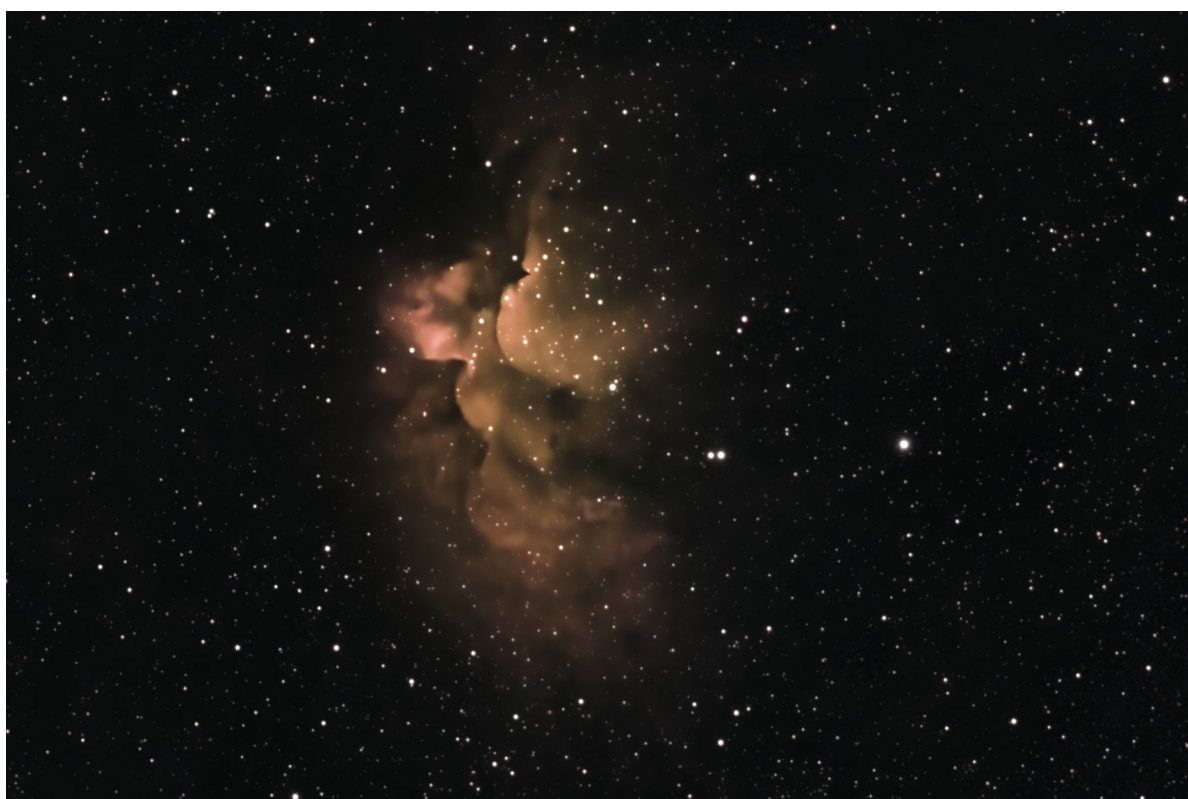




OASI News

The newsletter of Orwell Astronomical Society (Ipswich)



NGC7380 The Wizard Nebula

Photo by Alan Buttivant

Trustees: Mr Roy Adams Mr Neil Morley Mr David Payne

Honorary President: Dr Allan Chapman D.Phil MA FRAS

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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/UCHgxe3QAeRVWf7vkjKkCI2Q>

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

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 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, rtf, 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 10 February at 8:00pm via Zoom. All members welcome.

Welcome to new members

Daniel Devido

Claire Crosbie

Nicola Rimron-Molloy

Terry Hunter

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/1jhs9db71ncki4sojo7092vfv%40group.calendar.google.com/public/basic.ics>

For other astronomy news and astro pictures try our

Twitter feed <https://twitter.com/OASlpswich>

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
Monday 13 Feb 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI at Newbourne. Beginners welcome!
Thursday 16 Feb 20:00 Zoom	Martin Cook membership@oasi.org.uk	3rd Thursday Zoom meeting
Monday 27 Feb 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI at Newbourne. Beginners welcome! Bill Barton FRAS: What's Up? John Barbrook will present a 30 minute talk to members of OASI on the construction of his home built 150mm reflector. John would also like to talk about his experiences of IDAS (Ipswich and District Astronomical Society – the precursor to OASI).
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
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?

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.

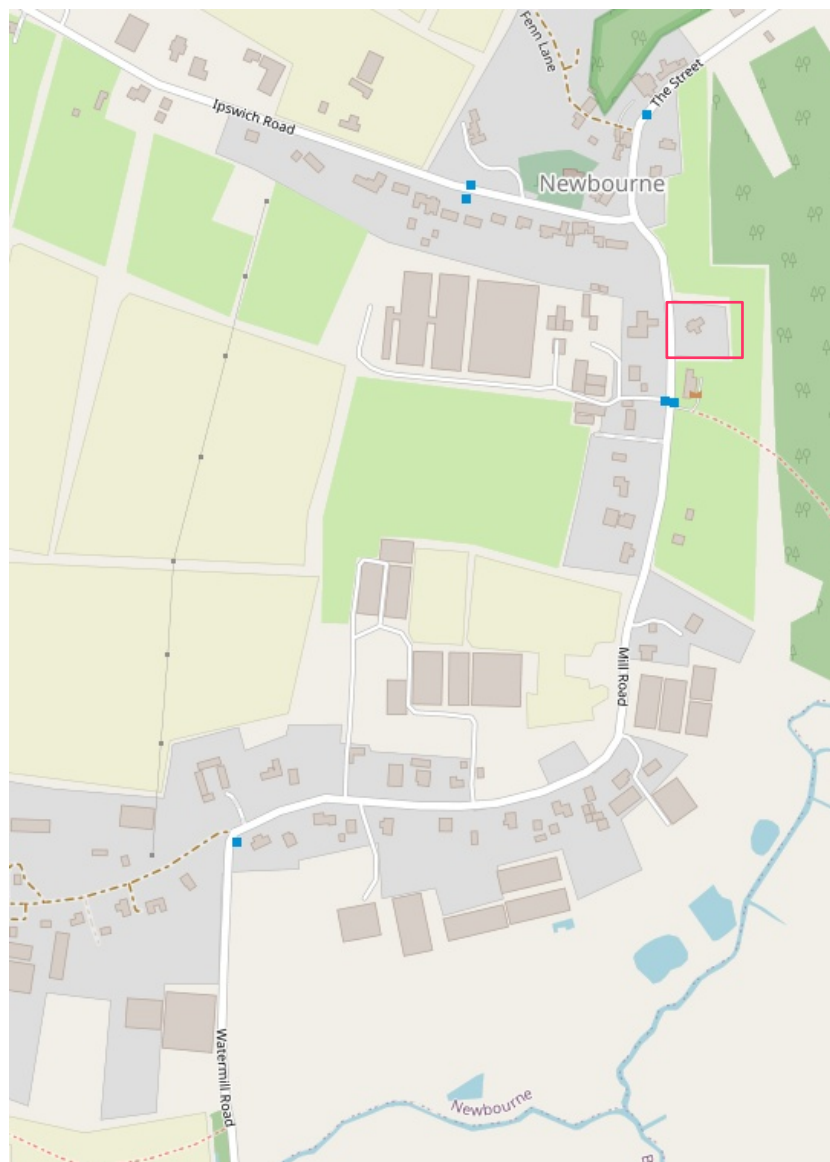
<http://www.oasi.org.uk/OASI/Membership.php>

Newbourne dates for 2023

February	13	27
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: 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

Mike Whybray gave a talk at Newbourne on 23 January on his Aurora trip to Iceland. Slides are available here <http://www.oasi.org.uk/Events/AW/Aws.php>.

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

27 February at Newbourne

John Barbrook will present a 30 minute talk to members of OASI on the construction of his home built 150mm reflector, which he commenced at the age of 14!

John would also like to talk about his experiences of IDAS (Ipswich and District Astronomical Society – the precursor to OASI), which he joined at the age of 13.

Lectures – via Zoom

Contact: Peter Richards lectures@oasi.org.uk

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

All meetings are currently via Zoom. 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>

The BAA Radio Astronomy Section

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 Winter programme 2022/23		
Feb. 3rd Friday 19:30 GMT	Dr. Ziri Younsi UKRI Stephen Hawking Fellow Mullard Space Science Laboratory University College London	Imaging of black holes with the Event Horizon Telescope
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

The Night Sky in February 2023

Martin RH

All event times (BST) are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E.
Times are GMT (UTC).

Sun, Moon and planets

Sources:

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

February 2023

Object	Date	Rise	Set	Mag.	Notes
Sun	1	07:36	16:42		
	28	06:44	17:32		
Moon	1	12:08	05:17		Full Moon 05 February 18:29 Snow or Hunger Moon Apogee 04 February 08:55 Last Quarter 13 February 16:01 Perigee 19 February 09:06
	28				New Moon 20 February 07:06 First Quarter 27 February 08:06 Spot the Lunar X & V on 27/28 Feb ¹
Mercury	1	06:26	14:21	0	Aphelion 15 Feb
	28	06:37	15:58	-0.5	
Venus	1	08:40	18:50	-3.8	
	28	07:44	20:17	-3.9	
Mars	1	11:18	04:06	-0.3	
	28	10:03	03:02	0.4	
Jupiter	1	09:27	21:38	-2	
	28	07:49	20:24	-1.9	
Saturn	1	08:18	17:46	0.8	Superior conjunction 15 Feb
	28	06:39	16:19	0.9	
Uranus	1	10:33	01:26	5.7	
	28	08:48	23:39	5.8	
Neptune	1	09:06	20:26	7.9	
	28	07:22	18:45	8	

¹ <https://marysastronomyblogs.blogspot.com/2023/01/popular-clair-obscure-effects-times-for.html>

Occultations during February 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 February 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 Feb & 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>

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Altitude	Azimuth	Constellation
C/2022 E3 ZTF	5.8	2023-Jan-22	96°	60.2°	296° (WNW)	Draco
C/2017 K2 PANSTARRS	8.5	2023-Jan-18	52°	-35.6°	166° (SSE)	Pavo
C/2022 A2 PANSTARRS	9.3	2023-Jan-21	82°	82.3°	325° (NW)	Draco
C/2020 V2 ZTF	9.5	2023-Jan-21	102°	41.4°	36° (NE)	Cassiopeia
C/2022 U2 ATLAS	9.7	2023-Jan-21	115°	34.8°	22° (NNE)	Camelopardalis

Visible ISS passes $\geq 15^\circ$ max altitude for February 2023

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

Times are BST. Predictions are approximate (22 Jan) 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 Feb	-2.8	17:29:20	10°	W	17:32:36	48°	SSW	17:35:51	10°	SE
01 Feb	-1	19:06:56	10°	WSW	19:08:44	14°	SW	19:10:15	11°	SSW
02 Feb	-1.2	18:17:37	10°	W	18:20:09	20°	SW	18:22:40	10°	SSE
03 Feb	-1.7	17:28:32	10°	W	17:31:28	28°	SSW	17:34:23	10°	SSE
05 Feb	-0.7	17:28:02	10°	WSW	17:30:01	15°	SW	17:32:00	10°	S
19 Feb	-1.5	05:59:02	10°	SSW	06:01:43	23°	SSE	06:04:25	10°	E
20 Feb	-1.1	05:10:16	10°	S	05:12:22	16°	SE	05:14:29	10°	ESE
21 Feb	-2.6	05:55:52	10°	SW	05:59:01	40°	SSE	06:02:11	10°	E
22 Feb	-2.1	05:08:00	20°	SSW	05:09:31	29°	SSE	05:12:27	10°	E
23 Feb	-1.5	04:20:28	20°	SE	04:20:28	20°	SE	04:22:35	10°	E
23 Feb	-3.5	05:53:17	12°	WSW	05:56:16	63°	SSE	05:59:35	10°	E
24 Feb	-3.2	05:05:37	35°	SSW	05:06:37	49°	SSE	05:09:51	10°	E

Date	Bright-ness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
25 Feb	-2	04:17:52	30°	ESE	04:17:52	30°	ESE	04:20:04	10°	E
25 Feb	-3.8	05:50:40	14°	W	05:53:25	82°	S	05:56:46	10°	E
26 Feb	-3.7	05:02:49	46°	WSW	05:03:39	72°	SSE	05:06:59	10°	E
27 Feb	-2.4	04:14:54	37°	ESE	04:14:54	37°	ESE	04:17:09	10°	E
27 Feb	-3.8	05:47:43	15°	W	05:50:27	86°	S	05:53:47	10°	E
28 Feb	-3.9	04:59:44	48°	W	05:00:34	86°	S	05:03:54	10°	E

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

Popular Clair Obscur Effects: Times for 2023

<https://marysastronomyblogs.blogspot.com/2023/01/popular-clair-obscur-effects-times-for.html>

APOD: 2022 December 18 - The 25 Brightest Stars in the Night Sky

<https://apod.nasa.gov/apod/ap221218.html>

New Constraints on Macroscopic Dark Matter Using Radar Meteor Detectors

<https://phys.org/news/2022-11-technique-meteors-dark-particles-atmosphere.html>

<https://arxiv.org/abs/2209.07690>

Dark energy

<https://phys.org/news/2022-11-amateur-scientists-astronomers-quarter-million-galaxies.html>

<https://www.zooniverse.org/projects/erinmc/dark-energy-explorers>

Light curves of variable stars

<https://www.zooniverse.org/projects/tharinduj/citizen-asas-sn>

The Faraday Rotation Measure Grid of the LOFAR Two-metre Sky Survey: Data Release 2

<https://arxiv.org/abs/2301.07697>

The 10 brightest stars in the night sky

<https://apod.nasa.gov/apod/ap221218.html>

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/>

Radio Sky News Oct 2022 by John Cook has now been published and can be found [here](#) along with previous reports.

Additionally there is a new article - *A Bolt from the Blue* - A short paper by Mark Edwards which is linked to his recent talk on the GRB (Gamma Ray Burst) Detection - It can be found [here](#).

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>

Answers to the Crossword for Christmas

Across

- | | | | | |
|--------------------|--------------|--------------|------------|------------|
| 5. Quark | 8. Magnitude | 11. Sidereal | 13. Orion | 14. Polar |
| 17. Alpha-particle | 18. Tails | 20. Owl | 21. Triton | 22. Proton |
| 23. Coma | 24. Spider. | | | |

Down

- | | | | | |
|-------------|--------------|------------|-----------------|--------------|
| 1. Photon | 2. Sunflower | 3. Vega | 4. Charm | 6. Libra |
| 7. Pinwheel | 9. Glass | 10. Titan | 12. Higgs-boson | |
| 14. Pollux | 15. Caloris | 16. Octans | 19. Snoopy | 21. Triffid. |

Meteor Reports for January 2023

Station report for Kirton at end of January 2023

Martin Richmond-Hardy

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, you must reference this web site

<https://archive.ukmeteornetwork.co.uk/index.html> and UKMON in your work.

During January 163 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
20230118_055100.823	-2.6	spo	sporadic	Bath Tackley YeovilMarsh Eastbourne Hawick Kirton Sheffield StLeonards Nettleham Sturton Tytherington Costessey Kinellar Marton
20230119_052212.031	-2.6	spo	sporadic	Tackley Kirton Royston Sheffield StLeonards Nettleham Sturton Peldon EastCramlington Costessey Kinellar Marton
20230121_011312.437	-2.0	spo	sporadic	Tackley Gretna Billingborough Wilton Searby Kirton Nettleham Pool EastCramlington Costessey Kinellar Marton
20230116_230951.922	-1.9	SCC	Southern Delta Cancrids	Hawick Randalstown Kirton Nettleham EdinburghW Stretton EastCramlington
20230106_041136.752	-1.7	COM	Comae Berenicids	Eastbourne Wilcot Searby Mathon Bexley Strood Royston Coventry StLeonards Pickworth Catherington Sturton Peldon Kirton
20230108_034038.997	-1.7	spo	sporadic	Eastbourne Bexley Kirton
20230117_051549.789	-1.6	spo	sporadic	Wilcot Tackley Mathon Sturton Walton Kirton
20230101_054929.875	-1.5	JLE	January Leonids	Wilcot Searby Kirton Sturton Peldon Kirton
20230103_054745.926	-1.2	JLE	January Leonids	Kirton Sturton Peldon Toton
20230109_192343.700	-1.2	SCC	Southern delta- Cancrids	Eastbourne Eastbourne Peldon Kirton

The top 10 for UKMON in January were:-

Event	Magnitude	Shower	Shower Name	Stations
20230124_065359.560_UK	-6.2	spo	sporadic	UK001L UK001Z UK005 UK0067 UK007A UK007M
20230112_064504.331_UK	-3.6	spo	sporadic	EastMey Hawick Midmar
20230113_021450.810_UK	-3.6	spo	sporadic	Tackley Blakeney LeightonBuzzard NLObservatory
20230114_225347.255_UK	-3.6	FPL	February Pi Leonids	Tackley Tackley Blakeney LongCompton StAustell Alvechurch Bassingham Retford Tytherington Stretton
20230101_062045.761_UK	-3.3	spo	sporadic	Tackley Billingborough Blakeney LeightonBuzzard Coventry Pickworth Catherington
20230109_001744.032_UK	-3.2	spo	sporadic	Billingborough Blakeney Wilcot Dyffryn Alvechurch Bassingham Retford Tytherington Stretton
20230110_223334.579_UK	-2.9	spo	sporadic	Ringwood Tackley Chard Billingborough Tackley Gretna Marshside Tytherington Tytherington
20230115_004327.288_UK	-2.8	spo	sporadic	Tackley YeovilMarsh Mathon Whilton Dursley Searby Royston Nettleham Sturton NLObservatory Costessey Marton
20230102_063530.965_UK	-2.7	spo	sporadic	Tackley Tackley Gretna Dursley Searby Hawick Randalstown Ludlow Nettleham Stretton Beverley EdinburghSW EastCramlington Edinburgh Toton NLObservatory Cockermonth
20230103_011842.336_UK	-2.7	spo	sporadic	Abele Church_cro Chard Billingborough Altrincham Blakeney Doseley Wakefield Pickworth Amesbury Bassingham NLObservatory

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

There are now 195 cameras in the UKMON network.

NGC 457

John Hughes



Open cluster, NGC 457, located in Cassiopeia.

This image was captured across the nights of the 7th and 8th December 2022.

Whilst both nights offered clear skies, I never actually set out on the evening of the 7th to take a picture of this target. As you may recall, I have a 8" Ritchey Chretien scope with poor collimation that I have been tinkering with for nearly 2 years now to the point where the equipment I have purchased to collimate it outweighs the cost of the scope. If it was to become a rather large paperweight, I can take some solace that the price of astronomy equipment has risen over the last 12 months so the 'hit' to the pocket wouldn't be too bad if I decided to sell.

At the start of this month I took the decision to give the collimation one last go. The scope was moved from my cold garage to my kitchen table and using a Howie Glatter laser I attempted to adjust the tilt in the focuser so the laser dot reflected off the centre of the secondary mirror. With that achieved, I then inserted a Takahashi collimating scope into the focuser and centred the secondary. Finally, an OCAL camera replaced the Takahashi collimating scope and I then attempted to align the primary mirror. I say finally, but each adjustment impacts the other and so it is a case of rinse and repeat each step and until the adjustments become minimal. Then it is outside for a star test.

Aligning on a bright star, I then racked out the focuser to create a large donut ring on the laptop screen. The dark centre circle was off slightly so I adjusted the secondary mirror to compensate. I then had to consider the shape of the stars in each corner of the image. Whilst these will not all be nice circles, elongation is inevitable, the elongation of each star should be the same, if not, the primary mirror needs to

be adjusted. With the scope pointing near the Zenith, I found myself on my knees in the freezing cold with two tiny Allen keys trying to adjust three small screws looking out the wrong side of vari-focal glasses. What joy!

Sitting back down and refocussing the scope I was surprised to see something like collimation. I then spent a good 20 minutes touring the sky just confirming what I was seeing. At this point I decided to put the scope through its paces and set up an impromptu image run on NGC 457 as it was high in the night sky and presented a nice FoV for the 1,600mm focal length. All of this was captured with a ZWO ASI294MC colour camera with no UV/IR filter the night before a full Moon. Perfect conditions. Not to be deterred, I decided to do the same again the next night with the added advantage of a full Moon!

The image itself is washed out, with a heavy green caste and gradients (removed in processing). I did attempt to use the new PixInsight SpectrophotometricColourCalibration Tool to bring out some colour. This draws upon 63 Gigabytes of Gaia data released on 13 June 2022 that contains the spectral properties of 219 million stars up to magnitude 25.59. Even with the power of Gaia behind me the Moon won.

So, here is NGC 457. I am pretty pleased with it even if it lacks colour but if anyone didn't know, this is why you either don't image on a full Moon, image in narrow band on a full Moon or just take pictures of the Moon on a full Moon.

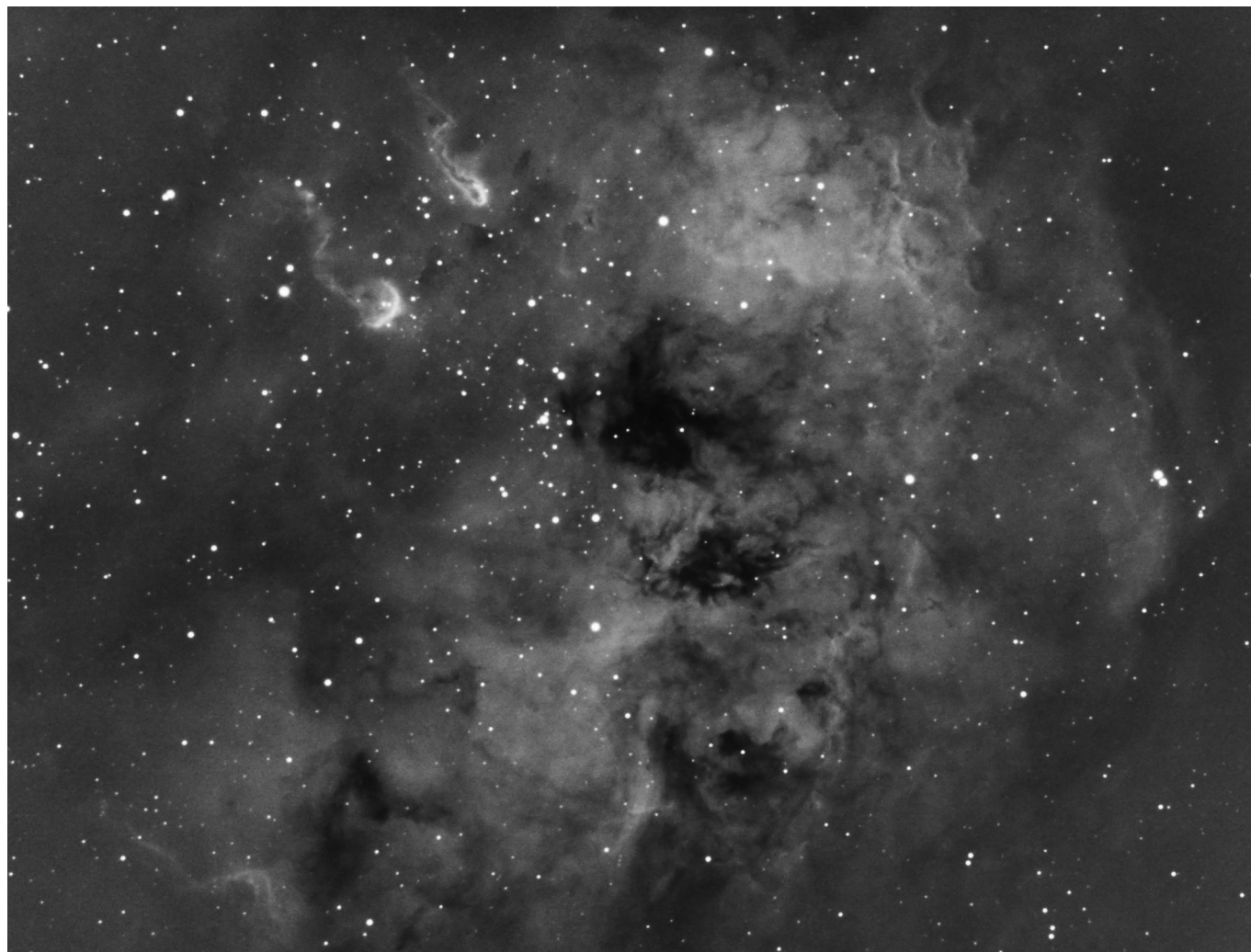
Sh2-236 The Tadpole Nebula

John Hughes

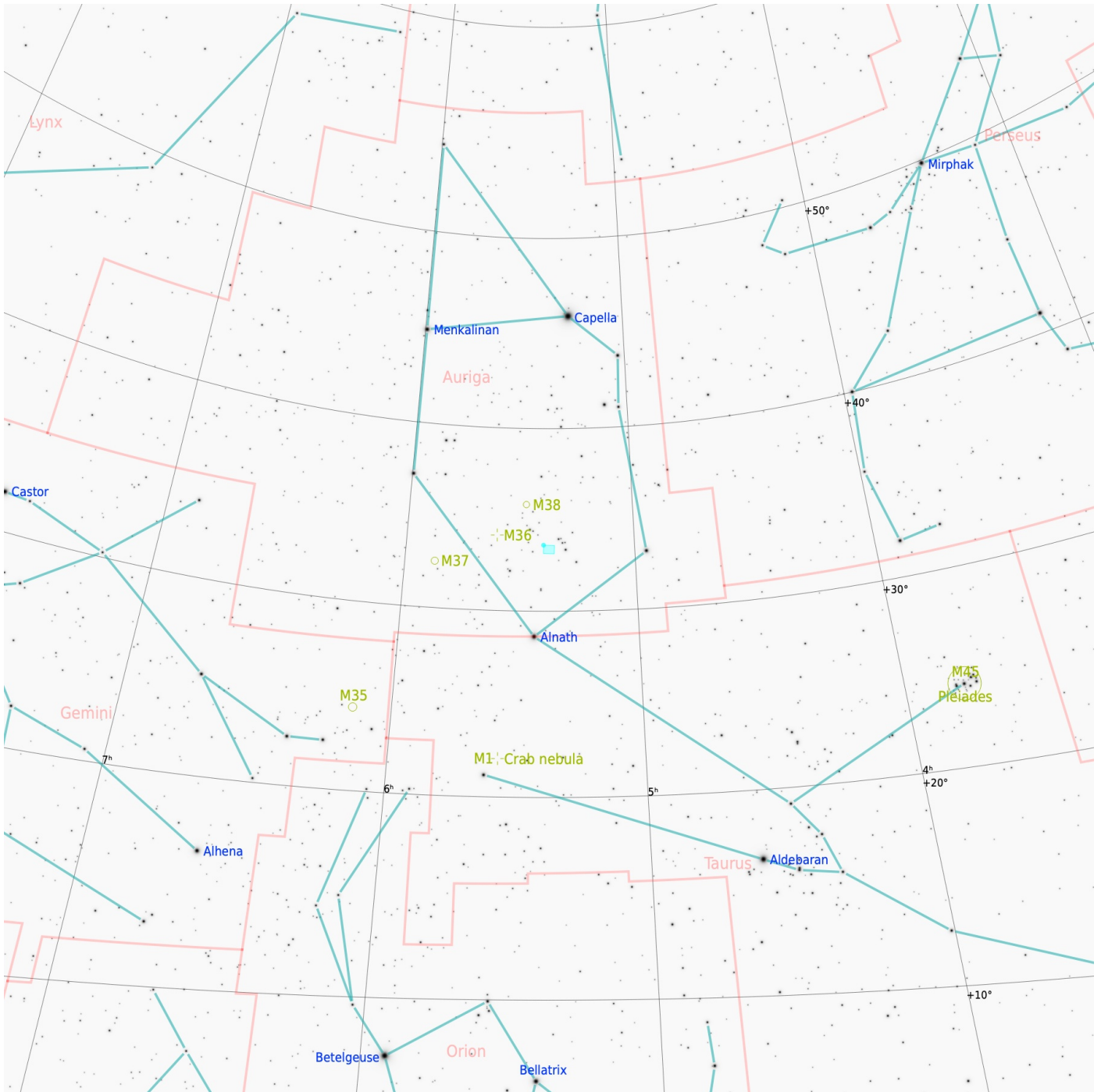
This image has been captured at Bin 1x1 which equates to a resolution of 0.49" per pixel and is over-sampled. A combination of binning at 1x1 then drizzling introduced more noise in a what is a small data set so I rerun the initial processing of the image without drizzle and then downsampled the it to the equivalent of Bin 2x2. This has the effect of increasing the resolution to a more realistic 0.98" per pixel and helped control the noise somewhat but more data will be needed.

This month I have been tinkering with the Ritchey-Chretien (RC) collimation and experimenting with a one shot colour camera in the hope of being able to use this combination during galaxy season. So far I have not been satisfied with the final product due to the colour in the final image appearing washed out. So, on Friday 27th January 2023 I attached the ZWO ASI1600mm Pro camera to the RC along with a field flattener just to dial in the back focus. As the Moon was up I decided to image in narrowband and chose Sharpless 236, also known as the Tadpole Nebula and managed to acquire 26 frames at 300s exposures before the clouds arrived.

Attached is the final image along with a Finder Chart which PixInsight also allows me to produce to provide an overview of the location of this nebula.



Sh2-236 The Tadpole Nebula



Finder chart

NGC7380 Wizard Nebula

Alan Buttivant



Not been able to get along to meetings yet but hopefully health and circumstances will allow early next year. Anyway I managed to get out the other night and took this at Waldringfield. A straight copy of what I put up to FB. Hope you like it.

NGC7380 Wizard Nebula shot on a very frosty night here and moon at 99% so wasn't expecting much but pleased with the result.

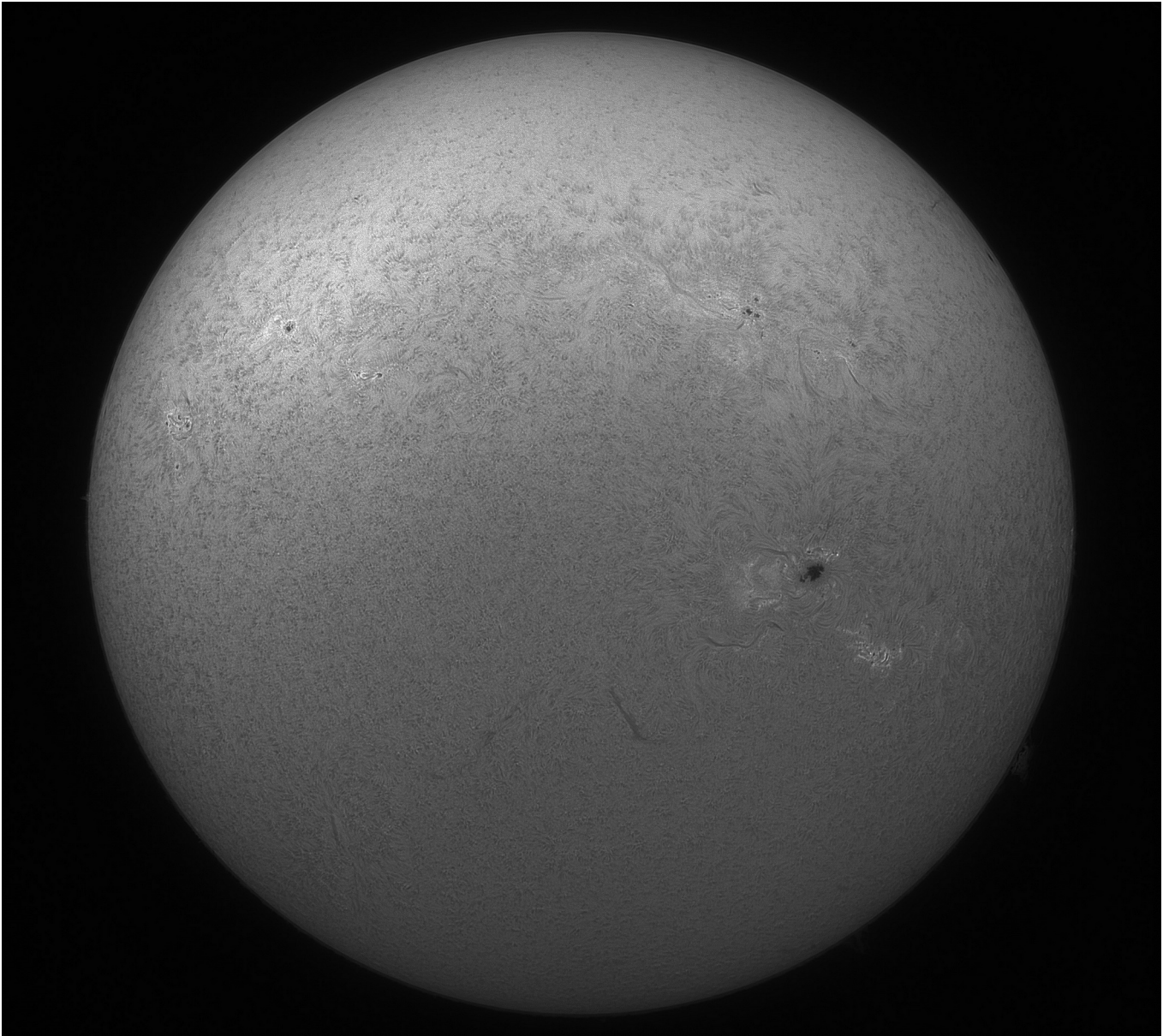
Equipment

Sw az-gti	Asi air+	SW Evostar 72ed with x0.85 reducer	Asi 183mc pro
Asi 120mm mini guide	ZWO mini guide scope		L-Enhance filter
40 lights 360sec Gain III	10 Darks	60 Bias	60 Flat

Also I put a video together for my grandchildren here that some may like. https://youtu.be/jQI-Oh7_jjM

The Sun

Martin Cook



**The Sun on 21/01/2024 in H-Alpha at midday
using a Lunt LS60THa/B1200 telescope and Zwo 178MM camera.**

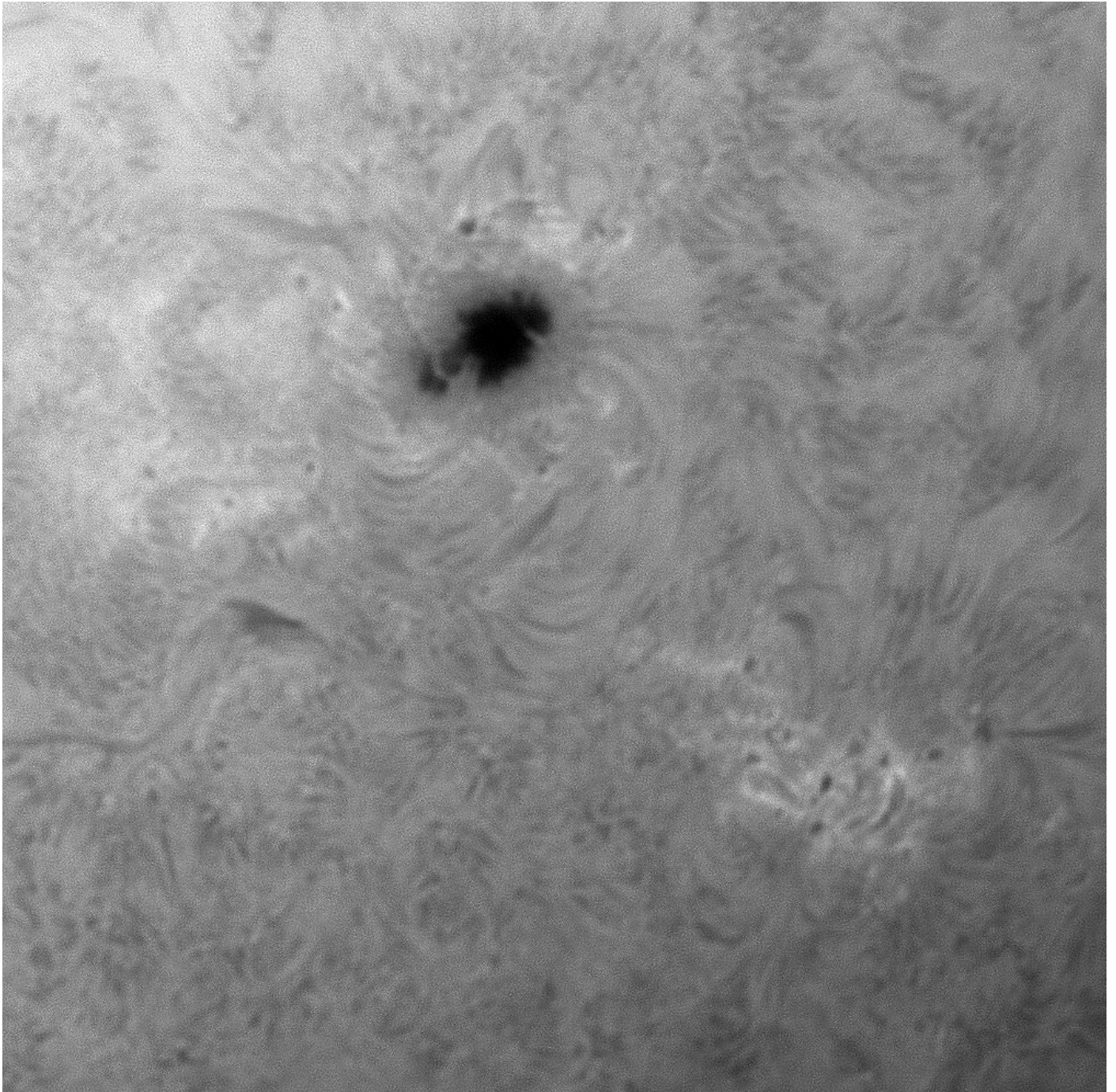
The Sun was only 18° above the horizon so the best place to set the scope up was close to the house, looking down the garden.

Being just above freezing I went for the wimpy option of setting up inside the house looking through the patio door. The camera was connected, rotated to give the correct orientation on the laptop screen. The image was surprisingly good even through glass but I did open the doors to acquire the final images.

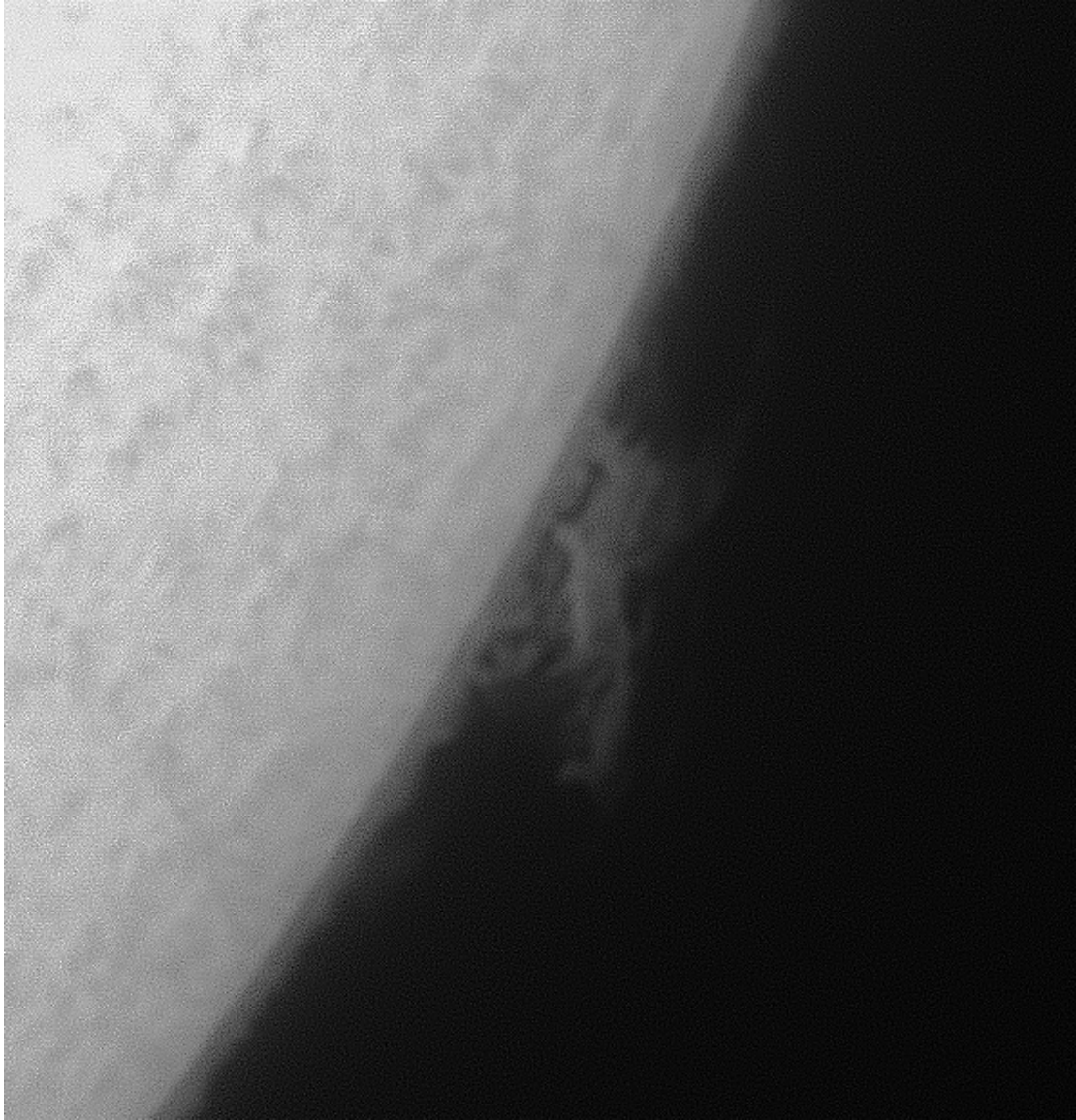
On the whole disk image a large Sunspot AR3190 is clearly visible along with several smaller ones.

There are also a number of prominences visible around the outside edge the largest one is at 4 o'clock.

The close-up images of the sunspot and large prominence were taken using a 2.5x Barlow.



Sunspot



Prominence

Moon occults Mars

Nigel Evans

After several weeks of fairly rubbish weather the skies have cleared.

This morning (8 December) I caught an occultation of 17 arcsecond Mars by the Moon for the first time. It was a bit unfortunate that it occurred less than 1 hour after Full Moon. Reappearance an hour later was too low to be seen for me.

This is a frame extracted from a video clip which was speeded-up by a factor of 5, so the disappearance over some 35 seconds is now only 7. The video can be found here:–

http://www.oasi.org.uk/Obsvns/20221208_lunar_occ_planets/20221208_lunar_occ_planets.php



Didymos

Nigel Evans

On 15 Dec 2022 I had a go at Didymos – in particular was the trail of debris from the DART-Dimorphos impact still visible after all this time (some 73 days) The asteroid appeared to have two tails: one could be seen as a smeared-out star that just happened to line up with it (as seen in the static view), while the other did look like a faint tail (or it might be a pattern in the background). However this image, https://britastro.org/observations/observation.php?id=20221224_162259_54d997ca63ed4878, taken with a bigger scope showed more clearly that the tail had not dispersed completely.

The camera that I have been using is now 11 years old and has started to give me reliability issues – in particular it would randomly time-out, meaning I could not leave it for long before checking that it was still connected and running. Time to move on.

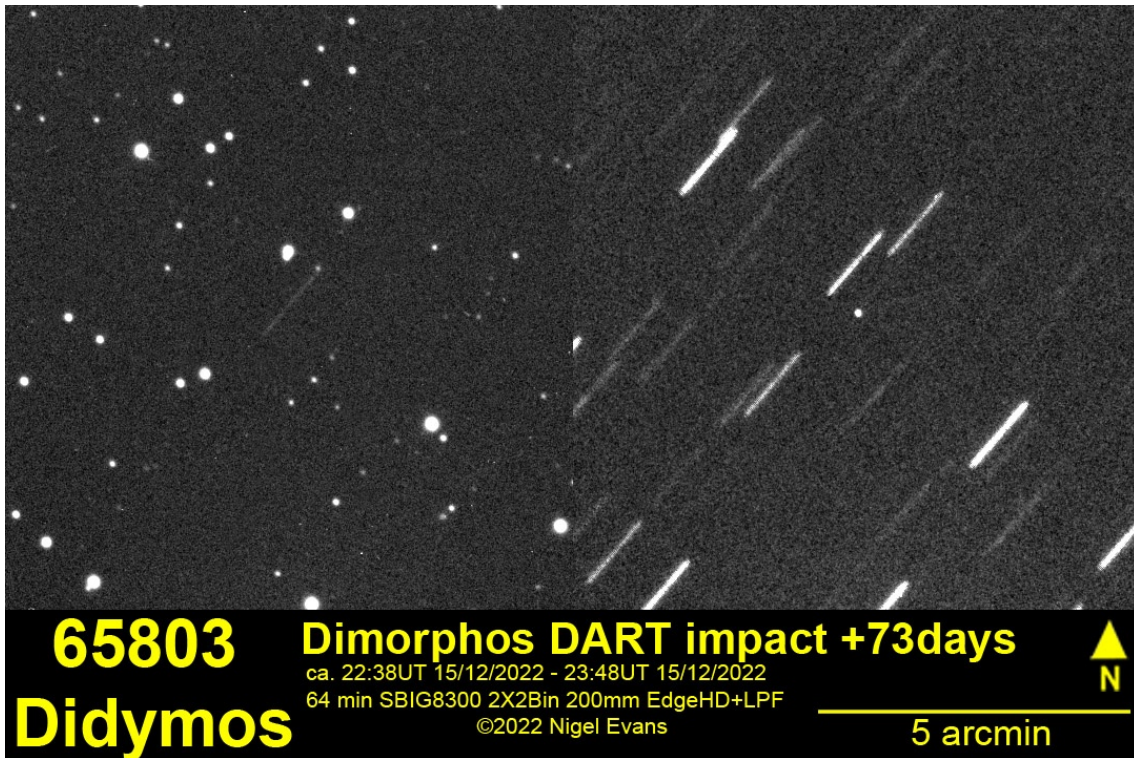
I have got a new toy.

29 Dec 2022 was the first night with half decent forecast for the early evening. The obvious target was M45 as it has lot of stars and some nebulosity, as well as more faint stars. Even with taking this picture I ran into issues I need to sort out - but it was a test and nothing more.

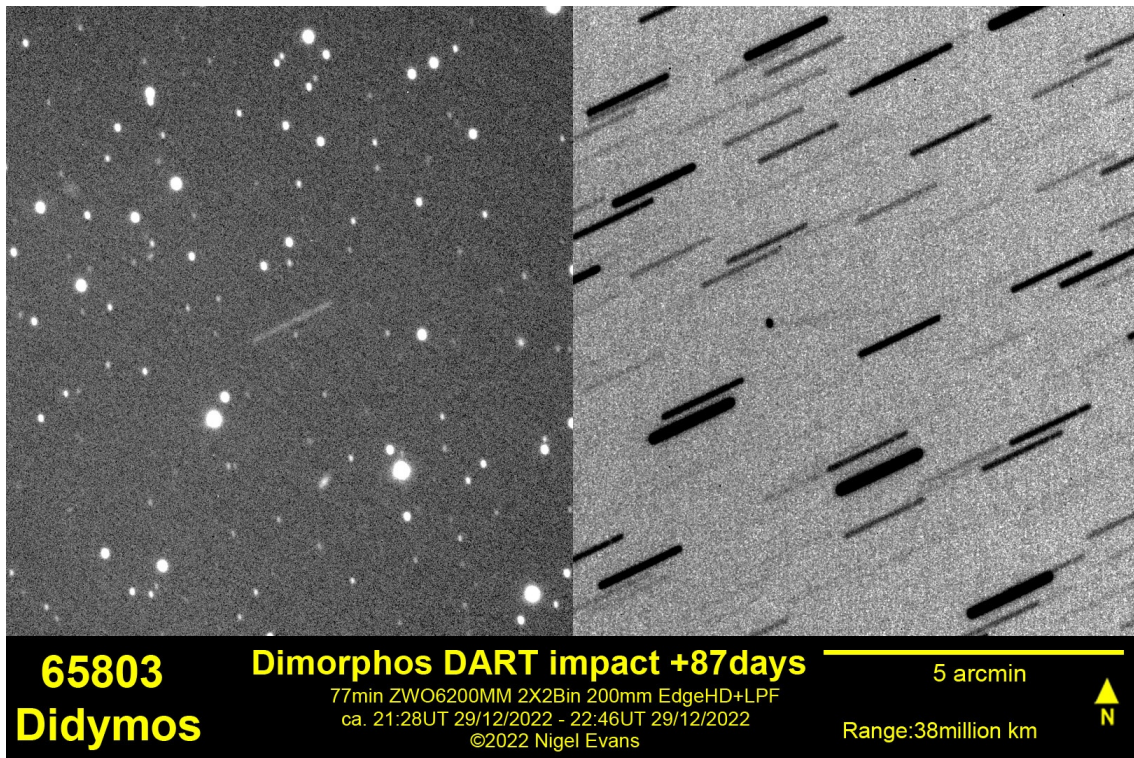


M45

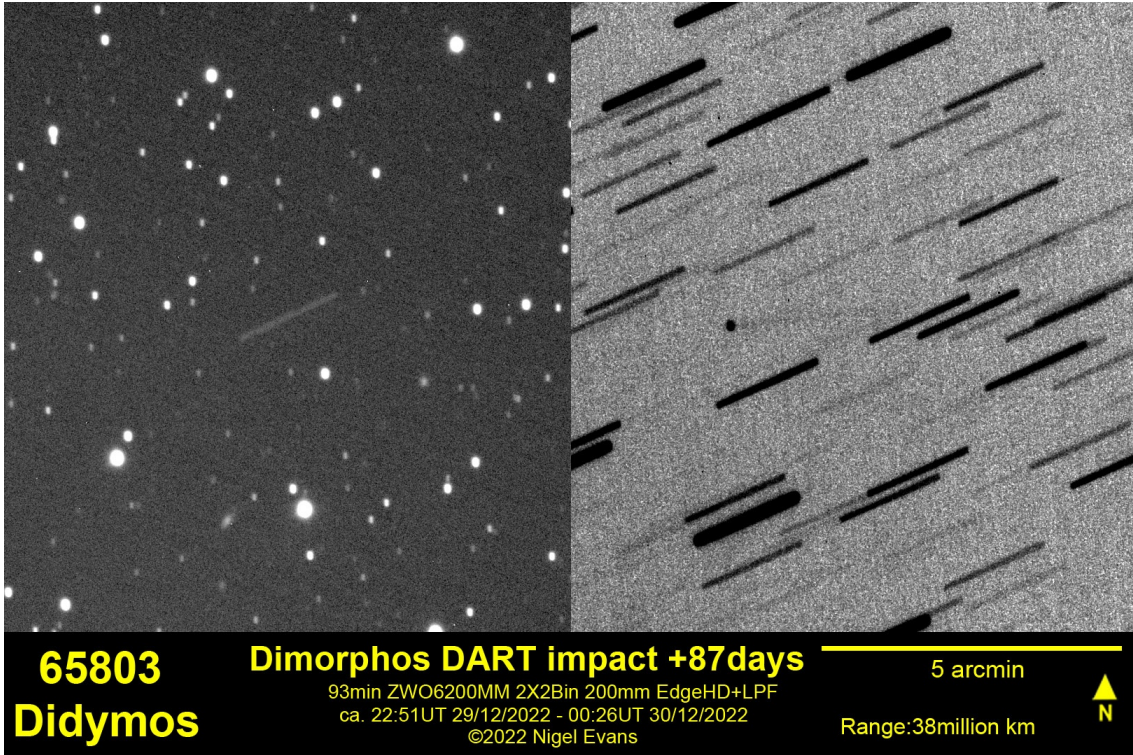
The evening stayed clear so I moved on to another potentially much more interesting target - Didymos.



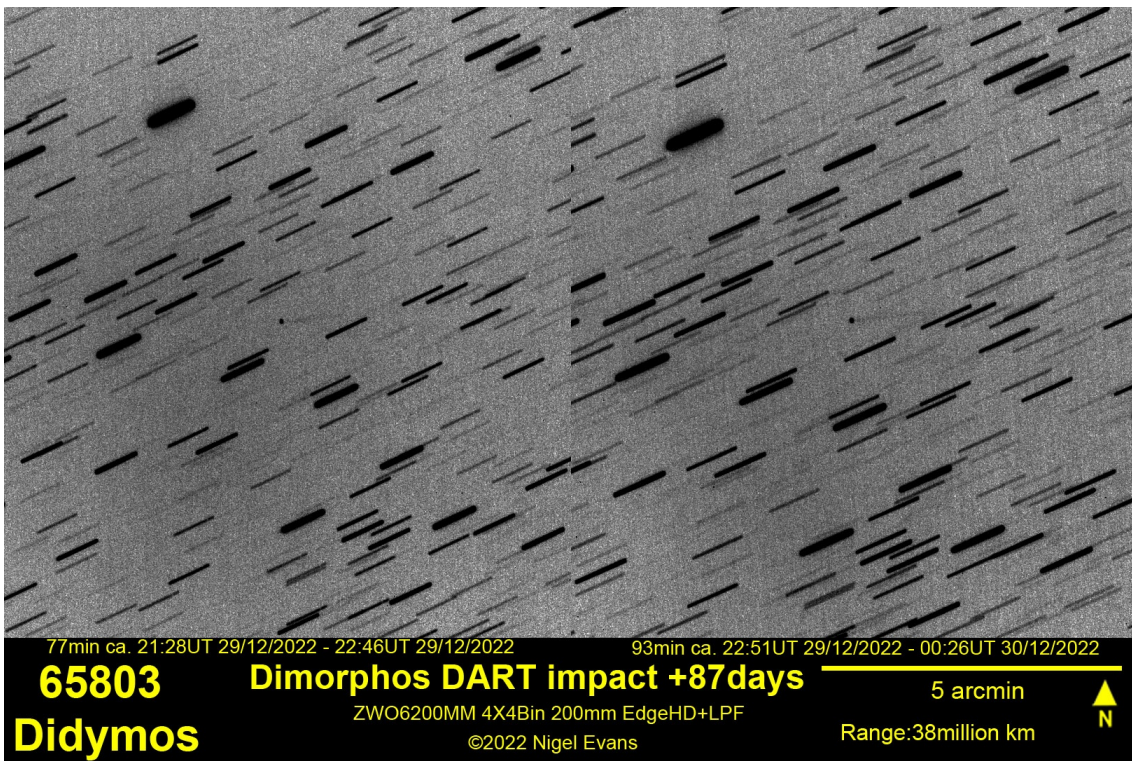
I took two series of photos, albeit with different settings (this was a trial after all). In the first set (221229a...) a faint trail is still visible after 87 days. In the second set (221229b...), it is still there and also in the last photo (221229c...)



221229a



221229b



221229c 4x4 bin

Well, for a set of trial pics I am quite pleased.

Comets

Nigel Evans

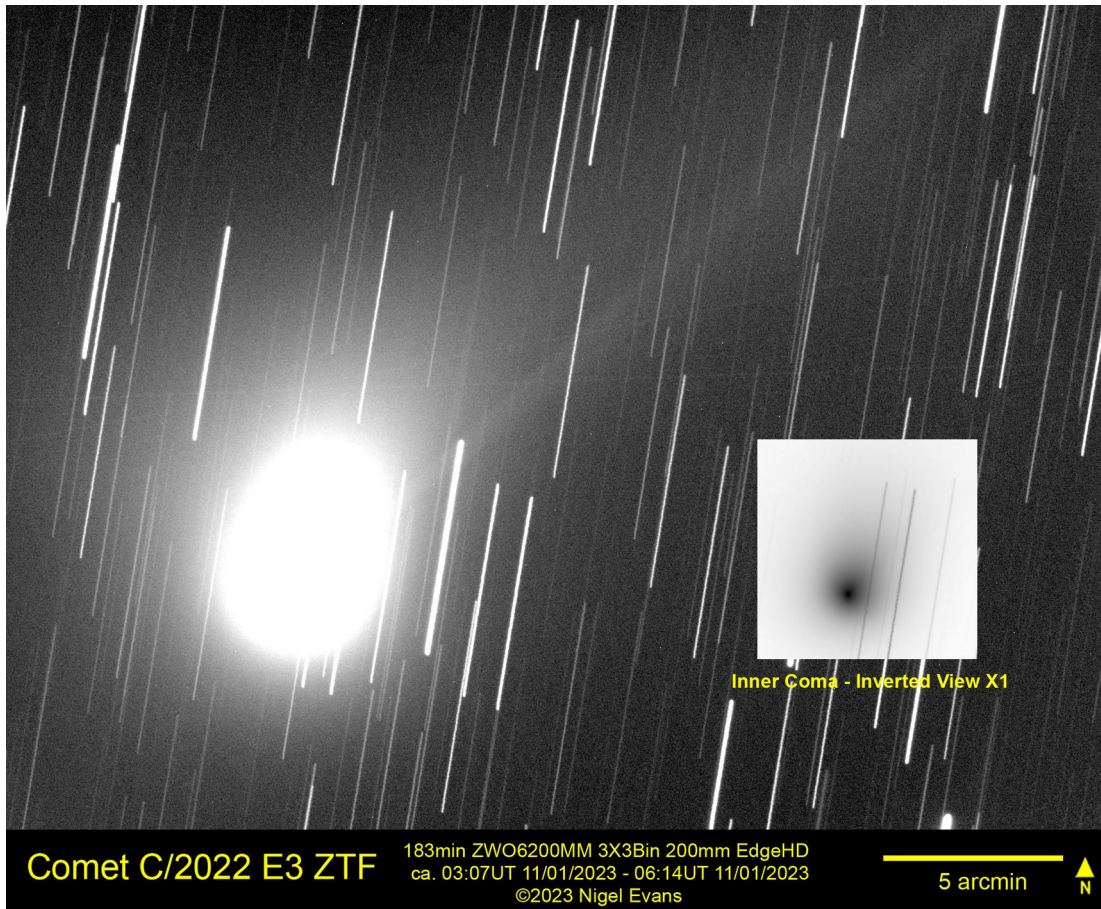
C/2020 V2 ZTF is not a particularly impressive comet - it was handy as it had a declination of +75 degrees or so, so was visible all night long at a sensible altitude.



Comet C/2022 V2 ZTF taken 230102

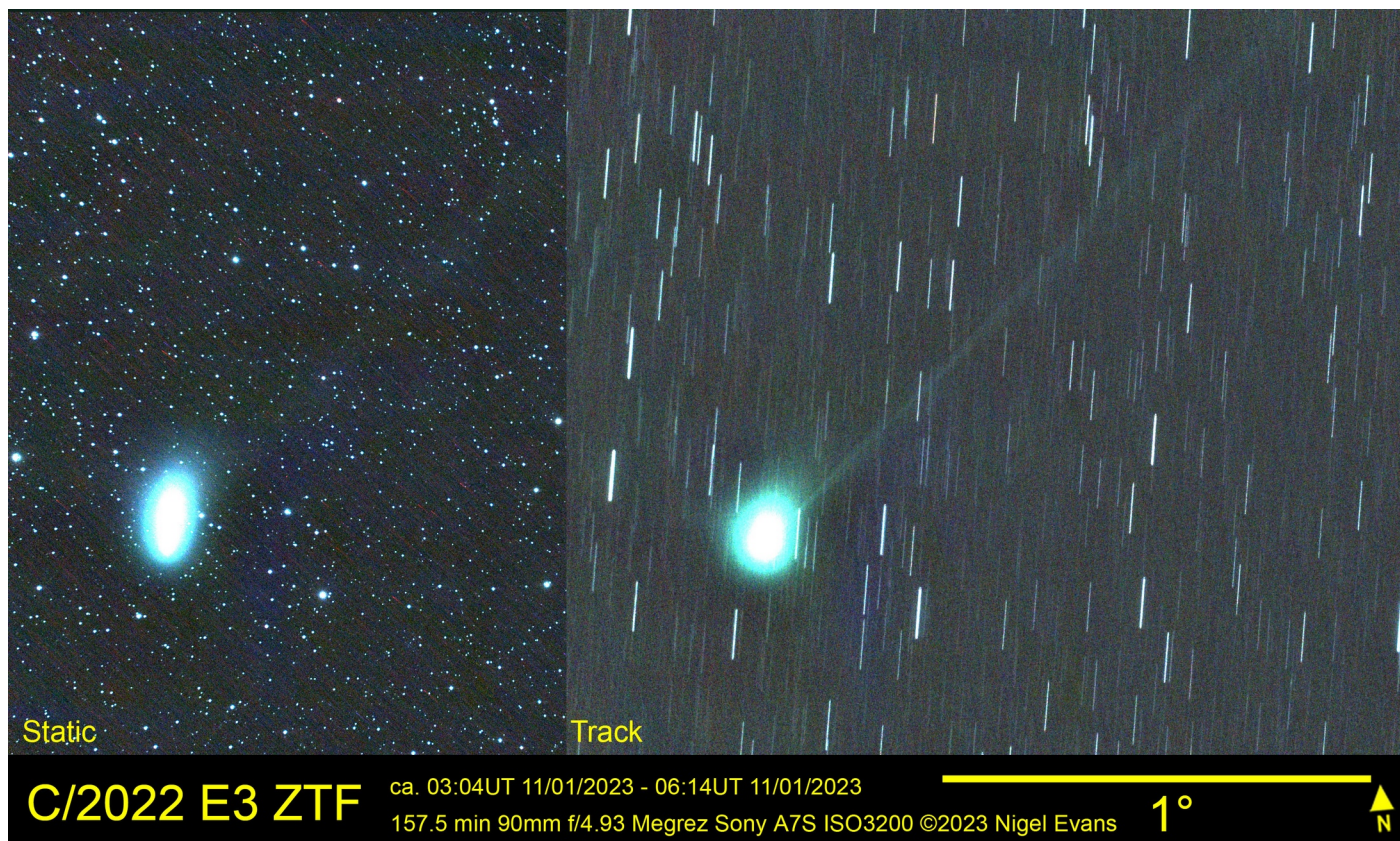


Comet C/2022 V2 ZTF taken 230107



Comet C/2022 E3 ZTF taken 230111

C/2022 E3 ZTF is more interesting. It is currently a morning object, but will soon pass into the evening sky (it is actually just become circumpolar) as well as getting closer (closest approach is Feb 1st). On the morning of 11 Jan 2023 I took the opportunity of recording it in two telescopes, albeit under moonlit suburban skies. The main view showed the comet sporting an ion tail that extended out of the field-of-view. A second smaller scope with a wider view showed the ion tail was well over a degree in length. So in the coming weeks, as the comet gets higher and closer in a Moon-free sky, we should get quite a good view.



Comet C/2022 E3 ZTF taken 230111

January 20

While comets are dynamic objects in that they move across the sky from day to day and show an ever changing display of their tail(s), I have never thought of them as 'alive'.

As the comet gets closer to the Sun, the nucleus is heated, releasing both dust and gas. The dust drifts away from the nucleus at just a few metres a second and then is propelled away by the force of sunlight. Meanwhile the gas can be ionised and quickly interact with the magnetic field of the solar wind, which moves at several hundred kilometres a second. But if the source is continuous and the magnetic field is quiet, you can't really see anything happening.

C/2022 E3 ZTF does have quite a prominent gas tail and in recent sessions at the telescope I have noticed that changes can be detected within my images. Also Nick James recorded a tail disconnection event: https://britastro.org/observations/observation.php?id=20230119_050633_78f45e993ca88cf6. See also Michael Jaeger in Austria - https://spaceweathergallery2.com/indiv_upload.php?upload_id=191790 and others

So how did I do, given I have suburban skies? The still frame records both the thin ion tail to the right and the more diffuse dust tail above. However the mpeg necessarily needs shorter and noisier frames to

animate. To me the direct view is showing structure in the ion tail, along with my first attempt at running difference frames on a comet - the tail is alive! The jpeg smooths out these shorter term activities.



Wait! There is more!

Ed. If only pdfs could incorporate video... For those you'll have to visit our website <http://www.oasi.org.uk/Obsvns/Obsvns.php>

Comet C/2022 E3 (ZTF)

Martin Cook

Comet C/2022 E3 (ZTF) was some 37° above the horizon looking North which allowed it to be observed from the bottom of the garden looking over the top of the house.

Found the comet quickly using the go-to function of the HEQ5 mount. The comet was clearly visible as a small fuzzy blob, with no tail, through the scope using a X55 magnification eyepiece.

I attached the camera and, using an android tablet together with the DSLR controller app, was able to focus the image and take several photos at different shutter / ISO settings.

I was surprised how far the comet travelled over the time from one image to the next as you can see from the attached images.

There is an interesting circle of stars below and to the left.

I ran the comet image through an online plate-solving program just for fun results at https://nova.astrometry.net/user_images/7243050#annotated



Image of Comet C/2022 E3 (ZTF) 27/01/2023 at 20.01.04 hr.

ISO 400

93sec exposure

Skywatcher 200PDS 200mm, f/5 Newtonian

HEQ5 mount

Canon EOS 850d

The two cropped shots of 10secs ISO 1000 taken 01 sec apart.



NICER (Neutron Star Interior Composition Explorer).

A short article from the library.

On 3rd of June 2017 at 21:07 UTC, NICER was launched into space from Kennedy Space Centre, on board a Space X CRS-11 re-supply ship, as part of the payload. This is a commercial re-supply vessel for the International Space Station. The launch vehicle was a Falcon 9 v. 1.2., which is a two stage rocket. The first stage is the booster, and the second stage carries the payload to its destination. This payload was then robotically installed on one of the space stations zenith side platforms.

NICER was selected in 2013 by NASA's Science Mission Directorate as an Astrophysics Explorer of opportunity, with a mission duration of 18 months. However it has been running presently for over 5 years. It is running on a low Earth geocentric orbit, with perigee of 402km and apogee of 407km and orbit of 92.66min.

Why look at smallest and densest stellar object currently known, the neutron star? Well one answer is that because they are there. Seriously though we have wanted to know what the inside of one of these beasts is made up from for a very long time. The neutron star is the result of gravitationally collapsed core of a supergiant star, ranging between 10 to 25 solar masses.

NICER is designed for time-resolved spectrometry in the 0.2 -12 keV X-ray band, and will obtain data profiles of X-ray pulses from X-ray pulsars. It will cover a large area – 1900cm² at 1.5keV, with timing precision of < 300ns and moderate spectral resolution. This will make NICER useful in many other cosmic X-ray source studies, for example supernova remnants.

The system also provides for grazing incidence optics combined with pairs of silicon drift detectors, (SDD). There are

56 X-ray concentrator optics systems that collect X-rays over an area covered by approximately 30 arcmin², which then focuses them onto a miniature SDD. This will detect single photons, whilst recording their energies and arrival times to great accuracy. The XRC's comprise 24 nested parabolic very narrow gold plated foil mirrors in a reinforced lightweight construction. X-rays are then concentrated onto a 2mm aperture of one of the 56 Focal Plane Modules. This will minimise spurious data obtained from the sky backdrop.

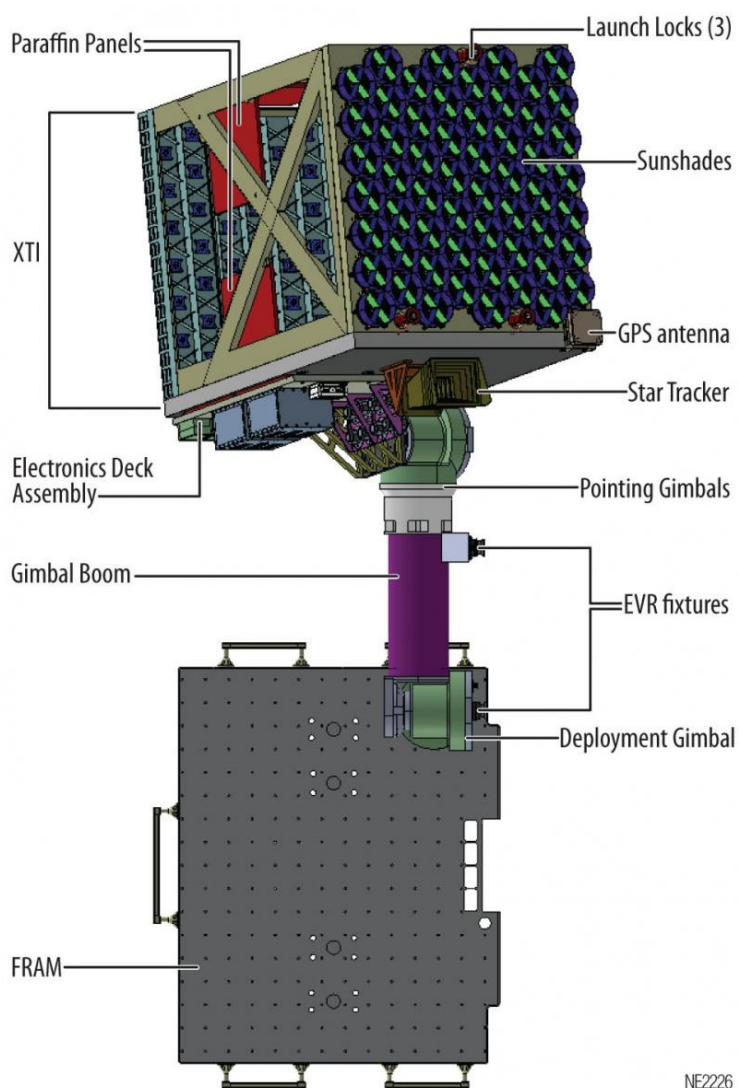


Image credit: NASA's NICER mission website.

Objective viewing by NICER depends upon the allowed sun angle range of $45^\circ < \text{Sun angle} < 180^\circ$. One of the viewing problems is that NICER is attached to the ISS, which from time to time may have some of its structures, such as the solar array, in the way. Brightness of the Earth may also cause some observational restriction. Another reduction in viewing is caused by the radiation background of the South Atlantic Anomaly and polar horn regions.

The objectives that it is hoped NICER, over its time in space, will be able to perform are:

- Using fast X-ray brightness variations with extreme precision, to resolve both mass and radius dimensions.
- Identify cyclical pulsations and any other variations in light intensity, in all types of neutron stars.
- Calculate the spin rate of Neutron stars. Some of these types of star can jettison materials out of them at speeds close to the speed of light. This is a pulsar. Speeds can vary from 0.1 revolutions per second to rates of 700 revolutions per second. This latter type are known as millisecond pulsars, or recycled pulsars due to accretion of matter, which may have a direct influence on rotational speed. Many of these are found in globular clusters. It is these that can generate pulses of X-rays.
- Hypothesize from energetic data, spin variations.
- From temperature and natural vibration frequency data, calculate physical properties.
- To obtain data on X-ray radiation templates and spectra, with the aim to understand how models of radiation react in very strong magnetic and gravitational fields.

How will NICER collect all data required to fulfil its scientific objectives? It will simply start by collecting X-ray photons from as many neutron stars as possible over the initial investigation life of 18 months. This has of course been extrapolated, and at present is set further than the date of this article.

All control of NICER is by the Science and Mission Operations Centre at the Goddard Space Flight Centre.

References:

[NICER | Astronomical Instrumentation Team at MIT](#)

[NICER-SPIE-July2012-v4 \(nasa.gov\)](#)

[NICER | NASA](#)

Library Notice

If any OASI member has any Astronomy, Maths or Science books that are gathering dust in some far corner of your house, and you feel that donating them to clear some space would be a good idea – then cogitate no longer. Contact the library via Andy Willshire and, hopefully, a method of transportation can be devised.

The OASI Christmas Tree at Nacton

Pete & Nicky Richards

