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# Journal

of the



## Nottingham Astronomical Society

December 2013

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**Thursday, December 5<sup>th</sup>**

British Geological Survey

Nicker Hill, Keyworth

8 pm (doors open at 7.30pm)

Tonight we welcome

**Andrew Lound**

who will be presenting a dramatic lecture

**“Into the Cosmic Ocean”**

*The dream of travel to the stars*

### RECENT NEWS STORIES ON THE WEB

*Follow these links for interesting current news:*

Asteroids' Close Encounters With Mars

<http://www.sciencedaily.com/releases/2013/11/131119112824.htm>

For comet enthusiasts, there were four comets visible in the morning sky in November

<http://www.astronomynow.com/news/n1311/13comets/>

Hubble's latest picture of globular cluster M15 (an object that is well-placed at the moment for observation in the early evening)

<http://www.sciencedaily.com/releases/2013/11/131114122206.htm>

NASA's latest Mars spacecraft, MAVEN, was launched on November 18<sup>th</sup>

<http://www.skyandtelescope.com/news/MAVEN-Heads-to-Mars-232049161.html>

A “six-tailed asteroid”

<http://www.independent.co.uk/news/science/sixtailed-asteroid-leaves-astronomers-dumbfounded-8928740.html>

Making the first stars

[http://phys.org/news/2013-11-stars\\_1.html](http://phys.org/news/2013-11-stars_1.html)

# Sky Notes

## December 2013

Compiled by Roy Gretton



*All times given are UT (Universal Time), equivalent to GMT*

### PHASES OF THE MOON

New Moon	12:22 am on December 3 <sup>rd</sup>
First Quarter	3:12 pm on December 9 <sup>th</sup>
Full Moon	9:28 am on December 17 <sup>th</sup>
Last Quarter	1:48 pm on December 25 <sup>th</sup>

This month the Moon is closest to the Earth on the 4<sup>th</sup>, and furthest on the 20<sup>th</sup>.

*(Data from the BAA Handbook)*

### THE PLANETS

**Mercury**, shining at magnitude  $-0.7$ , is briefly visible very low in the pre-dawn sky as the month begins, when it will be 15 degrees from the Sun. Thereafter it moves rapidly toward the Sun, and reaches superior conjunction on December 29<sup>th</sup>.

The current evening apparition of **Venus** has been a difficult one for UK observers, with the planet lurking a long way south of the celestial equator. It begins December a good 40 degrees from the Sun, but at a declination of  $-25$  degrees it will be unusually elusive, despite shining brilliantly at magnitude  $-4.5$ .



Looking southwest  
at 5 pm on  
December 10<sup>th</sup>

**Mars** is a morning object, moving slowly out of obscurity, but still not showing its face until after midnight, even at the end of December. By this time it will have brightened to magnitude 1, and its angular diameter will be approaching 7 arcseconds. If you are an early riser, you should have no trouble spotting it in the constellation of Virgo before you have breakfast. It's the orange one.



Looking south at 6:45  
in the morning on  
New Year's Eve

Meanwhile, **Jupiter** continues to grow in prominence as it approaches opposition on January 5<sup>th</sup>. You won't see it as far north as this again for another dozen years, so make the best of this apparition. (Its most northerly point occurs around March 10<sup>th</sup> next year, but by then it will be further from Earth and shrinking in apparent size). In mid-December it will have an angular diameter of 46 arcseconds, making it an excellent target for observation with a small telescope.

Throughout December the motion of Jupiter against the background stars will be retrograde (east to west) because the Earth, on its tighter orbit, will be "overtaking" the giant. Note how Jupiter moves relative to the stars Pollux and Castor.



Gemini, Dec 1<sup>st</sup>



Gemini, December 16<sup>th</sup>



Gemini, December 31<sup>st</sup>

The constant movements of the four brightest satellites are fascinating to observe. Interesting phenomena include: **eclipses** (when a satellite disappears as it enters Jupiter's shadow), **occultations** (when a satellite passes behind the body of the planet), **transits** (when a satellite passes in front of the planet) and **shadow transits** (when a satellite casts its shadow on to the visible surface of Jupiter). Of these, shadow transits are probably easiest to observe with a modest-sized telescope (say 100mm aperture or greater). Look for a dark spot crossing Jupiter's disk. A list of shadow transits visible in the evenings this month is given below. (*Data obtained from the BAA Handbook*).

December	Shadow transit of
7 <sup>th</sup>	Io 19:37 to 21:52
13 <sup>th</sup>	Ganymede 18:16 to 21:23
14 <sup>th</sup>	Io 21:31 to 23:45
18 <sup>th</sup>	Europa 16:08 to 18:49
20 <sup>th</sup>	Ganymede begins at 22:15
21 <sup>st</sup>	Io begins at 23:24
23 <sup>rd</sup>	Io 17:53 to 20:08
25 <sup>th</sup>	Europa 18:45 to 21:26
30 <sup>th</sup>	Io 19:47 to 22:02

**Saturn**, having emerged from its conjunction with the Sun, is a morning object in the constellation of Libra. Being still close to the Sun, it is an inconspicuous object low down in the pre-dawn sky.

**Uranus**, in the constellation of Pisces, is a magnitude 5.8 evening object close to the border with Cetus. It will be setting at midnight by the end of December.

**Neptune**, magnitude +7.9, is an evening object in the constellation of Aquarius, about 11 degrees south of the celestial equator. It becomes difficult to observe as the month progresses, and by the end of December will be setting soon after 8 pm.

## **METEORS**

The **Geminids**, our richest and most reliable meteor shower, can be observed between December 8<sup>th</sup> and 17<sup>th</sup>, but reach their maximum activity at around 1 am on the 14<sup>th</sup>, when over 100 events may be seen per hour. Unfortunately this year there will be some interference from a waxing gibbous Moon, but don't be put off completely by that, as some of the Geminids are particularly bright.

## **Comet ISON**

Comet 2012 S1 (ISON) will have passed within 730,000 miles of the surface of the Sun during its perihelion passage on November 28<sup>th</sup>. If it survives that ordeal, involving temperatures of around 2700 degrees Celsius, it will emerge to move northward through our sky, beginning December in Scorpius (too close to the Sun) then moving through Serpens Caput (second week of December), Corona Borealis (around Christmas), and reaching Draco by the end of the month. Of course it will be fading all the time, but its brightness is unpredictable, and you should consult the internet to keep in touch with developments from day to day.

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## **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 Journal e-mailing list**

To register for your monthly e-mailed copy of the NAS Journal, 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.

## DIARY DATES 2013 - 2014

### **Monthly Meetings of the Nottingham Astronomical Society**

Our programme for this year is shown below. Don't forget to check our website:

[www.nottinghamastro.org.uk](http://www.nottinghamastro.org.uk)

for the latest information about the Society's meetings and for further information about the talks and speakers.

Our meetings are held on the **FIRST THURSDAY** of the month,

at the British Geological Survey, Keyworth, Notts. NG12 5GG

doors open at 7:30pm for 8pm start.

**Thursday 5th December 2013**

**Dramatic Lecture : " Into the Cosmic Ocean "**

**The dream of travel to the stars**

**Andrew Lound**

Andy is a popular public presenter and UK Coordinator for the Planetary Society

**Thursday 2<sup>nd</sup> January 2014**

**"A Ramble Through the Winter Skies"**

**Paul Money**

**Thursday 6<sup>th</sup> February 2014**

**Members' Evening**

**(to which non-members are very welcome)**

## FUNcube Satellite news

**Thursday November 21<sup>st</sup> 2013:**

The Funcube satellite was launched earlier this morning at 7:10 am and is now transmitting low power signals in its safe mode whilst checks are being carried out. Most of the design team are at the RSGB National Radio Centre at Bletchley Park to man a monitoring station for at least the first two days following the launch. The first signals from FUNcube-1 should be heard in Southern Africa and then in Hawaii and then Alaska. After that, signals should be heard in the UK on a very low pass to the east around 08:50 UTC.

The latest daily reports on progress can be found at this link:

[FUNcube Launch Campaign – Latest](#)

### NEWS UPDATE:

About 10 mins after separation, data has successfully been received, decoded, and uploaded to the data warehouse. There was a huge cheer here at BP. The first signals were received by ZS1LS in South Africa at 07:37. Many many thanks, OM, you have made a lot of people at BP very happy! All main parameters on FUNcube look nominal; temp, battery voltage, solar panel charging rate, etc!

The dashboard software can be downloaded from: [Dashboard download page](#)

Rob Bush.

## ADVERTISEMENT

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### FOR SALE

10 x 50 Helios binoculars with soft case (with strap)	£20
Moon filter, 25% transmission, 1¼ inch fitting (boxed)	£10
Celestron lens pen	£1
Micro-fibre cleaning cloth	£1

For any of the above, please contact Sam Boote at [s.boote@bcs.org](mailto:s.boote@bcs.org) or at Society meetings.

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# Nottingham Astronomical Society

Affiliated to the British Astronomical Association  
Member of the Federation of Astronomical Societies  
Member of the Society for Popular Astronomy  
Supporters of the Campaign for Dark Skies  
Registered Charity No: 1066645

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## **ORDINARY COMMITTEE MEMBERS:**

**Kevin Greally**

**David Anderson**

**Phil Heesom**

**Jackie Sutton**

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## **Meetings**

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

**The British Geological Survey**

**Nicker Hill**

**Keyworth**

**Nottingham NG12 5GG**

Doors open 7.30pm

**Meetings start 8.00pm**

Meetings end 10.00pm

Meetings are open to the public, and visitors are always welcome to attend.

## **Annual subscriptions 2014**

Full	£25
Concessions	£12.50
Joint rate for partners living at the same address	£37.50

Subscriptions become due on 1<sup>st</sup> January. Half-price subscription is charged if joining after 1<sup>st</sup> July. 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. A membership application form is inside this issue of the Journal.

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### **The Nottingham Astronomical Society**

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# NOTTINGHAM ASTRONOMICAL SOCIETY



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Affiliated to the British Astronomical Association  
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## ***Membership application and Gift Aid declaration***

**Title:**

**Full name:**

**Full home address:**

**Postcode:**

**Telephone:**

**e-mail address:**

<b>Subscription rate:</b>	Full	£25.00	(year)	£12.50	(half year)
	Concession	£12.50		£6.25	
	Partnership	£37.50		£18.75	

Concession = under-18 / full-time student / unemployed and receiving benefits

Partnership = two members living together as a couple at the same address

I wish my subscriptions to be eligible for Gift Aid **Yes / No**

## ***Gift Aid declaration***

**(HMRC reference XR32048)**

I want Nottingham Astronomical Society to treat all subscriptions and donations that I make from the date of this declaration as Gift Aid donations, until I notify you otherwise.

I pay an amount of UK Income Tax and/or Capital Gains Tax at least equal to the tax that Nottingham Astronomical Society reclaims on my donations in the appropriate tax year.

**Signature:**

**Date:**