OASI News

The newsletter of Orwell Astronomical Society (Ipswich)

Once in a Blue Moon

August sees a rare Blue Moon, or second Full Moon, in the same month. Both Full Moons this month pretty accurately coincide with the lunar perigee, or closest approach to the Earth. This means both will appear a little larger than normal, which, when added to the standard optical illusion of the Moon appearing larger when nearer to the horizon, means a field day for the press. Watch out for "Super Moon" headlines!

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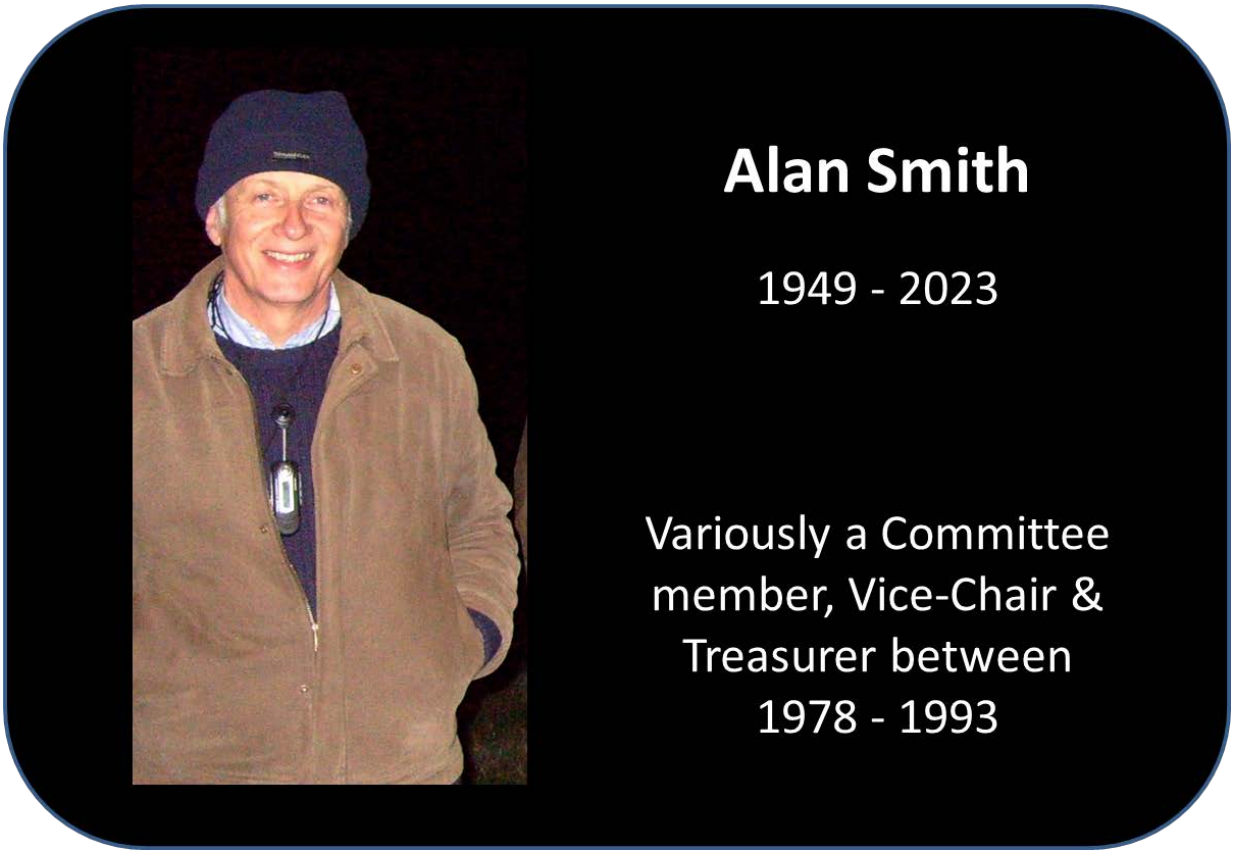


Society Notices

Dear Members,

I'm afraid that I have to announce the passing away of another long serving OASI member, Alan Smith. Alan had been receiving treatment for cancer, which had been going well, but unfortunately, had suffered a fall and caught pneumonia whilst in hospital.

Alan was a former Committee member, who had served terms as Vice Chairman and Treasurer. For many years, he organised trips to observe Grazing Lunar Occultations, which although sometimes involving getting out of bed in the middle of the night, were great fun to do. He also produced some fantastic images with his fireball cameras, many which had been published in the Newsletter and on the website. I'm sure that you will all wish to join me in sending our condolences to Alan's family.

I hope to see you at our meetings in August, the nights are starting to get longer and we have the Perseid meteor shower peaking on 12-13 August.

Andy Gibbs, Chairman

Society Contact details

Email queries: info@oasi.org.uk

Facebook: Orwell Astronomical

Twitter: @OASIpswich

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

Members-only message board

https://groups.io/g/OASI

Observatory (meeting nights only)

07960 083714

Please send material for the OASI web site and newsletter e.g. observations, notices of events, general interest articles, to news@oasi.org.uk

The CLOSING date is the 15th day of the month

STOP PRESS

The Wednesday OASI Meetings on August 2nd, 16th, 23rd will now take place outside Newbourne Village Hall, or if wet, at the Fox Inn, Newbourne. Please note that the hall itself will not be available.

Access into the School Grounds and Observatory Tower

Orwell Park School have changed our access route to the observatory.

The new route will be as follows:-

- Enter through gate 2 (gate 1 being the main gate) and park inside as per the attached map.
- Enter the school through the double black doors as indicated on the map. A key fob will be required to open the door.
- Continue straight through the next two sets of double doors.
- Turn left at the end of the short corridor then immediately right.
- Pass through the single door and on your left you will find the staircase leading to the observatory.
- On no account must you deviate from this route.

When leaving the observatory use the same route but in reverse. Please keep noise to a minimum as there are staff quarters nearby.

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.

A Good Year for Perseids

A New Moon just before the Perseid maximum on the night of the 12th / 13th August bodes well for a spectacular sight. The best time to view is between midnight and dawn on the 13th, however there is usually a good view to be had before midnight.

Trivia: the first record of the Perseids dates to AD36

Committee 2023

Chairman	AndyGibbs	Set overall agenda for OASI, Chair committee meetings, Press and publicity
Secretary	RoyGooding	Outreach meetings (jointly with Chairman), observatory decoration
Treasurer	PaulWhiting	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
	MartinCook	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 Willshere	Librarian
		Newsletter, OASI @ Newbourne
		For newsletter and Newbourne please contact Paul Whiting,

Committee Meeting

The next Committee Meeting will be on Friday 1st September at 8:00pm via Zoom. All members welcome.

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.

If you want to easily add OASI Events to your own computer/phone/tablet calendar application click this button on the website Events page (bottom right of the calendar) 

or use this address to access this calendar from other calendar applications:

https://calendar.google.com/calendar/ical/1jhs9db71ncki4sojo7092vfvc%40group.calendar.google.com/public/basic.ics

For other astronomy news and astro pictures try our

Twitter feed	https://twitter.com/OASIpswich
Facebook page	https://www.facebook.com/pages/Orwell-Astronomical/158256464287623

Date, Time & Location	Contact	Event
Weekly, every Wednesday, from 20:15	Martin Cook, Roy Gooding	Observatory open
Monday 14th August from 19:30	Paul Whiting	OASI@Newbourne Beginners and new members welcome
Thursday 17th August 20:00	Paul Whiting	Monthly Zoom meeting - Recorded Talk: Dr Ziri Younsi, "Imaging Black Holes with the Event Horizon Telescope."
Sunday 27th August 10:00 – 16:00	Paul Whiting	Public access event. Observing the Sun safely. This event is run by Bawdsey Radar Museum.
Monday 28th August from 19:30	Paul Whiting	OASI@Newbourne Bill Barton : Night Sky Guide Paul Whiting : Astro News Beginners and new members welcome

OASI @ Newbourne

newbourne@oasi.org.uk

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

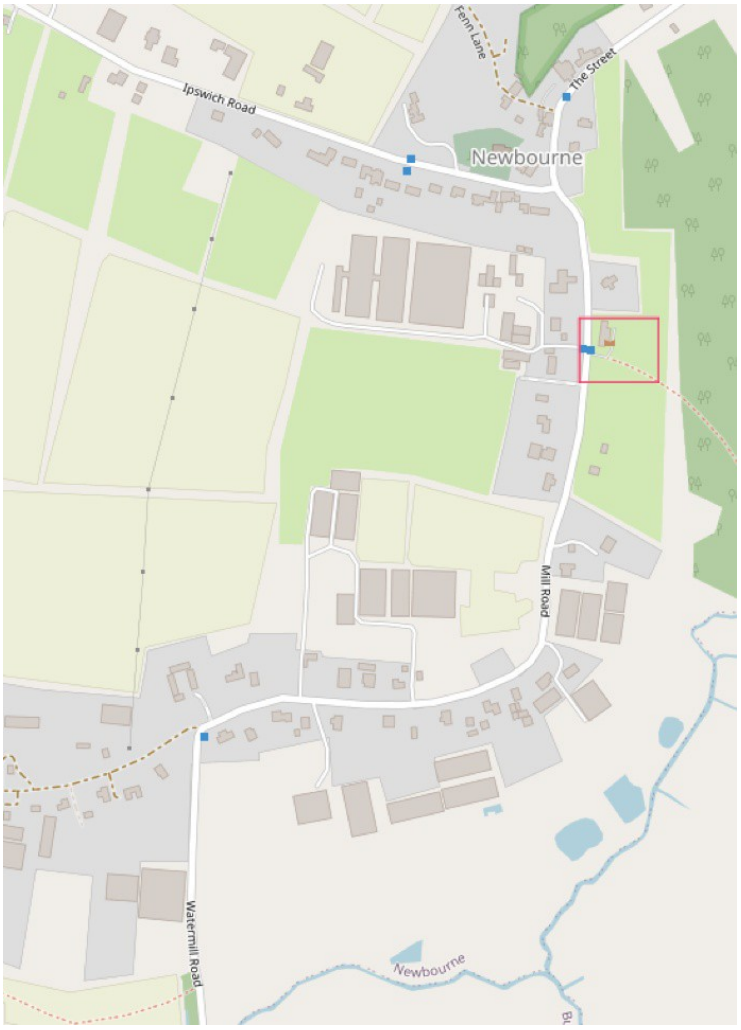
Visitors are welcome but we do ask you to join the Society after two visits.

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

Newbourne dates for 2023

August	14	28 (S/A)
September	11	25 (S)
October	9 (T)	23 (S/A)
November	13	27 (S)
December	11 (A/Q)	

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



Obituary

Martin Richmond-Hardy, *SK*

1948 – 2023

Martin started work with the GPO (later BT) in Central London in September 1966, straight from school as a Student Apprentice. After two weeks learning how to be a Civil Servant, he was sent to Crawley Technical College for six months to learn how to be an engineer.

In autumn 1967 he was sent off to Manchester University. In his final summer at University, Martin was sent to Televerket, the Swedish telephone company, for a four week period, giving him a taste for working in Europe.

In 1971 the GPO started its move from Dollis Hill to Martlesham and Ipswich, and Martin moved first to Trimley and then to Kirton. Martin didn't stay with BT, instead, amongst other jobs, he became senior engineer at SHAPE (Supreme Headquarters Allied Powers in Europe) in Belgium.

In his spare time Martin served on the national committee of the UK Microwave Group, serving as editor of their Scatterpoint publication. He was an organiser of the international microwave radio conference, EME2012, in Cambridge that year.

Locally he was secretary and newsletter editor of the Suffolk Mac Users Group, so given his entire journal editing experience; he was well placed to edit the OASI newsletter. He was a long-time member of the BT based Martlesham Radio Society, helping them win many microwave contests in the Society's heyday.

He was a member of the BAA Radio Astronomy Group and, more locally, the local radio astronomy group, based at Area 51¾ at Newbourne, specialising on hydrogen (HI) line and pulsar detection.

Martin was also an active tenor in several Suffolk based choirs, including the Ipswich Trianon group.

Martin was well known in his community around Kirton, always helping out where he could. Examples included clearing trees from the village churchyard after the 1987 storm, and helping to serve Sunday lunches for the elderly in the church hall.

Martin will be missed by all his many friends who somehow interacted with him. Not the least the new OASI members who joined at Newbourne, for whom Martin's was the first friendly face they met.

PW

SK is an epithet added to the name of a deceased radio amateur, signifying that they are now "Silent Key"

Obituary

Eric W. F. Sims - the man with the hat

1939 – 2023

Eric became a member of OASI in June 1982 at a time when much renovation was in progress at the observatory. He was keen to assist which enabled him to gel quickly with other members. Much of the work he helped with was the flooring over of the lift shaft in the observatory and club room. He was willing to climb ladders which he carried out whilst wearing clogs (a rubber allergy prevented him from wearing shoes). He supplied some wood for a shelf above the library floor which became known as the 'Sims shelf'.

Eric was elected onto the committee in 1983 holding the positions of function organiser followed by librarian until becoming the Newsletter editor in April 1987 a position he held until having to retire in January 2014 due to a reaction in handling paper.

He had a unique style of production. Starting with 4/5 sheets of A4 stapled together and folded in half to form a booklet. The pages were then numbered by hand somewhere near the bottom corner. The articles received from members were then pasted using a glue stick into the booklet. If the articles were longer than a full page they would often not continue on consecutive pages with a handwritten note (continued on page) at the bottom. Microsoft introduced us to cut and paste which Eric already had his own version. If an article nearly fitted a page, he would use wallpaper scissors to trim the spacing between the lines and then reassemble back together.

The finished newsletter would then be dis-assembled and printed using the duplicator at Orwell Park School. This was a challenge as we would be running through 120 copies of each page. Often the duplicator would not operate properly and required the Sims touch of genius to make it work. The pages of the newsletter were then assembled into the correct order, stapled, placed into envelopes and posted. Printing in the school became too difficult, so the society purchased a printer from Staples where we were talked into buying the extended no quibbles warranty. This proved very beneficial as with only one month left on the warranty the printer stopped working and Staples honoured the agreement. Unbeknown to them it had printed 80,000 sheets!

One of Eric's colleagues, at Ipswich docks, John Davies would often supply cartoons for the front cover of the newsletter examples of which can be found in the OASI archives.

Eric was always willing to help at events and open days excelling in car parking duties. This was certainly not for the faint hearted as parking the public in the dark could be very challenging and sometimes bordered on dangerous.

One thing that I will always remember about Eric will be that whatever the weather he would wear just a shirt, jacket and of course the hat. If the weather happened to be extremely cold then the jacket would be buttoned up.

Eric was renowned for his home brewed ale and wine. Frequently after attending a lecture meeting in Ipswich invites would be offered to sample these home-made drinks. This made for a pleasant ending to the evening however incapacity was never far away due to the hidden strength of the product!

Eric will be very much missed as a valued member of the society as well as for the gentleman he was.

Martin Cook

Summer Lectures – via Zoom

Thursday 17th August 2023 – Zoom Talk (Recorded)

"Imaging of Black Holes with the Event Horizon Telescope"
with Dr Ziri Younsi

Thursday 21st September 2023 – Zoom Talk (Recorded)

"William Herschel – Discoverer of the Deep Sky"
with Dr Wolfgang Steinicke

Staring 20:00. Standard Zoom meeting details

BAA news & webinars

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

2 September 2023	Variable Star Section Meeting
16 September 2023	Variations on an Exoplanet theme – Online Meeting
22 September 2023	BAA Autumn Meeting 2023 – Practical Amateur Astronomy
25 October 2023	BAA AGM 2023
9 December 2023	BAA Christmas Meeting 2023

The BAA Radio Astronomy Section

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

The OASI Picnic

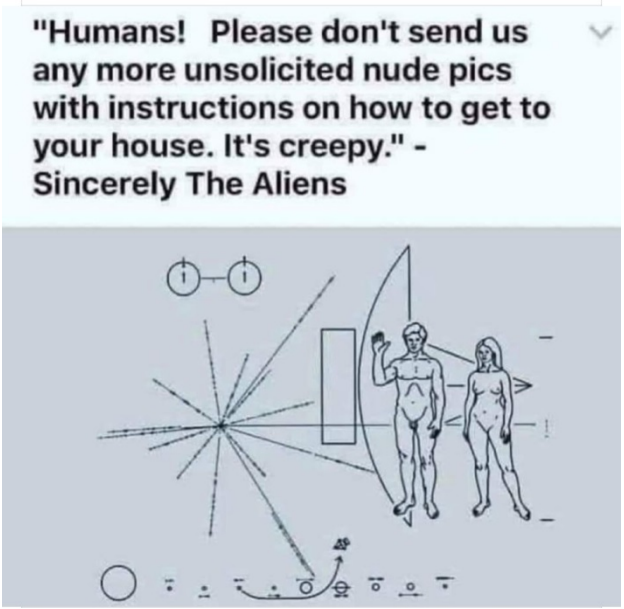
Despite threatening skies and weather forecasts, the expected rain held off until the late evening. In fact the weather was perfect – a cool breeze whilst we were eating and putting the world to rights, followed by plenty of sunshine to allow the solar telescopes to get some exercise.

It was nice to see so many members and partners, especially Jen Richmond-Hardy.

During the afternoon two solar science experiments were performed, repeating those carried out at the 2014 picnic (see below).

The afternoon turned into a glorious evening, and members were loath to move indoors for the evening entertainment. However those intrepid members who remained enjoyed a quiz, including some tricky astronomical questions.

A very successful event. Thanks to Pete & Nicky for the organisation.



The Night Sky in August 2023

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

Sun, Moon and planets

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

August 2023

Object	Date	Rise	Set	Mag.	Notes
Sun	1	05:16	20:45		
	31	06:04	19:45		
Moon	1	21:19	03:58		Full Moon 01 August 19:32 / 31 August 02:36 Perigee 02 August 06:53 / 30 August 02:36 Last Quarter 08 August 11:29 New Moon 16 August 10:36 Apogee 16 August 12:55 First Quarter 24 August 10:57
	31	20:18	06:08		
Mercury	1	07:50	21:30	0.2	
	31	07:28	19:29	3	
Venus	1	07:26	20:39	-4.1	
	31	04:17	17:58	-4.3	
Mars	1	08:37	21:52	1.8	
	31	08:28	20:24	1.8	
Jupiter	1	23:41	14:19	-2.2	
	31	21:47	12:31	-2.5	
Saturn	1	21:44	07:49	0.6	
	31	19:42	05:38	0.4	
Uranus	1	23:55	15:14	5.8	
	31	21:58	13:18	5.7	
Neptune	1	22:17	09:55	7.8	
	31	20:18	07:54	7.8	

Occultations during August 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 August 2023

Shower	Normal limits	Maximum	ZHR at Max	Notes
Alpha Capricornids	3 July -15 Aug	30 July	5	Yellow slow fireballs
Delta Aquariids	2 July - 23 Aug	30 July	25	Steady stream of meteors over several days but a low rate per hour
Perseids	17 Jul - 24 Aug	12 - 13 Aug	100	Many bright fast meteors with trains. Associated with Comet Swift-Tuttle. A new Moon will aid viewing this year.

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

For radio observation, use reflections from Graves Radar on 143.049MHz or the Brams transmitter in Belgium on 49.97MHz and UK GB3MBA on 50.408MHz https://www.ukmeteorbeacon.org/Home

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

Comets

Source : https://heavens-above.com/Comets.aspx on 21 July.

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Constellation
C/2023 E1 ATLAS	8.5	2023-Jul-21	83°	Draco
C/2021 T4 Lemmon	9	2023-Jul-20	144°	Telescopium
C/2020 V2 ZTF	10.8	2023-Jul-17	70°	Cetus

Visible ISS passes >30° max altitude for August 2023

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

Times are **BST**.
Predictions are approximate (21/7) 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.
08-Aug	-2.5	19:40:53	10°	NW	19:43:47	38°	WSW	19:43:47	38°	WSW
09-Aug	-3.9	18:51:59	10°	NNW	18:55:19	77°	NE	18:57:47	17°	SE
13-Aug	-3.8	05:37:51	10°	SW	05:41:10	78°	NW	05:44:28	10°	NNE
14-Aug	-2.5	04:50:35	21°	S	04:52:21	38°	SE	04:55:27	10°	NE
16-Aug	-3	04:51:20	34°	NW	04:51:20	34°	NW	04:54:10	10°	NNE

Starlink passes

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

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

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

Forthcoming Outreach Programmes

All members are welcome to come along and help out at these events – you don't need to be an expert in the subject. Just respond to the email call for help prior to the event.

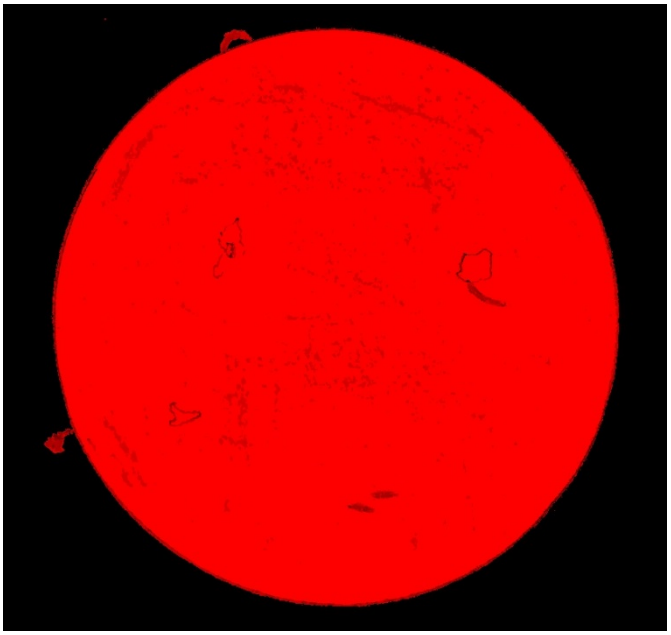
Please note that not all events are open to the public.

Sunday 27th August

Solar event at Bawdsey Radar Museum. *Public Event.*
9.30 for 11am start. Follow AA signs from A12.

Friday 22nd September

Star Party at Thomas Mills School, Framlingham
A night time observing event, with lecture option if wet. More details to follow nearer to the date.
Private Event



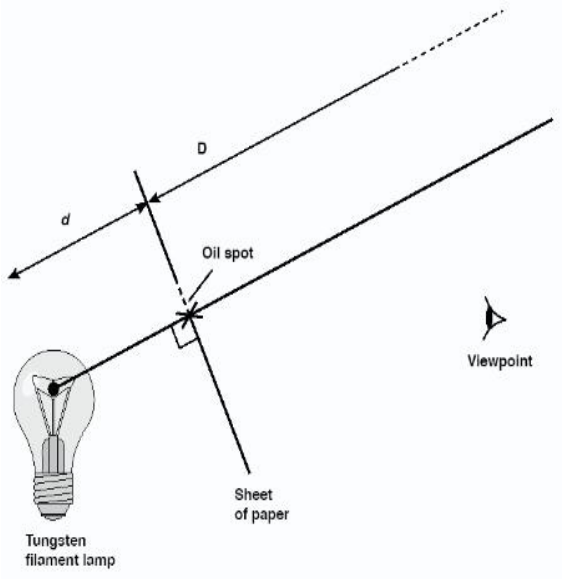
This sketch was drawn 26 June 23 from my garden at 08:55-9:00 UT using the Society's Coronado PST Hydrogen Alpha telescope. The telescope was attached to a manually driven alt-az mount. A Meade 26mm Super Plossl eyepiece provided a magnification of 15.4x. The sketch was created using a pencil and coloured crayons, then scanned and post processed using GIMP 2.6. The resulting image diplays prominences, filaments and active regions.

Neil Morley

Recreating the Science Session at the OASI Picnic 2014

In 2014 I thought that the traditional scientific bent of the annual OASI BBQ was usually a whole host of solar telescopes of differing types and capabilities. Hydrogen alpha, white light filters and projection techniques of all sorts. However as in 2014, we have already attended quite a number of outreach solar astronomy events this summer, so I thought we should again recreate two great experiments of yesteryear.

Firstly an attempt to measure the luminosity of the Sun by comparing it to that of a known wattage light bulb. Our own Victorian astronomer, John Isaac Plummer used the same technique in 1876 to attempt to measure the luminosity of Venus compared to that of a candle.



The experimental layout

Make a small (5mm diameter) grease spot on a sheet of white paper. Illuminate one side of the spot by the light bulb, in our case 60W. Illuminate the other side by the Sun. Move the spot until it "disappears", that is, the apparent illumination from both sides is equal. Measure the distance from the spot to the filament of the lamp.

Nicky and I made this measurement – 7.5cm.

The maths makes the assumption that total luminosity from an object per unit area of a sphere, radius r, surrounding the object is given by

$$L_r = {}^{L_0}/_{4\pi r^2}$$

where L_0 is the total object luminosity. So, at the point where the grease spot disappears

$${}^{L_{sun}}/_{4\pi D^2} = {}^{L_{bulb}}/_{4\pi d^2}$$

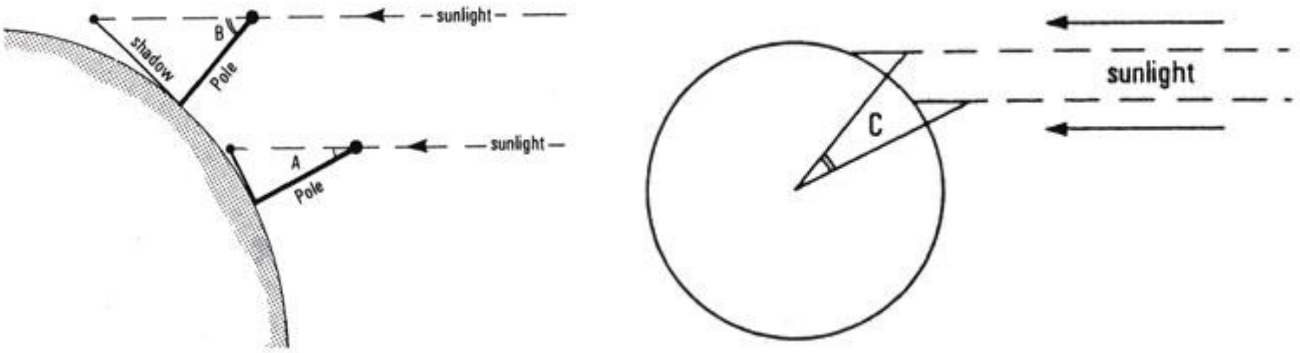
where D is the distance to the Sun and d is the measured distance between the spot and the bulb filament. Rearranging and substituting values

$$L_{sun} = L_{bulb}\, {}^{D^2}/_{d^2}$$

$$L_{sun} = 60\ {}^{(1.5\times 10^{11})^2}/_{0.075^2}$$

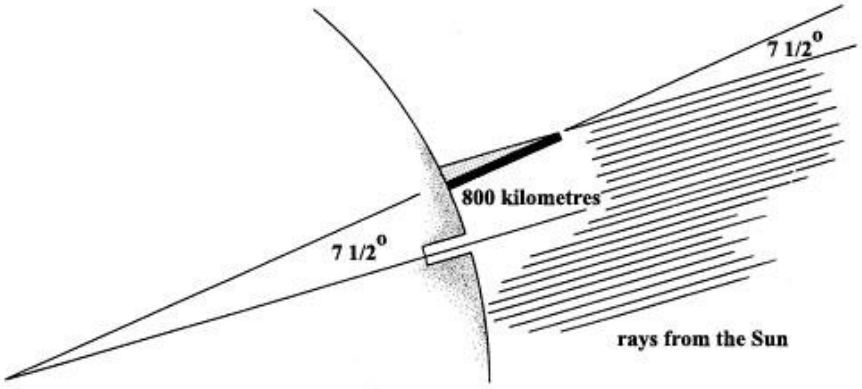
This gives a very good estimation of 2.40 x 10^{26} W, compared to the accepted value of 3.90 x 10^{26} W.

The second experiment involved demonstrating a measurement first performed in 235 BC by Eratosthenes. This practical concerned the measurement of the radius of the Earth by comparing shadow lengths at spatially separated observing sites. Unfortunately we only had one observation site and so rather than a formal practical demonstration this was a theoretical demonstration of Eratosthenes' technique by using one actual measurement and one simulation based on readings at Edinburgh Observatory.



Shadows at two sites on a N-S line

The theory involves measuring the shadow length, at the same moment at two observing sites of known N-S separation. Eratosthenes used the shortest shadow to synchronise the time between the two stations, accurately measuring the control station by placing the pole down a well.



Eratosthenes original experiment

The theory goes like this:

- tan A = shadow length I / pole length I
- tan B = shadow length II / pole length II
- C = B – A
- $R_E \approx D / \sin C$

where D is the N-S separation.

Our simulation provided a value of the Earth's radius of 8845 km, compared to the actual average figure of 6371 km.

Both these sets of results were unfortunately not as good as those obtained in 2014. When the experiments were conducted the Sun was rather weak, making precise measurements difficult. Never mind we can do it again in 2032!

ULTRAVIOLET EXPLORER (UVEX)

Article from the Library – Andy Willshere

On Thursday August 18 2022, NASA selected four mission proposals, to be submitted to their Explorers program in order for further examination. These proposals were selected in order that two would be Astrophysics Medium Explorer missions and the other two Explorer Missions of Opportunity. It is planned that in the year 2024 one of each section will be selected. This means that each of the two groups will be able to execute their plans.

The four choices are:

i. Ultraviolet Explorer (UVEX).
ii. Survey and Time-domain Astrophysical Research Explorer (STAR-X).
iii. Moon Burst Energetics All-sky Monitor (MoonBEAM).
iv. LargE Area burst Polarimeter (LEAP).

During the next months, the Library will be compiling four short articles describing the intricacies of each proposal.

The first of these is the 'Ultraviolet Explorer (UVEX).

The Ultraviolet Explorer (UVEX) will be designed to provide a deep study of the whole sky using two bands of ultraviolet light. The data obtained would provide scientists with greater information about galaxy evolution and the life of stars.

It will be designated as a medium class Explorer mission by NASA enabling data to be obtained by providing a basic all-sky examination in near and ultraviolet; more complex than previous surveys. It will initially be operated for a two-year mission, during which it will observe both Large and Small Magellanic Clouds, be available for fast acting responses to capture ultraviolet responses due to merging Neutron stars as well as spectroscopic analysis of very large stars and stellar explosions. UVEX will receive $3 million to organise a mission concept investigation over a nine-month period.

This specific program is to be considered in three sections:

i). Exploration of low mass, low-metallicity galaxies, by using imaging and spectroscopic investigations. With this data, scientists will be able to understand how star formation and stellar development at low metallicities affect the formation of low-mass galaxies found within the local group. Metallicity is the profusion of elements existing in an object that are heavier than hydrogen and helium.

ii). Exploration of the energetic universe using pre-recorded time centred surveys and spectrographic analysis to assess for example, primary stages of stellar explosions.

iii). All-sky data sets will be utilised by countless scientific communities to perform wide-ranging analysis and studies.

The use of near and far ultra-violet bands for wide-field imaging and spectroscopy is necessary for providing a broad base of astronomical studies with their data requirement. Low mass galaxy populations in the local universe necessitate wide –field imaging and repeat spectroscopy to provide for comprehension and interpretation. It therefore follows that discovering low- mass, low-metallicity (LMLZ) galaxy populations will provide a giant leap in

Image credit : Webb Captures Stellar Gymnastics in The Cartwheel Galaxy | NASA

our understanding of star formation and evolution in this type of habitat. Early UV spectroscopy is ideal to measure basic configurations of areas close to massive eruptions, especially during the foundational hot phases. This would be beneficial in acquiring data during core collapse explosions, within a few hours to several days after a stars death.

Synchronous Far (FUV) and Near (NUV) imaging bands as well as moderate resolution long-slit spectroscopy are within UVEX,s design parameters. This will incorporate a wide FUV to NUV bypass.

i) FUV imaging bandpass 1390-1900 Angstrom.
ii) NUV imaging bypass 2030-2700 Angstrom.
(Data from 'table 1 Science with the Ultraviolet Explorer (UVEX)')

So, what are low-mass, low metallicity galaxy populations. The metallicity of stars in galaxies depends upon which population group is investigated. One consideration is to calculate the sub-division of baryonic matter, converted into heavier elements during stellar nucleosynthesis, meaning that metals are formed in the cores of stars as they develop. It could be said that galaxies that contain sub-solar abundances can be considered low metallicity. These are acknowledged as Population II stars.

Studying and analysing these types of galaxies will increase our understanding of where they come from, how they evolve and what happens when they die. At present we have only a basic knowledge of LMLZ galaxies. UVEX will recognise millions of LMLZ galaxies within 100 Mpc, as well as trying to identify what processes power early UV emission from neutron star –neutron star mergers.

If finally selected, UVEX will be launched in 2028 filling a crucial gap with wide-field UV imaging, revolutionising our comprehension of the universe.

References:

2111.15608.pdf (arxiv.org)
https://en.wikipedia.org/wiki/Metallicity
Science with the Ultraviolet Explorer (UVEX) - NASA/ADS (harvard.edu)