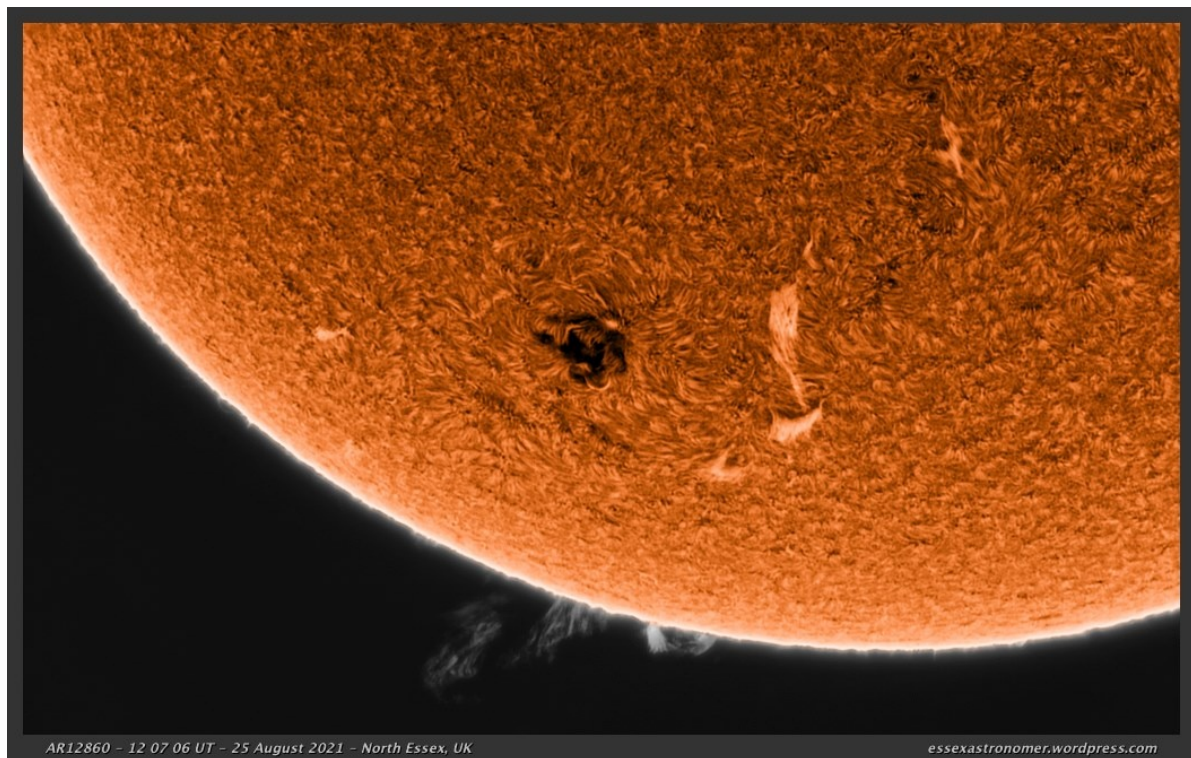




OASI News

The newsletter of the Orwell Astronomical Society



AR12860 - 12 07 06 UT - 25 August 2021 - North Essex, UK

essexastronomer.wordpress.com

Solar activity on 25 August

Photo by John Hughes

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

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/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

The Observatory is closed.

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 2021

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 Wilshire	Librarian
	Avtar Nagra	OASI @ Newbourne
Assistants	Martin Richmond-Hardy	Newsletter, OASI @ Newbourne

Committee Meeting

The next Committee Meeting will be held at 8pm on Friday 3 September.

Please Contact Paul Whiting for Zoom connection details.

OASI and BAA Events

Please note that the listed events may change depending on the progress of the pandemic. 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/ljhs9db7lncki4sojo7092vfv%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 20:00	Martin Cook, Roy Gooding	OBSERVATORY CLOSED Meet via Zoom.
Friday 3 Sept	Roy Gooding	OASI Committee meeting via Zoom
Monday 13 Sept 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI @ Newbourne
Monday 27 Sept 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI @ Newbourne 19:30 meeting opens; 19:45 Sky Notes by Bill Barton, FRAS.
Monday 11 Oct 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI @ Newbourne 19:30 meeting opens;
Monday 25 Oct 19:30 Newbourne Village Hall	Martin R-H newbourne@oasi.org.uk	OASI @ Newbourne 19:30 meeting opens; 19:45 Sky Notes by Bill Barton, FRAS.
2022		
Friday 28th January 2022	Pete Richards lectures@oasi.org.uk	Dame Jocelyn Bell Burnell will deliver a talk to OASI live on Zoom.

Meetings via Zoom

Paul Whiting has set up an OASI account on Zoom Pro which allows us to accommodate more participants.. To join, please first contact Paul, treasurer@oasi.org.uk – OASI members only. Be sure to install/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.

We meet on Wednesday evenings from 20:00 and on Newbourne evenings (see below) from 19:30.

OASI @ Newbourne

Martin Richmond-Hardy newbourne@oasi.org.uk

We have now resumed meetings at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays. 12 of us (including two new members) met on Monday 26 July for Bill's Sky Notes and a demo of Hydrogen line (HI) detection by Paul Whiting FRAS.

In view of the ongoing Covid situation, we kindly request that attenders wear masks in the village hall to protect others and themselves. Hand gel is available.

Newbourne dates for 2021

13 Sep	27 Sep (A)	11 Oct	25 Oct (A)
8 Nov	22 Nov (A)	13 Dec	27 Dec

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

At our 9 August meeting

For fans of The Archers, the granddaughter of June Spencer (Peggy Wooley née Archer) attended OASI at Newbourne this evening

https://en.wikipedia.org/wiki/June_Spencer

102 and still on the BBC payroll!

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.

Astronomy Workshops/Informal talks

Meetings will depend on COVID-19 situation.

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

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.

Friday 28th January 2022

Dame Jocelyn Bell Burnell will deliver a talk to OASI live on Zoom. The talk title will be confirmed at a later date.

Other local astronomy society meetings

Athaneum Astro Society

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

Meetings suspended during the Covid-19 situation.

LYRA Lowestoft & Yarmouth Regional Astronomers

www.lyra-astro.co.uk

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

DASH Astro

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

Meetings are normally held at New Darsham Village Hall and all DASH Astro observing sessions will take place at Westleton Common. ASOG observing sessions and locations may be arranged at the time of observation. Unless stated all group meetings will take place from 7:30 pm. on Sundays.

Meetings will be assessed in line with the current Government Guidelines in place at the time.

Our next Solar Observing Session will be 8th Aug 2021, Venue To be Confirmed, between 11:00am to 2:00pm and is weather dependent, so we may need to revert to a 7:00pm evening get together and chat.

We are now on our normal Summer break so, our Next Sunday Meeting will be 26th Sept 2021, at 7:00pm BST Due to Corona Virus, we are hoping this may be a Face to Face meeting at Darsham Village Hall, but may revert to a Virtual meeting Via the Zoom Platform.

The talk is by Ema Curtis of the JWT entitled " An Eye on Distant Worlds " The meeting will open with a general Meet & Greet chat followed by the talk at 7:30pm. Hopefully there will be time for a Q & A session with the speaker following his talk.

BAA news & webinars

For full details of all meetings or cancellations, please go to <https://britastro.org/meetings/2021>.

2021

Saturday, 4 September	10:00	BAA Autumn One-day Meeting, Leeds School of Music, University of Leeds, Leeds LS2 9JT
Wednesday, 15 September	19:00	Webinar: The Daylight Fireball of 20th March 2021
Wednesday, 13 October	19:00	Webinar: Live Observing
Saturday, 23 October	14:30	BAA Annual General Meeting and BAA Meeting,
Saturday, 4 December	14:00	BAA Christmas Meeting

The BAA Radio Astronomy Section

Thanks to an initiative by Paul Hearn, the BAA Radio Astronomy Section have been enjoying talks, seminars and tutorials via Zoom.

These are/will be available on the BAA YouTube channel.

<https://www.youtube.com/user/britishastronomical/playlists>

Radio Astronomy Python¹

Rupert Powell

1 <https://www.youtube.com/watch?v=3m87wpPATjc>

2 <https://www.youtube.com/watch?v=aBzePb9OG4g>

3 <https://www.youtube.com/watch?v=FKCHQzCEMLg>

RA Python Part II - SDR and GPS

Rupert Powell

<https://www.youtube.com/watch?v=JlMt-nZW0TE>

Hydrogen Line Observing

Brian Coleman G4NNS

<https://www.youtube.com/watch?v=uzcvbGzKp8E>

SpectrumLab workshop

Paul Hyde G4CSD

<https://www.youtube.com/watch?v=x0PnyxEzmZ0>

Current Observations from Astropeller Stockert Wolfgang Herrmann,

<https://www.youtube.com/watch?v=zB8veXpMdqU>

On the tricky question of Pulsars

Peter East OBE FREng

<https://www.youtube.com/watch?v=vl40lcTvBII>

July 23rd. 19:15 BST (18:15 UTC)

e-Callisto; a Radio eye for Solar Activity, Christian Monstein

<https://youtu.be/XQqIXdKpjyM>

Sep 3rd. 19:30 BST (18:30 UTC)

Whit Reeve HAARP High-Frequency Active Auroral Research. Exploring the obscurities of the upper atmosphere. An extraordinary ex-military facility now open to Radio Astronomers. Whit will share some of his research and observations.

Sep 18th 15:00 – 18:00 BST (14:00 – 17:00 UTC)

GNU Training Seminar Marcus Leech, Science Radio Laboratories, Inc. “Unpacking the mysteries of GNU Radio” A complement to our ‘Python for Radio Astronomers’ course.

Oct 1st 19:30 BST (18:30 UTC)

Dr. Gemma Richardson, Space Weather scientist in the British Geological Survey geomagnetism team. “The changing environmental conditions in near-Earth space”. <https://britastro.org/node/25990>

Oct 16th 10:00 – 17:00 BST

BAA day conference. Key note speakers: Prof Ian McHardy, Prof Ian McHardy School of Physics & Astronomy, University of Southampton. The mysteries of X-ray Cosmology. Dr Spencer Axani MIT CosmicWatch – the counting of muons. Other speakers to be announced – watch this space. Conference organiser – Paul Hyde

October 16th.

BAA RAG21 day conference. Key note speakers: Prof Ian McHardy, Prof Ian (09:00 – 16:00 UTC) McHardy School of Physics & Astronomy, University of Southampton. The mysteries of X-ray Cosmology. Dr Spencer Axani MIT CosmicWatch – the counting of muons. Other speakers to be announced – watch this space. Conference organiser – Paul Hyde

¹ There is a really good free Python course from the OU on Openlearn, *Learn to code for Data Analysis*, <https://www.open.edu/openlearn/science-maths-technology/learn-code-data-analysis/content-section-overview?active-tab=content-tab>

Nov 5th 19:30 GMT

Prof Lyndsay Fletcher Glasgow University School of Physics and Astronomy "The Physics, Analysis and Imaging of Solar flares. A perspective for Radio Astronomers."

Dec 3rd 19:30 GMT

'SARA presents...' Pablo Lewin "Building a Radio Telescope for HI observations"

Dr Richard Russell Deep Space Exploration Society (DSES) 'Pulsars for Galactic Navigation'

Dec 10th 19:30 GMT

Christmas Lecture Prof. Anna Scaife. Professor of Radio Astronomy at the University of Manchester and Head of the Jodrell Bank Centre for Astrophysics 'Jodrell Bank, the cold war and the space race'

The Moon: Meet our nearest neighbour

Ipswich Art Gallery

31 July – 10 October

The Moon: Meet our nearest neighbour is a touring exhibition and features fascinating objects such as a large inflatable Moon, scientific instruments, and actual Moon rock on loan from Bespoke Scientific, giving you the chance to discover what the Moon is made of, how it has influenced our history, culture and natural world, and how we have explored it from ancient times to the present and future.

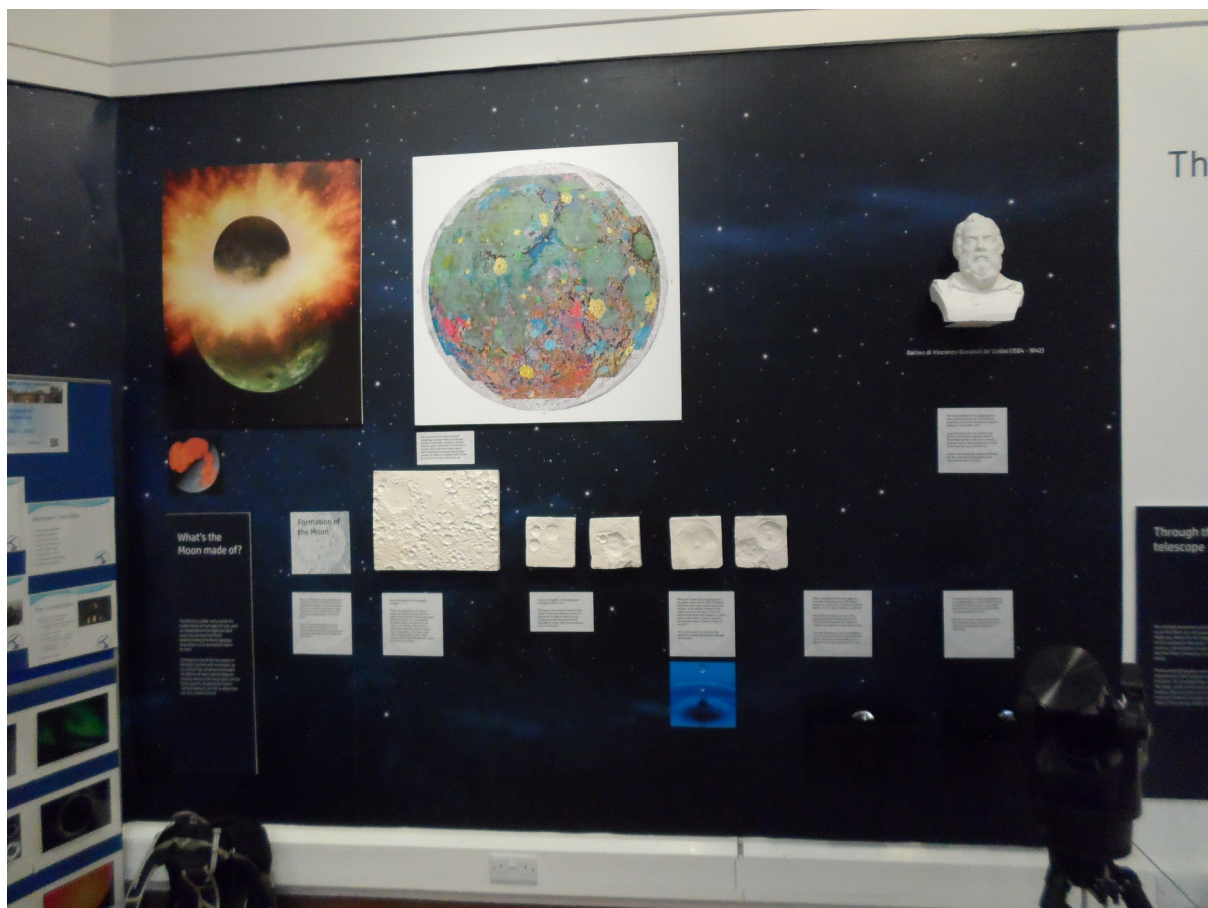


OASI visit to Ipswich museum for Moon Exhibition

Subscribe to the Ipswich Museum's mailing list to keep up to date with all the news about the exhibition.

<https://www.ipswich.gov.uk/content/keep-touch-ipswich-museums>

Pictures by John Wainwright of some of the exhibits follow:





This is an original of one of the oldest printed maps of the Moon, made in 1707. The two views are the same area of the Moon (the nearside, which is the only side ever visible from Earth) but the features are drawn and named differently in each. It is the names in the right-hand view which are still in use today. Despite being made with primitive telescopes over 300 years ago, these maps are surprisingly accurate.

Compare this early map of the Moon with the giant Moon created from the latest NASA data. Can you match the features?

From the Interweb

Dame Jocelyn Bell-Burnell: NI scientist awarded Royal Society's highest prize

<https://www.bbc.co.uk/news/uk-northern-ireland-58318024>

Constructing a scale model of the solar system

From Olaf Kirchner: Cool video about constructing a scale model of the solar system in the desert in the U.S.:

https://youtu.be/O_MZ8tda_II

Solar System's fastest-orbiting asteroid discovered

<https://carnegiescience.edu/news/solar-systems-fastest-orbiting-asteroid-discovered>

The Sun has a new neighbor that was hiding in plain twilight. An asteroid that orbits the Sun in just 113 days—the shortest known orbital period for an asteroid and second shortest for any object in our Solar System after Mercury—was discovered by Carnegie's Scott S. Sheppard in evening twilight images taken by Brown University's Ian Dell'Antonio and Shenming Fu.

The newfound asteroid, called 2021 PH27, is about 1 kilometer in size and is on an unstable orbit that crosses that of Mercury and Venus. This means that within a few million years it will likely be destroyed in a collision with one of these planets or the Sun, or it will be ejected from its current position.

Carolyn Shoemaker

The astronomical community has lost a pioneer. Flagstaff astronomer Carolyn Shoemaker passed away Friday at the age of ninety-two. She discovered more than thirty comets in her lifetime, and blazed a path for women in the sciences.

Carolyn S. Shoemaker started her astronomical career in 1980 at Palomar. That year, she was hired at the USGS as a visiting scientist, and in 1989 began work as an astronomy research professor at Northern Arizona University (NAU). She concentrated her work on searching for comets and planet-crossing asteroids—tallying 376 minor planet and 32 comet discoveries or co-discoveries in her career. With her husband Gene and David Levy, she discovered Comet Shoemaker–Levy 9 in 1993.

The video below, on the Palomar 18-inch telescope, talks more about the Shoemakers and the famous comet Shoemaker-Levy 9.

More on the life of Carolyn Shoemaker:

https://www.lpi.usra.edu/planetary_news/2021/08/17/in-memoriam-carolyn-shoemaker-1929-2021/

Large meteor wows Norway after blazing through night sky

<https://www.bbc.co.uk/news/world-europe-57962384>

Initial research suggests the space rock may have hit the ground in a wooded area called Finnemarka, about 60km (40 miles) west of Oslo.

The Night Sky in September

Martin RH

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

Sun, Moon and planets

Sources:

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

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

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:07	19:42		Declination decreasing, equinox September 22 20:21
	30	06:55	18:34		
Moon	1	31 Aug 23:31	17:07		New 07 September 01:52 Perigee 11 September 11:04 First Q 13 September 21:39 Full 21 September 00:55 Last Q 29 September 02:57 Apogee 26 September 22:44
	30	29 22:59	16:35		
Mercury	1	08:30	20:10	0	Aphelion 06 Sept. Maximum eastern elongation 24 Sept.
	30	08:52	18:33	1.4	
Venus	1	10:00	20:41	-3.9	
	30	11:26	19:39	-4.1	
Mars	1	07:18	20:02	1.8	
	30	07:11	18:37	1.7	
Jupiter	1	19:18	04:50	-2.7	Opposition 20 Aug
	30	17:19	02:39	-2.6	
Saturn	1	18:38	03:10	0.3	Opposition 02 Aug
	30	16:41	01:09	0.5	
Uranus	1	21:34	12:25	5.7	
	30	19:38	10:27	5.7	
Neptune	1	20:04	07:22	7.8	Opposition 14 Sept.
	30	18:09	05:24	7.8	

Occultations during September 2021

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 September 2021

Source: BAA Handbook 2021 p26-27 and <https://in-the-sky.org/newsindex.php?feed=meteors>

Shower	Normal limits	Maximum	Max RA/Dec.°	ZHR at Max	Notes
α-Aurigids	Aug 28 – Sep 5	Aug 31	06:04 (091°) +39°	5	Short-lived outbursts in activity on 1994 and more recently in 2007. Moonlight interferes.
September ε-Perseids	Sep 5 – 21	Sep 9	03:16 (049°) +58°	5	Stronger than usual display seen in 2013 Very favourable .

For radio observation, use reflections from Graves radar on 143.050MHz or the Brams transmitter in Belgium on 49.97MHz. See also https://www.popastro.com/main_spal/meteor/radio-meteor-observing-2020/

Visible ISS passes ≥15° max altitude

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

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

Date	Bright-ness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01 Sep	-2.2	03:33:47	27°	SE	03:33:47	27°	SE	03:36:04	10°	E
01 Sep	-3.7	05:06:46	14°	WSW	05:09:39	76°	S	05:13:02	10°	E
02 Sep	-3.7	04:21:33	38°	SW	04:22:37	65°	SSE	04:25:59	10°	E
03 Sep	-2.9	03:36:19	42°	ESE	03:36:19	42°	ESE	03:38:54	10°	E
03 Sep	-3.8	05:09:18	12°	W	05:12:21	87°	S	05:15:45	10°	E
04 Sep	-1	02:51:05	15°	E	02:51:05	15°	E	02:51:48	10°	E
04 Sep	-3.8	04:24:04	37°	W	04:25:17	84°	S	04:28:40	10°	E
05 Sep	-3.2	03:38:52	54°	E	03:38:52	54°	E	03:41:36	10°	E
05 Sep	-3.8	05:11:51	11°	W	05:15:02	77°	S	05:18:25	10°	ESE
06 Sep	-1.1	02:53:41	16°	E	02:53:41	16°	E	02:54:30	10°	E
06 Sep	-3.8	04:26:41	36°	W	04:27:57	84°	S	04:31:20	10°	E
07 Sep	-3.1	03:41:35	52°	E	03:41:35	52°	E	03:44:14	10°	E
07 Sep	-3.5	05:14:34	12°	W	05:17:36	52°	SSW	05:20:54	10°	ESE
08 Sep	-3.8	04:29:34	41°	W	04:30:31	65°	SSW	04:33:53	10°	ESE
09 Sep	-2.6	03:44:40	36°	ESE	03:44:40	36°	ESE	03:46:49	10°	ESE
09 Sep	-2.8	05:17:41	14°	W	05:20:00	29°	SSW	05:22:59	10°	SSE
10 Sep	-3.3	04:32:58	39°	SSW	04:32:59	39°	SSW	04:36:10	10°	SE
11 Sep	-1.3	03:48:27	16°	SE	03:48:27	16°	SE	03:49:13	10°	SE
11 Sep	-1.9	05:21:29	14°	SW	05:22:13	15°	SW	05:24:14	10°	S
17 Sep	-2.4	20:36:35	10°	SSW	20:38:56	23°	SSE	20:38:56	23°	SSE

Date	Bright -ness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
18 Sep	-2	19:50:02	10°	S	19:52:17	17°	SE	19:54:03	12°	ESE
18 Sep	-2.1	21:25:19	10°	WSW	21:27:03	27°	SW	21:27:03	27°	SW
19 Sep	-3.3	20:38:15	10°	SW	20:41:28	43°	SSE	20:41:58	40°	SE
20 Sep	-2.8	19:51:18	10°	SW	19:54:20	32°	SSE	19:56:45	14°	E
20 Sep	-2.5	21:27:34	10°	WSW	21:29:44	37°	WSW	21:29:44	37°	WSW
21 Sep	-3.8	20:40:22	10°	WSW	20:43:43	69°	SSE	20:44:24	50°	ESE
22 Sep	-3.6	19:53:11	10°	WSW	19:56:30	56°	SSE	19:59:01	16°	E
22 Sep	-2.3	21:29:53	10°	W	21:31:59	35°	W	21:31:59	35°	W
23 Sep	-3.9	20:42:37	10°	W	20:46:00	85°	S	20:46:31	61°	E
24 Sep	-3.8	19:55:22	10°	WSW	19:58:44	79°	S	20:01:02	19°	E
24 Sep	-1.9	21:32:10	10°	W	21:34:00	29°	W	21:34:00	29°	W
25 Sep	-3.9	20:44:54	10°	W	20:48:17	82°	S	20:48:28	76°	SE
26 Sep	-3.8	19:57:36	10°	W	20:01:00	86°	S	20:02:56	23°	E
26 Sep	-1.5	21:34:26	10°	W	21:35:54	23°	W	21:35:54	23°	W
27 Sep	-3.5	20:47:08	10°	W	20:50:21	60°	SSW	20:50:21	60°	SSW
28 Sep	-3.7	19:59:49	10°	W	20:03:12	73°	SSW	20:04:49	28°	ESE
28 Sep	-1	21:36:48	10°	W	21:37:47	16°	W	21:37:47	16°	W
29 Sep	-3.7	19:12:30	10°	W	19:15:53	82°	S	19:19:16	10°	E
29 Sep	-2.6	20:49:23	10°	W	20:52:16	35°	SW	20:52:16	35°	SW
30 Sep	-3.1	20:02:01	10°	W	20:05:16	47°	SSW	20:06:47	27°	SE

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.

None this period

Astronomy on the radio

Bill Barton's Radio Broadcast

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

David Murton's Radio Broadcast

On 1st Tuesday of the month, 2.40pm on the Lesley Dolphin show on BBC Radio Suffolk and the internet. <https://www.bbc.co.uk/radiosuffolk>

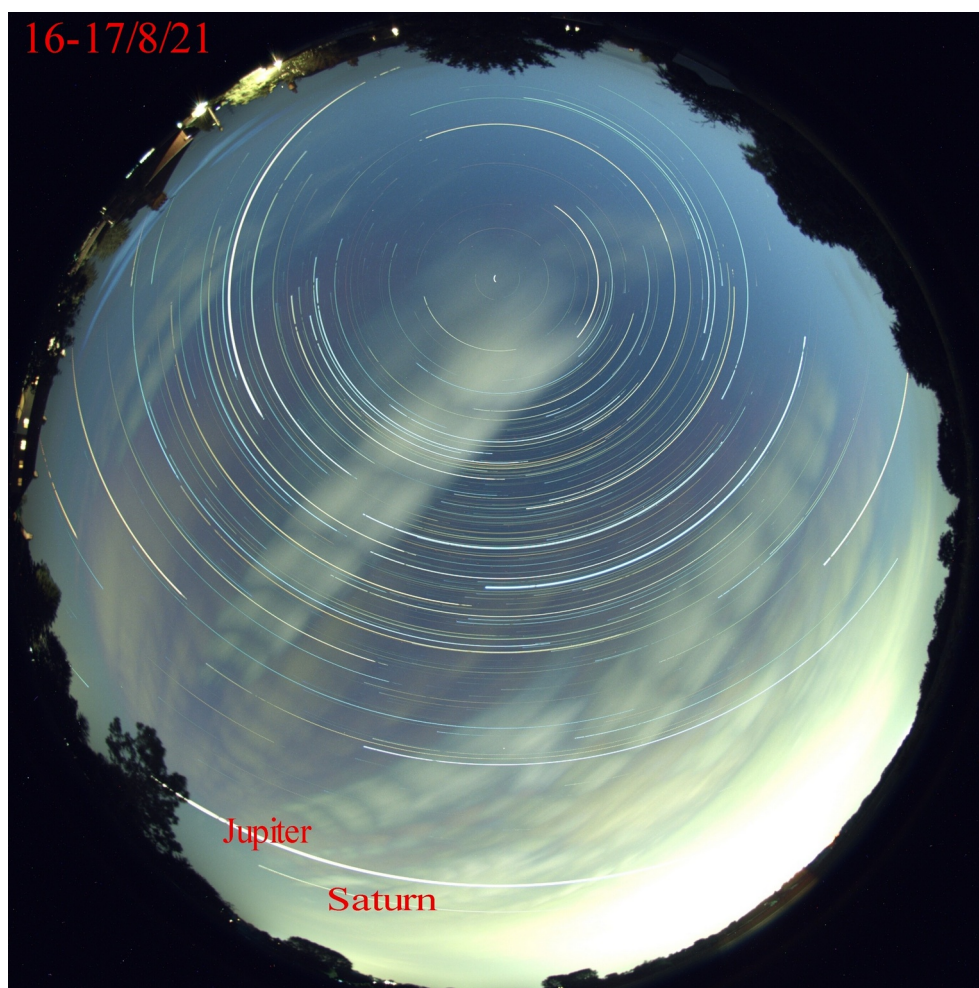
All-Sky camera reports

Alan Smith

Total of 9 meteors, mostly rather faint.

Start Time (UT)	Estimated Mag,	Shower	Constellation	AZ	ALT	No. of breaks
211530	-6	K-Cygnid	U-Maj	342	26	13
224913	-5	Sporadic	Pegasus	120	51	8
232029	-8	Perseid	Perseus	34	36	13+flare
234222	-6	Sporadic	Bootes	297	16	8
010853	-4	Perseid	Lacerta	276	86	7
020510	-3	Perseid	Triangulum	119	56	7
021945	-5	Perseid	Aquarius	213	32	8
025716	-4	Perseid	Pegasus	192	66	5
025921	-5	K-Cygnid	Pisces	158	51	17

All observations taken 12-13/8/21 using ZWO ASI294, Sigma 2.8mm f2.8, gain 300, Exp 60 secs, shutter @16bps.



Star trails

Martin R-H

Meteor flare through clouds on 10 August at 22:03 UTC.

Camera ZWO ASI



Q: When is a flare not a flare?

A: When it's a satellite catching the sunlight.

Monitoring Earth's magnetic field

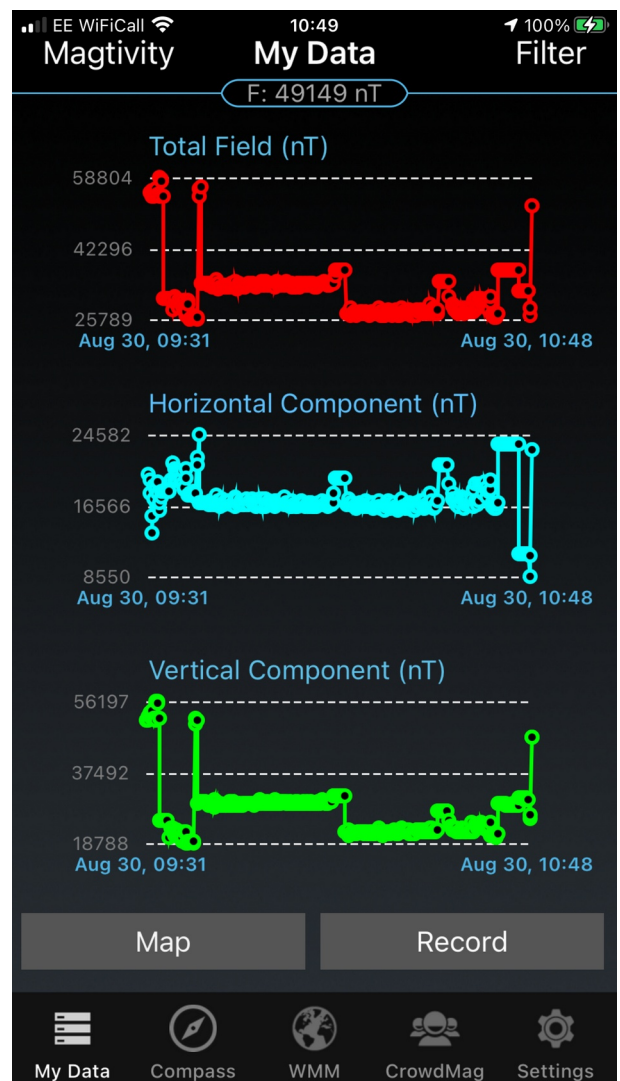
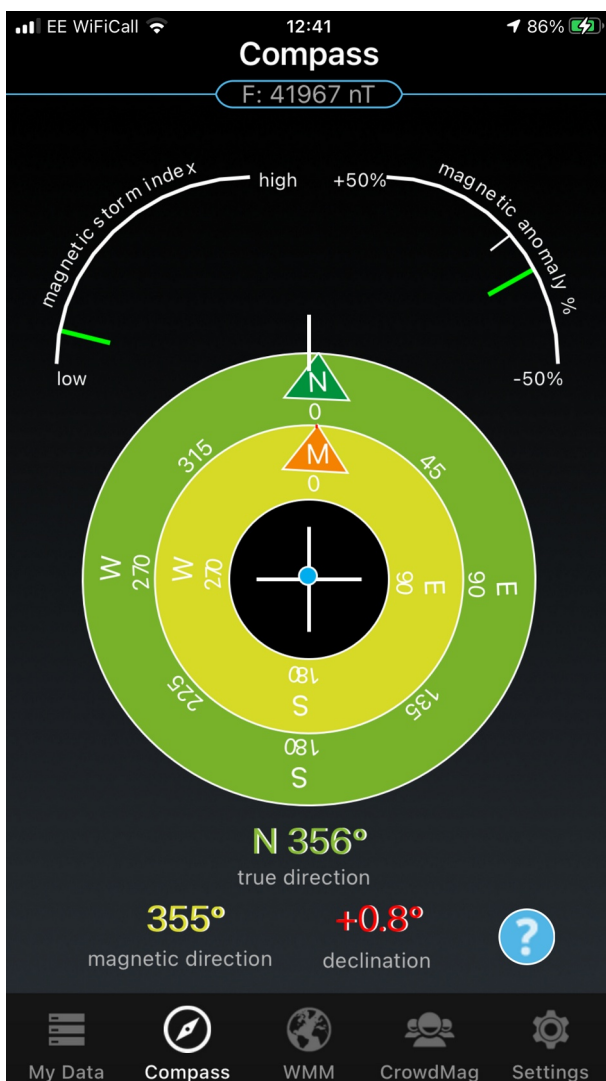
Martin Richmond-Hardy

The solar wind affects the Earth's magnetic field and causes the aurorae. Severe storms can cause outages of satellites, including GPS satellites and even power outages.

Many smartphones contain a magnetic field sensor and are capable of monitoring the changes in the Earth's magnetic field so the US National Oceanic and Atmospheric Administration (NOAA) have launched an app called CrowdMag as a magnetic observatory citizen science project, collecting data from smartphones.

<https://www.ngdc.noaa.gov/geomag/crowdmag.shtml>

When you go out for a walk, run, or other outdoor activities, use CrowdMag to measure the magnetic data along your path and save the data as a “magtivity”. Save, list, export or delete magtivities to create a complete magnetic field map of your area. We especially encourage you to share your magtivities with our research group at NOAA and to have multiple magtivities along the same path so that we can stack the data to reduce the noise and produce a more accurate magnetic field map.



The above screenshots are from the Apple version of the app.

You can also export the data (csv format) to examine in a spreadsheet.

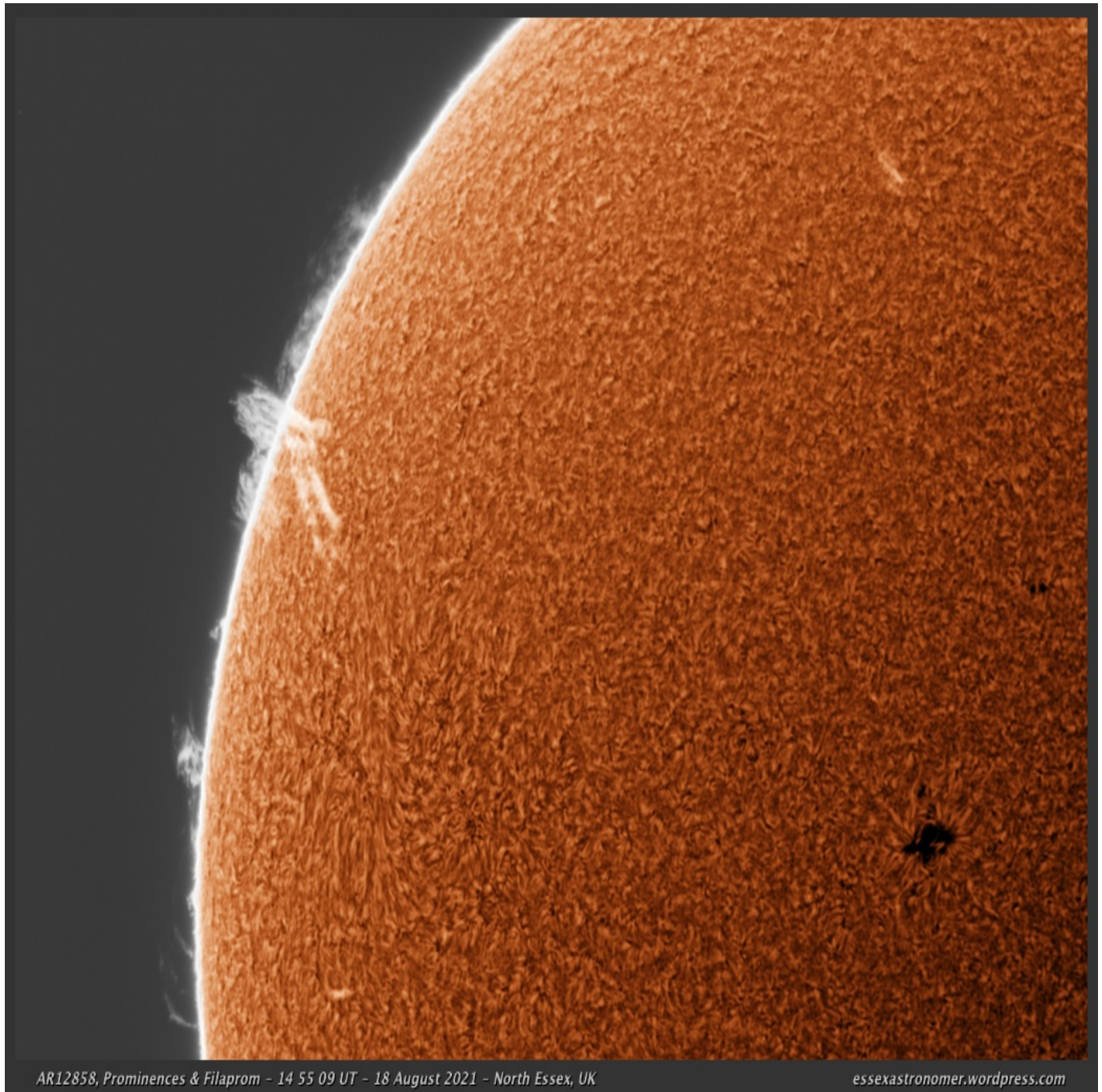
For more screenshots see <https://www.ngdc.noaa.gov/geomag/crowdmag.shtml#apps>

Solar prominences

John Hughes

The clouds broke this afternoon and briefly offered an opportunity to capture some new images.

The picture below shows a prominence which has been visible on the North East limb of the disc these last few days which, due to the rotation of the Sun, has now moved partly on to the disc itself resulting in a 'filaprom'. AR12858 is positioned near the centre of the disc at N12E03 with 6 spots and is classified Cro. Captured with the Lunt 60mm TH α /BI200CPT, ZWO ASI174mm and an Altair Astro 3x Barlow.



See OASI Facebook page for more images from John Hughes.

Looking into the pits of Hell

AR12859 & AR12860 - 25 August 2021.

John Hughes

Another cloudy day, however, I managed to capture two of the Active Regions visible on the Sun today and with a nice prominence.

Equipment

Lunt 60mm DS TH α /BI200CPT scope.

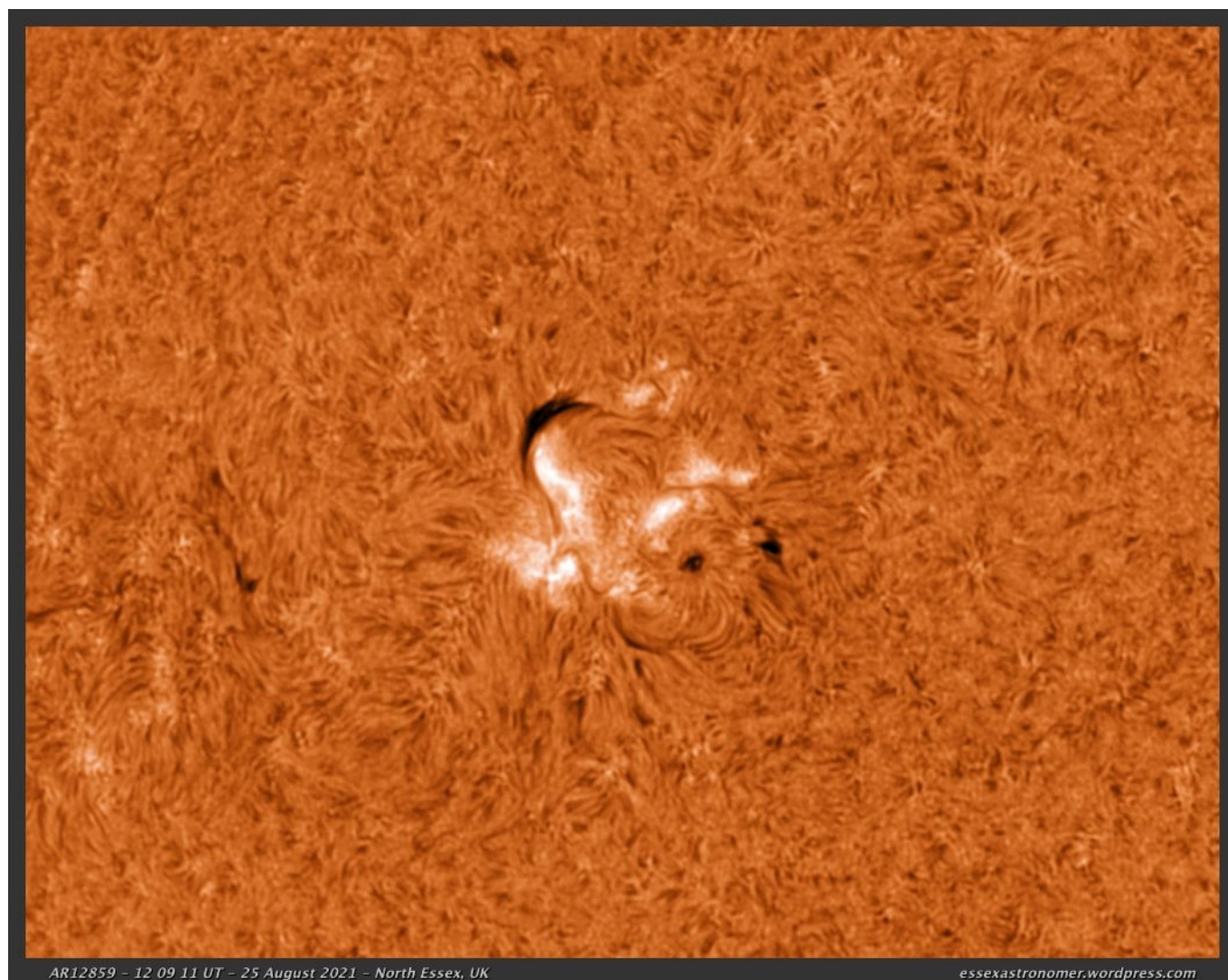
ZWO ASI174mm with tilt adapter.

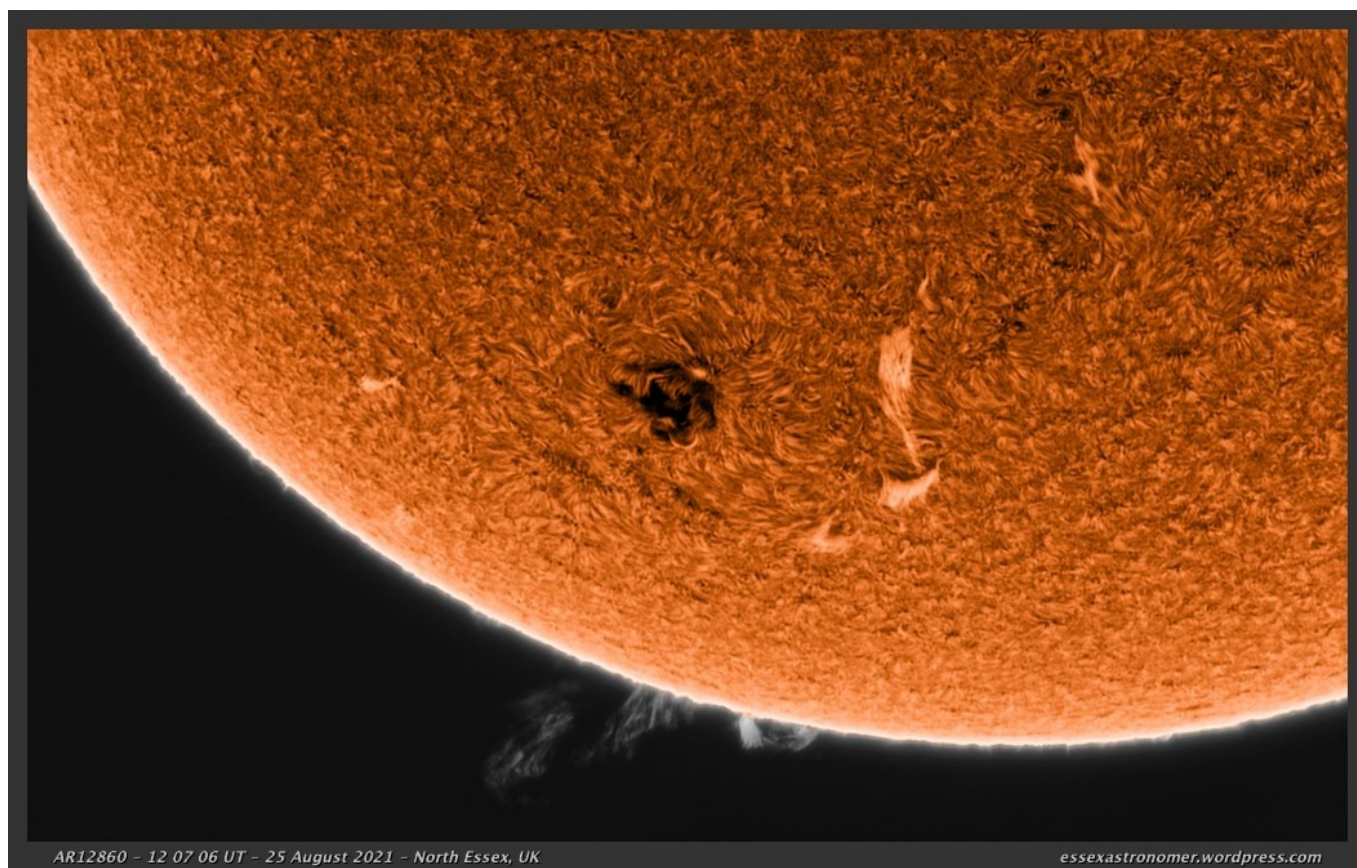
SkyWatcher EQ6R-Pro mount.

Images acquired with SharpCap Pro

3x Barlow and 4x Powermate where indicated.

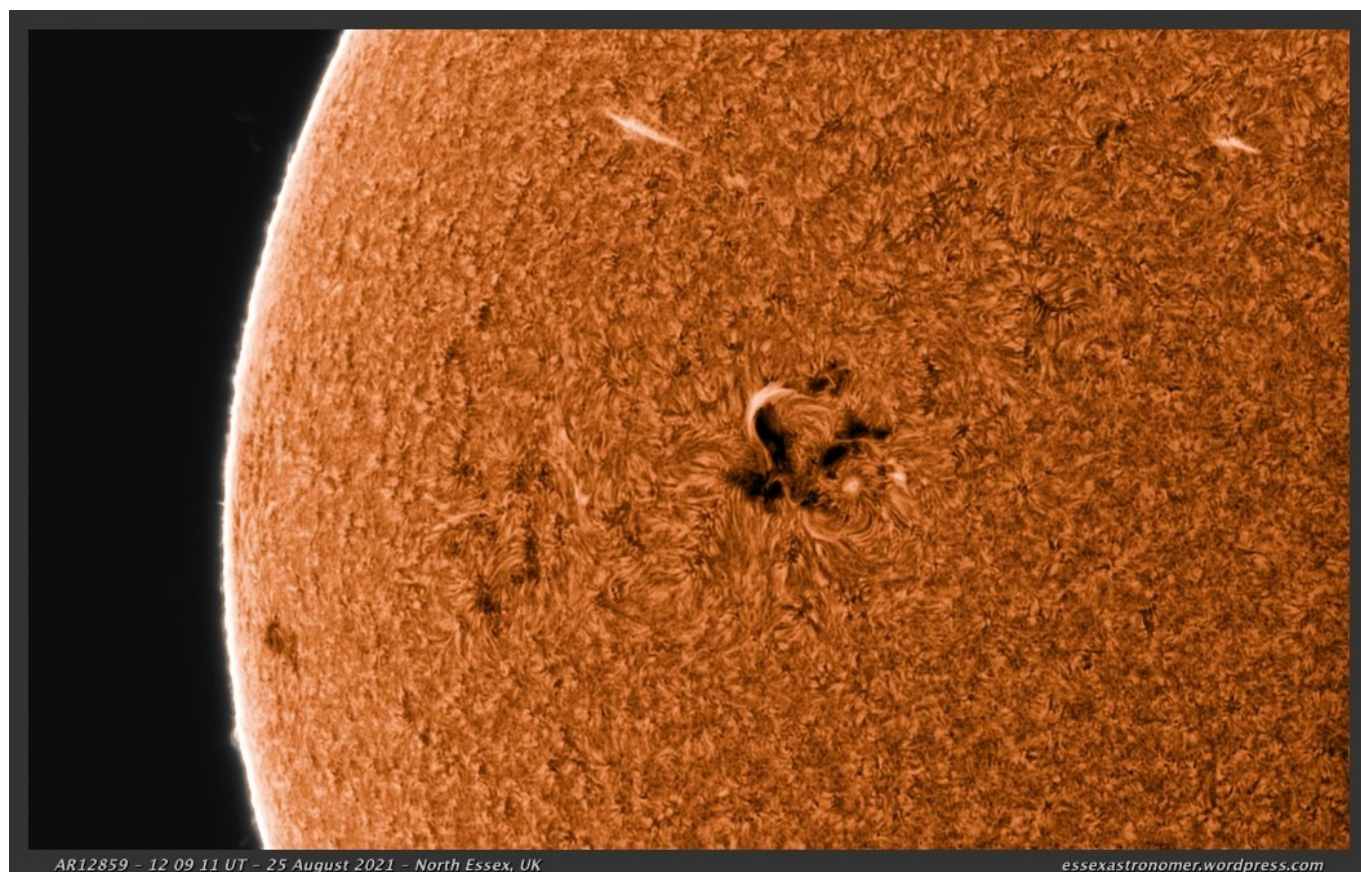
300 out of 1,000 frames stacked.





AR12860 - 12 07 06 UT - 25 August 2021 - North Essex, UK

essexastronomer.wordpress.com



AR12859 - 12 09 11 UT - 25 August 2021 - North Essex, UK

essexastronomer.wordpress.com

Saturn

Andy Gibbs

The skies cleared on the evening of Saturday 28 August giving good views of Jupiter and Saturn in the South East. Jupiter was at 20 degrees in elevation, Saturn at 18 degrees. Io is pictured close to Jupiter, it would shortly transit the Planet.

Equipment used: Meade LX200 and QHY 5L II camera.

Captured and processed in Sharpcap 4, Registax 6 and Affinity Photo.



Saturn



Jupiter

Jupiter and the Galilean moons

Mike O'Mahoney

Saturday 28 August was a beautiful night, made more so by Jupiter with its moons (from Jupiter : Io, Europa, Ganymede and Callisto in a line (almost). Hopefully this signals a good astronomical season (if only next door will turn off his garden illuminations).



Io, Europa, Ganymede and Callisto and Jupiter

Skywatcher 120 mm 950 mm refractor + Canon EOS60D, 21:30 28/08/2021

Observatory clean-up



Messrs Whybray & Gibbs de-moulding the Transit Room and Chairman demonstrating his skills with the hoover (other brands are available).

Photos by Martins R-H & Cook



A Perseid

Mike Whybray



From ~1000 exposures last night covering ~5 hours I captured only 5 frames with a Perseid meteor, and only one of which was worth sharing.

Cropped to about half original size.

EOS550D Camera, 18mm lens, F5, 15 Sec at ISO 1600. Time ~20 minutes after midnight.

Quite pleased that you can see some colours in the trail.

Ignore the occasional red and blue stars in the picture – camera noise!

James Webb Space Telescope – update

Library Info:

In July of 2021 I attended a Zoom talk on the James Webb Space telescope. Although having written an article about the telescope which appeared some time ago in the OASI magazine, I felt that the information obtained from the talk would be of interest to our members.

This telescope was named after James E. Webb who was the second administrator of NASA from February 14, 1961 until October 7 1968. He undertook the goal set by President Kennedy to put a man on the moon and to follow the Apollo program. It was on January 27, 1967, the Apollo-Saturn (AS) 204, was on the launch pad at Kennedy Space Centre, Florida. It was going through some simulation tests, when a flash fire killed the three astronauts aboard--"Gus" Grissom, Edward White, and Roger Chaffee. Webb with the blessing of the American President Johnson left no stone unturned to find the cause of the disaster. When launched it will be the largest and most powerful telescope in space. However an article appeared in *Fooshya.com* July 26, 2021 and also <https://bbc-edition.com/space/2021/07/23> highlighting that there was some controversy with the name of the telescope due to an assumed historical anti LGBT campaign from 1949 to 1952, which was a period when Webb was in administration. This epoch was known as the 'lavender scare'. It is therefore for NASA to decide whether there is any proof that Webb prompted the harassment, and to rename the telescope or to leave it with its present title.

The James Webb space telescope has had many of its proposed launch dates put back due to a host of smallish problems. As the team have said, "failure is not an option", and once in space there is no chance of repair. It was due for lift-off in 2018, then 2019 and then again in May of 2020. Presently all checks are going well and the new date of November 2021 is considered to be the final change.

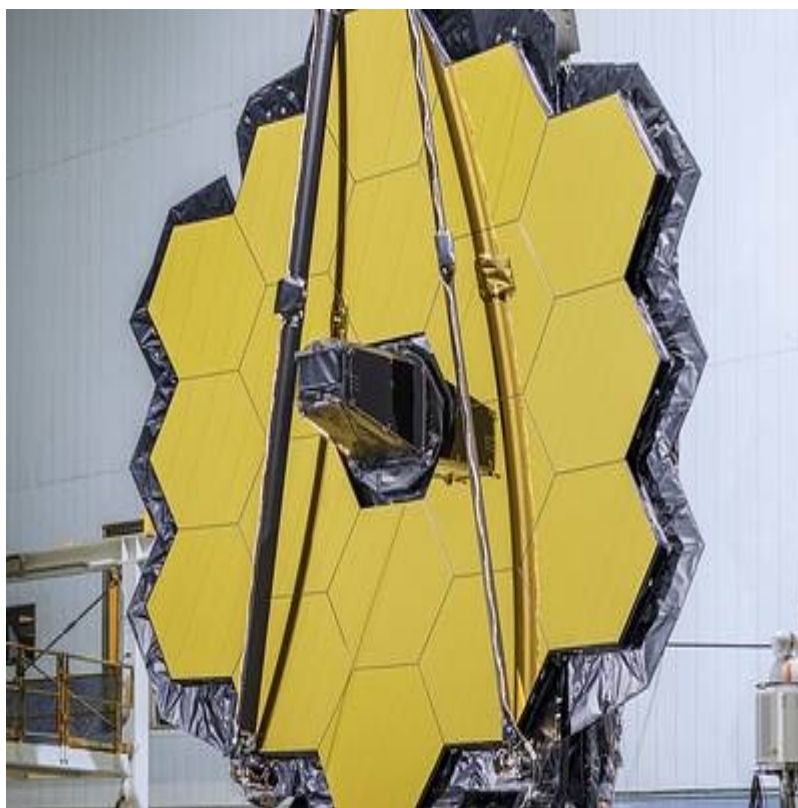
Why has this NASA project been a cause for concern? In 2008 the budget was planned to be around 5 billion dollars, but due to generally increasing costs, the Covid pandemic and changes in launch dates, it may well have exceeded 10 billion dollars today. They also found oversights. For example sunshield tension cables were too loose and it was considered that they could possibly get caught on another piece of equipment. Several small tears were accidentally induced in the sunshield whilst it was being checked. It was also noted that the propulsion system would permit leaks via the telescope thruster valves. Prolonging the lift off date of the JWST is also holding up other scientific projects.

NASA scientists have now reached the final three development progress stages. Firstly, they have detached the telescope's lens cap. This allows for the remainder of the optics to be folded up for its space trip. Secondly, Webb has a ten feet telescopic tower that will keep the important side containing instruments and mirrors away from the Sun side and thus keeping them cooler. This received the all clear on its recent test. Finally the telescope has been folded up to the size necessary to fit the launch vehicle, again faultlessly. Once all the final tests have been completed, the telescope will be collapsed for final transport to Kourou, in French Guiana for its launch. When launched it will be the largest and most powerful telescope in space.

The James Webb is a new infrared space telescope now scheduled for launch via an Ariane rocket from French Guiana, to be located near the Earth-Sun L_2 Lagrangian point. This was discovered by Joseph Lagrange and is a position in space where orbital motions of a body and gravitational forces balance each other. The L_2 point can be found 1.5×10^6 km behind the Earth if it is viewed from the Sun, and is used by satellites to hover at this area, thus providing a very stable vantage point, staying in line with the Earth as it meanders around the Sun. It will take approximately 30 days for the JWST to get to the start of its orbit at L_2 . It will initially be boosted from Earth by an Ariane rocket for about 8 minutes. The JWST will then detach from the Ariane launch vehicle after 30 minutes, and the solar array will be deployed at this point. The main partners for this telescope are NASA, the European Space Agency ESA and the Canadian Space Agency CSA.

Why do we need another observatory in the sky? We already have The Hubble, Spitzer and Chandra as well as many more, performing many exciting scientific experiments. However as the universe is expanding, light is distended into much longer wavelengths, pushing it beyond both visible and near infrared areas. It is therefore necessary for a telescope to operate at infrared wavelengths and for this, the James Webb Space telescope was devised. This will make observation of distant galaxies whose light has been stretched into the infrared obtainable. Its mission goals are to search for the first galaxies or luminous objects just after the big bang, and to determine how galaxies evolved from formation to today, and to measure physical and chemical resources of planetary structures.

The telescope has a primary gold-coated (1000 angstrom thick) beryllium mirror of 6.5 meter diameter (21.3 ft) which is much greater than Hubble's 2.4 meter diameter. This means that the collecting area of the James Webb is about seven times greater. It will be able to view infrared light from the most remote areas in the universe and find sources that created re-ionization. It will be launched by an Ariane 5 ECA launch vehicle with a total payload of 6200 Kg, and is scheduled to function for at least a period of 5 - 10 years. The mass of the primary mirror is 705Kg with each single segment weighing 20.1 Kg. With segment assembly this is 39.46 Kg. There are 18 hexagonal segments which will unfold when the telescope is in situ using precise micro- motors. Its wavelength coverage is 0.6 to 28.5 microns and its optical resolution is 0.1 arc seconds. Because the telescope will be viewing very faint infrared signals, a sunshield (SPF 1×10^6) is necessary to shield it from any bright and hot sources. (Sun, Earth etc). These sources will be located in the same direction that the L_2 point was selected. The size of the sunshield is 21.197m * 14.162 m, and it has five layers, with each one being as thick as a human hair, and is built of Kapton E, an easily obtainable polyimide skin, with aluminium coated membranes. The Sun facing side of the hottest two layers is doped with silicon forcing heat to be reflected into space. The sunshield has been conceived to fold twelve times in order for it to be stowed into the Ariane 5 rocket.



Credit for picture: https://www.nasa.gov/mission_pages/webb/images/index.html

The instruments on board are:

NIRCam, a near infrared camera;

NIRSpec, a near Infrared spectrograph;

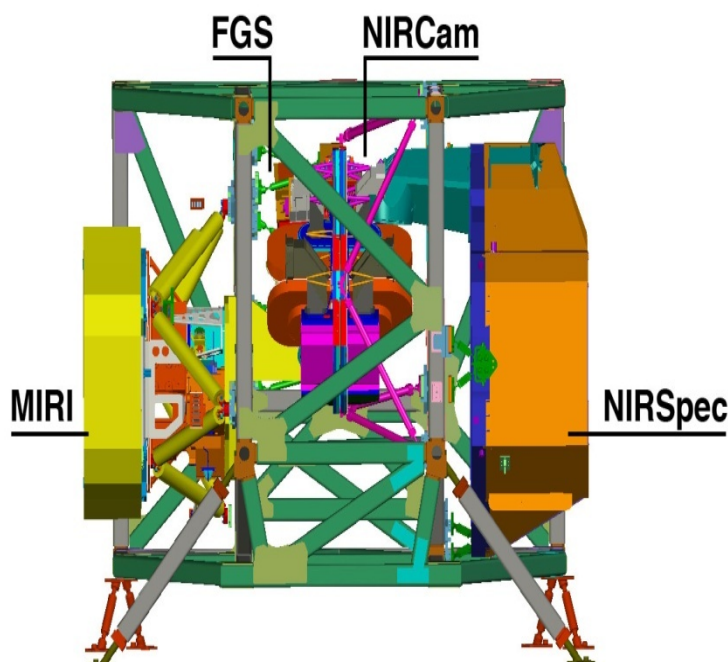
MIRI, a mid Infrared instrument;

FGS/NIRISS, Fine guidance sensors and near infrared imager with slitless spectrograph.

Labelled schematic of the ISIM for the James Webb Space Telescope, showing instrument locations.

Credit for picture:

https://www.nasa.gov/mission_pages/webb/instruments/index.html



The wavelengths used by MIRI are from 4.9 to 28.8 μm and are ideal for direct imaging and spectroscopy of juvenile warm exoplanets and investigating and analysing the redshifts ($z>7$) of first galaxies. It will also investigate dust and gas given off by protoplanetary disks.

The Near Infrared Camera (NIRCam) uses 0.6 to 5.0 μm and has the ability to perform coronagraphy at multiple wavelengths and slitless spectroscopy, as well as time series imaging. High-contrast imaging is used to identify faint source images detected close to bright point sources. These brighter sources are usually stars and quasars. The faint ones include exoplanets. If normal imaging is used little can be seen of the faint source.

NIRISS will be used to present high - contrast interferometric imaging over wavelengths of 0.6 and 5.0 μm . Although this unit is combined with the fine guidance sensor, the two instruments are used separately.

The problems of using infrared for an astronomical telescope is that the optics and scientific instruments need to be cooled to subdue infrared background noise. Detectors found inside each scientific apparatus needs to be at specific temperatures to function. By rule of thumb, the longer the infrared light wavelength is the colder the detector has to be.

Of the four scientific instruments in Webb's armoury, three of them can be cooled passively. However the fourth, MIRI (Mid -infrared Instrument) operating from 5 to 28 microns, has to be actively cooled by a cryocooler. The MIRI detectors for this instrument are different from the rest. These comprise Arsenic-doped Silicon which requires a temperature of less than 7 kelvin to operate. The cryocooler has been specifically designed for the James Webb making a state of the art instrument. One of the most problematic effects of coolers is vibration, which can cause unwanted shaking. The lower the vibration levels the lower the shake. This one minimises this effect by having very few working parts. The working fluid refrigerant is helium gas pushed around the circuit by a high-efficiency pump. The life span of this system has been designed for longevity.

One of its proposed areas of investigation is in studying planets orbiting stars. If an exoplanet passes in front of its host star, filtration of starlight through the planet's atmosphere occurs, absorbing specific colours of light that are contingent on the chemical composition. This absorption will be measured by the telescopes ability to obtain spectrographs and look for specific chemical fingerprints of the atmospheres gasses. Initially WASP- 39b and WASP- 43b that are fairly easy targets for this procedure will be used.

The general mission statements can be condensed into the following. To locate light from stars and galaxies generated after the 'Big Bang', and their formation and development. To comprehend how planetary systems and stars configure, and to search for the origins of life.

The challenge from the engineering point of view to survive in very cold and mechanically stressing conditions is very difficult. The telescope is built at room temperatures and therefore must be precisely engineered, so that when all the parts shrink when in the cold environment, they all do so by the same amount. The stresses and strains placed upon the systems will be very large, without the problems associated with radiation from the Sun and galaxy. If the telescope journey is successful in getting to its position at the L₂ point, the weak atmosphere and no measureable absorption, will allow detectors operating from 5µm to 1000µm to achieve high radiometric sensitivity.

References:

https://www.nasa.gov/mission_pages/webb/images/index.html

<https://jwst.nasa.gov/science.html>

<https://www.space.com/21925-james-webb-space-telescope-jwst.html>

<https://bbc-edition.com/space/2021/07/23/nasa-investigates-renaming>

<https://fooshya.com/2021/07/23/nasa-investigates-renaming-james-webb>

Answers to Easy Astronomy quiz

Each question had a one-word answer. Take the first letter of each answer. Unscramble these 8 letters to give a final word, using the clues 'stationary and static'.

Question

1. Horizontal direction expressed as the angular distance between the direction of a fixed point (for example: observer's heading) and the direction of the object. Azimuth.
2. Sub atomic particle with no electrical charge and a mass of almost zero. Neutrino.
3. Type of crater on Earth's moon. Impact.
4. Lowest layer of the Earth's atmosphere. Troposphere.
5. NASA's space flight centre in Greenbelt, Maryland. U.S.A. Goddard.
6. Large cloud of dust and gas occupying the space between stars. Nebula.
7. A change in frequency of a wave in relation to an observer who is moving relative to the wave source. Doppler.
8. First United States of America's Space station. Skylab.

Letters: A-N-I-T-G-N-D-S.

Final Word "STANDING"

An Interesting Request

Paul Whiting

We have hosted many things at the observatory, from SHA picnics to scout investitures, but the request received towards the end of July this year was probably the strangest. A young man was enquiring whether it would be possible for him and his girlfriend to visit the telescope and for him to propose marriage to her while they were there.

The three week timescale he wanted was quite problematical. The dome had not been opened for eighteen months, other than for the occasional inspection visit, and was consequentially a right mess. All the walls in the Equatorial Room were covered in mould, and as for the Transit Chamber – don't ask. There was dust and cobwebs everywhere and most of the posters in the Belvedere had been blown all over the floor. Add to this the fact that the School was in the process of repairing the balcony doors.

The first thing to do was to seek the School's permission, especially as the School had been hired out over the summer holiday. We also asked for permission for several working parties to try to restore the décor to some level of respectability. Permission was given and two teams of cleaners spent the weekend before the Proposal cleaning, dusting, sweeping and repairing. Thanks to everyone who heeded the call and made such a difference.

The day of the Proposal dawned, Saturday 14th August. The plan was for Bill and me to meet the groom's mother and sister at midday to decorate the Equatorial Room with flowers. This went ahead as planned, despite a last minute search for water. The question arose how would I explain the flowers during the visit? I said that following the clean up the week before I thought we should make a bit of an effort. I think I got away with it.

At 2pm we met the young couple – Ben and Bella – and started the visit. This was also a little tricky given that it had been a year and a half since I had last trotted out the spiel, but as they say, it was like riding a bicycle, the patter soon returned. As usual the tour ended after explaining the transit telescope. I then asked if they had any questions. This was the cue for Ben to do his bit. Out came the ring and down he went on one knee. The question was asked and ... after a moment or two (she was in shock) an affirmative was given.

It emerged that the couple's first date was at the Royal Greenwich Observatory, hence the request to perform the act at Orwell Park.

The Society would like to wish Ben and Bella all the best for their future together.





The Happy Couple



The Happy Team