Journal

of the

Nottingham Astronomical Society

January 2026

In this issue

Thursday, January 8th

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

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

This evening we welcome

Dr Chrysa Avdellidou

of the University of Leicester

who will be speaking on

Lunar Impacts

Chairman's Message, January 2026

Dear members,

I hope you all had a good Christmas and New Year. I still seem to be here after the AGM - so another year beckons. The AGM was a fun occasion - our thanks to Chris yet again for sorting out the food and stuff and just being generally wonderful.
We start this year on Jan 8th (the second Thursday) for just this month. We have a talk by Dr Chrysa from Leicester about lunar impacts and other events. Unfortunately I won't be there but the rest of the team will look after things as they usually do. The nights are getting shorter from now on, but there is a lot to see - I always like the return of Orion in the evening sky.

Anyway, here's to another year.

Julian
NAS Chair

Sky Notes
January 2026

Compiled by Roy Gretton

All times given below are in Universal Time

Earth will be at **perihelion** at 5:15pm on January 3rd, when we shall be at 98.33% of our mean distance from the Sun.

PHASES OF THE MOON

Phase	Date
Full Moon	January 3rd
Last Quarter	January 10th
New Moon	January 18th
First Quarter	January 26th

This month the Moon is closest to Earth on the 1st, and furthest on the 13th.

THE PLANETS

Mercury begins the New Year as a morning object 24 degrees south of the celestial equator and 12 degrees west of the Sun, after which its elongation decreases until it reaches superior conjunction of January 21st.

Venus passes through superior conjunction on January 6th, after which it begins a long evening apparition that will last until the autumn. (Greatest eastern elongation will occur on August 14th).

Mars reaches conjunction with the Sun on January 9th and is therefore unobservable this month.

Jupiter can be observed all night this month, high as it is in the constellation of Gemini. It reaches opposition to the Sun on January 10th, when its equatorial diameter will be just shy of 47 arcseconds.

Phenomena of Jupiter's satellites

The **disappearance** or **reappearance** of Jovian satellites **into/from eclipse** is the easiest type of phenomenon to observe with a small telescope (say, 50mm aperture). Prior to opposition on the 10th, satellites disappear into Jupiter's shadow on the west side of the planet (viewed from Earth), but after opposition will be reappearing from eclipse on the east side of Jupiter. 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 disappearances/reappearances and shadow transits visible in the *evenings* this month are given below.

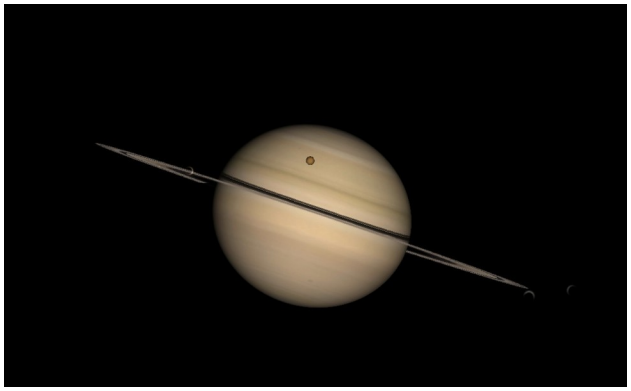
*In the case of **disappearances and reappearances**, start looking **several minutes ahead** of the stated time, because this refers to the moment when Jupiter's shadow bisects the satellite*.

January	Disappearance into eclipse of
1	Callisto 20:12
2	Europa 20:12
6	Io 23:11
8	Io 17:40
9	Europa 22:47

January	Reappearance from eclipse of
10	Ganymede 19:14
15	Io 21:51
17	Ganymede 23:14
18	Callisto 18:11
22	Io 23:45
24	Io 18:14
27	Europa 20:07
31	Io 20:09

January	Shadow transit of
4	Europa ends at 18:10
7	Io 20:19 to 22:35
11	Europa 17:55 to 20:46
14	Io begins at 22:13
16	Io ends at 18:58
18	Europa 20:31 to 23:22
23	Io 18:36 to 20:53
25	Europa begins at 23:07
30	Io 20:31 to 22:47

Saturn is best observed in the early part of this month, as it will be setting in mid-evening by the end of January. Saturn's largest satellite, Titan, will be transiting the planet's disk on the evening of January 9th.



Titan transiting Saturn at 19:00 on January 9th

Uranus, magnitude 5.6, is visible for most of the night in the constellation of Taurus.

Neptune, a magnitude 8 object in Pisces, about 4 degrees northeast of Saturn, is becoming increasing difficult to observe as January progresses.

METEORS

The **Quadrantids** will be largely swamped by moonlight this year, as their peak activity on January 3rd coincides with the Full Moon.

Nottingham Astronomical Society 2026 membership renewal

Membership subscriptions for 2026 are due for renewal in January.

All current members will shortly receive their renewal forms by email detailing their current membership rate.

2026 subscription rates
Individual £40
Students £5
Family £55* *Family membership covers a maximum of two Adults, and any Children/Students living at the same address.

We encourage members to renew their membership using BACS electronic bank transfer. Alternatively please scan the QR code and quote your Surname and Membership number as the payment reference.

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 2026.

Richard Severn
Treasurer 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

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 X
The Society has an X account at https://twitter.com/NottinghamAstro

NAS Journal e-mailing list
To register for your monthly e-mailed link to the NAS Journal, just e-mail membership@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 membership@nottinghamastro.org.uk

DIARY DATES 2026

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
8th January	**Lunar Impacts**	**Dr Chrysa Avdellidou** University of Leicester
5th February	**Black Hole Astronomy 101**	**Dr Jiachen Jiang** University of Warwick
5th March	**Forecasting Weather on Extrasolar Worlds**	**Dr Vatsal Panwar** University of Birmingham
2nd April	***To be announced***	***To be announced***

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 15th**

Social and Practical Astronomy, Plumtree, December 2025

The December Plumtree is always assigned to be the time of year when we have the Annual General Meeting, and is usually paired with a quiz and some festive food and drink. This year was no exception.
The AGM was conducted by Julian in record breaking time, with very few questions and queries from the membership; Aniket was also elected onto the committee along with all of last year's committee who were re-elected. Welcome on board Aniket.

Chris had prepared a Christmas cake and various other items including alcoholic and non-alcoholic mulled wine, and several members also brought along items to share which was nice. Much was eaten and drunk.

After some eating and drinking, we sat down to Julian's Christmas Quiz, which unsurprisingly was quite hard, but collectively as a group we probably got most of the questions right.
The January 2026 Plumtree will be on some of the mythology of the solar system, delivered by member Diya.

Happy New Year.

James Dawson
helpdesk@nottinghamastro.org.uk

The Evolution of Smart Telescopes

by Richard Field

Smartscopes started with the Vaonis Stellina, in 2018, a large, 11.2kg, 80mm objective refractor. It has a 400mm focal length and a Sony Starvis I 6.5M pixel sensor. Thus, at f5 it is reasonably fast, but with such a large objective no external UHC or Duo Narrow Band filters to fit it. The photo below illustrates its size with the current smallest smartscope, the Dwarf Mini.

Vaonis developed the smaller Vespera model post-Covid and I used the original model which only had a 2.3M pixel sensor successfully in the Swiss alps. My current Vespera Pro has a 12.5M pixel sensor and a 50mm objective and 250mm focal length. At f5 it is therefore only as fast as Stellina. However the Sony Starvis II sensor has not only more pixels, but a more sensitive CMOS sensor and improved software to allow mosaic photos of up to 32M pixels in total. A small alloy tripod is included and spirit level.

Around 18 months ago the ZWO, or Suzhou Optical, brought out the Seestar S50, which even now at just over £500 is an absolute bargain. As a retired Physics and Astronomy teacher I see this as a bargain for schools to illustrate lessons and Astronomy Clubs there. It had a 2.1M pixel sensor and was f5 again. It has a very easy wifi logon and built in filters for dark frames and a duo band light pollution filter. A solar filter is an add-on included in the package along with a carbon fibre mini tripod. The App is good, but allows more user adjustable variables than the Vaonis one, Singularity and therefore takes a bit more time to learn. It also gives you a digital zoom when used on planets.

The Vespera Pro seems to concentrate on the hydrogen wavelength and quickly builds up a bright red colour for nebulae, whereas the Seestar gives a better sensitivity to blue light and reflection nebulae such as for the Pleiades. Being much smaller and lighter than Vespera this to me was a solution to taking a smartscope up to alpine huts at say 2500m. The Seestar S30, with a 30mm objective takes this further to the smaller, and lighter weight limits.

However, now we have the Dwarf Mini, a 840g smartscope that is pocketable and has a 30mm objective and like the Seestar S30, a wide angle lens too. Its focal length is 150mm, making it f5 again. It includes a darks filter, anti-pollution filter and Duo Narrow Band filter and an ND solar filter. There is no tripod with it, but one available separately. I compare all three compact smartscopes below.

The Dwarflab App was poor when I first used it with a Dwarf II, but has since upgraded hugely! It allows for equatorial mount set-up and then star calibration for its orientation, which can be frustrating if the sky is not as clear as one would like. Apart from Alt-az, or EQ mount selection, filters can be selected in Astro mode, along with gain and single frame exposure up to 90s. A Sky Altas allows object selection and a mosaic mode. The real advantage over Vaonis Singularity App, or Seestar App is the post-processing software. By uploading to the Cloud one can use Auto adjustment, Star Correction, Denoise , or Star removal. I have used Auto and then the ipad image adjustments on the two images below.

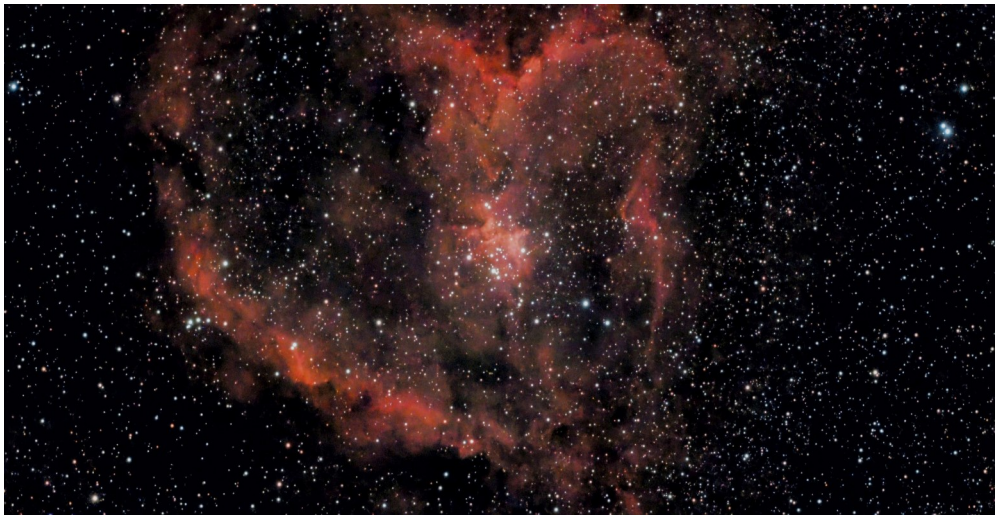
Orion nebula M42 and Running Man nebula; 204, 30s frames

Horsehead nebula and Flame nebula, again in Orion; 204, 30s frames

Images Captured with a Dwarf 3

by David Buxton

1. **IC 1805**, The Heart Nebula. 300 frames plus dark frames, 15 second exposure and 60 gain.



2. **IC 1848**, The Soul Nebula, 300 frames plus dark frames, 15 second exposure and 60 gain.

3. **NGC7789**, Caroline's Rose, 58 minutes total.212 images at 15 seconds, gain 60, 10 darks.

A Glimpse of a Lunar Halo – 3rd December 2025

On the evening of 3rd December 2025, at around 7:20 pm, I captured an image of a striking atmospheric optical phenomenon—a 22° lunar halo. This beautiful ring forms when moonlight is refracted through countless hexagonal ice crystals suspended in high-altitude cirrus clouds. The geometry of these crystals bends the light at a consistent angle of 22 degrees, creating the characteristic halo around the Moon. This phenomenon closely resembles the 22° solar halo that a fellow NAS member, Sue Disley, photographed and shared in the summer, both arising from the same principle of light refraction—differing only in their light source: sunlight versus moonlight.

Historical Insight and James's Discovery

Special thanks to James for sharing a fascinating historical connection and his recent discovery. While exploring a secret garden on the University of Nottingham campus, James came across a stone plaque commemorating an observation made on 1st May 1844 by Edward Joseph Lowe at Highfield House. Lowe sketched a complex halo display featuring multiple arcs and circles, including paraselenae—commonly known as Moon Dogs.

Below is a photograph of the stone plaque at the University of Nottingham depicting Edward Joseph Lowe's 1844 observation of a paraselene display, including lunar halo and Moon Dogs." (Kindly shared by James Dawson).

The second image is of the Moon halo image taken by me on 3rd December.

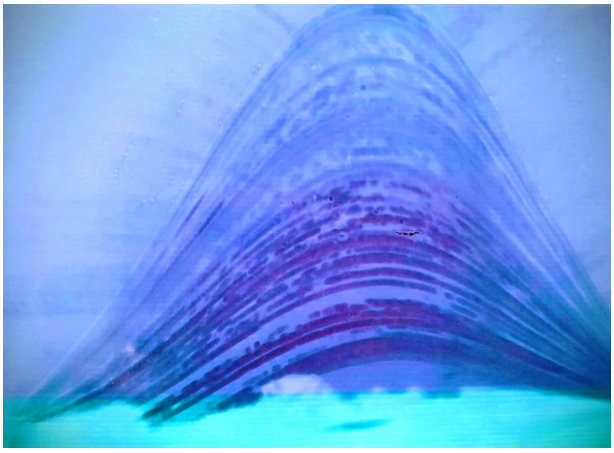
Aniket Mahapure

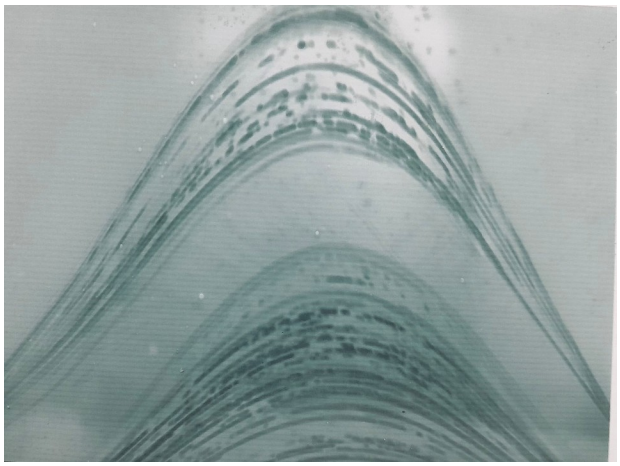
Images from Solarcams, 2025

These images are made by a low tech camera made from 2 beer cans. You cut the top off a beer can at a point that leaves a slope on the bottom part of the can which will enable you to do the next job. You cut the bottom off another beer can about 2 inches up. This is going to be the lid on the first can and the slope you left on that one will enable you to slide it on. The pinhole in the bottom can is placed half an inch from the top, and just below the slope so it's on the vertical part of the can. If you use a needle or pin to make the hole you should use emery paper on the inside to remove the metal you've pushed out in making the hole. You can experiment for the best size hole to get the best definition. If the lid is slid on and it covers the pinhole you just cut a piece out of the lid to expose it. You now need a sheet of light sensitive photographic printing paper which fits inside the can with the emulsion side facing the pinhole. This operation is best done in subdued light, preferably red, but this is not vital. The gap in the now circular paper is where the pinhole is. Put the lid on and it will make a perfect seal. I then use a length of 2" x 1" timber to mount the camera. I drill through the timber and fasten the camera with two plastic ties. Mount the camera with the pinhole facing South. You can make fine adjustments by turning the beer can in the direction you need.

It's good fun, even if you ruin a few beer cans as you make the camera, as you then need to drink the contents of a few more to get empty cans **You now wait 6 months** to see if you have been successful. This is a long exposure. I have just put my cameras back up on the 22nd December, and will now wait until June for the next result.

If you have a few friends who would like to also make cameras you can buy one pack of photographic paper and share the cost. Who you get to empty the cans is up to you, but there is usually someone available.





David Buxton

The California Nebula, NGC 1499

An emission nebula roughly 1000 light-years distant, 2.5 degrees long and shining at magnitude 6. Image taken with a Canon 60Da at ISO 1000, at the prime focus of a Meade 80mm refractor, through an Optolong filter. Exposure 30 minutes.

Marcus Stone

Advertisement

FOR SALE

Meade Series 4000 Super-Plossl Eyepieces
Standard 1.25-inch diameter. Both in mint condition

15 mm focal length **£20** (list price £34)
40 mm focal length **£35** (list £65)

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

Nottingham Astronomical Society

Affiliated to the **B**ritish **A**stronomical **A**ssociation
Member of the **F**ederation of **A**stronomical **S**ocieties
Supporters of the **C**ommission **f**or **D**ark **S**kies

CHAIRMAN:
Julian Onions
email: chairman@nottinghamastro.org.uk

VICE CHAIRMAN:
James Dawson
email: vicechairman@nottinghamastro.org.uk

SECRETARY:
Chris Sneddon
email: secretary@nottinghamastro.org.uk

TREASURER:
Richard Severn
email: treasurer@nottinghamastro.org.uk

JOURNAL EDITOR:
Roy Gretton
email: journal@nottinghamastro.org.uk

MEMBERSHIP SECRETARY
Richard Severn
email: membership@nottinghamastro.org.uk

WEBMASTER:
Leigh Blake
email: leigh@nottinghamastro.org.uk

OBSERVATORY DIRECTOR:
James Dawson
email: observatory@nottinghamastro.org.uk

LIBRARIAN:
Holly McNiven

Aniket Mahapure

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 £5 per meeting for adults (£1 for concessions).

Annual subscriptions 2026

Individual	£40
Family (maximum of two adults, and children/students living at the same address)	£55
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 membership@nottinghamastro.org.uk or speak to any NAS committee member at one of our regular monthly meetings.