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# Journal

of the

## Nottingham Astronomical Society

### January 2024

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#### In this issue

- A Message from the Chairman
- Membership subscriptions
- E-Services
- Sky Notes for January
- Diary Dates for 2024
- Social and Practical Astronomy, meeting report
- BAA Awards
- Nacreous Clouds
- Nebulae in Cassiopeia
- Geminid Meteors
- Webcam Images of Jupiter
- Advertisements
- Society Information

**Thursday, January 11<sup>th</sup>**

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

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

**This evening we welcome**

**Phil Sutton**

**of the University of Lincoln**

**who will be speaking on**

**Interstellar Interlopers**

### **Chairman's Message, January 2024**

Welcome to 2024 to all NAS members new and old!

We hope it is going to be another great year for us. We have some great speakers lined up and some new things to do. Thanks to everyone who attended the AGM and party, and voted us all back in for another year. At the AGM James announced that we now have a new roadway to the observatory, constructed by Severn Trent. It's not a full tarmac construction but is more substantial than previous attempts so we hope this is going to open up more viewing opportunities.

Our first meeting had to be delayed so is NOT the first Thursday, but the 2nd one, the **11th of January**, and is on the subject of Interstellar interlopers by Prof Phil Sutton. We hope to see you all there.

Best wishes for the New Year.

**Julian**

NAS Chair

## Nottingham Astronomical Society 2024 Membership

Membership subscriptions for 2024 are 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

### 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](http://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](mailto: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](mailto:treasurer@nottinghamastro.org.uk)*

# Sky Notes

## January 2024

Compiled by Roy Gretton



*All times given below are in Universal Time*

**Earth's perihelion** will occur shortly after midnight on January 3<sup>rd</sup>, when our distance from the Sun will be 98.33 percent of its mean value.

### PHASES OF THE MOON

Phase	Date
Last Quarter	January 4 <sup>th</sup>
New Moon	January 11 <sup>th</sup>
First Quarter	January 18 <sup>th</sup>
Full Moon	January 25 <sup>th</sup>

This month the Moon is closest to Earth on the 13<sup>th</sup>, and furthest on the 29<sup>th</sup>.

### THE PLANETS

Early this month **Mercury** puts in one of its best morning apparitions of the year, with greatest western elongation (23.5 degrees) occurring on the 12<sup>th</sup>. During the first and second weeks of January, Mercury will be rising at about 6:30 am, over 90 minutes before the Sun.

**Venus** continues to be visible in the morning sky, rising shortly after 5 am and shining at magnitude -4.0 on New Year's Day. Its elongation from the Sun will diminish from 37 degrees to 31 degrees as the month progresses, but the current apparition won't end until April.

For the whole period from New Year's Day until the third week in April, **Mars** will be rising less than an hour before the Sun. It will be a fifth of a degree south of Mercury on the January 27<sup>th</sup>. Mercury (magnitude -0.2) will be much the brighter of the two, Mars being a relatively faint magnitude +1.3. Interestingly, Mars will reach neither solar opposition nor conjunction during 2024.

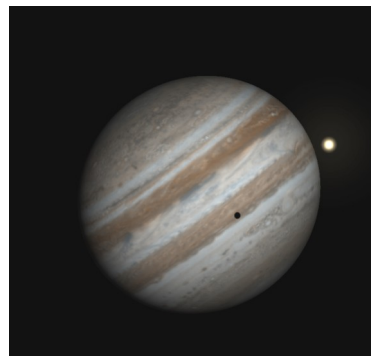
**Jupiter** continues to dominate the evening sky on moonless nights, and won't be setting until approximately 2 am in January, so there should be plenty of opportunities to observe this gas giant and its brightest satellites with a telescope – even a small one – or binoculars.

#### *Phenomena of Jupiter's satellites*

The **reappearance of Jovian satellites from eclipse** is the easiest type of phenomenon to observe with a small telescope (say, 50mm aperture). As we are now viewing Jupiter after opposition, satellites will reappear from eclipse on the east side of the planet (viewed from Earth). Next in ease of observation (with instruments of 100mm aperture and above) are **shadow transits**. In this case, look for a dark spot crossing Jupiter's disk. Lists of eclipse reappearances and shadow transits visible in the evenings this month are given below. *In the case of reappearances, start looking **several minutes ahead** of the stated time, because this refers to the moment when Jupiter's shadow bisects the satellite.*

<b>January</b>	<b>Reappearance from eclipse of</b>
1	Io 18:46
1	Europa 19:01
8	Io 20:42
8	Europa 21:40
10	Ganymede 17:47
15	Io 22:37
17	Io 17:06
17	Ganymede 21:49
24	Io 19:01
31	Io 20:57

<b>January</b>	<b>Shadow transit of</b>
7	Io 21:18 to 23:27
9	Io ends 17:56
14	Io begins 23:14
16	Io 17:43 to 19:52
17	Europa 16:30 to 18:49
23	Io 19:39 to 21:48
24	Europa 19:06 to 21:25
30	Io 21:35 to 23:44
31	Europa begins 21:42



**Jupiter** with **Io** and its shadow  
at 22:20 on January 7<sup>th</sup>

The current apparition of **Saturn** will be drawing to a close in the next few weeks, with the planet disappearing into the sunset glow at the end of this month.

**Uranus**, a few degrees northeast of Jupiter in the constellation of Aries, will be setting at about 1 am at the end of January.

**Neptune** is becoming difficult to observe, as it will be setting before 9 pm before the end of this month.

## **METEORS**

Our view of the **Quadrantids**, the only significant meteor shower in the first quarter of the year, will be affected by moonlight in 2024. Maximum activity occurs around dawn on January 4<sup>th</sup>, when a Third Quarter Moon will be prominent in the constellation of Virgo.

## 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
January 11 <sup>th</sup>	Interstellar Interlopers	Phil Sutton University of Lincoln
February 1 <sup>st</sup>	(TBA)	(TBA)
March 7 <sup>th</sup>	Exploring the distant universe with cosmic explosions: what reionized the universe?	Nial Tanvir University of Leicester

### 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 **January 18<sup>th</sup>**

## Social and Practical Astronomy, Plumtree, December 2023

The December Plumtree was the venue for the society's Annual General Meeting for 2023.

Chris made cakes and brought along other festive treats, including mulled wine (alcoholic and non-alcoholic) and mince pies. Others also brought along items to share including a gluten-free lemon drizzle cake, ginger cake and sausage rolls. Thanks to Chris and everyone else who brought things along, it made the AGM much more palatable.

The first Plumtree of 2024 will be a talk by member, Neil Mudford, on "An Introduction to Astronomy" which will commence at 8pm on Thursday 18<sup>th</sup> January 2024. See you then.

### Observatory Track

I've been talking about how difficult access to the Observatory is during the winter months for some time, and always hint there may be news around the corner. Well at last there is news!

Between Severn Trent and a contractor they've used to undertake works on the reservoir, we've been given a track, which runs from the end of the tarmac all the way to the start of our hedge.

The contractor has dug out about 200mm of soil in two tracks, and filled this with stone and compacted it down. There is a bit of movement when cars drive over this, and so it will require some intermittent care and maintenance, but is one enormous leap forwards in our plans to improve access to the Observatory. We have thanked [Ram Services](#) from Burnley for doing the work for free. We are so grateful.



In the summer when the rest of the ground is dry, we need to lay some more stone in the parking area as we have found that now we can get cars closer to the Observatory in the winter, that area of ground is also quite wet and slippery and is quickly becoming muddy. So we haven't solved all issues yet, but we are more than 75% of the way there I suspect. It's a shame we never got chance to show John Hurst who would have been very impressed.

**James Dawson**

Observatory Director

[observatory@nottinghamastro.org.uk](mailto:observatory@nottinghamastro.org.uk)



## British Astronomical Association Awards

I was honoured to be awarded the BAA's Sir Patrick Moore Prize at the recent BAA Christmas Meeting held at the Institute of Physics in London on 9<sup>th</sup> December 2023.

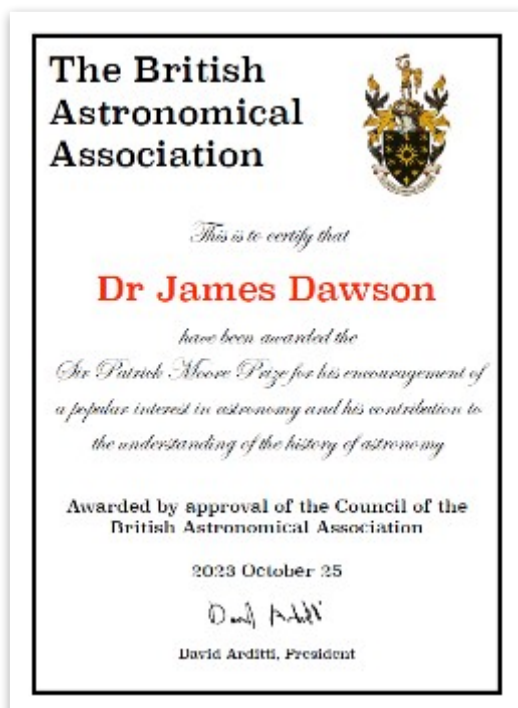
This is one of several prizes the BAA awards on an ad hoc basis. The photo (right) shows me with David Arditti, the President of the BAA.

The prizes from the BAA are awarded for different reasons and they are all listed [here](#). The Sir Patrick Moore Prize is a relatively new award, first given in 2013 (the year after Patrick passed away) and is given for recognition of work done at promoting amateur astronomy, or in the history of astronomy, or in carrying out collaborative research between amateur and professional astronomers.

Mine was for "his encouragement of a popular interest in astronomy and his contribution to the understanding of the history of astronomy".

It was a big surprise, and a great honour. It was also fitting that the day I was given the award was 11 years to the day that Patrick passed away. He was a great inspiration to me.

My mum and dad (below) were very proud, and it is thanks to them for getting me a Printz telescope in the early 1980s which triggered my interest in astronomy.



**James Dawson**

## Nacreous Clouds

There are a number of phenomena which occur in Earth's atmosphere and which amateur astronomers observe, and I suspect meteors (shooting stars), aurora, noctilucent clouds are amongst the commoner ones we look out for and see, but there is a whole array of other atmospheric phenomena. Halos around the Sun and the Moon, Sun dogs, circumzenithal arcs are often observed and images of these appear with relative frequency on social media and in astronomy magazines. But one of the much rarer phenomena are so called nacreous clouds. It is believed the name arrives from the old English word "nacre" which means mother of pearl, and that describes the clouds perfectly. Nacreous clouds are a type of [Polar Stratospheric Cloud](#) (PSC).

The stratosphere sits above the troposphere and below the mesosphere, and its lower boarder at our latitude is about 10km above ground level (about 20km at the equator, and about 7km at the poles). The stratosphere is very dry unlike the troposphere, so cloud formation here is not common. However when the temperatures in the stratosphere get really low, super cooling can cause condensation and ice formation. When this occurs these clouds can be illuminated from underneath by the setting Sun, in a similar fashion to noctilucent clouds; noctilucent clouds occur in the mesosphere, above the stratosphere at about 85km above ground level. Typically the Sun needs to be 1 to 6 degrees below the horizon for the mother of pearl to appear, which results from forward scattering of Sun light.

Jonathan Shanklin from the British Antarctic Survey predicted the conditions were going to be favourable for the appearance of Polar Stratospheric Cloud between 20-23 December 2023 due to a very cold stratosphere over Norway and drifting south over the UK. He was correct. The nacreous clouds were seen far and wide and photos flooded social media.

The photo below was taken on my iPhone and the nacreous cloud is the bright white cloud with a mother of pearl effect, much higher than the grey clouds in the troposphere seen in the foreground. Looking on Stellarium at the time and date I took the photo I can see the Sun was 3 degrees and 40 arcminutes below the horizon, which correlates with the prediction of the Sun needing to be 1-6 degrees below the horizon!

*Nacreous Cloud (right)  
at 16:13 hours (GMT)  
on Thursday 21<sup>st</sup>  
December 2023 taken  
from Nottingham City  
Hospital, Hucknall  
Road, Nottingham*

**James Dawson**

Link:

[Met Office information  
on nacreous clouds](#)





## **Gamma Cassiopeia, IC59 and IC63**

**imaged by Leigh Blake**

Gamma Cassiopeia, the central star in Cassiopeia and occasionally the brightest star in its constellation, illuminates the nebulae IC59, on the left and IC63 on the right. The nebulae are difficult to observe visually, as both are faint at magnitude +10 and Gamma Cas is a bright magnitude +2.15 variable Be star. This also makes image processing challenging, as it is easy to overexpose the star whilst bringing the faint nebular detail out.

The bright blue light from the star illuminates the dust in the region and the UV it emits excites the hydrogen, causing it to glow red.

This image is the result of 7 hours of exposure, involving 85 frames of 5 minute duration, captured with a 100mm refractor and a dual-band filter on a colour camera.



## **Geminid Meteors**

**by Mark Fairfax**  
(Credit: UK Meteor Network)

Geminid meteor shower - a strong shower with the peak on 14th December and expected Zenithal Hourly Rate of 120.

Origin: 3200 Phaethon (an asteroid or a possible "rock comet")

Radiant : Constellation Gemini

Activity range: 4 Dec - 17 Dec

Meteor velocity: around 35 kilometres per second

With the peak being a couple of days after a New Moon I was hopeful for the Geminids meteor shower, which is considered to be one of the best and most reliable annual meteor showers. However, the UK weather continued to frustrate as it has for a lot of 2023 for astronomy.

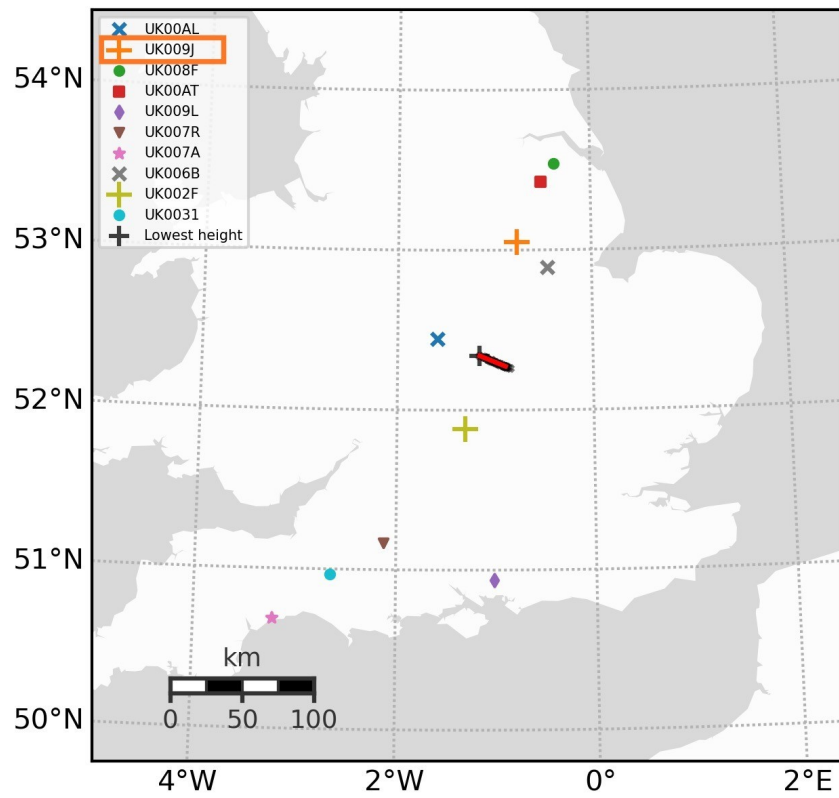
I managed to capture a couple of good 'un's between cloud breaks late on Wednesday 13th evening at 23:43 UTC & the early hours of Thursday 14th at 02:02 UTC with my UK Meteor Network camera set-up.

### **Geminid 1**

Geminid meteor (visual magnitude -1.4;  $V_g$  33.77km/s; mass 0.54g).

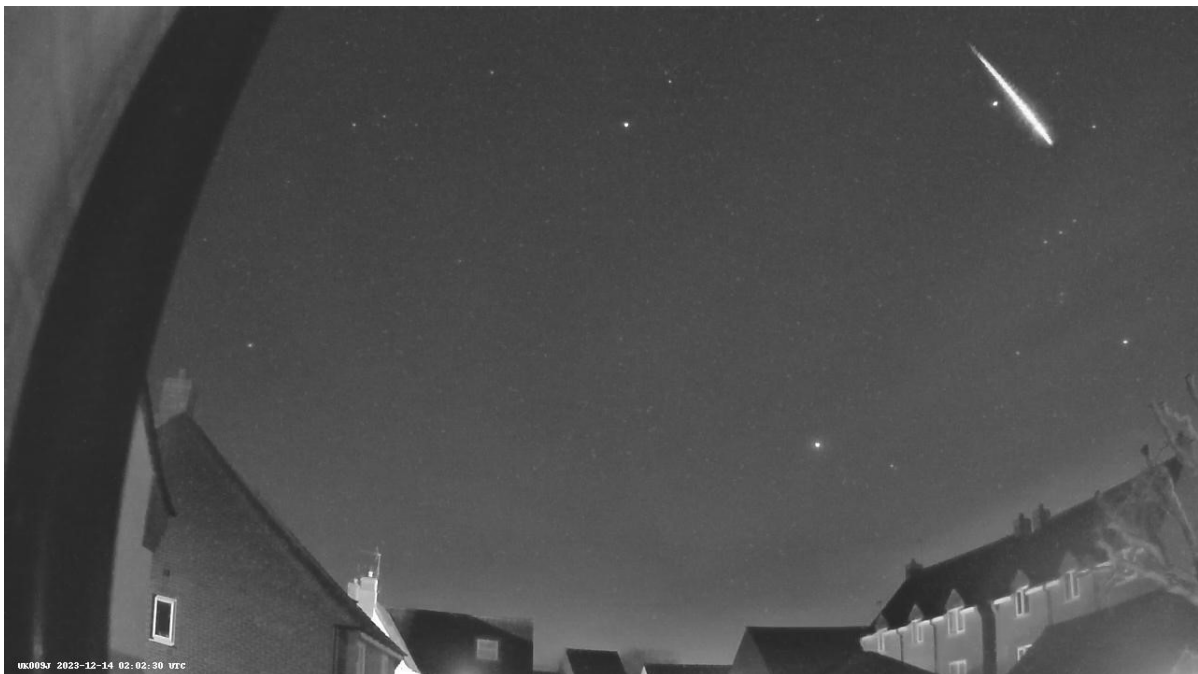
My UK Meteor station ID is **UK009J** and the bold red line on the UK map is the passage of the meteor.

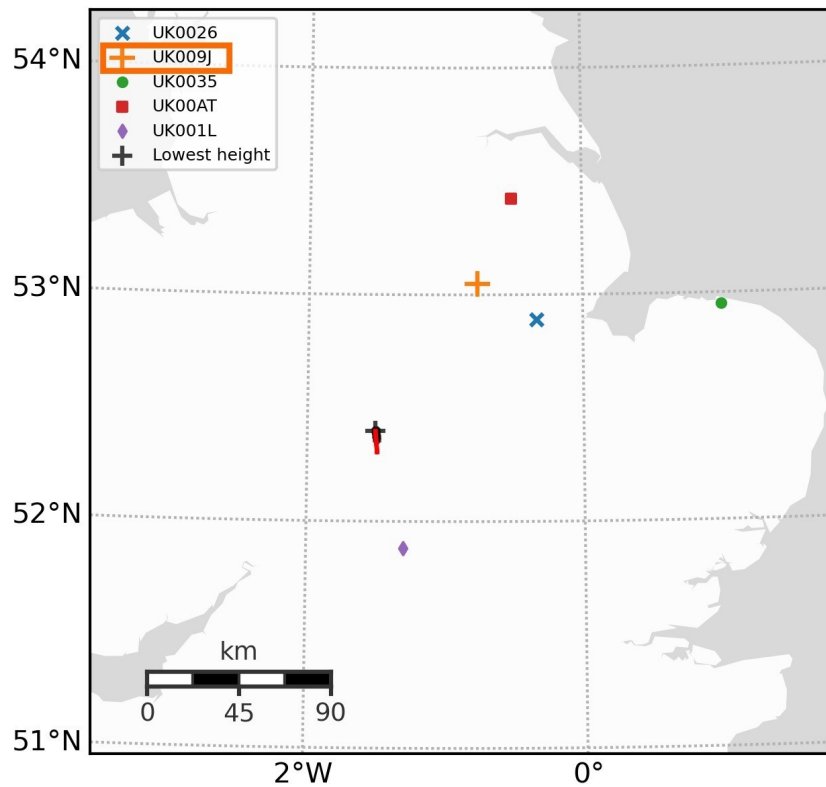




## Geminid 2

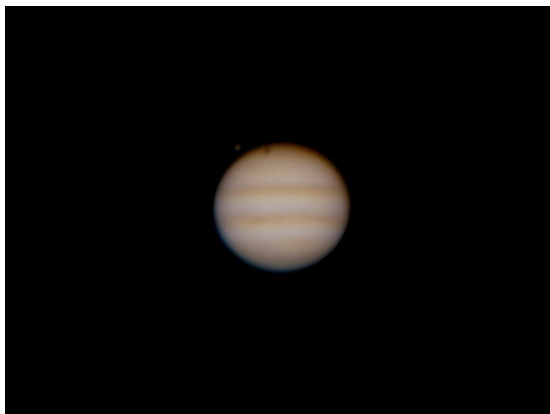
Geminid meteor (visual magnitude -2.5;  $V_g$  34.36km/s; mass 0.8g)





## Images of Jupiter

acquired with a Philips webcam attached to a Newtonian reflector by Marcus Stone



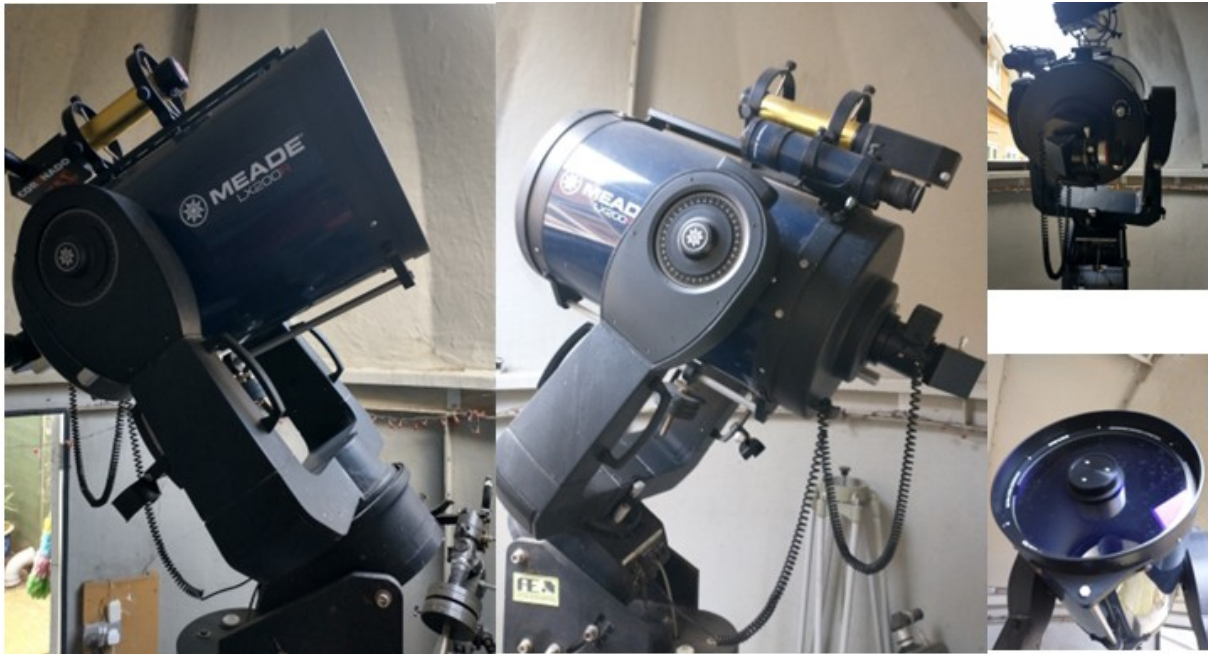
Nov 9<sup>th</sup> image shows Europa's shadow  
few moments before leaving Jupiter.  
320 stacked frames



Dec 5<sup>th</sup> exceptionally steady  
atmosphere. 436 stacked frames



## Advertisements



For sale in Loughborough:-

The vendor is "death cleaning" and wanting to sell his under-used astronomical equipment to others who would value it.

Meade LX200R 300mm SCT, purchased new in 2006. It is mounted on a Meade fork mount, with an AE Equatorial Wedge and on an AE Pier. It is GPS enabled and has level north and goto facilities but sadly I never mastered these. Sidereal drive rate is excellent.

A 300mm white light solar filter stopped down to 100mm, a Bahtinov mask and Telrad finderscope are available, along with a selection of eyepieces and a Barlow, at additional cost.

The Pulsar Observatory is 12 feet in diameter, purchased at the same time in 2006, as it was always intended to be user and visitor friendly.

The buyer MUST arrange to dismantle and carry the items away after purchase at their own expense. The Observatory and telescope were delivered and installed by a team of three people (without any cranes or lifting equipment!).

The vendor has a hearing loss so initial contact by text or email is preferred.

Email:- [north\\_star\\_observatory@hotmail.co.uk](mailto:north_star_observatory@hotmail.co.uk)

Text:- 0791 442 7387

Visits by potential buyers can be made by mutual arrangement.  
Realistic offers for the items are invited. Good luck!





## FOR SALE

### Meade ETX90 Maksutov-Cassegrain telescope

with

Deluxe field tripod

Carrying case

4 Super Plossl eyepieces (all 1.25-inch)

Erect image roof prism

2x apochromatic Barlow lens (1.25-inch)



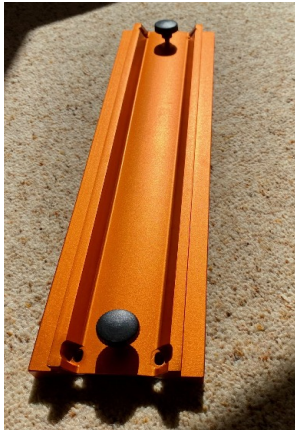
£600 or near offer

Contact Mrs Clayton

01949 860022

## 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](mailto:journal@nottinghamastro.org.uk)



## Telescope looking for a good home

We've been contacted by someone who lives near Langar who no longer wants this telescope. It is a 114mm reflector with GOTO mount. It needs a new battery pack, but these can be made or sourced quite easily. It comes with two eye pieces. The gentleman is happy to exchange the telescope for a couple bottles of wine or some such exchange. He just wants it to go to a good home and get used.



If you are interested in this, please  
contact Alan Dodson  
[alandodson2@gmail.com](mailto:alandodson2@gmail.com)

# Nottingham Astronomical Society

Affiliated to the **British Astronomical Association**  
Member of the **Federation of Astronomical Societies**  
Supporters of the **Commission for Dark Skies**

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**OTHER COMMITTEE MEMBERS:**

**Holly Gonzalez McNiven**

**Mark Fairfax**

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**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.

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**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 1<sup>st</sup> January. Half-price subscription is charged if joining after 30<sup>th</sup> June (minimum subscription £5).

Please make cheques payable to:

*Nottingham Astronomical Society.*

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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](mailto:secretary@nottinghamastro.org.uk) or speak to any NAS committee member at one of the regular monthly meetings.

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**The Nottingham Astronomical Society**

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