Journal

of the

Nottingham Astronomical Society

March 2024

In this issue

Thursday, March 7th

Nottingham Emmanuel School
Gresham Park Road,
West Bridgford,
Nottingham, NG2 7YF

7:45pm (doors open at 7:15pm)

This evening we welcome

Prof Nial Tanvir

who will be speaking on

‘Exploring the distant universe with cosmic explosions: What re-ionised the universe?’

The Nottingham Astronomical Society: E - SERVICES

Whether or not you are a NAS member, you can keep up to date with details of the Society’s meetings and other events by visiting the NAS website: www.nottinghamastro.org.uk

NAS on Facebook
You are welcome to connect with other members and friends of the NAS on Facebook by going to: http://www.facebook.com/nas.org.uk

NAS on Twitter
The Society has a Twitter account at https://twitter.com/NottinghamAstro

NAS Journal e-mailing list
To register for your monthly e-mailed link to the NAS Journal, and a copy of our SkyNotes, just e-mail secretary@nottinghamastro.org.uk

You don’t have to be a Society member to take advantage of this service.
If you happen to change your email address, please remember to inform the Society by emailing us at treasurer@nottinghamastro.org.uk

Chairman's Message, March 2024

Hello everyone,

Welcome to a wet and windy February - it is nearly over though, despite the leap year! We had some good meetings in February, including what advanced civilisation might use as power and how to detect them astronomically. Somewhat related was the Plumtree meeting where we explored Sci-Fi movies and how accurate they are to known science and astronomy. Next month we welcome back Professor Nial Tanvir who will be telling us about how the universe got re-ionised. Meanwhile in other news, the observatory road seems to be holding up well, although the rest of the ground is very boggy at the moment. We have purchased a ZWO Seestar S50 for use and outerach. It is a remarkable unit which Mark is putting through it's paces. It can do lunar, solar and deep sky imaging with almost no manual setup. We look forward to finding more about this and what we can do with it, but initial results look great. We also had a fireball meteor visible if you were cloud free - unfortunately it appeared too early for our meteor cameras to pick up. It was significant enough that the Nottingham Post got in touch with the university for comment and finally appear on my desk. After consultation with other members I wrote a quick response which you can see here, along with other images and comment.

https://www.nottinghampost.com/news/nottingham-news/experts-verdict-fireball-captured-over-9112186

See you next time!

Julian
NAS Chair

Nottingham Astronomical Society 2024 Membership

Membership subscriptions for 2024 became due for renewal in January. All current members will receive their renewal forms by email detailing your membership rate before the next meeting. In recognition of the rise in cost of living, the membership subscriptions have been frozen at the current rates.

Individual £30 Concessions £5 Family £45*

*A new family rate has been introduced and replaces the old partnership membership. This new category covers a maximum of two Adults, and Children/Students living at the same address.

Details of how to renew your membership will be provided in the renewal notice, but we encourage members to renew their membership using BACS electronic bank transfer.

I hope you have enjoyed the meetings and events we have organised over the past year, and that you are able to renew your membership of the society in 2024.

Richard Severn
Vice Chair and Membership Secretary

Sky Notes
March 2024

Compiled by Roy Gretton

All times given below are in Universal Time unless otherwise stated

The Northerly Equinox (Spring Equinox in the Northern Hemisphere) occurs at 3:06 a.m. on March 20th.

British Summertime Begins at 2 a.m. on March 31st, which is the latest date when we advance the clocks, and this year happens to coincide with Easter Sunday.

PHASES OF THE MOON

Phase	Date
Last Quarter	March 3rd
New Moon	March 10th
First Quarter	March 17th
Full Moon	March 25th

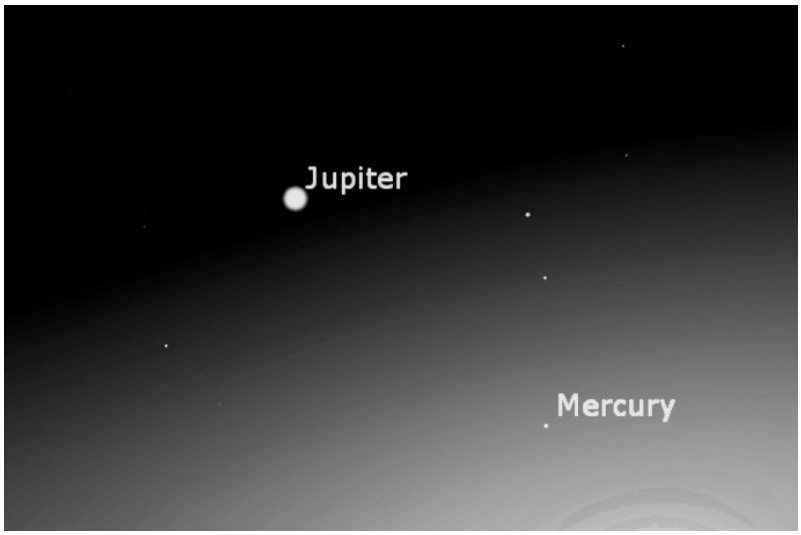
This month the Moon is closest to Earth on the 10th and furthest on the 23rd.

A much-loved area of sky for naked-eye observers
Marked with a high concentration of bright stars

Looking south at 7pm on March 1st

THE PLANETS

Mercury puts in a worthwhile evening appearance in the second half of this month, greatest eastern elongation (18.7 degrees) occurring on March 24th.



Looking west at 8 pm on March 30th

Venus is fast disappearing from the morning sky, and will be rising only a few minutes before the Sun as this month ends.

For the whole period from the beginning of January to the end of April, **Mars** will have been rising less than an hour before the Sun, and hence effectively be unobservable. Even at the beginning of June it will be rising only an hour-and-a-half before sunrise, and only after the end of June will its angular diameter exceed 5 arcseconds. We shall have to wait until the end of 2024 for Mars' angular diameter to reach 14 arcseconds, ahead of the next opposition which will occur on 16th January 2025.

Jupiter, still in the constellation of Aries, sets at about 11pm (**UT**) at the start of March, and at about 11pm (**BST**) at the end of the month, so will probably remain the planet of choice for evening observers. Its equatorial diameter will have diminished to 34 arcseconds as March ends, after reaching nearly 50 arcseconds at last November's opposition.

Saturn is unobservable this month, having been at solar conjunction on February 28th.

Uranus, in the constellation of Aries, sets at midnight (**UT**) at the beginning of March, and shortly after 11pm (**BST**) at the close of the month.

Neptune should be regarded as unobservable.

METEORS

There are no notable meteor showers in March.

DIARY DATES 2024

Monthly Meetings of the Nottingham Astronomical Society

1. Meetings at
Nottingham Emmanuel School
Gresham Park Road,
West Bridgford,
Nottingham, NG2 7YF

Held on the **FIRST Thursday** of each month **(unless otherwise stated)**
except **August**

Doors open at 7:15pm for 7:45pm start.

*These events are normally centred around a talk by a visiting speaker, except Quiz Nights, etc, when NAS members provide the activities. Normally we have a **Helpdesk** open at each meeting.*

Date	Topic	Speaker
March 7th	**Exploring the distant universe with cosmic explosions: what re-ionised the universe?**	**Prof Nial Tanvir University of Leicester**
April 4th	**The Search for Dark Matter**	**Prof Anne Green**
May 2nd	**SMILE! Revolutionising our views of the Sun-Earth connection**	**Dr Jennifer Carter**

2. Social and Practical Astronomy Meetings
at the Burnside Memorial Hall, Plumtree

Church Hill, Plumtree, Nottingham, NG12 5ND
Held on the **THIRD Thursday** of each month from **7:30pm**

These meetings are of a more informal nature, providing opportunity for members and guests to share their hobby over a cup of tea or coffee, as well as listening to a short talk or discussion

The next meeting will be on **March 21st**

Social and Practical Astronomy, Plumtree, February 2024

The **February** Plumtree Meeting was organised by our chair, Julian, and consisted of a number of talks by members on the science of science fiction. Whether it was warp drives, worm holes, or the how feasible it would be to get close to a black hole, we heard about some of the weird and wonderful, and mostly unimaginably unbelievable technology portrayed in science fiction. Thank you to all who prepared and delivered talks.

Mark Fairfax also spoke for a few minutes on a new bit of kit we have purchased for the Society to use for outreach. It is a ZWO SeeStar S50 All-in-One Smart APO Telescope. I am sure we'll arrange a Plumtree Meeting on this and all learn more about it. Mark got a very good deal from First Light Optics. Thank you to them. You can read more about this stand alone imaging telescope on the FLO website here:

https://www.firstlightoptics.com/zwo-telescopes/zwo-seestar-s50-all-in-one-smart-apo-telescope-tripod.html#

Speakers at the February 2024 Plumtree Meeting: David Dunford (top left), Holly McNiven (top right), Aniket Mahapure (lower left) and Julian Onions (lower right).

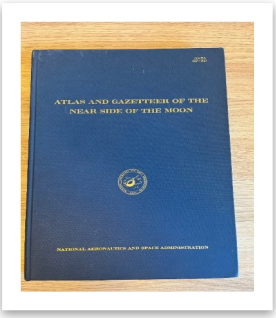
Mark Fairfax (left) talking about the new ZWO SeeStar S50 telescope (right).

The topic for the **March** meeting is a talk by NAS member (and BAA Treasurer) Graham Winstanley. Graham will be talking about his journey in astrophotography.

James Dawson
helpdesk@nottinghamastro.org.uk

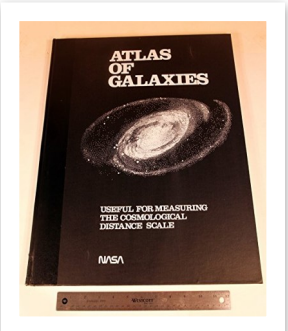
Large books looking for a good home

I have two very large books which are looking for a good home. Each are worth over £100, likely much more. So if you are interested let me know how much you would be willing to pay for each, and the whoever offers the highest amount in March can have them. I will bring them to a meeting, but they are too heavy to post. Even if the highest amount is only £1 per book, that person can have them. Please enter your bid for each book in this online form and I will work out who is the highest bidder for each book on 24th March 2024. Here is the form: https://forms.office.com/e/pZkhBQidPx



Atlas and Gazetteer of the Near Side of The Moon. NASA SP-241. A scanned copy of the book can be found here: https://archive.org/details/NASA_NTRS_Archive_19720011170

Atlas of Galaxies - Useful for Measuring the Cosmological Distance Scale. A scanned copy of this book can be found here: https://archive.org/details/NASA_NTRS_Archive_19890003142



James Dawson
helpdesk@nottinghamastro.org.uk

The Patience of a British Astro-Photographer…

My earliest attempts at imaging Messier 1, the Crab Nebula, were made with a Canon 450D camera at the prime focus of a 12-inch Newtonian reflector having a focal length of 1590 mm. Having recently replaced this telescope (but not the camera) with an 11-inch Schmidt-Cassegrain instrument, focal length 2800 mm, I was keen to tackle the Crab again, as the greater focal length would provide a better image scale. (M1 is about 7 arcminutes across, while the 450D chip gives a 27' x 18' field of view at a focal length of 2.8m).
I decided to use the 450D's fastest speed, which is ISO1600.
For much of November 2023 the skies were **cloudy**, so I began my project in earnest in December. I reckoned I would need to collect at least 5 hours of data to produce a decent image, and this theoretically could be achieved in a single night, given clear sky.
But the weather had different ideas, as my imaging records show!

Dec 11th: 20 minutes of data collected before the **clouds** rolled in.
Dec 13th: Imaging began at 23:07 but only 9 minutes were possible before **cloud** came.
Dec 19th: Started at 22:39 but suspended almost immediately due to **cloud**! Recommenced at 23:14 but finally abandoned at 23:59 after a few minutes of images were collected.
Jan 3rd: Started at 21:19 with passing **cloud**, paused at 21:23 due to **total cloud**. Some cloud-breaks from 21:34, then abandoned at 22:02 due to more **cloud**.
Jan 6th: Imaging commenced at 19:52, terminated 20:14 due to **clouds**.
Jan 7th: Imaging from 19:25 through patchy **cloud**, abandoned after 27 min.
Jan 14-15th: Some imaging possible in **clear patches** from 18:55 to 21:30, but then sky clear from 21:58 until midnight.
Jan 15th: Clear sky from 18:17 to 19:02, then imaging abandoned due to **cloud**.
Jan 16th: Some images grabbed in **occasional clear patches** between 20:00 and 23:30.

So I had spent nearly five weeks of concentrated effort and had only 6 hours of data to show for it! These hard-won images were combined using Deep Sky Stacker, and the resulting image tweaked in Gimp:

… But much more can be achieved on a *single* clear night

And we did have a few of them this winter, the night of February 12th – 13th being a fine example. That night I was able to capture images almost continuously from 7 p.m. until after 1 a.m. (and could have continued longer but decided I needed some sleep).

One of my targets that night was the galaxy M82 in Ursa Major, a starburst galaxy estimated to be about 12 million light-years distant, and which is a much brighter object than the Crab Nebula. I imaged it at the f/10 prime focus of my 11-inch SCT, collecting about 340 x thirty-second images, which I quickly scanned to delete any with obvious defects before using Deep Sky Stacker to stack the best 95 percent of the remainder. The resulting image is a combination of 299 frames (just shy of 2.5 hours of exposure), which I finally tweaked using Gimp to obtain the following result:

M82: 2 hours 29.5 minutes imaging using a Canon 450D camera operating at ISO1600 at the f/10 focus of an 11-inch SCT

Roy Gretton

Lunar Standstill

I had read about the phenomenon of lunar standstills in the past, but had forgotten all about them until there was something on social media the other day which reminded me that I knew the term, but couldn't really remember what it was all about.
I had planned to write something for the Journal, but then Richard showed me this 13 minute video on YouTube which describes the lunar standstills much better than I ever could:
https://www.youtube.com/watch?v=RV3p-Hg6a54

There are lots of other resources about lunar standstills online and it seems these events were likely acknowledged by early civilisations.

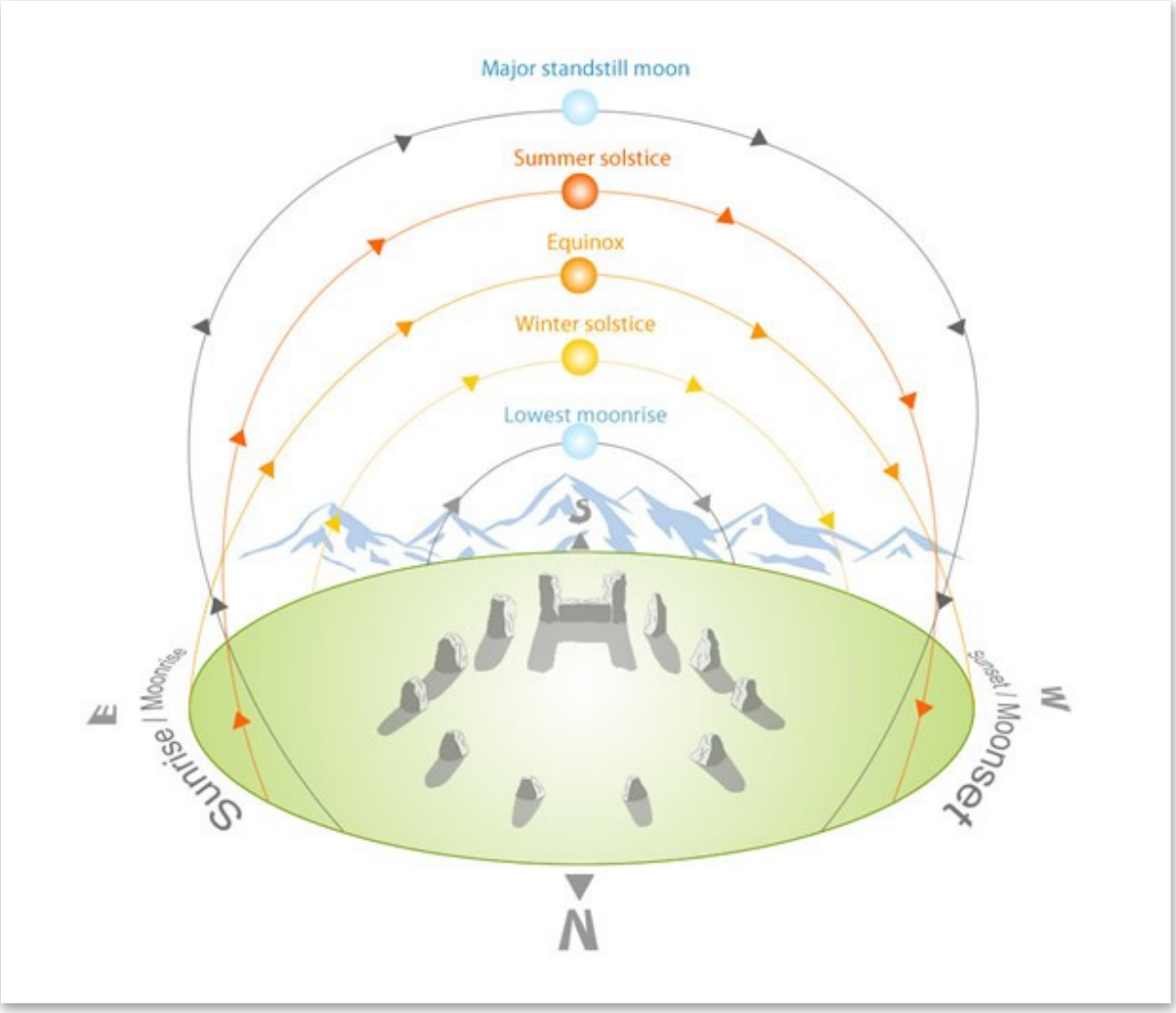


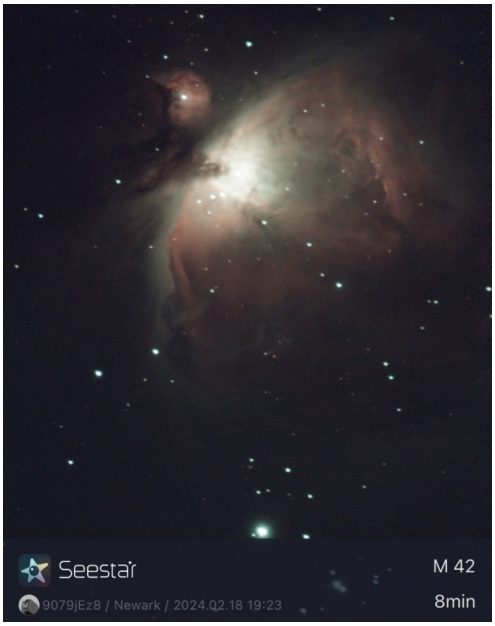
Image from: https://astro-geo-gis.com/10-the-most-spectacular-celestial-events-to-watch-in-2021-2040/

James Dawson
helpdesk@nottinghamastro.org.uk

First light with the NAS new Seestar

The weather wasn't great for viewing day or night but I took advantage of temporary breaks in the clouds and the "forever" rains to test out the societies newest addition - the ZWO Seestar S50 all-in-one smart APO telescope.
First quick attempts - found it incredibly compact, very quick to set up and easy to use.
(Images straight from the Seestar with no post-processing)
When the weather relents we should get use of it up at the observatory, other members can see what it can do and with its portability plus features will be good for outreach too.

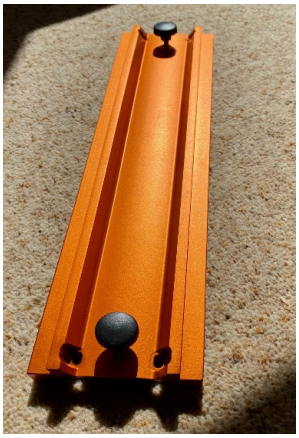
Mark Fairfax



Advertisements

FOR SALE

Celestron dovetail bar to fit C11 telescope.
New, unused **£15**



Celestron 9 x 50mm finderscope and mounting bracket. New, unused **£45**

20 Assorted Lenses for Eyepiece-making, etc

7 achromatic doublets, 13 biconvex or plano-convex
Diameters 6mm to 25mm
30p each or **£5** the lot

Achromatic object glass
50mm diameter
focal length approx 40 cm

£5

Contact **Roy Gretton**, 07483868162
journal@nottinghamastro.org.uk

Nottingham Astronomical Society

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Holly Gonzalez McNiven
Mark Fairfax

Meetings
Our formal meetings, often with an illustrated talk by a guest speaker, **normally** are held on the first Thursday of each month (except in August) at:

Nottingham Emmanuel School
Gresham Park Road,
West Bridgford,
Nottingham, NG2 7YF

Doors open	7:15pm
Meetings start	**7:45pm**
Meetings end	9:15 pm

These meetings are open to the public, and visitors are welcome to attend, subject to a charge of £3 per meeting for adults.

Annual subscriptions 2024

Individual	£30
Family (maximum of two adults, and children/students living at the same address)	£45
Under-18s and full-time students	£5

Subscriptions become due on 1st January. Half-price subscription is charged if joining after 30th June (minimum subscription £5).

Please make cheques payable to:
Nottingham Astronomical Society.

If you would like more information about the **Nottingham Astronomical Society**, or would like to become a member, please contact the Secretary secretary@nottinghamastro.org.uk or speak to any NAS committee member at one of the regular monthly meetings.