

# SPACEWATCH

the newsletter of the Abingdon Astronomical Society

**Next Talk**  
**14<sup>th</sup> January 2019**  
**The Evolution of the Milky Way**  
**Professor James Binney**  
**University of Oxford**

## EDITORIAL

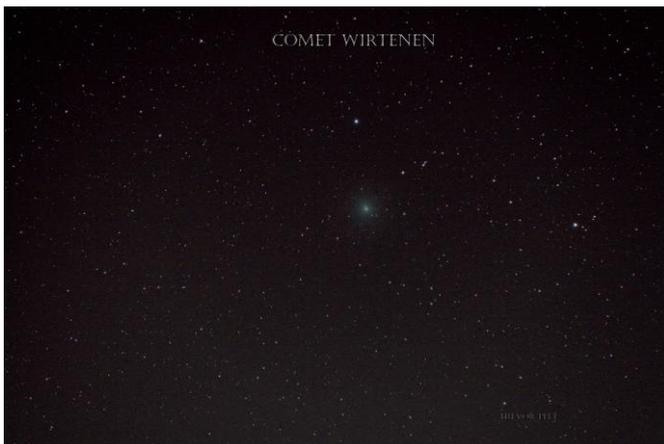
Welcome to the last edition of Spacewatch for 2018. I hope you all had a good year astronomy wise and have lots of ideas for astronomy presents for Christmas.

As noted last month 46P has brightened and a number of the society have been out to see it and image it. If we get enough images then we can have a special edition of SpaceWatch in January.

The society has two outreach events already scheduled in the New year. The first is the annual event at the University of Oxford on Saturday 26<sup>th</sup> January. The second is the ATOM science fair in Abingdon on Saturday 23<sup>rd</sup> of March. Unfortunately I cannot make either as I will be at a BAA council meeting on the 26<sup>th</sup> and at a BAA DSS meeting in March. However we are looking for volunteers so if you may be available please see myself, Ian Smith or Chris Holt.

Also a pre note about the total lunar eclipse next month on the night of the 20/21 Jan. I expect this to be clouded out but it is also a morning event.

This version of Spacewatch comes in two forms the print version and the PDF version downloadable from the website. Unfortunately I could not fit the whole Night Sky guide into the four pages we have available for the print edition so to see the whole magazine please download the version from the website <http://www.abingdonastro.org.uk/aas%5Fblog/>



46P Trevor Pitt

## THE NIGHT SKY THIS MONTH

by Steve Creasey

December is probably my favourite month when it comes to astronomy, it's definitely not my favourite when it comes to anything else, but astronomy yes. Who isn't impressed at the sight of Orion rising above the horizon, with its incredible, naked eye visible, star forming nebula, following Taurus with its Pleiades and Hyades star clusters.

Andromeda galaxy and the Triangulum galaxy are still well placed, and there is even one of the best meteor showers of the year in December.

This December we also have a Comet which is currently shaping up to be very well positioned throughout the month and hopefully going to be one of the brightest we have had for a while, let's keep our fingers crossed.

### The Planets

**Mercury** - Is visible as a morning object at the moment and will be at greatest elongation west on the 15<sup>th</sup>, rising at around 06:15, roughly 1 hour and 15 minutes before the Sun.

**Venus** - Is also a morning object at the moment, rising at around 04:00 on the 6<sup>th</sup>  
Very bright, it will have a magnitude of 4.87 on the 1<sup>st</sup>

**Mars** - Is still nicely positioned in the early evening sky. Looking south at around 18:00 on the 1<sup>st</sup>, Mars is still reasonably bright at magnitude -0.02, however it will be getting fainter as we go through December.

**Jupiter** - Will not be visible throughout December as it will be too close to the Sun in the morning sky.

**Saturn** - Is also not visible throughout December as it will be setting just after the Sun.

**Uranus** - Is well positioned at the moment and throughout December. Rising in the East at around 14:00, it will reach maximum altitude due south around 20:55 and set in the West at around 03:10

**Neptune** - On the evening of the 7<sup>th</sup> December there will be less than half an arc minute between Neptune

and Mars, this is very close. This is a great opportunity to see/image these two planets so close together, but you will need to be set up early as they reach their maximum altitude at around 18:00.

Please share with us any images you do manage to get.

## Meteor Showers

**The Geminids** – In December stargazers everywhere are treated to the year's grand finale meteor shower known as the Geminids. This two week spectacle begins around the 7th and is more prolific than even the famous Perseids and Leonids.

The Geminids are considered to be one of the most spectacular meteor showers of the year, with the possibility of sighting around 120 meteors per hour at its peak, which is on December 14-15.

Under optimal conditions, the Geminids can be viewed much earlier than most meteor showers at around 9pm but gain strength between midnight and dawn, with their peak around 2am.

The shower owes its name to the constellation Gemini because the meteors seem to emerge from this constellation in the sky.

The Geminids are unique in the solar system in that most annual meteor showers are identified with active comets, where as the Geminids are thought to be caused by the Palladian asteroid known as 3200 Phaethon. It has been speculated that when Phaeton was young it got caught in Saturn's orbit and now passes by the Earth every year leaving behind its debris trail.

The Geminids were first discovered in 1862 but its parent asteroid 3200 Phaethon wasn't identified for another 120 years, in 1983.

**The Ursids** – Not on par with the Geminids, the Ursids meteor shower is active annually between December 17 and December 24. The shower usually peaks around December 23. At its peak, observers may be able to view as many as 10 meteors in an hour. However with the full moon being on the 22<sup>nd</sup> you will be lucky to see any at all.

## Deep Sky Objects

**NGC 1535** – Cleopatra's Eye Nebula, is a Planetary Nebula in the constellation of Eridanus, discovered by William Herschel in February 1785

**NGC 1360** – The Robins Egg Nebula, this target may be a bit more challenging due to it being fairly low down in the constellation of Fornax.

An OIII filter should help to give more detail of this target as it is giving off strong radiation in this band. The nebula was discovered by the German astronomer Friedrich August Theodor Winnecke in January 1868.

**NGC 1514** – The Crystal Ball Nebula, is a Planetary Nebula in the constellation of Taurus. Discovered by William Herschel in November 1790 describing it "A most singular phaenomenon" and forcing him to rethink his ideas on the construction of the heavens. Up until this point Herschel was convinced that all nebulae consisted of masses of stars too remote to resolve, but now here was a single star "surrounded with a faintly luminous atmosphere." He went on to conclude "Our judgement I may venture to say, will be, that the nebulosity about the star is not of a starry nature"

**NGC 691** – Is a face on, Spiral Galaxy in the constellation of Aires. NGC 691 is the namesake for the galaxy group "NGC 691 group", this is a group of 9 galaxies consisting of, NGC691, 678, 680, 694, 695, 697, IC 1730 and IC 167

**NGC 6503** – The Lost In Space Galaxy, is in the constellation of Draco. So named as it finds itself in a lonely position, at the edge of a strangely empty patch of space known as the Local Void. Around 18 million light years from Earth, NGC 6503 is about a third of the size of the Milky Way.

**M81** – Bodes Galaxy, an almost face on spiral galaxy in the constellation of Ursa Major. It is the namesake of the M81 group, consisting of around 35 galaxies of various sizes, shapes and types. With its large size and relative close proximity, at around 12 million light years, M81 is easily observable even in small telescopes and binoculars.

**M82** – The Cigar Galaxy, is a Star Burst Galaxy, located next to M81 in the constellation of Ursa Major. The galaxy is five times more luminous than our own Milky Way galaxy, and has a centre 100 times more luminous than the centre of the Milky Way.

**M45** – The Pleiades, is an Open Cluster in the constellation of Taurus. Visible with the naked eye and stunning when seen through binoculars or a wide field eye piece in a telescope.

**NGC 1647** – The Pirate Moon Cluster, is an Open Cluster in the constellation of Taurus. Discovered by William Herschel in 1748. It is located close to the star Aldebaran.

## LAST MONTHS TALK

by Gwyneth Hueter

November 2018's talk

George Sallit is chairman of Newbury AS and his passion for digital astrophotography goes back a long way. His talk covered a comparison of CCD versus CMOS photography.

He was a pioneer of CCD 20 years ago, in the days of

He started with a comparison between the two forms, how the electrons are collected from the individual pixels in the CCD cameras. Interesting how CCD cameras can have daylight versions now. They do have to be cooled.

CMOS ('Complementary Metal-Oxide Semiconductor' chips) have improved a lot in recent years and basically each pixel element is self-contained with its own processing facility- is able to process information itself. Initially they were very noisy but improving technology means the signal to noise ratio has much improved.

Mr Sallit's talk was surely a good inspiration to members who already had some knowledge and interest in CMOS photography, and he spoke at length about the different pixel sizes that various cameras have, so that you could take pictures through very small scopes.

For those of you who want more information the best thing is to look at the websites of the ZWO ASI, QSI, and Panasonic cameras, for example. [atikcameras.com](http://atikcameras.com) and [cloudynights.com](http://cloudynights.com) also have plenty of discussion material. For someone like me who knew nothing about CMOS photography it was quite an eye-opener and it looks to be quite an advance on CCD imaging.

**NGC 2264** – The Christmas Tree Cluster and the Cone Nebula, NGC 2264 identifies both these two objects in the constellation of Monoceros. The Christmas Tree Cluster is an Open Cluster that has formed in within an emission nebula, and resembles a Christmas tree. The Cone Nebula is a cone shaped region of the emission nebula that surrounds the Christmas tree cluster. Discovered by William Herschel on December 26<sup>th</sup> 1785

### Comets

#### 46P/Wirtanen

This December is looking quite promising with a bit of luck.

Comet 46P/Wirtanen will reach Perihelion on the 12<sup>th</sup> of the month, it will be in a favourable position for the entire month and is predicted to reach magnitude +3, this would make it the brightest comet since C/2011 L4 (PANSTARRS) in April 2013, and visible to the naked eye.

At its closest approach, the comet will be only 0.078 AU (11.6 million Kilometers) from Earth on the 18<sup>th</sup>.

The comet will pass reasonably close to M45 The Pleiades on the 16<sup>th</sup>, giving the opportunity for some even more interesting pictures.

This will be an easy object to photograph, you will need a tripod and a camera that is able to take

10 – 30 second long exposures, set the ISO to 1600 and point in the right direction.

#### 38P/Stephan-Oterma

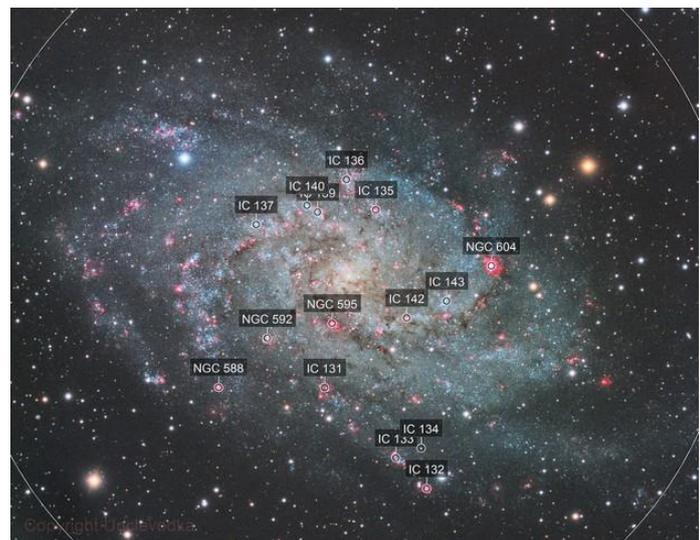
Is also going to be in a reasonably favourable position for the whole month.

It passed perihelion in August and has a 38 year orbital period, it will reach closest approach on 17<sup>th</sup> December and may have a magnitude of +9

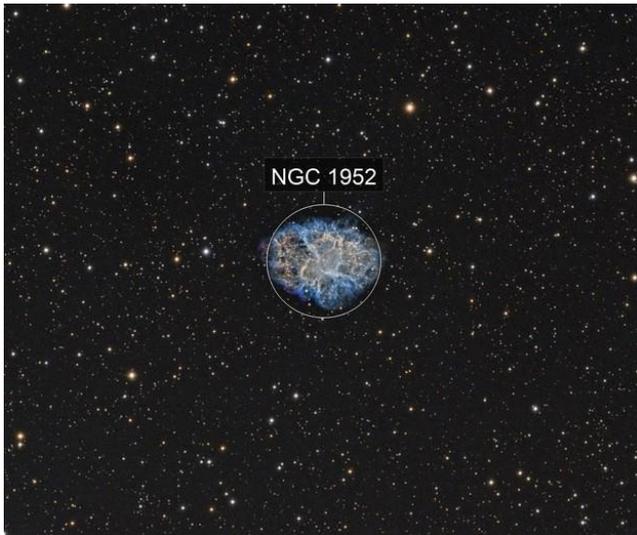
### Moon

New moon 7 Dec 07:20, Rising at 0738  
First quarter 15 Dec 11:49 Rising at 12:41  
Full moon 22 Dec 17:48 Rising at 16:00  
Last quarter 29 Dec 09:34 Rising at 00:43 (30<sup>th</sup>)

Please share with us any images you get throughout December, maybe they will make it into the next SpaceWatch.



M33 – Clifford Marcus

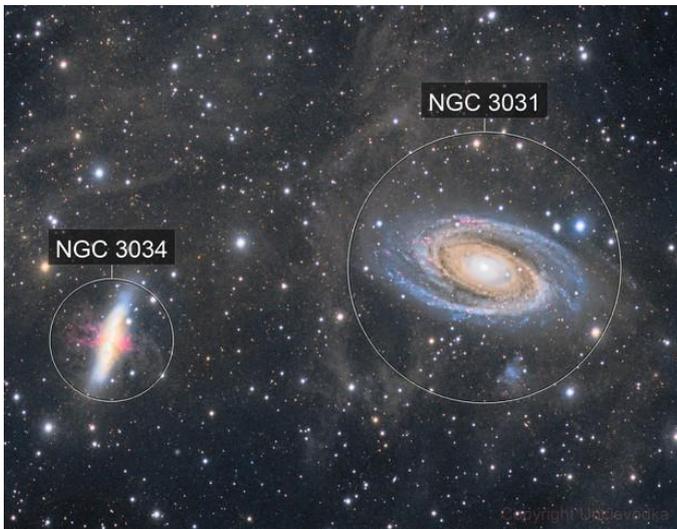


More information on society activities can also be found on the Facebook page - <https://www.facebook.com/AbingdonAstroSoc/> Although confusingly we seem to have two groups on Facebook.

**DATES FOR YOUR DIARY**

**17<sup>th</sup> December 8pm Beginners' Meeting in the Main Hall., talks to include Binoculars and DSLR imaging of the Moon (although subject to change)**

M1 – Clifford Marcus



**Observing evening: The next observing session will be on the FCN 7<sup>th</sup> – 9<sup>th</sup> Jan 2019 at Frilford Heath Tubney Golf driving range, note that this is a new location and maps will be on the website. As always go/no go notes will be posted on the newsgroup as well as the Facebook page so please look there for more info or contact Trevor Pitt or Steve Creasey for details.**

**Total Lunar Eclipse 20/21<sup>st</sup> Jan 2019. Visible in the morning of 21<sup>st</sup> Jan. More details in the January Spacewatch but time to get your cameras ready and practised.**

M81 and M82 – Clifford Marcus

**Oxford University Stargazing 26<sup>th</sup> Jan 2019. The website for this is not yet up but keep looking for it as it is a popular day out.**

**FURTHER DISCUSSION**

If you are not already on our internet mailing list, then why not log on to YahooGroups. The list is called 'abingdonas'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. To read through previous messages click on:

<http://groups.yahoo.com/group/abingdonas/> .

To join the abingdonas list, please go to <http://www.yahogroups.com> . You can also unsubscribe from the list here.

**Early Planning for AstroFest Feb 8/9 at Kensington Town Hall details at <http://europeanastrofest.com/>**

