Comet C/2022 E3 ZTF from Woodbridge

Photo by Alan Buttivant

Table of Contents

Society Notices

Dear Members,

We use a Zoom Pro account for online meetings. If you would like to join in, please email Paul Whiting, treasurer@oasi.org.uk.

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

The CLOSING date is the 15th day of the month

Access into the School Grounds and Observatory Tower

From March please use the second gate into the school grounds, not the one that leads to 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 during meeting hours. Kindly check/amend the number shown on your 2021 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. Details above.

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 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 2023

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
	Martin Richmond-Hardy	Newsletter, OASI @ Newbourne

Committee Meeting

The next Committee Meeting will be on Friday 26 May at 8:00pm via Zoom. All members welcome.

Welcome to new members

Gerald Lewis Philip Pitt

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 feed https://twitter.com/OASIpswich

Facebook page https://www.facebook.com/pages/Orwell-Astronomical/158256464287623

Date, Time & Location	Contact	Event
Weekly, every Wednesday, from 20:15	Martin Cook, Roy Gooding	Observatory open
Saturday 11 March 9:00–15:00 Kettering Conference Centre, Thurston Dr, Kettering NN15 6PB	https://practicalastroshow.com/	The Practical Astronomy Show The show is FREE to attend, with FREE parking. Plus FREE talks* and displays from leading vendors and organisations
Monday 13 March 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI at Newbourne. Beginners welcome!
Thursday 16 March 20:00 Zoom	Martin Cook membership@oasi.org.uk	3rd Thursday Zoom meeting
Sunday 19 March Bedford School, Bedford	https://www.tickettailor.com/events/baa/835932	Deep Sky Section Annual Meeting
Monday 27 March 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI at Newbourne. Beginners welcome! Bill Barton FRAS: What's Up?
Friday 31 March St Augustine's Community Hub, Ipswich	Peter Richards lectures@oasi.org.uk	Lecture by Dr Nick Hewett "The Great Debate" Also via Zoom.

Meetings via Zoom

To join, please first contact Paul Whiting, treasurer@oasi.org.uk – OASI members only. Be sure to install/update to 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.

As well as for some lectures & talks, we meet via Zoom on the 3rd Thursday of every month at 8pm.

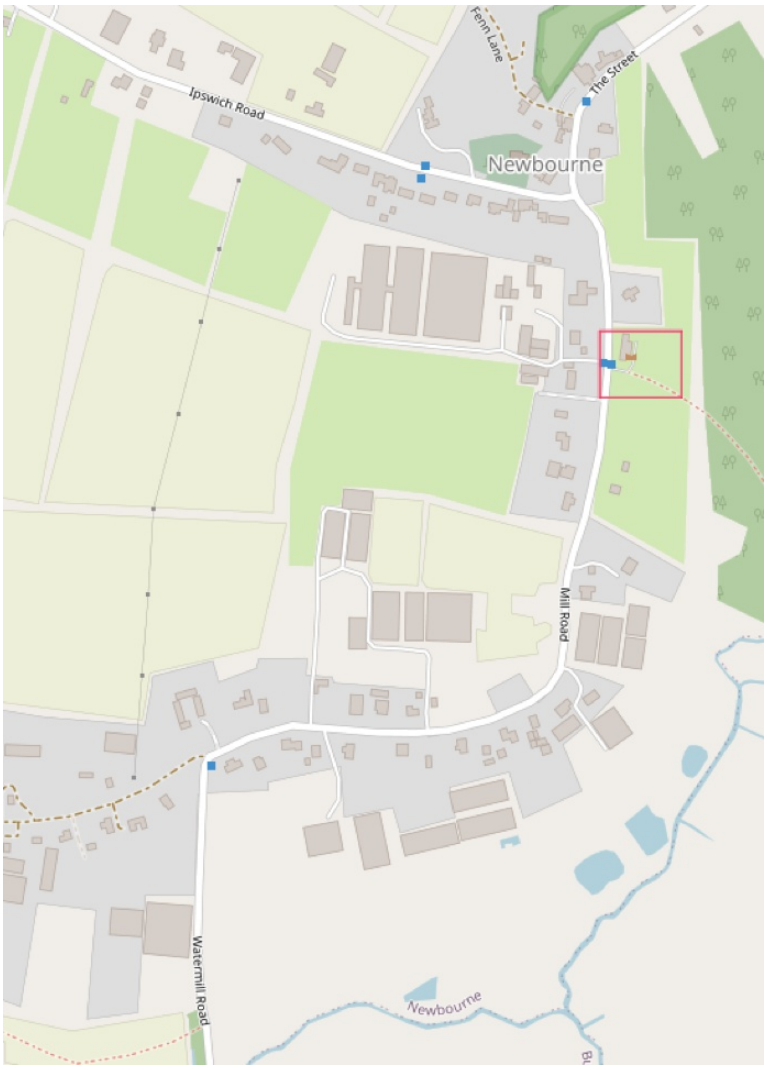
OASI @ Newbourne

Martin Richmond-Hardy
newbourne@oasi.org.uk

We meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays from 19:30.

Visitors are welcome but we do ask you to join the Society after two visits.

http://www.oasi.org.uk/OASI/Membership.php



Newbourne dates for 2023

March	13	27
April	10	24
May	1	22 note
June	12	26
July	10	24
August	14	28
September	11	25
October	9	23
November	13	27
December	11	

Note: The Parish Council requires the hall on 8 May (our usual date).

We open up for all meetings at 7:30pm. Astro News/Star Guide (A) at 7:45pm followed by any Talks (T), Workshops (W) and occasional Quiz (Q).

Stargazer's Guide

On the last meeting each month, at 19:45, Bill Barton FRAS will give a short presentation of what can be viewed in the following 4 weeks plus a reminder of OASI events. These will be available on our website.

Paul Whiting FRAS will give occasional Astro News briefings.

Astronomy Workshops/Informal talks

Contact Mike Whybray

Monday meetings start at 7:30pm. Workshops / Talks start at 8pm

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.

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 – via Zoom

Contact: Peter Richards lectures@oasi.org.uk

Lecture by Dr Nick Hewett "The Great Debate"

Friday 31 March St Augustine's Community Hub, Ipswich. Also via Zoom.

The start time for all talks will be 8pm and, as usual, the talks will usually be held on a Friday evening. Contact Paul Whiting if you can't find the details.

Athaneum Astro Society

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

Meetings (http://www.3a.org.uk/programme.htm) at Whepstead Community Centre, Bury Road, Whepstead, Bury St Edmunds, IP29 4TA http://www.3a.org.uk/contact.htm.

LYRA Lowestoft & Yarmouth Regional Astronomers

For events please see http://www.lyra-astro.co.uk/events/

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 https://www.dash-astro.co.uk/Events

BAA news & webinars

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

1 March 2023	Webinar on Multispectral imaging for analysis of Jupiter's atmosphere
11 March 2023	PAS – Practical Astronomy Show 2023, Kettering Conference Centre, Thurston Dr, Kettering NN15 6PB
11 March 2023	Joint BAA/SPA Back to Basics Workshop – York
19 March 2023	Deep Sky Section Annual Meeting, Bedford School, Bedford.
29 March 2023	BAA Special General Meeting, Institute of Physics, London
14–16 April 2023	BAA Winchester Weekend
29 April 2023	SPA Meeting, Gustave Tuck Lecture Theatre, University College London, Gower St, London WC1
13 May 2023	BAA Spring Meeting – Cosmology: Galaxies and Stars, Cardiff
20 May 2023	Historical Section Meeting 2023, Birmingham and Midland Institute, Margaret St, Birmingham
7 June 2023	BAA Meeting and George Alcock Lecture, Institute of Physics, London
8 July 2023	Comet Section Meeting, National Maritime Museum, Greenwich.

The BAA Radio Astronomy Section

The BAA Radio Astronomy Section have been enjoying talks, seminars and tutorials via Zoom and are available on the BAA YouTube channel https://www.youtube.com/user/britishastronomical/playlists.

BAA RA Section Spring programme 2023		
Mar. 3rd Friday 19:30 GMT	**Dr. Chuck Higgins** Middle Tennessee State University Physics and Astronomy Dept.	Citizen Science and Radio Jove: The Science and instrumentation for a Radio exploration of Jupiter

Comet C/2022 E3 ZTF from Woodbridge

Alan Buttivant

The image was taken In between the clouds.

I had to deal with walking noise in images due to light high clouds in nearly all images. Moon was at 67% but I'm happy with result.

Couldn't be bothered to wait until it returns.

Equipment and settings

Asiair+	Az-gti	ASI 183mc pro	ASI 120mm mini
Redcat51		ZWO mini guide	Optolong l-pro

60 x 60s, 12 x darks, 30 dark flats, 30 flats. Gain 111, temp -10.

Stacked DSS using comet mode, then PS, starxterminator.

The Night Sky in March 2023

Martin RH

All event times are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E.
Sunday, 26 March 2023, 01:00:00 clocks are turned forward 1 hour to start BST;

Times are GMT (UTC) unless otherwise stated. Times in BST are in **bold** type.

Sun, Moon and planets

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

March 2023

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:42	17:34		Spring Equinox Mar 20, 21:24
	31	**06:33**	**19:27**		
Moon	1	10:49	04:11		Apogee 03 March 18:01 Full Moon 07 March 12:40 Last Quarter 15 March 02:08 Perigee 19 March 2023 15:13 New Moon 21 March 17:23 First Quarter 29 March 03:32 Apogee 31 March 12:18
	31	**12:46**	**05:11**		
Mercury	1	06:37	16:04	-0.5	Superior conjunction 17 March Perihelion 31 March
	31	**06:56**	**20:44**	-1.1	
Venus	1	07:41	20:20	-3.9	
	31	**07:41**	**22:57**	-3.9	
Mars	1	10:01	03:00	0.4	
	31	**10:02**	**03:04**	1	
Jupiter	1	07:46	20:21	-1.9	
	31	**06:59**	**20:03**	-1.9	
Saturn	1	06:35	16:16	0.9	
	31	**05:44**	**15:37**	1	
Uranus	1	08:44	23:35	5.8	
	31	**07:49**	**22:44**	5.8	
Neptune	1	07:18	18:41	8	Superior conjunction 15 March
	31	**06:22**	17:50	8	

Occultations during March 2023

https://iota-es.de/moon/grazing_descrx101.html and http://www.lunar-occultations.com/iota/bstar/bstar.htm

Observers are encouraged to download and install the Occult software program [Windows only] to generate predictions for their own particular site coordinates.

Meteor showers during March 2023

Source: BAA Handbooks 2022 & 2023 p26-27 and https://in-the-sky.org//newsindex.php?feed=meteors

Shower	Normal limits	Maximum	ZHR at Max	Notes
None during March				Sporadics only

See also https://www.rmg.co.uk/stories/topics/meteor-shower-guide

For radio observation, use reflections from Graves radar on 143.050MHz or the Brams transmitter in Belgium on 49.97MHz and UK GB3MBA on 50.408MHz https://www.ukmeteorbeacon.org/Home

See also https://www.popastro.com/main_spa1/meteor/radio-meteor-observing-2020/.

Comets

Source : https://heavens-above.com/Comets.aspx on 18 Feb.

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Altitude	Azimuth	Constellation
C/2022 E3 ZTF	7.2	2023-Feb-16	100°	31.5°	116°	Taurus
C/2022 A2 PANSTARRS	8.4	2023-Feb-16	67°	58.7°	296°	Cygnus
96P Machholz	8,8	2023-Feb-17	29°	3.3°	255°	Aquila
C/2020 V2 ZTF	9.0	2023-Feb-16	75°	83.2°	141°	Andromeda

Visible ISS passes ≥15º max altitude for March 2023

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

Times are UTC/**BST**.
Predictions are approximate (24 Feb) due to craft adjustments. Check the day before.

Date	Brightness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01 Mar	-3.9	04:45:44	69°	WSW	04:46:06	86°	S	04:49:28	10°	E
02 Mar	-2	03:59:40	31°	E	03:59:40	31°	E	04:01:36	10°	E
02 Mar	-3.7	05:32:36	18°	W	05:34:58	69°	SSW	05:38:19	10°	ESE
03 Mar	-3.9	04:46:31	58°	W	04:47:04	80°	S	04:50:26	10°	ESE
04 Mar	-2.2	04:00:26	35°	E	04:00:26	35°	E	04:02:30	10°	E
04 Mar	-3.2	05:33:22	16°	W	05:35:47	44°	SSW	05:38:59	10°	SE
05 Mar	-3.6	04:47:18	48°	WSW	04:47:52	57°	SSW	04:51:10	10°	ESE
06 Mar	-2.2	04:01:15	32°	ESE	04:01:15	32°	ESE	04:03:14	10°	ESE
06 Mar	-2.4	05:34:11	14°	W	05:36:19	25°	SSW	05:39:07	10°	SSE

Date	Bright –ness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
07 Mar	-3	04:48:12	33°	SW	04:48:25	33°	SSW	04:51:28	10°	SE
08 Mar	-1.7	04:02:17	21°	SE	04:02:17	21°	SE	04:03:38	10°	SE
09 Mar	-1.9	04:49:24	17°	SSW	04:49:24	17°	SSW	04:51:04	10°	S
17 Mar	-2.5	19:55:12	10°	SW	19:57:21	27°	S	19:57:21	27°	S
18 Mar	-2.4	19:07:12	10°	SSW	19:09:57	23°	SSE	19:11:22	18°	ESE
18 Mar	-1.6	20:42:59	10°	WSW	20:44:18	22°	WSW	20:44:18	22°	WSW
19 Mar	-3.7	19:54:37	10°	WSW	19:57:55	55°	SSE	19:58:09	53°	SE
20 Mar	-3.2	19:06:19	10°	SW	19:09:30	42°	SSE	19:11:51	16°	E
20 Mar	-2.3	20:42:44	10°	W	20:44:46	34°	W	20:44:46	34°	W
21 Mar	-3.9	19:54:13	10°	WSW	19:57:34	78°	S	19:58:20	49°	E
22 Mar	-3.7	19:05:42	10°	WSW	19:09:02	66°	SSE	19:11:49	14°	E
22 Mar	-2.7	20:42:22	10°	W	20:44:43	42°	W	20:44:43	42°	W
23 Mar	-3.9	19:53:46	10°	W	19:57:08	87°	S	19:58:07	43°	E
24 Mar	-3.8	19:05:09	10°	W	19:08:31	84°	S	19:11:28	13°	E
24 Mar	-2.8	20:41:52	10°	W	20:44:21	44°	WSW	20:44:21	44°	WSW
25 Mar	-3.8	19:53:13	10°	W	19:56:34	77°	SSW	19:57:39	40°	ESE
26 Mar	-3.8	**20:04:32**	10°	W	**20:07:53**	84°	S	**20:10:54**	12°	E
26 Mar	-2.6	**21:41:18**	10°	W	**21:43:47**	35°	WSW	**21:43:47**	35°	WSW
27 Mar	-3.4	**20:52:32**	10°	W	**20:55:49**	54°	SSW	**20:57:02**	33°	SE
28 Mar	-3.6	**20:03:46**	10°	W	**20:07:06**	67°	SSW	**20:10:15**	11°	ESE
28 Mar	-1.9	**21:40:45**	10°	W	**21:43:09**	23°	SW	**21:43:09**	23°	SW
29 Mar	-2.5	**20:51:48**	10°	W	**20:54:50**	32°	SSW	**20:56:22**	21°	SSE
30 Mar	-2.9	**20:02:54**	10°	W	**20:06:07**	43°	SSW	**20:09:19**	10°	SE
31 Mar	-1.5	**20:51:15**	10°	W	**20:53:34**	17°	SW	**20:55:45**	11°	S

Starlink passes

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

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

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

From the Interweb

The Planets in February and March 2023

https://www.popastro.com/main_spa1/planetary/2023/01/28/the-planets-in-february-and-march-2023/

Jupiter Overtakes Saturn for Bragging Rights to Most Moons in Solar System

https://www.cnet.com/science/space/jupiter-quietly-takes-crown-for-most-moons-with-new-tally-of-92/

Rotation period and Morphological Structures in the inner coma of comet C/2022 E3 (ZTF)

https://www.astronomerstelegram.org/?read=15909

Astronomers Pin Down the Age of the Most Distant Galaxy:

Seen 367 Million Years After the Big Bang

https://www.universetoday.com/159772/astronomers-pin-down-the-age-of-the-most-distant-galaxy-seen-367-million-years-after-the-big-bang/

Gresham Astronomy Lectures in 2023

Cosmic Conclusions

Professor Katherine Blundell

This series includes lectures on the end of our Sun, Massive Stars and the Universe.

https://www.gresham.ac.uk/watch-now/series/cosmic-conclusions

The End of Life on Earth

Tbc City of London, Wednesday, 29 Mar 2023 - 18:00/ Online/ Watch Later – Ticketed, free

https://www.gresham.ac.uk/whats-on/end-life

The End of the Universe

Tbc City of London, Wednesday, 31 May 2023 - 18:00/ Online/ Watch Later – Ticketed, free

https://www.gresham.ac.uk/whats-on/end-universe

Astrophotography

Nicci Barrett

These are my latest that were taken during November, December and January.

The California Nebula

My equipment is an Altair 72edf scope with an Altair 269c camera and a field flattener. I use a 32mm Altair guide scope with a 385c camera (which is my planetary camera) for guiding. The mount is a skywatcher HEQ5. I capture using NINA software and I stack in Astro Pixel Processor, using their light pollution and star calibration tools. I then take it to photoshop and use various tools depending on the image. I'm still very much learning the processing side of things.

I generally use 90 sec exposures and add in darks, flats and dark flats callibration frames.

Christmas Tree Nebula

The Pleiades M45

The Double Cluster

The Triangulum Galaxy M33

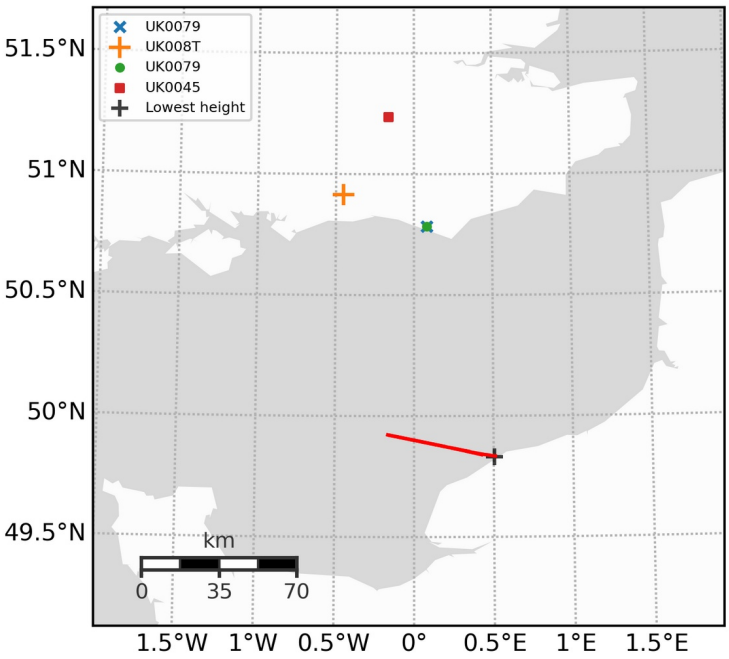
Meteor Reports for February 2023

A big one! 13 Feb at 0213 UTC

UKMON https://archive.ukmeteornetwork.co.uk/reports/2023/orbits/202302/20230213/20230213_025913.678_UK/index.html reported a meteor with an initial estimated mass of 3274g. Unfortunately the weather was cloudy over much of the UK at the time. Nevertheless, an incoming asteriod with a diameter of ~1m was identified and tracked to land in north-west France. The mass was a bit of an underestimate as subsequent estimates brought it closer to 1500kg and, at the time of writing, seven fragments have been found, the largest weighing ~100g.

Mark McIntyre of UKMON has produced a short video about the recent 1m diameter asteroid 2023 CX1 aka SAR2667, bits of which landed in northern France.

https://www.youtube.com/watch?v=WvCtJNnFD_w&t=209s



Found fragments and the French search team

Station report for Kirton at end of February 2023

Martin Richmond-Hardy

Due to cloud my cameras missed a big fireball over the north Norfolk coast, which was due to a meteor with an estimated mass in excess of 1kg.

https://archive.ukmeteornetwork.co.uk/reports/2023/orbits/202301/20230131/20230131_000118.006_UK/index.html

Note: the following data are released by UKMON under the CC BY 4.0 license, so if you are using the data whether for scientific or other purposes, your must reference this web site https://archive.ukmeteornetwork.co.uk/index.html and UKMON in your work.

During Febuary 52 meteors recorded by Kirton cameras UK0056 and UK007W were included in the UKMON daily "brightest 100 (or fewer)" reports.

The top 10 brightest for Kirton cameras are listed here:–

The DateTime links will take you to the UKMON record for further information and images.

DateTime	Mag.	Shower	Name of shower	Observing Stations
20230210_024944.044	-2.8	spo	sporadic	Tackley Whilton Dursley Searby LongCompton Kirton Ludlow Stretton Retford Marton Clanfield
20230201_060438.622	-1.2	spo	sporadic	Searby Barton Royston Pickworth Peldon Kirton Hatherton
20230210_055215.021	-1.1	spo	sporadic	Ringwood Royston Peldon Kirton Marton Clanfield
20230214_015416.853	-0.9	spo	sporadic	YeovilMarsh Hawick Kirton Royston Sheffield EastCramlington Kinellar Marton Clanfield
20230205_043731.169	-0.8	spo	sporadic	Searby Bexley Strood Royston StLeonards Pickworth Sturton Peldon Kirton
20230210_042241.868	-0.7	spo	sporadic	Tackley Strood Royston Sturton Peldon Kirton Clanfield
20230205_033853.725	-0.6	spo	sporadic	Mathon Barton Sturton Kirton Kinellar
20230207_233502.758	-0.6	spo	sporadic	Ringwood Tackley Blakeney Dursley Strood Eastbourne Kirton Royston Peldon Marton
20230210_025149.042	-0.6	SMV	Southern March gamma-Virginids	Wilcot Tackley Mathon Bexley NLObservatory Kirton
20230202_040316.896	-0.5	spo	sporadic	Kirton Royston Peldon Kirton

UKMON report for February 2023

During February 1632 meteors recorded by UKMON cameras were included in the UKMON daily "brightest 100 (or fewer)" reports.The top 11 for UKMON in February were:–

Event	Magnitude	Shower	Shower Name	Stations
20230205_022512.269	-4.9	spo	sporadic	Gretna Whilton Hawick Pool EdinburghW
20230206_012938.159	-4.8	spo	sporadic	Tackley Chard Exeter Bath Pantybwlch YeovilMarsh Wilcot Wilcot LongCompton Dyffryn NLObservatory
20230208_005727.411	-4	spo	sporadic	Abele Eastbourne Catherington NLObservatory
20230215_030758.911	-4	spo	sporadic	Tackley Rhos Wilcot Llanon Retford NLObservatory
20230208_044038.208	-3.5	spo	sporadic	Ringwood Chard Bath Pantybwlch YeovilMarsh Treworga Marshside Morvah NLObservatory NLObservatory Fareham Hatherton Searby
20230218_051021.092	-3.5	spo	sporadic	Exeter Chard Billingborough
20230225_232124.037	-3.4	spo	sporadic	Chard Exeter Billingborough Pantybwlch Whiteparish Alvechurch Alvechurch Bassingham NLObservatory Fareham Redhill Llanon
20230225_232125.093	-3.4	spo	sporadic	Chard Exeter NLObservatory Redhill Clanfield
20230211_023009.052	-3.1	FMV	February mu-Virginids	Blakeney Peldon
20230202_060358.092	-2.8	spo	sporadic	Tackley Strood Eastbourne
20230210_024944.044	-2.8	spo	sporadic	Tackley Whilton Dursley Searby LongCompton Kirton Ludlow Stretton Retford Marton Clanfield

February fireballs

https://archive.ukmeteornetwork.co.uk/reports/2023/fireballs/index.html

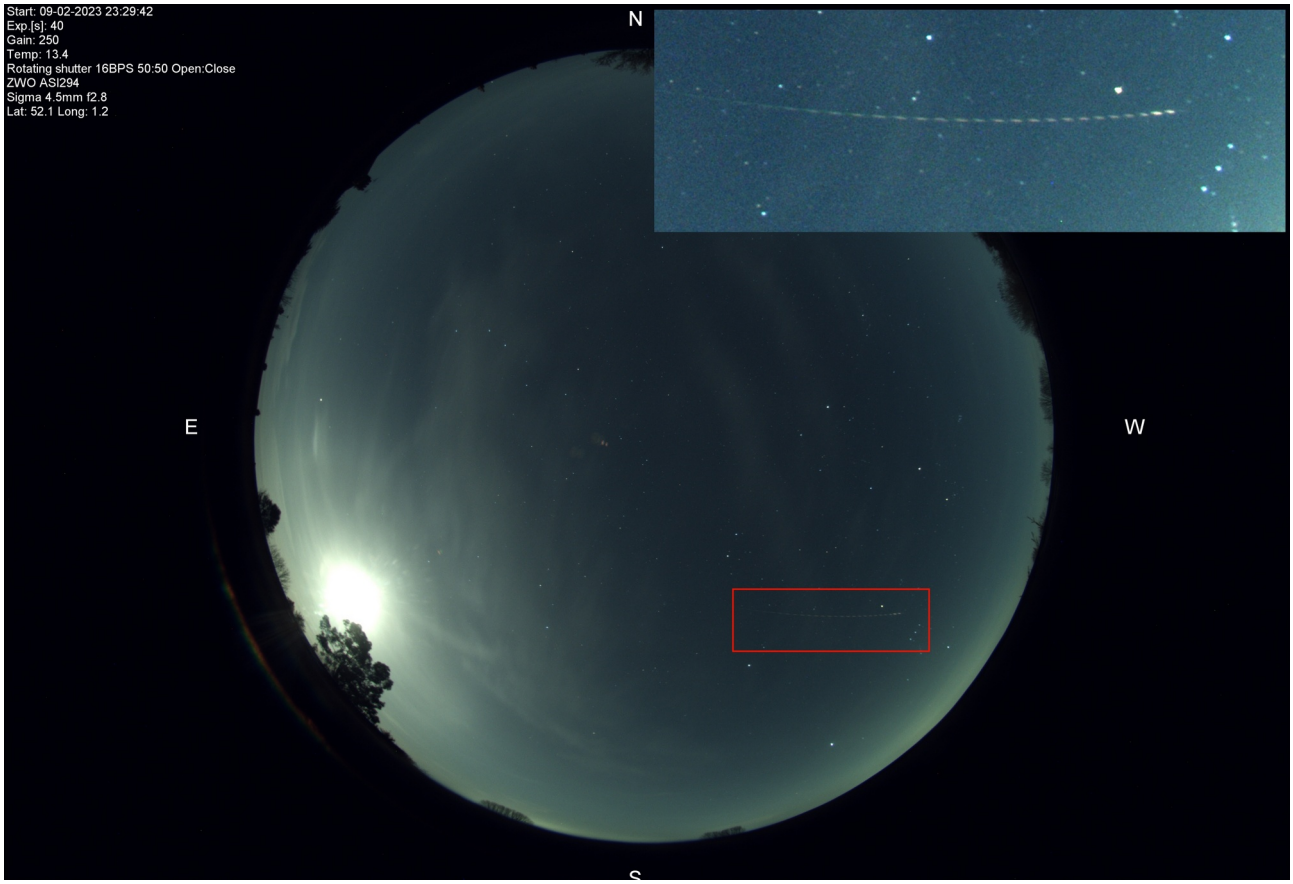
The latest meteor news can be found here https://www.meteornews.net/category/news/

There are now 200 cameras in the UKMON network.

The All-sky report: Fireball at 233000hrs UT 9/2/23

Alan Smith

Still from video camera



All-sky camera, annotated

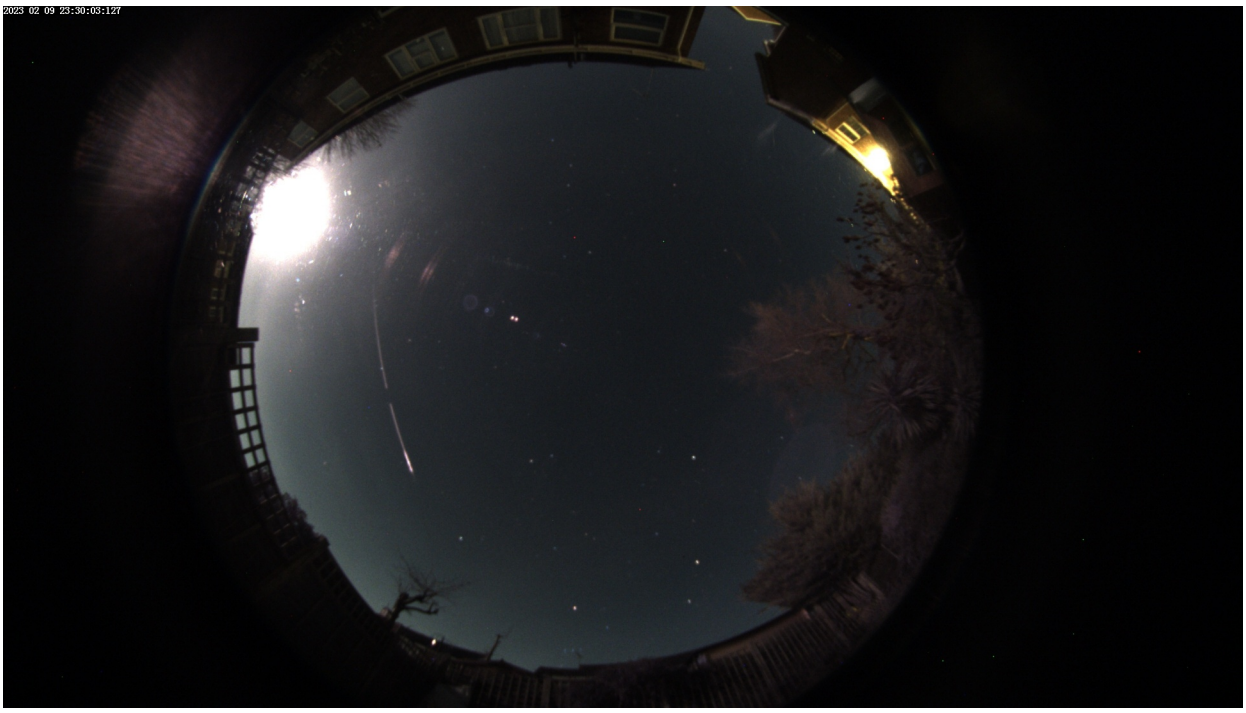
Jemes Appleton

Appcam caught it too. The trail scored a bullseye on Betelgeuse. 🡻

- Image filename is end-of-frame time in UT.
- Gain 130 (automatically reduced to compensate for glare from the Moon).
- Location 52.053729°N, 1.212109°E, 42m above MSL.
- ZWO ASI178mc.
- Fujinon fish-eye lens, CF2.7HA-L1, 1:1.8, 2.7mm.
- 30s exposure.

Sarah Brown

The event was spread across two frames so I have combined them in the attached image.



UKMON First pass rough analysis

Mark McIntyre (UKMON)

Fast mover, possibly cometary or KBO in origin

Duration ~ 2.8s, track length > 220 km over London.

Initial velocity > 64 km/s

Orbit ~ 13 AU semimajor axis, eccentricity 0.83 so at aphelion it was in the kuiper belt. in a retrograde orbit highly inclined to the ecliptic (i = 124 degrees)

Going much too fast to survive, burned up ~88km above ground moving at ~ 50km/s.

TESS (Transiting Exoplanet Survey Satellite)

Another short article from the library.

TESS was hurtled into space onboard a SpaceX Falcon 9 block 4 rocket on the 18th April 2018, from Cape Canaveral Space launch Complex -40. Its mission, which was accepted by NASA, was to find transit exoplanets. Transits occur at the point that a planet passes between a star and its observer.

This is another assignment in our search into most things space outside our solar system. It is hoped that TESS will examine as many as 200,000 of the brightest stars close to our sun looking for these transits. Once the Falcon 9 second stage had inserted TESS into the initial orbit, four independent burns were performed by the spacecraft to locate it in a lunar fly-by orbit. A gravity assist was performed by the Moon on the 17th May 2018 at 8,253.5 km above the surface and the spacecraft performed a final burn to acquire its final adjustment on 30th May 2018. This brings it into its calculated orbital period of 13.65 days, which allows it to be in a 2:1 resonance with the Moon. This will provide orbital stability for twenty years or so and require little power to sustain.

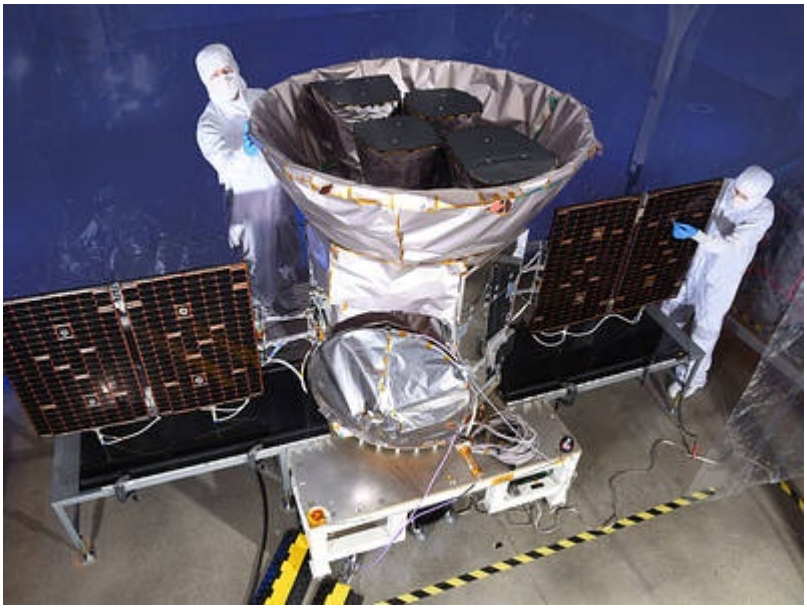


Image credits: NASA

A prior mission to TESS was Kepler with its K_2 follow–up survey. Kepler was a space telescope launched by NASA in 2009 into an Earth-trailing heliocentric orbit. It was intended to scan a section of Earth's Milky Way looking for Earth-size exoplanets, that occupied, or were close to, habitable zones. It would also assess the numbers of stars in that area that have these planets. This was to be achieved by Kepler simply using a photometer scanning the brightness of about 150,000 main sequence stars within a static field of view. This survey continued for 9.5 years at which point the telescopes reaction control systems fuel became depleted and the experiment was retired on 30th October 2018. All data was beamed down to Earth for analysis.

So TESS is a space telescope for NASA's Explorer program that was hoped would seek out and find many exoplanets using the transit method in an area approx. 400 times greater than that covered by Kepler. In its first two years which was the initial life of the mission, it was envisaged that TESS would observe 1,250 exoplanets orbiting objective stars, and perhaps as many as 13,000 transits noted from the wider ad hock star fields. The stars observed would be G,K, and M class stars that had to have an apparent magnitude brighter than magnitude 12. It was expected that most of the located explanets would be at a distance of between 30 to 300 light-years away.

Scientists were also planning that TESS would observe the complete sky area over a time of two years, by separating it into 26 disparate sections of 24 degrees by 96 degrees across. Each sector would be studied by very complex cameras for a minimum of 27 days each. At this point, the spacecraft will be reoriented to view the next section. Each camera has four wide field, 2k *2k charge-couple devices with a pixel scale of 21 arcseconds per pixel. These cameras are designed to be low power and low noise.

The principal mission was completed on 4th July 2020. At this point the mission was granted an extension, which is still running. In this two year epoch, 75% of the starry sky was mapped and 66 new exoplanets were discovered as well as a further 2,100 contenders for the scientific crew to study.

On 15th April 2019 the first discovery that TESS produced was an earth –sized planet, which is known as HD 21749c, one of two exoplanets that revolve around an orange main-sequence star called HD21749.

Recently (2022), a group of international scientists guided by the University of Montreal and using TESS, working in collaboration with a group of ground based telescopes have located a "super – Earth". This is a very large (70% larger than Earth and five times as huge) and probably rocky world 100 light-years away. It has been named TOI-1452b. At this early point in analysis, scientists believe that its form may offer at least 30% of its mass as water. TOI-1452b is also in a prime position to be investigated by the James Webb space telescope.

As well as TESS being used for its primary goal, scientists are using its data to assist in their own projects. In 2022 a group consisting of Sharma, Awshesh N. ; Bedding, Timothy R.; Saio, Hideyuki. ; White, Timothy R. studied 119, B class stars that were to be found in the Scorpius-centaurus Association using data from NASA's TESS mission. They were searching for pulsating B stars. They found that 81 stars (68%) demonstrated pulsations across the full range of temperatures. The results showed the following: rapidly rotating SPB's (slowly pulsating B type) ; hybrid pulsator; low amplitude p mode pulsations in ὰ Cru making it one of the brightest stars in β Cephei; and several binaries. From just one project it shows how important the data obtained from TESS is and will be in the future.

References:

TESS Images | NASA

HD 21749 - Wikipedia

TESS - Transiting Exoplanet Survey Satellite | NASA

About TESS | NASA

Pulsating B stars in the Scorpius-Centaurus Association with TESS - NASA/ADS (harvard.edu)

When was the last time you "shot" the kids?

Nigel Evans

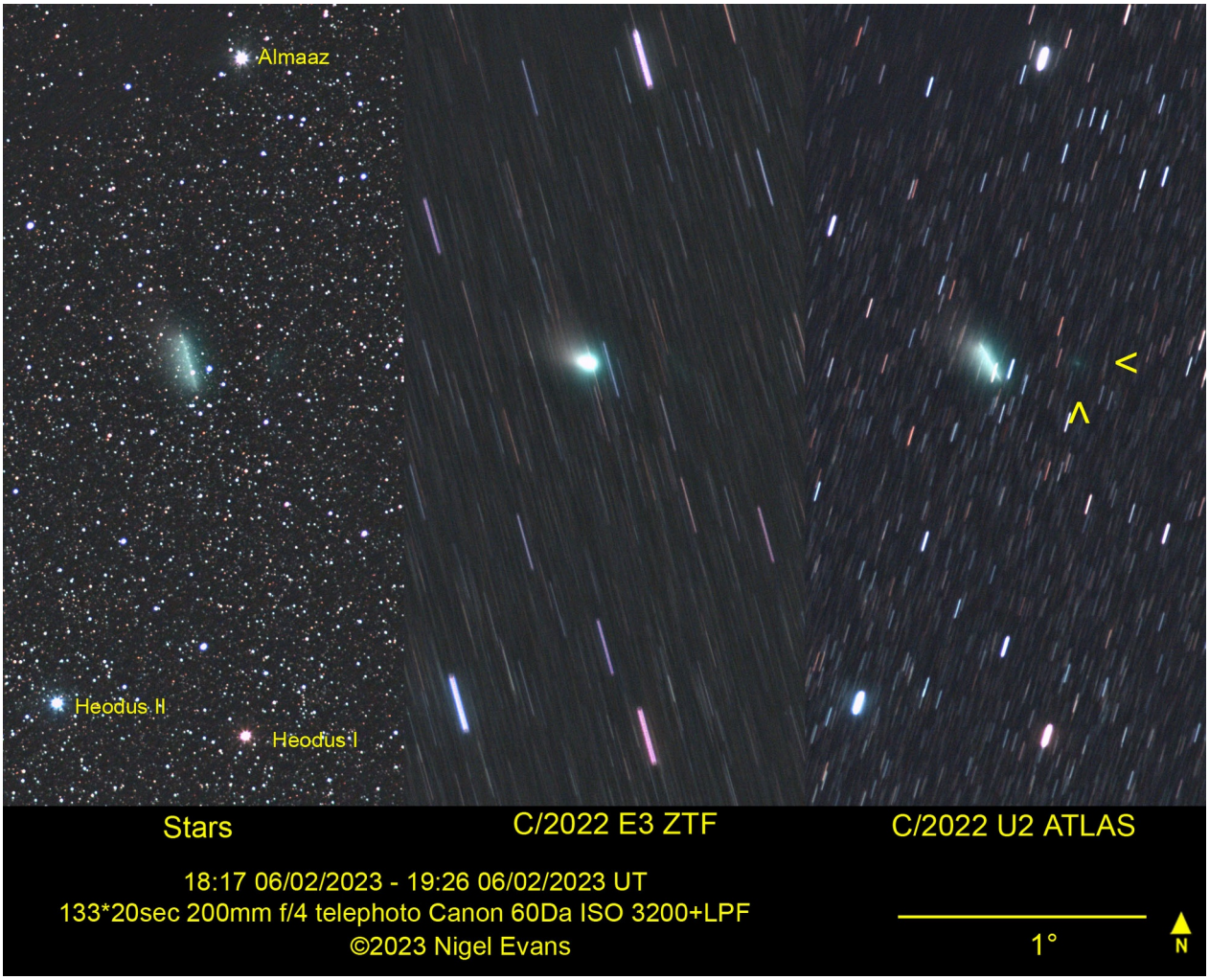
No, No, I don't mean the ones that say " Are we there yet?" or "MUM(DAD) , where is my... Can I have...". I mean "The Kids", the asterism next to Capella. Well, my answer is never – until now.

On 6 Feb 2023 there was a narrow opportunity to shoot The Kids, with the interloper C/2022 E3 ZTF amongst them. The Moon had already risen by the time it was dark and clouds were forecast to roll in soon. As the sky would be bright I decided not try an record the ion tail with the telescope, but that I would test out a DSLR with a telephoto to capture the wider view.

My first reaction was that it is a fuzzy blob amongst the stars, but there an odd colouration nearby. Then I realised there was more there when I saw this **superb** animation by Nick James https://britastro.org/observations/observation.php?id=20230206_194501_9889616fdb9c8f98

There were TWO comets in the field of view!

So what was I able to salvage? Normally I would stack a series of images on the stars, then on the comet. This time I could stack on *two* different comets. Also I could have a go a making a movie[1] - not a patch on Nick's, but it gives an impression of the two comets moving. The other comet is C/2022 U2 ATLAS that is some 6 magnitudes fainter than ZTF



1 http://www.oasi.org.uk/Obsvns/20230214_C2022E3/20230214_C2022E3.php

Newbourne gardening page

The hedging project around the container has now been completed.

Assembly of the Millennium Telescope

John Wainwright arranged for the re-coating of the mirrors and Monday 13th February saw the reassembly of the telescope.

"Is this right?"

"No – the coloured tapes should be at the bottom."

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Fitting the primary mirror

Teamwork – or *"How many astronomers does it take....?"*

And it's done! Now to do the collimation.