No. 568 Registered Charity 271313 **August 2020**

OASI News

The newsletter of the Orwell Astronomical Society

Comet Neowise c/2020 F3 seen from Felixstowe

Photo by Paul Whiting FRAS

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!

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

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.
Monday 27 July from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Sky Notes by Bill Barton + short recorded talk on Radar Astronomy by Paul Whiting.
Wednesday 29 July 19:00	*Dr Mark Kidger of the European Space Agency European Space Astronomy Centre*	*BAA webinar: Supernova Betelgeuse?* *What we learnt from the recent fade of this red giant*
Mon 10 August from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne.
Wed 19 August 20:00	Paul Whiting treasurer@oasi.org.uk	Lecture via Zoom Prof. Chris Lintott: The Crowd and the Cosmos.
Mon 24 August from 19:30 via Zoom	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI@Newbourne. Talk by Bill Barton on the night sky.
Saturday, 5 Sept (All day)		*BAA Autumn Webinar*

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

Meetings via Zoom

Martin RH

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 nights (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.

July 13	July 27 (S+W)	Aug 10	Aug 24 (S)
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**

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: a pre-recorded talk (about 12 minutes) on *Radar Astronomy*, 27 July
- 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

Lecture Meetings

Online Zoom meeting Wednesday 19 August

Crowd and the Cosmos

Astronomer Chris Lintott explains how you could help astronomers sort through galaxies, explore the surface of Mars, or even discover a planet. This is the story of the Zooniverse, which has enlisted more than two million people in the search for cosmic truth. Using stories drawn from contemporary research, this talk describes their discoveries - including the most mysterious star in the Milky Way - and argues that the search for the truly unusual could rely on you. The talk includes at least one picture of penguins.

Chris Lintott is a professor of astrophysics at the University of Oxford, where he is also a research fellow at New College, working on topics from galaxy evolution, transient detection and machine learning. As Principal Investigator of the Zooniverse, he leads a team who run the world's most successful citizen science projects, allowing more than a million people to discover planets, transcribe ancient papyri or explore the Serengeti. A passionate advocate of the public understanding of science, he is best known as co-presenter of the BBC's long running Sky at Night program. His book, 'The Crowd and the Cosmos', is now available from Oxford University Press.

Chris's will mention his book – CrowdAndTheCosmos[1] – at some point during the evening. As he is not able to sign books during lockdown, he has set up this form for getting a signed copy of his book, which he will then post when it becomes safe to do so. Furthermore, we've done a special 'lockdown edition' bookplate, which will only be available for these copies.

Booking

The talk will be held via a Zoom meeting. As spaces are limited to 100, if you would like to join this talk we will need you to pre-register. To register please email treasurer@oasi.org.uk by Wednesday 5th August. After this date we will offer spare places to neighbouring astronomical societies.

[1] Review of *The Crowd & the Cosmos* can be found in http://www.oasi.org.uk/NL/NL_201911.pdf , p17.

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

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"".

Other local astronomy society meetings

Athaneum Astro Society

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

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

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 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

https://britastro.org/node/21142 There are no meetings during August

Saturday, 2020, September 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

Breakthrough in deciphering birth of supermassive black holes

https://phys.org/news/2020-07-breakthrough-deciphering-birth-supermassive-black.html

Researchers find younger age for Earth's moon

https://phys.org/news/2020-07-younger-age-earth-moon.html

NASA STEM resources & NASA at home

https://www.nasa.gov/stem

https://www.nasa.gov/specials/nasaathome/index.html

Jodrell Bank awakes

'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

Experience with DIY Telescopes for Radio Astronomy

https://www.asppublications.org/37RYL62T/astrobeat/ab2020-171.pdf

Astronomers watch a black hole's corona disappear, then reappear

http://news.mit.edu/2020/black-hole-corona-reappear-0716

Elephants in space

John Hughes

IC 1396 is an emission nebula located in the constellation of Cepheus.
It is a region of interstellar gas and this image is captured in the Hydrogen alpha wavelength.

Our eyes are great for creating shapes out of images hence this one is known as the Elephant's Trunk nebula.

This image was captured on 10 July 2020 from my back garden. it is made up of 55 exposures at 3 mins each using a 3nm Chroma Hydrogen alpha filter then stretched and kicked around in PixInsight.

It is way too little data but I find Hydrogen alpha images can be quite forgiving and I love the mono images they produce.

Personally I think a Death Eater is after the elephant!

The Night Sky in August 2020

Martin RH

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

Moon

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

New Moon	1st Quarter	Full Moon	Last Quarter
		03 August 16:59	11 August 17:45
19 August 03:42	25 August 18:58		

Sun, Moon and planets

Source: http://heavens-above.com/PlanetSummary.aspx **Times are BST (UTC+1)**.

Object	Date	Rise	Set	Mag.	Notes
Sun	1	05:17	20:44		
	31	06:06	19:44		
Moon	1	19:47	02:27		Apogee 404,659 km 09 August 14:51 Perigee 363,513 km 21 August 11:58
	31	19:37	03:32		
Mercury	1	03:50	19:54	-0.7	
	31	07:18	20:05	-0.6	
Venus	1	02:03	17:35	-4.3	Max. western elongation 13 August
	31	02:06	17:42	-4.1	
Mars	1	23:06	11:44	-1.1	Perihelion 03 August
	31	21:27	10:36	-1.8	
Jupiter	1	19:45	03:34	-2.6	
	31	17:39	01:22	-2.4	
Saturn	1	20:07	04:16	0.1	
	31	18:04	02:08	0.3	
Uranus	1	23:26	14:02	5.8	
	31	21:28	12:04	5.7	
Neptune	1	22:02	09:14	7.8	
	31	20:03	07:12	7.8	

Occultations during August 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
28 Jul	21:07:49	D	0.65+	-10	16	5.6	32 Lib, ζ^1 Lib
15 Aug	02:41:41	D	0.18-	-15	20	5.8	3 Gem, PU Gem
	03:39:56	R		-9	29		
27 Aug	19:46:43	D	0.72+	-9	13	7.3	Hip 88560
28 Aug	20:27:37	D	0.81+	-14	13	7.1	ZC 2780

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 August 2020

Source: BAA Handbook 2020 p100-101

Shower	Normal limits	Maximum	Dec.	ZHR at Max	Notes
α-Capricornids	July 3 – Aug 15	July 30	-09º	5	A good proportion of bright, slow-moving colourful meteors. Rather favourable
Southern δ-Aquarids	July 12 – Aug 23	July 31	-16º	20	Fine southern shower with double radiant. S component is more active. Rich in faint meteors. Unfavourable
Perseids	July 17 – Aug 24	Aug 12d 13d	+58º	80+	Rich and fast meteors. High proportion of bright events leaving persistent trains. 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.
27 Aug	-1.2	04:55:46	10°	S	04:57:38	14°	SE	04:59:31	10°	ESE
29 Aug	-2.2	04:54:46	12°	SSW	04:57:22	27°	SSE	05:00:16	10°	E
30 Aug	-1.9	04:08:23	18°	SSE	04:09:12	19°	SE	04:11:41	10°	E
31 Aug	-1.1	03:21:58	12°	ESE	03:21:58	12°	ESE	03:22:47	10°	ESE
31 Aug	-3.2	04:54:53	17°	SW	04:57:12	47°	SSE	05:00:27	10°	E

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).

	1 Aug	31 Aug
Comet	Constellation	
C/2020 F3 NEOWISE	Coma Berenices	Virgo
C/2019 U6	Coma Berenices	Boötes
2P Encke	Corvus	Lupus

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

First Sight of C/2020 F3 NEOWISE

Nigel Evans

After starting out with a lot of promise, comets C/2019 Y4 ATLAS and C2020 F8 SWAN both fizzled out – ATLAS falling apart and SWAN not doing much at all (but I did manage to photograph the SWAN with the remains of ATLAS together).

So on to another promising candidate - C/2020 F3 NEOWISE. It passed through the coronagraph of SOHO from June 23 to 27 and was forecast to appear over our NE horizon in early July. The first weather opportunity for us in Suffolk was the morning of July 6, coinciding with a Full Moon in the south next to Jupiter and Saturn.

On the clear evening of the 5th we experienced a fine display of noctilucent clouds. It was forecast to be clear all night.

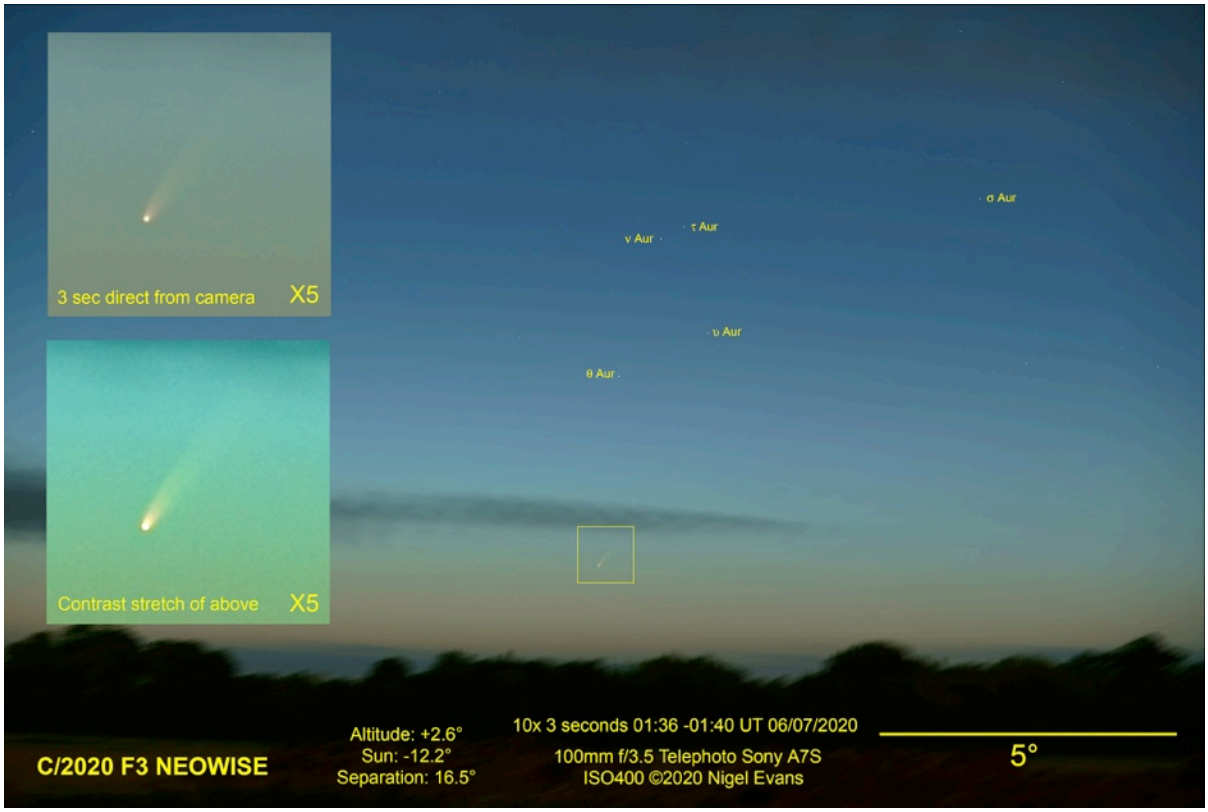
When I set off from home just after 2:00am on morning of 6th July I wondered what I was doing: not only was it very windy but the predicted clear skies were quite full of fast moving clouds – so much for the weather forecast then!

I do not have a clear horizon at home, I live in Ipswich after all, so I ventured out to a site with a clear northern horizon just north of Ipswich. But should I bother to set my kit up? - Polaris was visible intermittently and I was next to a tall old tree (I can see the headlines now "High Winds in Ipswich: Falling Tree kills ...")

In the end I set two driven cameras up, more in hope than expectation, with an approximate alignment on the Pole.

So did I see the comet with the naked eye? No. In binoculars? Possibly. Did I photograph it? Yes. How do I know it was the comet? On the viewfinder screen it has a tail!

The first camera had a fairly modest 100mm telephoto lens and was set running without actually being aware that the comet was detectable. The resultant video nicely shows that comet can be captured with a modest telephoto (as well as the windy conditions from the clouds racing across the horizon!). At the start the comet is only 3 degrees up with the Sun 12 degrees below the horizon. A still from the video, derived from the early part of the sequence, clearly shows it really does have a tail of some 15 arcminutes or so!



I also had a larger scope, a Megrez with 90mm objective, with a focal length of about 450mm. This was more susceptible to the wind and several frames were ruined because of it. Also, the brightness of the background sky increased as dawn approached, causing the tail to disappear.

A single exposure clearly captures the nucleus and tail. More of the tail is captured by stacking the earlier, darker background, frames. Now the tail is some 30 arcminutes or more.

I am looking forward to seeing this in the days and weeks to come in higher darker skies.

So 12 July was another night to go comet spotting!

Nigel Evans

Links to the videos referred to in this article may be found on OASI YouTube channel

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

200713 NEOWISE Brinno NSE - The little time lapse camera did a fine job of catching the comet from my home. I still find it amazing that this little camera can give a pleasing record. The only other time I have used this for astronomy is during a total eclipse of the sun - it was not there to capture the moon (which it does do as a tiny black dot surrounded by a tiny white ring of the corona), but to capture the overall scene on the day with the clouds and so on.

Meanwhile I went off into the countryside to my "spot" north of Ipswich. When I got there at about midnight, there was somebody already parked there - How dare they! Who are they? Another astronomer? Someone disposing of a corpse? Or was there some rural version that some townies do in car parks!! I drove past and parked up in the next passing spot and started to unpack tripods, cameras etc. As I was doing this the car headlights came on and the car came towards me - I was easily seen in the headlights. The driver slowed and said "are you after the comet?". It turns out that she lives nearby, is interested in astronomy (not a member of OASI) and had made the journey specifically to see it. She was thrilled as this was the first comet that she has seen with the naked eye. I said the view would be better in the morning. She then left and I continued with setting things up.

One camera was set just to record the passage of the comet across the norther horizon. 200713 NEOWISE 35mm NSE . The wide-angle sequence went well but it does show that the site is not very dark. The horizon was clearly seen and I think they must be the lights of Diss, some 20 miles away. I was also hoping that some noctilucent clouds would put on a show - they are there in the extreme distance in the video but were not seen as such, not like the morning two days earlier. Also I don't think the air was clear - when the last quarter Moon came up at about 12:45 it was a rather dull orange-brown

In the last sequence 200713 NEOWISE 100mm NSE I had already spotted the signs of noctlucent clouds and so hoped that they might grow and envelope the comet. Sadly this was not the case.

Other sequences for stills are in the "In-tray"

At around 2:00 a car stopped for about 15 minutes at "my parking spot" - I don't know but I suspect she had returned for another look.

I think this is my 5th comet that I can recall seeing with the naked-eye, others being Hyakutake (1996), Hale-Bopp (1997),and McNaught (2007) (as a bright nucleus before putting on a stunningshow in the southern hemisphere) and the outburst by Holmes (2007).

Explaining where a comet is, to others, normally goes like this (Me /You) -

"Take these binoculars and look at that bright star there". "OK, got it"

"Go down until you see another fainter star" " Yep, got it"

"Now go to the left as bit until you see another star" "OK"

"Now go the same distance toward 10 o'clock until you see something a bit fuzzy - that's Halley's comet"

"IS THAT IT!!?"

The following stills are from the night of 12/13 July, take from a site to the north of Ipswich.

200712 F3 NEOWISE 200 NSE is a stacked image that, in addition to the curved dust tail, starts to bring out the ion tail - this is not seen in single exposures. The downward feature from the head is a horizontal cloud. Tracking is on the comet, not the stars.

200713 F3 NEOWISE 100 NSE is a stacked image that shows a dust some 10 degrees long, far more than could be seen in binoculars of some 2-3 degrees.What is also interesting is the amount

of detail that can be seen in the tails, so much so that a cropped and larger scale version of the same picture is shown in **200713 F3 NEOWISE 100 large NSE** below.

At one point I did wonder if it was a processing artifact, but when people like Michael Jaeger (https://spaceweathergallery.com/indiv_upload.php?upload_id=165525) and and Gerald Rhemann (https://spaceweathergallery.com/indiv_upload.php?upload_id=165628) post pictures with similar striations, I think I will call them real.

So why can't I see them in the earlier picture? I don't think the striations have had time to develop that close to the head

Another from 17 July

Yesterday I shared a video of C2020 F3 NEOWISE with clouds floating down the view (because the camera was in portrait mode). I took a section of that to make this still. The stripey stuff on the left are clouds drifting over the head – I was focusing on the tail.

It is not as clean as I would like and in the processing the corners have gone a funny colour, but we do have a tail (or two) well over 10 degrees long!

And one from 12/13 July (not yet finished).

Broadly they are more of the same. However, this is a bit different in that it has the comet and some noctilucent clouds.

200713 NEOWISE 100P NSE is sporting two tails well over 5 degrees long, just as the dawn lights up some noctilucents clouds.'

Comet Neowise c/2020 F3: A collection of images and reports:

Neowise was spotted in March this year by a @NASA space telescope called Neowise (Near Earth Object Wide-field Infrared Survey Explorer) looking for comets & asteroids. Radar has been used for decades in many fields including space exploration & observation.

Martin Cook

Comet Neowise c/2020 F3

Image taken at 2:00am (1:00UT). just North of Ipswich.

First saw the comet through the bedroom window at 1:00am low down in the North. It was too low to photo from the garden so went for a little drive in the car.

The comet was easily visible to the naked eye even when driving.

Canon 1100d, 5sec, F5.6, iso1600, 160mm FL, 01:02UT

Alan Smith

All-sky camera view: image of Neowise (just above the houses) and the ISS.

James Appleton

My northern horizon is very restricted. However, this morning at 01:15 UT (2.15 BST) I was able to see the comet with the naked eye through a gap between the houses across the road. The comet was unmistakable with the coma and nucleus appearing initially as a "fuzzy star". As I became increasingly dark adapted, I could discern the tail too.

Mike O'Mahoney

Across the chimney pots of old Felixstowe-– another version of NEOWISE

Taken at 11:30 pm 12/07; 130 mm @11 secs, ISO 2000

Detail

Paul Whiting

I eventually caught it at 2am Sunday morning 12 July, after a little drive to get away from the port lights.

Another from 12 July. 6s 150mm ISO 1600 f/5.6

Nikon D3200 with 14mm wideangle lens, f/2.8, ISO1600, 6 second exposure.

The comet over Felixstowe Ferry.

Andy Gibbs

Image taken at 02.40 BST on 12-07-20.

I observed the Comet between 02.00 and 02.50 from an upstairs window in my house. It was easy to spot with the naked eye, even though my view towards the North is compromised by light pollution. It was a magnificent sight in 10x42 binoculars.

Canon 1200D with 18-55mm standard kit lens. 8 second exposure at ISO1600.

Neil J Short

You've probably had many fine shots of the comet but I was travelling back from a "sunset" photo trip with friends (with acceptable social distancing of course) and stopped on a bend near Mundon with a fine clear sky to the N-NW. I knew the comet was up there somewhere but not sure exactly where – got out of the car and there it was.

See attached - comet over Maldon lights (with Capella I think at far right).

Only had a wide-angle lens so no close-ups but I'm quite pleased,

Olaf Kirchner

I just wanted to share some pictures of Comet C2020 F3 NEOWISE from lock-down here in Genolier, Switzerland. [The full set are on the website at]

Keep safe and see you all sometime – whenever I can next make it across the Channel!

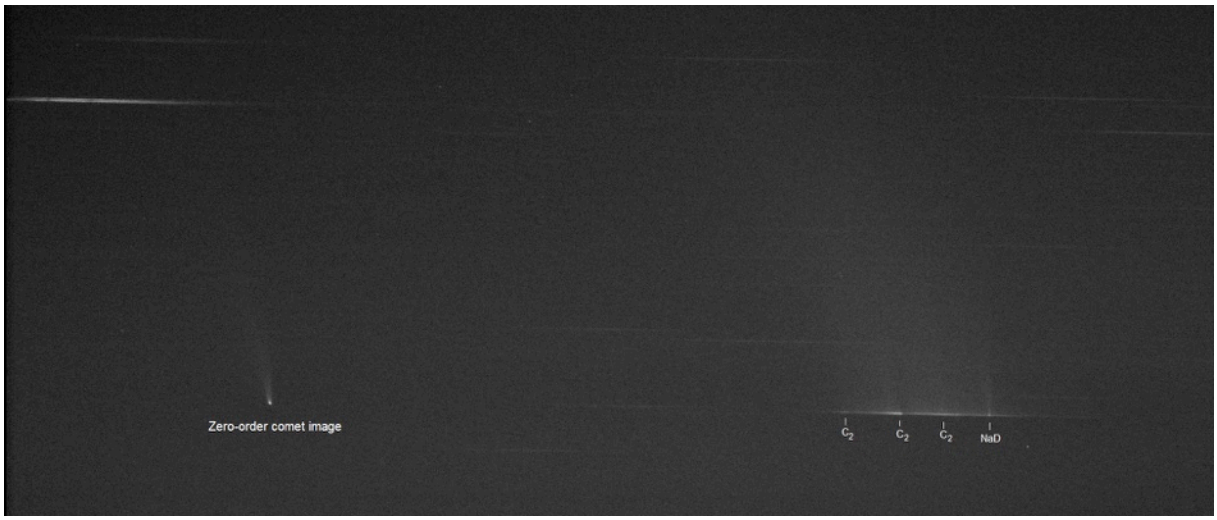
Olaf

20200719 2102 h UT Comet NEOWISE with dust and ion tails, Genolier Switzerland

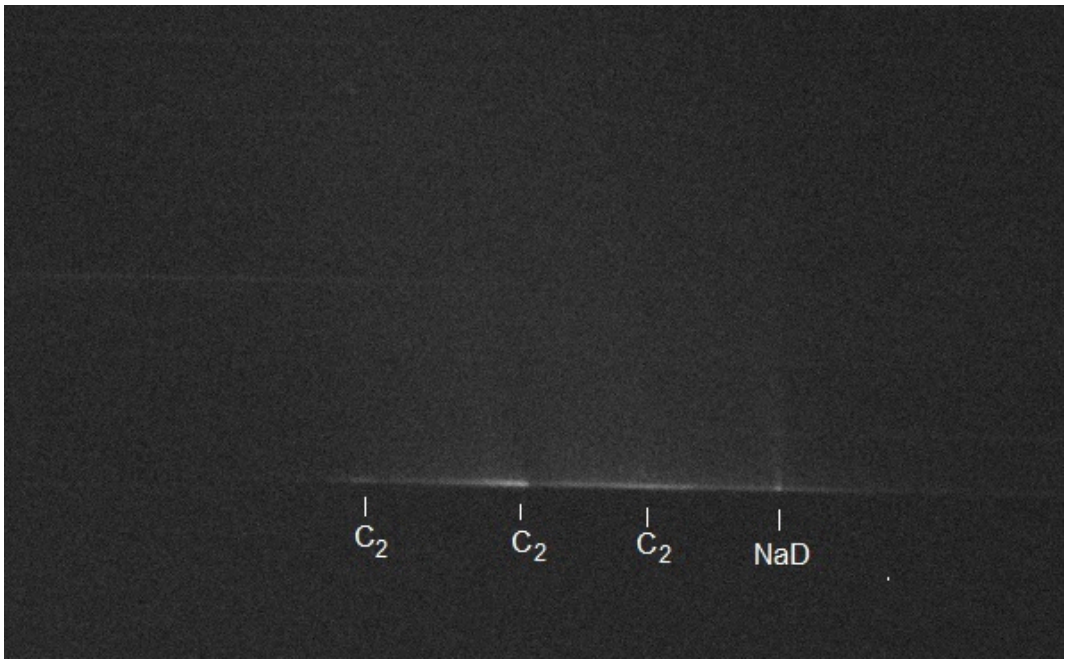
Mike Harlow

Something a little different from all the images being taken at the moment! I used a 300 lines/mm transmission grating on the front of a 55mm camera lens to get a low resolution spectrum of the comet. Despite the yellow appearance of the comet in images the characteristic Swan bands[1] are there but with the addition of strong sodium emission. Other spectra are available (!)...see David Strange's BAA members page for a more detailed spectrum:

https://britastro.org/profile?id=653



My spectrum taken at 00:50UT on 13th July 2020



Detail

Meanwhile, I'm back to looking at faint, fuzzy deep sky stuff.
See for example: https://britastro.org/node/23349

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1 https://en.wikipedia.org/wiki/Swan_band
Swan bands are a characteristic of the spectra of carbon stars, comets and of burning hydrocarbon fuels.[1] [2] They are named for the Scottish physicist William Swan, who first studied the spectral analysis of radical diatomic carbon (C2) in 1856.[3]

Swan bands consist of several sequences of vibrational bands scattered throughout the visible spectrum.[4]

An Overview of the Parker Solar Probe (Updated).

Information from the Library

Andy Willshere

The original article was published in the OASI magazine about a year ago, and some of the information is incorporated into this month's offering. Since then the Parker Solar probe has been functioning on its flight within the parameters set down by its flight directors. Because of the amount of data collected from its launch time to present day, I thought that it may be interesting for the article to be updated, and for the reader to be in possession of these facts.

During the mid 1950's the concept of solar winds was proposed by a junior physicist Eugene Parker. This he described was a torrent of energy which incorporated a conglomerate of plasma, magnetic fields and particles consisting of protons, electrons and HZE ions. He then considered the superheated solar corona and re-wrote the known laws of physics at the time to provide a new theory which suggested that this area was hotter then the sun itself.

Parker was born on the 10th June 1927 in Michigan U.S.A. and received a PhD from Caltech in 1951. He lectured at the University of Utah from 1955 and has been a member of the faculty at both the University of Chicago and its Fermi institute. Throughout his life he has been in receipt of numerous awards.

The probe was launched at 0731 GMT on August 12, 2018, from Space Launch Complex 37 at Cape Canaveral, Florida, USA. It will have a mission duration of 6 years and 11 months

In order to achieve its final altitude, the mission uses a gravity assist method to incrementally decrease the probe's perihelion to gain its final altitude which will be approximately 6.9 Gm from the centre of the sun. The probe's trajectory will include passing close by Venus seven times over the seven years, which will gradually reduce its twenty four elliptical circuits around the Sun. Gravity will assist its speed by accelerating it at perihelion and decelerating it as it makes its way to aphelion.

All the systems on board, use a solar shield to protect them. They will have to face, at perihelion, an incident solar radiation level 475 times that of the Earth's. The shield is of hexagonal shape, is comprised of reinforced carbon-carbon composite and is 2.3m wide and 11.4cm thick. It will tolerate temperatures of up to 1,370^{0}C. Due to its white reflective surface, little absorption occurs. All the scientific instruments and systems electronics are housed centrally where direct solar radiation is blocked due to the shields shadow. Since it takes about eight minutes to talk to the solar probe, it must have a certain percentage of autonomy to protect itself. In the case of solar radiation, it has four light sensors to identify the initial strands of direct sunlight, at which point, the craft will move itself back into the shields shadow. This probe has a great many autonomous algorithms. Its primary power system is that of solar panels, which operates two systems on board. One used for most of the mission outside 0.25AU and the other powers the craft as it travels within close proximity of the final object.

Mission

To recap, the mission has several goals which are mainly the following. The first one is to try to trace energy particles that heats the corona and speeds up the solar winds. Secondly to understand the magnetic field structure at the solar wind source and thirdly to identify what methods move and speed up dynamic particles. In order to perform these objectives, five major studies will be performed:

Direct measurements of the following will be taken:

(i) Electric and magnetic vector fields, and directional energy flux, as well as plasma density and electron kinetic energy.

(ii) ISIS. (Integrated Science Investigation of the Sun). This project will measure energetic particles taken over a very broad energy range, process the data and use scientific

analysis to ascertain particle dynamics. It will be performed using two ISIS energetic particle instruments.

(iii) WISPR. (Wide -field visible light heliospheric imager for solar probe). This is the only imager on the probe. It will image the fine scale structure of the solar corona, as well as produce a 3D image of the large scale corona and to quantify if there is a dust free area close to the sun.

(iv) SWEAP (Solar Winds Electrons Alphas and Protons). This will measure the properties of the plasma in the solar atmosphere.

(v) HeliOSPP (Heliospheric Origins with Solar Probe Plus) A representative and theoretical approach from all data obtained.

Scheduled Events

The Parker solar probe will flyby Venus seven times over the period of nearly seven years. The orbit will slowly contract around the sun culminating in getting as close as 6.2 Gm to the photosphere. This position is well within the orbit of Mercury.

2018

Year	Date	Event	Distance from the sun(Gm)	Speed (km/s)	Orbital period (days)	Year	Date	Event	Distance from the sun(Gm)	Speed (km/s)	Orbital period (days)
2018	Aug-12	Launch	151.6		174	2022	Jun-01	Perihelion #12	9.2	163	96
	Oct-03	Venus flyby #1					Sep-06	Perihelion #13	9.2	163	96
	Nov-06	Perihelion #1	24.8	95	150	2023	Dec-11	Perihelion #14	9.2	163	96
	Apr-04	Perihelion #2	24.8	95	150		Mar-17	Perihelion #15	9.2	163	96
2019	Sep-01	Perihelion #3	24.8	95	150		Jun-22	Perihelion #16	9.2	163	96
	Dec-26	Venus flyby #2					Aug-21	Venus flyby #6			
2020	Jan-29	Perihelion #4	19.4	109	130		Sep-27	Perihelion #17	7.9	176	92
	Jun-07	Perihelion #5	19.4	109	130		Dec-29	Perihelion #18	7.9	176	92
	Jul-11	Venus flyby #3				2024	Mar-30	Perihelion #19	7.9	176	92
	Sep-27	Perihelion #6	14.2	129	112.5		Jun-30	Perihelion #20	7.9	176	92
2021	Jan-17	Perihelion #7	14.2	129	112.5		Sep-30	Perihelion #21	7.9	176	92
	Feb-20	Venus flyby #4					Nov-06	Venus flyby #7			
	Apr-29	Perihelion #8	11.1	147	102		Dec-24	Perihelion #22	6.9	192	88
	Aug-09	Perihelion #9	11.1	147	102	2025	Mar-22	Perihelion #23	6.9	192	88
	Oct-16	Venus flyby #5					Jun-19	Perihelion #24	6.9	192	88
	Nov-21	Perihelion #10	9.2	163	96		Sep-15	Perihelion #25	6.9	192	88
2022	Feb-25	Perihelion #11	9.2	163	96		Dec-12	Perihelion #26	6.9	192	88

Fig.1. Data only credit: https://www.nasa.gov/content/goddard/parker-solar-

Life as the Parker Solar Probe.

On the 19th of September 2018, the Parker probe sent back First Light data. This data was obtained from its four scientific instrument suites on the probe, which work alongside each other in evaluating the magnetic and electric fields of the Sun. As the probe heads towards the sun, images obtained from the solar winds bouncing off the craft were also sent back.

On November 5th 2018, the probe flew past the sun at a distance of approximately 15 million miles, at a speed of 213,000 mph. The solar radiation and extreme heat was managed well setting the scene for the rest of the project. A signal was sent back to the control suit at Johns Hopkins Physics Lab indicating that the probe and its instruments were performing at the highest level, 'A'. At this point of its journey, the probe transmitted results about near -Sun energetic

particle radiation. This information had been generated from coronal mass ejections and spontaneous events whose velocity changes are due to the proximity of the Sun.

January 19th 2019, Parker completed its first orbit of the Sun. This first revolution took 161 days. It then sets off on the second orbit of a proposed twenty four.

March 30th 2019 the space craft commenced its second confrontation of the Sun, with perihelion occurring at 6:40 p.m. EDT on April 4th . This stage lasted until April 10th . All the scientific instruments collected data which was transmitted to Earth later in April, culminating on May 6th, with a concluding burst of 22 gigabytes of data. The team at Johns Hopkins Physics Lab have found that the systems on board the probe are performing better than expected, and thus more data can be transmitted and received.

September1st 2019 at a little before 1:50p.m. EDT, the probe completed its third approach (perihelion) of the Sun. For this part of the mission, the four scientific instrument packages (see mission) were switched on for a longer time allowing for greater data capture. They were switched off at about the 0.5AU point September 20th.

December 26th and the probe had accomplished its second Venus flyby. At this point the probe is 1870 miles from the surface. This manoeuvre used Venus to slow the probe down and at the same time modifying is course prior to the fourth Sun orbit. The data obtained from these early Venus flybys will furnish the flight operations group with information to set up the remaining five Venus gravity assist exercise.

January 29th 2020, was an exciting day for the probe. At 4;37 a.m. EST Parker broke its own record as it sailed nearer to the Sun for the fourth time. The craft managed at perihelion, to get to within 11.6 million miles of the Sun's surface travelling at 390,760 km per hour. Being this close to the Sun will provide the craft's bank of four groups of instruments time to delve into this new territory, and perhaps providing new information about solar winds.

May 9th 2020, saw the Parker probe begin its longest period of observation. At 100 *106 km from the Sun, the instruments were switched on and remained so until June 28th. The main reason for this was that earlier observations had shown definitive motion of the solar wind and other new solar wind occurrences.

The data that up to now has been provided by the Parker Solar probe has been passed onto the scientific public. This has provided many primary papers to be written by scientific groups. These range from observations of circularly polarized electromagnetic waves at the ion scale to magnetic field 'switchbacks' and on to meteoroid bombardment. This magnificent space journey will provide humankind with a breakthrough into understanding a little more about our majestic solar system.

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5. Ion-scale Electromagnetic Waves in the Inner Heliosphere. Trevor A.Bowen et al.

At last, another meteor

James Appleton

After a long drought of meteors, at long last my all-sky camera recorded another.

The meteor appears in Aquila, in a 30s frame recorded during the period 20200721 001024-001054 UT.

From the morphology, I have no doubt that it's a meteor and not a satellite.

Unfortunately, SCAM (Alan Smith's all-sky camera) was clouded out at the time so we can't triangulate the track like we usually do.

If anyone has a record of the meteor, please share with the email group.

Thanks,

FOR SALE

on behalf of member's widow:

Meade DS-2114S 114mm reflector, drive, tripod and autostar controller.

2x Barlow, 6.4mm, 4mm, 9mm & 25mm eyepieces.

Unopened packet Baader solar filter film.

2 solar eclipse viewers.!!

£100 the lot.

Contact Paul Whiting

Eleanor Margaret Burbidge FRS

12 August 1919 – 5 April 2020

Source: https://en.wikipedia.org/wiki/Margaret_Burbidge

Eleanor Margaret Burbidge, FRS (née Peachey; 12 August 1919 – 5 April 2020) was a British-American observational astronomer and astrophysicist. In the 1950s, she was one of the founders of stellar nucleosynthesis and was first author of the influential B2FH paper. During the 1960s and 70s she worked on galaxy rotation curves and quasars, discovering the most distant astronomical object then known. In the 1980s and 90s she helped develop and utilise the Faint Object Spectrograph on the Hubble Space Telescope. Burbidge was well known for her work opposing discrimination against women in astronomy.

Burbidge held several leadership and administrative posts, including Director of the Royal Greenwich Observatory (1973–75), President of the American Astronomical Society (1976–78), and President of the American Association for the Advancement of Science (1983). Burbidge worked at the University of London Observatory, Yerkes Observatory of the University of Chicago, the Cavendish Laboratory of the University of Cambridge, the California Institute of Technology, and the University of California San Diego (UCSD). From 1979 to 1988 she was the first director of the Center for Astronomy and Space Sciences at UCSD, where she worked from 1962 until her retirement.

RIP Nigel Weiss, Former President of the RAS

Sources: Helen Mason @helen_hm11 and https://en.wikipedia.org/wiki/Nigel_Weiss

Nigel Oscar Weiss FRS (16 December 1936 – 24 June 2020)[1][2] was an astronomer and mathematician, and leader in the field of astrophysical and geophysical fluid dynamics. He was Emeritus Professor of Mathematical Astrophysics at the University of Cambridge.

National Astronomy Week

National Astronomy Week is fast approaching, and we're looking for contributors who will be able to engage with the public and promote amateur astronomy. As many of you will know, Mars will be in opposition this October, with good early evening viewing conditions during November. Thus, NAW will be held from the 14th to the 22nd of November and will focus on the study of Mars. Of course, this year's COVID pandemic has raised significant challenges and considerations, but we believe that it is a real opportunity to reach the public in new ways.

Due to the difficulty of holding socially distanced observation sessions, we are planning on using live streaming of Mars and online lectures instead. If your society were planning on observing Mars during this period, you could contribute to NAW. Anyone with a telescope and a webcam can live stream their observations, and anyone with internet access will be able to view the result. In addition, there will be online help with astronomy and Q & A sessions for which we would welcome the help of astronomical societies. We also need help with fleshing out the website with articles about Mars and observing. This is a huge opportunity to reach people throughout the UK and pique their interest in amateur astronomy, and also to raise local awareness about individual societies.

If you would be interested in contributing to NAW's remote observations, get in contact by emailing nathalie@astronomyweek.org.uk As well as remote observations, there are other ways to get involved, so please don't hesitate to get in touch.

Many thanks,

Nathalie Korhonen Cuestas