
Journal

of the

Nottingham Astronomical Society

October 2020

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Thursday, October 1st

8pm: ONLINE

Tonight we welcome

Dr Steve Barrett

Senior Research Fellow, University of Liverpool



who will be speaking on

**The Legacy of the Hubble
Space Telescope**

Our October “Gotham” meeting will be broadcast live online

The live stream meeting will start at 8pm. The stream can be accessed from 7:30pm onwards. Members will be emailed a link an hour before the meeting is due to begin.

Alternatively the live stream can be viewed directly on our website at <https://nottinghamastro.org.uk/> from 7:30pm.

If you are a registered user of YouTube you will be able to ask questions during the live broadcast via the YouTube live chat, alternatively send your questions live via our social media:

Facebook <https://www.facebook.com/nas.org.uk>

Twitter [www.twitter.com/nottinghamastro](https://twitter.com/nottinghamastro)

email: membership@nottinghamastro.org.uk

We would especially welcome live interaction during the event to keep the meeting as interactive as possible for members, and make it like our normal face-to-face gatherings. Please encourage your family and friends to watch by forwarding them the link.

Chairman' Message – October 2020

Dear all,

Last month I tried to be a 'little' optimistic about the near future with the pandemic, well now we know – it's back, but at least we can plan the next 6 months or more with a degree of certainty. I am busy putting together next year's speaker programme, so I will make sure all speakers will be able to deliver their talks on line. This year has been a unique success for NAS, we are one of the forerunners in astro society on line meetings and thanks must go to our IT whiz kids Richard, Leigh and James who have worked tirelessly to keep us going. Don't miss our October 1st meeting this week when Steve Barrett talks about the Legacy of the Hubble.

Our AGM has been moved to January in the hope of a 'regular' meeting (some hope!) leaving November free for a rare treat – a talk by Damian Peach on Astrophotography.

For the September mid month meeting, James and Leigh made a valiant attempt at 'live streaming' Jupiter from the observatory using James' 14" telescope, and Richard used his 11" from his backyard while running the meeting from his computer! Unfortunately the skies were hazy and did not co-operate, but that's astronomy. They did succeed in getting some images on to all our screens though, so well done chaps! The following Monday Rob and I managed some good views of Jupiter and Saturn with the 24", conditions were much better, but those planets are very low at the moment.

Rob continues his work on the dome and 24" telescope, with help from David or myself - strictly distanced of course, which makes progress slower and more difficult, but needs must. We plan to seal a few leaks before winter and Rob is working on electronic imaging and guiding for the big scope.

Now is the time we would be looking to open the observatory for members and visitors, before the weather gets too bad, but unfortunately the Covid precautions make this all but impossible. Individual members could meet outside, carefully distanced, if less than 6 people, but sharing eyepieces is very risky so could not be allowed. Disinfecting our precious eyepieces sounds a bit risky too – perhaps a bit of research is called for.

That's it for now, please take care – and stay safe,

John

John Hurst, Chairman.

Sky Notes

October 2020

Compiled by Roy Gretton



All times given below are in British Summer Time unless otherwise stated

British Summer Time ends on Sunday, 25th October. Clocks should be turned back one hour at 2 am on that date.

PHASES OF THE MOON

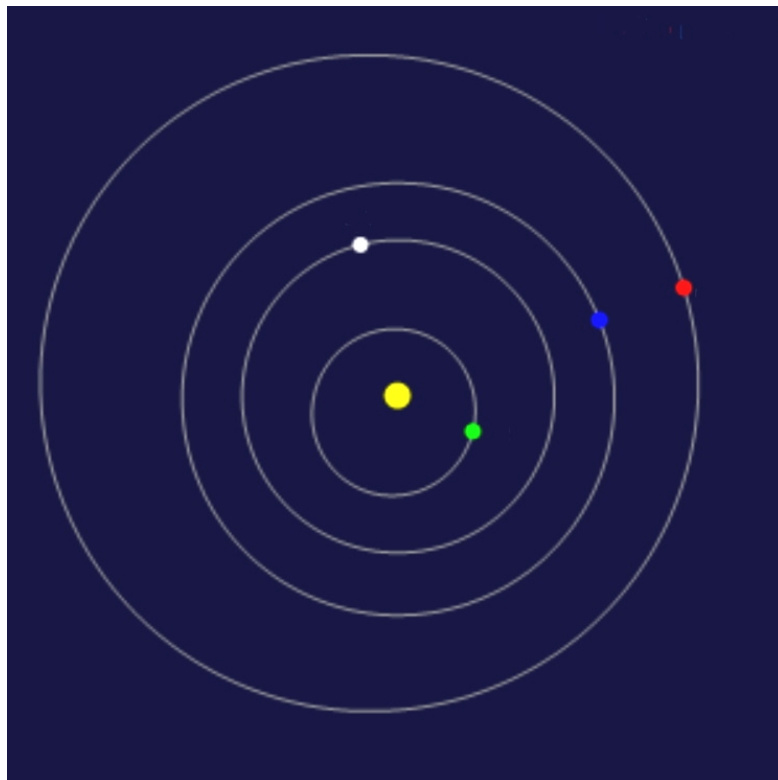
<i>Phase</i>	<i>Date</i>
Full Moon	October 1 st & 31 st
Last Quarter	October 10 th
New Moon	October 16 th
First Quarter	October 23 rd

This month the Moon is closest to Earth on the 17th, and furthest on the 30th.

Note that this October is a month with two Full Moons, so there will be a tendency in some quarters to describe the one on Halloween as a **Blue Moon**. The term has no scientific significance.

THE PLANETS

The inner Solar System on October 13th, viewed from above the north pole, with the planets moving anticlockwise around the Sun



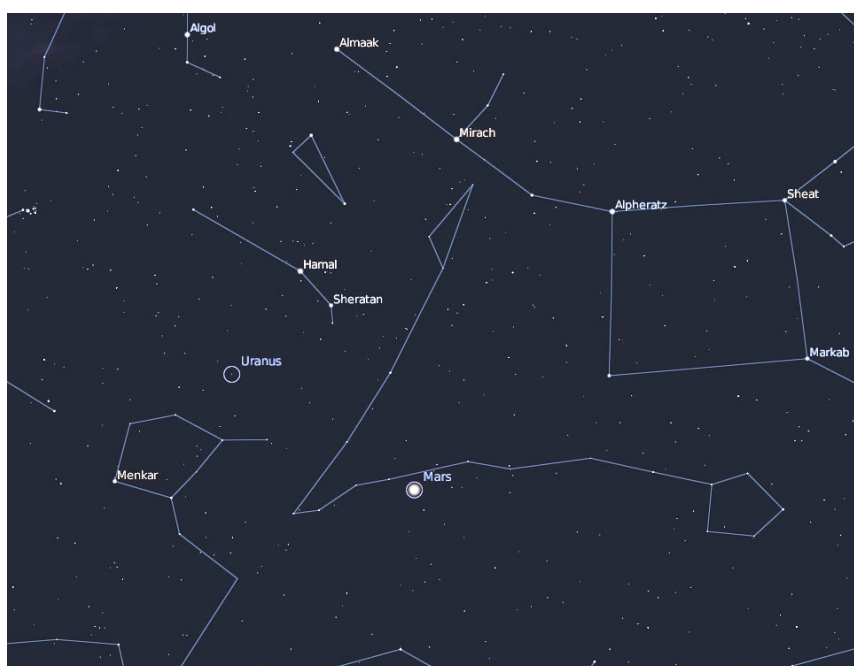
Mars (red dot) is 180 degrees from the Sun when viewed from **Earth** (the blue dot). **Venus** (white dot) lies to the west of the Sun and is therefore a morning object, while **Mercury** (green dot) is to the east of the Sun, and therefore an evening object

Mercury begins October at greatest eastern elongation (26 degrees), which might imply that this would provide a good opportunity to observe the planet in the evening sky. But this is decidedly not the case for observers in the northern hemisphere, as Mercury will be some 15 degrees south of the celestial equator, and will be setting less than half an hour after the Sun. Subsequently it moves closer to the Sun, reaching inferior conjunction on October 25th, thereafter emerging into the morning sky. November will provide the best opportunity of 2020 to observe Mercury in the morning.

Venus continues to shine brightly (magnitude -4) in the morning sky throughout October, rising about three hours before the Sun. At the end of the month it crosses the celestial equator into the southern hemisphere.

This is the month of Mars! Earth will pass closest to the Red Planet on October 6th, and opposition will occur a week later on the 13th. The rapid brightening and subsequent dimming of Mars will be readily apparent to the naked eye, as the planet began September fainter than magnitude -2, will swell to a peak brightness of -2.7 in the first week of October, and fade again to dimmer than magnitude -2 in the first week of November. As October begins, Mars is some 6 degrees north of the celestial equator in the constellation of Pisces, and by the end of the first week its apparent diameter will have grown to 22.6 arcseconds, bigger than it will appear at any time until 2034. Relatively small telescopes should be able to show some surface features (provided there isn't a global dust storm at the time).

It would be good to be able to produce a special feature on NAS members' observations of Mars in either our November or December issues!



**Looking south at
midnight on
October 13th**

*Mars at
opposition
in Pisces*

Jupiter continues to shine low down in the southwestern sky every evening throughout this month. At the end of October it will still be setting some four hours after the Sun, and shining at magnitude -2.2. Even though it remains south of declination -22 degrees into the beginning of November, taking a peek at this giant planet and its four brightest satellites through even a modest-sized telescope is nearly always a rewarding experience.

Saturn lurks more than 21 degrees south of the celestial equator for the whole of this month. It will always appear to the east of Jupiter, but the separation between the two giants will be constantly decreasing as they move toward conjunction, which will occur on December 21st,

when they will be only one-tenth of a degree apart. Saturn begins October at magnitude 0.4, but by the end of the month will have faded to magnitude 0.6.

Uranus (magnitude 5.7) lies to the east of Mars, in the constellation of Aries, and will be at opposition to the Sun on October 31st, when it will be above the horizon all night.

Neptune (magnitude 7.8) in the constellation of Aquarius was at opposition in September, and will be well placed for observation this month. It will be above the horizon for most of the night in early October.

METEORS

The two branches of the Taurid meteor complex reach maximum activity in the first half of October, producing, at best, a handful of events per hour.

Comet NEOWISE



One of the recent British Astronomical Association's weekly webinars was on Comet NEOWISE and Nick James, the BAA Comet Section Director chaired a meeting reflecting on current knowledge about the comet and showcasing a number of images taken of the comet. This can be freely accessed and I would recommend watching this. Other BAA webinars can also be found on the BAA's YouTube Channel:

<https://www.youtube.com/watch?v=G6xlpvxJTYQ>

A gallery of BAA member images of the comet, and other comets, can also be found on the BAA website. There are some amazing images there:

<https://britastro.org/recent-images-by-category/161>

James Dawson

DIARY DATES 2020

Monthly Meetings of the Nottingham Astronomical Society

**There will be no meetings at
Gotham or Plumtree until further notice**

*We nevertheless continue to display our pre-arranged programme of speakers
in the hope that it may be possible to livestream these talks.*

***Members of the Society will receive further updates
each month from the Chairman***

<u>Date</u> ALL ONLINE	<u>Topic</u>	<u>Speaker</u>
October 1 st	Legacy of the Hubble Space Telescope	Dr Steve Barrett Senior Research Fellow, University of Liverpool
November 5 th	NAS Prestigious Lecture	Damian Peach
December 3 rd	The Vikings at Barsom - Part 1 Orbital Operations	Paul Money



Nottingham Astronomical Society

Visit www.nottinghamastro.org.uk to watch recordings of our online meetings during the lockdown, many featuring speakers from the BAA. Subscribe to our YouTube channel to watch our live meetings in 2020

2 nd April	Galaxies: One Gigayear at a time Dr Julian Onions	16 th April	Venus J Dawson, G Davies, R Severn, J Onions
7 th May	Variable Star Astronomy & Cataclysmic Variables Dr Jeremy Shears	21 st May	Backyard Astronomy NAS members
4 th June	Wonders of the Southern Sky Professor Ian Morison	18 th June	Foundations of Astrophotography Dr James Dawson
2 nd July	Mars in 2020 Dr Richard McKim	16 th July	A Life Time of Astronomical Observations Alan Heath
6 th August	Centenary of The Great Debate Dr Nick Hewitt	20 th August	Deep Sky Astronomy Callum Potter

 [nas.org.uk](https://www.facebook.com/nas.org.uk) [@NottinghamAstro](https://twitter.com/NottinghamAstro) [YouTube](https://www.youtube.com/NottinghamAstro) www.nottinghamastro.org.uk

Social and Practical Astronomy, Plumtree, September 2020

The September Plumtree meeting saw us try something new, broadcasting live from not one, but two telescopes! I set up my Celestron C14 Schmidt Cassegrain at the NAS Observatory site, and Richard set up his Celestron C11 from his back garden. I'd recorded in advance a short video on setting up the Skywatcher EQ8-R Pro mount and Julian also gave a short talk on the recent discovery of phosphine in the atmosphere of Venus, a possible marker of life in this seemingly inhospitable planet. Image to the right shows my set up at the observatory prior to the meeting commencing.



With the unpredictability of the British weather we were lucky to initially have a clear sky for the live broadcast; patchy cloud did eventually drift in from the east at about 9pm. But even though the sky started out looking clear, the Jet Stream was above and blowing in from the east/north-east, making the air turbulent high in our atmosphere. Turbulent air in the atmosphere impacts on the “[seeing](#)” conditions with still air offering better seeing conditions usually than turbulent air. For this reason the seeing that night from the observatory and from Richard’s house, was poor. We still managed to show live images of both Jupiter and Saturn to the assembled online audience.

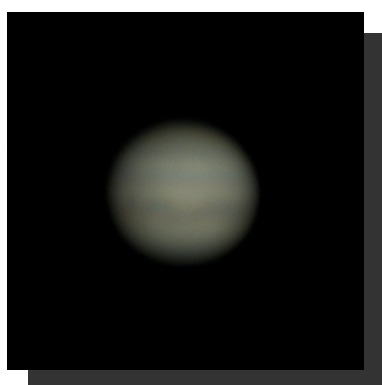
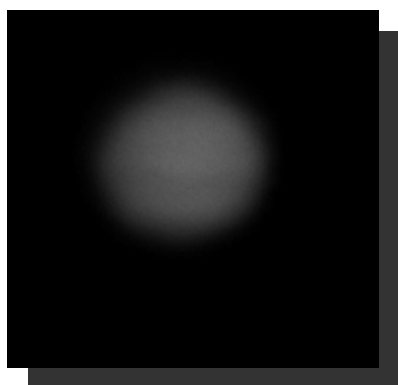
The image right, taken from sat24.com, shows the infra-red view the UK at 20:30 (BST) on 17th September 2020 and the red arrow which I’ve added shows the direction the wind and the Jet Stream. Winds from the east often seem to bring with them poor seeing. The patch of cloud over the east of the country is the patch which subsequently hindered views of the planets.



The views remained poor throughout broadcast, and I suspect when transmitted over the internet they deteriorated further, but hopefully people managed to see the bands of Jupiter, and the rings of Saturn; Richard also managed to show the positions of some of the Galilean Moons. One of Jupiter’s moons, Io, was in the process of transiting the disc of Jupiter, and whilst we got hints of this, it wasn’t clearly seen. I’ve subsequently realised that I hadn’t put an infra-red blocking filter on the camera I was using to show the planets; infra-red light when mixed with light in the optical wavelengths blurs images of the planets, and whilst this was only likely a minor contribution to the poor views we had, it won’t have helped any.

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Once we'd realised the seeing was poor and not improving, I added a red colour filter to my camera before looking at Saturn. The purpose of this is that the turbulent air in the atmosphere causes all the wavelengths of light to jump around, and by just looking at the planet in one wavelength (red) this can act to improve the apparent seeing conditions, which I think it indeed did. In an attempt to show viewers how I undertake planetary astrophotography I captured some live data of both Jupiter and Saturn, and I have since processed these. The results are poor, and normally I wouldn't have processed this data, but I felt it would be useful to show members the results. We'll discuss processing in more detail at a future Plumtree meeting.



Jupiter (in case you couldn't tell)

The top image is a single frame from the video and the lower image the output of the stacking and processing 4975 frames in original capture, no filter used



Saturn

The top image is a single frame from the video and the lower image the output of the stacking and processing 9254 frames in original capture; taken with a standard red filter on the camera

Equipment used: Celestron C14 on EQ8. ASI ZWO 224MC camera at prime focus, captured with [SharpCap](#). Frames sorted with [PIPP](#) and best 75% of frames retained (25% discarded). Remaining frames loaded into [AutoStakkert!3](#) and best 50% of these used to stack. Finally loaded into [Registax 6](#) and image adjusted with the wavelet function.

In the image of Jupiter above, if you look with the eye of faith, you might convince yourself there is a dark patch to the left of the planet; this, I think, is the shadow of Io. Equally, with the other eye of faith, if you look at the rings of Saturn, you might get the idea there is a dark gap in the rings, which is likely the Cassini Division. If there are any budding

astrophotographers out there, don't be put off, these images are really rather poor and even with less advanced kit, on a night with better conditions, you would be able to achieve more.

Leigh was also at the observatory with me on the night and gave a brief tour of what was in the night sky using the free software [Stellarium](#). If you haven't already downloaded [Stellarium](#) and had a play with it, I would strongly recommend you doing so. It is a fantastic bit of software.

Julian gave a talk on the recent discovery of phosphine in the atmosphere of Venus, and I have to confess I've still not listened to that as I was trying to concentrate on getting better images of Jupiter for the audience. But Julian's talk, and the whole evening is available on the [NAS YouTube channel](#) if you missed it, or if you want to watching all or parts of it again.

It was a lot of work to plan and implement this live broadcast, but we all really enjoyed it and have been grateful for the positive feedback we've had so far from members. It is really nice to hear feedback, and it does motivate us.

Mars comes to opposition in mid October, and we are again hoping to record some views we get through our telescopes to share. We may also do an impromptu live broadcast using the NAS YouTube channel, which if you follow will send you an alert about this.

We don't have a formal plan for the **October** Plumtree meeting, but we will keep you posted.

If there are topics you want our Plumtree meetings to cover, let me know, and if you have something you'd be happy to share with others using the Plumtree meetings I'd love to hear from you.

Thanks to Richard, Leigh, Julian and Fred for helping with the September Plumtree meeting.

James Dawson, NAS Helpdesk & Plumtree Meetings
helpdesk@nottinghamastro.org.uk

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

An Intriguing View of Noctilucent Clouds

Shortly after 11pm on June 26th last, I stepped out of my front door, and looking toward the north saw a curious sight, in the form of a diffuse band of light stretching from low down in the north and extending southward to the east of Langar. It was particularly intriguing because the sky was completely overcast with low cloud. No stars were visible in any direction. Might an aircraft have flown through the clouds and left a trail like that?

It seemed that there was something above the clouds, bright enough to be shining through them. I quickly grabbed my iPhone and took the following images, at 11:23pm. (To make them clear enough for the Journal, I've enhanced the brightness and contrast).



On another image I could see that the band of light was part of a larger display that included a large circular feature:



Consulting an internet forum, I found an image that had been taken from Bedfordshire, some 50 miles to the south of Nottinghamshire, at about the same time, showing exactly the same features (including the strange circle), and identifying them as part of a display of noctilucent clouds.

I must confess that I hadn't previously realised that NLCs could be so bright as to shine through overcast skies, and hadn't observed the formation of such intriguing shapes before. I would be interested to hear from anyone else who happened to observe these phenomena.

Roy Gretton

Advertisements

FOR SALE

Skywatcher Heritage-114 Virtuoso telescope



Little used and in new condition, with eyepieces.

Current price new £182

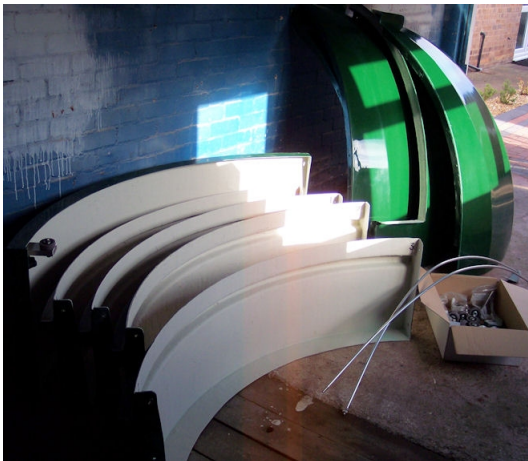
Reasonable offers invited

email : grahammarch2@btinternet.com

FOR SALE

Pulsar 2.1-metre Observatory Dome and Track in Racing Green

Made by the leading UK manufacturer of GRP observatory domes.
The dome and the track are each fabricated in four segments that bolt together.
The track is intended to be fixed to a flat roof (and could be used for converting a roll-off roof observatory into a domed one).
The complete kit was purchased in 2008.



The dome and track sections as delivered from Pulsar



The track fitted to a flat-roofed shed



The dome mounted on the track

The original price of the dome and track was **£2000**

Suggested price **£500**
but any offer will be considered

Contact **Roy Gretton** on 07483868162 or journal@nottinghamastro.org.uk

Nottingham Astronomical Society

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

CHAIRMAN:

John Hurst

e-mail: president@nottinghamastro.org.uk

VICE CHAIRMAN:

Roy Gretton

e-mail: vicepresident@nottinghamastro.org.uk

SECRETARY:

Rob Bush

e-mail: secretary@nottinghamastro.org.uk

TREASURER:

Mike Provost

e-mail: treasurer@nottinghamastro.org.uk

JOURNAL EDITOR:

Roy Gretton

e-mail: journal@nottinghamastro.org.uk

MEMBERSHIP SECRETARY

Richard Severn

e-mail: membership@nottinghamastro.org.uk

CURATOR OF INSTRUMENTS:

Rob Bush

e-mail: curator@nottinghamastro.org.uk

DIRECTOR OF OBSERVING:

(vacant post)

e-mail: observatory@nottinghamastro.org.uk

ORDINARY COMMITTEE MEMBER:

David Buxton

Observatory line: 07726 940700 (line open during observing sessions)

Meetings

Under normal circumstances our formal meetings, often with an illustrated talk by a guest speaker, are held on the first Thursday of each month (except in August) at:

Gotham Memorial Hall

Gotham

Nottingham NG11 0HE

Doors open 7.00pm

Meetings start 8.00pm

Meetings end 10.00pm

These meetings are open to the public, and visitors are welcome to attend.

Annual subscriptions 2020

Full	£30
Joint rate for partners 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. A membership application form is inside this issue of the Journal.

The Nottingham Astronomical Society

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