

# SPACEWATCH

the newsletter of the Abingdon Astronomical Society

## Next Talk

8<sup>th</sup> October 2018

Kew Observatory and the birth of solar-terrestrial physics

Dr Lee Macdonald

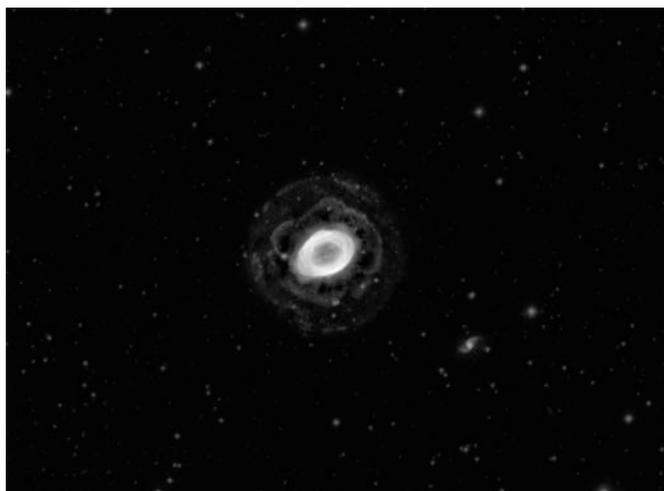
Museum of the History of Science Oxford

## EDITORIAL

Welcome to the first edition of Spacewatch for the new session. After a disappointing summer for astronomy with both the lunar eclipse and the Perseids being clouded out hopefully we can get a better start to the new season observing wise. I apologise that I won't be at the first meeting of the season as unfortunately all the main meetings in the first half of the year coincide with new moon and for the September meeting I will be at the Kelling Heath star party.

I know this is also starting to sound like a worn-out record but we need more after tea speakers. Failing this the meetings will start to end early. The core group cannot continue to run these as well as the beginner's meetings and we really need some help on this. So any observing projects you are doing or new pieces of kit you would like to talk about then I am sure that other members would like to hear about them.

My thanks to Steve Creasey for taking over writing the Night Sky column from Bob. Unfortunately not all his information could be fitted into the paper version of SpaceWatch so to see the full version of the Night Sky column please go and download the PDF version from the website.



M57 – H-Alpha – Ian Smith

## THE NIGHT SKY THIS MONTH

by Steve Creasey

So, the Lunar eclipse has just happened and it was spectacular..... in many places around the world, but not in the UK. After what seemed like weeks of clear skies, the gods of astronomical events and cloud got together to mock us yet again. Still, at the time of writing, we have the Perseids to look forward to, hopefully not more cloud watching.

It was cloudy, but in the couple of weeks leading up to it I managed to see quite a few, so could have been worse.

There is plenty to look forward to during September, with over 7 hours of astronomical dark from the 10<sup>th</sup>, astronomy starts to become a more realistic prospect for those of us having to also function in the daylight hours.

### The Planets

**Mercury** – As September starts, **Mercury** rises 90 minutes before the Sun in the constellation of Leo, and is best seen above the eastern horizon in brightening twilight at around 04h when it is 5° above the ENE point on the horizon. It should be possible to glimpse Mercury at this time with the unaided eye, when it has the appearance of a bright star at visual magnitude -0.87. The planet may be seen in this direction during the first week of September, but gradually sinks lower as it moves towards superior conjunction with the Sun on the 21<sup>st</sup>

Mercury at greatest East elongation - 12 Jul 2018, 05:00 BST

Mercury at greatest West elongation - 26 Aug 2018, 22:48 BST

Mercury at greatest East elongation - 06 Nov 2018, 14:59 GMT

Mercury at greatest West elongation – 15 Dec 2018, 15:17 GMT

**Venus** – During September **Venus** sets less than an hour after the Sun, and as the month progresses it becomes difficult to observe. However, in binoculars, Venus takes on the appearance of an extremely thin miniature crescent moon. During the first week of September the planet may be seen low

(3° altitude), in the WSW sky at around 19h00, and it may also be possible to glimpse Spica, the brightest star in Virgo nearby in the same binocular field.

Venus at greatest West elongation – 03 Jun 2017, 06:58 BST

Venus at greatest East elongation – 17 Aug 2018, 08:58 BST

Venus at greatest West elongation – 06 Jan 2019, 06:02 GMT

Venus at greatest East elongation – 24 Mar 2020, 07:31 GMT

**Mars** – On the first of the month, **Mars** sets at 01h, but at the month's end the planet is setting just before 00h, so the planet has now become an evening object as Earth leaves the planet behind. However Mars, on the Capricornus/Sagittarius border is still shining brightly with its ochre coloured light. During September the planet fades from visual magnitude -2.1 to -1.3. So for almost all of the month it is brighter than Sirius (the brightest of all true stars, after the Sun). There is a conjunction with the Moon at 04h00 on the 20<sup>th</sup>, by which time the planet will have set. However the gibbous waxing Moon will lie 5° to the west (right) of Mars at 23h00 the previous night (19<sup>th</sup>) as the two objects are setting in the SW.

**Jupiter** – Is an evening object in the constellation of Libra and may be seen low in the SW sky in the early evening. By the end of September the planet sets at around 19h00. Its appearance is that of a star shining brightly and steadily at magnitude -1.8. The waxing crescent Moon may be seen approaching Jupiter on the 13<sup>th</sup>, when at 19h00, Jupiter lies 5° to the east (left) of the Moon, and the following night the 14<sup>th</sup>, when the waxing crescent and the giant planet are 8° apart. On this latter occasion Jupiter lies 8° to the west (right) of the Moon. Using binoculars look out for Jupiter's moons and their nightly dance around the planet.

**Saturn** – Mid-month, **Saturn** culminates (crosses the south meridian) at around 19h00, when its altitude is around 12°. Again, despite the favourable presentation of the northern surface of the rings towards Earth, the low altitude of the planet affects the clarity of the view through a small telescope. However modern techniques in imaging using software to 'stack' images of the planet produce excellent results. Saturn's largest moon Titan is at its greatest elongation east of the planet on the 2<sup>nd</sup> and 18<sup>th</sup> and western elongation on the 10<sup>th</sup> and 26<sup>th</sup>. The gibbous waxing Moon passes close to Saturn on the evening of the 17<sup>th</sup>, when at 19h00 the two objects are just over a degree apart in the south. See if you can spot Saturn in the same binocular field as the Moon, in the fading twilight.

**Uranus** - In the constellation of Aries the Ram rises during the early evenings of September and may be seen in binoculars for the rest of the night. It culminates (crosses the meridian) at around 02h00. Uranus lies 8° south of Mesarthim (gamma Arietis), and has a visual magnitude +5.71 **Uranus** is on the threshold of naked eye visibility, so is best seen through a small telescope.

**Neptune** - Is at opposition and its nearest to the earth this year on the 7<sup>th</sup>. Despite this, the planet is very faint and is below naked eye visibility at magnitude +7.8. The planet lies 41 minutes of arc to the NW of the visual magnitude +5.43 star 82 Aquarii. It is theoretically visible all night long

**Meteor Showers** – Nothing major happening in September, there is the Piscid meteor shower on the 21<sup>st</sup>, but with a maximum rate of meteors expected to be visible at around 5 per hour, it is hardly worth staying up for.

## Deep Sky Objects

Lots of Globular Clusters (GC's) around for September. With the Milky Way passing overhead and fading to the west through the night, we are still able to see some of the best Globular clusters, planetary nebulae as well as many Galaxies coming into view as the Milky Way clears out of the way. Here is a selection of DSOs to look out for, some easily visible in small scopes and binoculars and others requiring slightly larger scopes.

M15, is a globular cluster in the constellation Pegasus.

M2, is a globular cluster in the constellation Aquarius.

M75, another globular cluster, this time in Sagittarius, sitting just above Mars in the early part of September.

M57, The Ring nebula in Lyra.

M27, The Dumbbell nebula in Vulpecula.

NGC 6822, is a barred irregular galaxy approximately 1.6 million light-years away in the constellation Sagittarius.

NGC 488, is a face-on spiral galaxy in the constellation Pisces.

M31, The Andromeda Galaxy, try and spot M32 and M101, the two satellite companions of M31.

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## LAST MONTHS TALK

by Gwyneth Hueter

June 2018

June 2018's talk was given by Peter Birtwhistle: 'Added extras for observing Near-Earth asteroids'

Peter has given a talk on the subject in the past and he runs the Great Shefford Observatory about twenty miles south of Abingdon on the A338 not far from the M4.

He uses a 16" Meade SCT and a back illuminated CCD camera. His passion for the subject is clear when he talks about his personal code being J95 and that he runs the minor planet website where new near earth objects are confirmed by being posted every month

Some get moved to a possible comet confirmation page.

He uses the Astrometrica app as it is good for stacking images and you can set a median mode that reduces starlight. This is useful in that sometimes objects are moving so fast that you are limited to very short exposures and even then they may be blurred.

He clearly enjoyed talking about some observations made in early March 2005 where he discovered one object while observing another. The next day he found four more in the same shot. The day after that he found two more as he followed the previous ones.

Modern search techniques mean that the numbers of asteroids are increasing hugely. Computerised large scale surveys such as Pan-STARRs and Catalina make it difficult for amateurs to compete. (Don't forget the reasons for this financial outlay: Earth gets hit by these lumps of rock regularly and we need to know if there's a large one heading towards us.) In 2002 there were about 200,000 known asteroids inside the orbit of Jupiter, but by beginning 2018 there were nearly 800,000 and the gaps between Jupiter, Mars and Mercury are now rapidly being filled up. (It should read one million by now.)

Amateurs can also have fun with the objects that have very elliptical orbits. They may not appear on a sky survey but then pop up nicely on a more favourable opposition.

Another interesting object was observed in 2009 on an elongated orbit and has since been identified as an old rocket booster. (Designation WT1190 F)

Dedicated asteroid observers get given their own personal codes (like his own, J95), and he showed where these people are scattered over the British Isles. There is scope for more observers in Western Ireland and Northwest Scotland. The wide area covered by observers does mean that the effects of parallax may show up. Good to know if that helps to locate a rock heading straight for us....

## 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.

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

**26<sup>th</sup> September 8pm Beginners' Meeting in the Main Hall., talks to include Telescope mounts, Novae and Observing Occultations (although subject to change)**

**Observing evening: The first observing meeting of the new session will be on the FCN 1<sup>st</sup> – 3<sup>rd</sup> Oct 2018 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.**

**International Astronomy Show in Coventry on 12/13<sup>th</sup> October 2018 details at.**

<https://www.ukastroshow.com/>

**FAS AGM and Convention in York – details at :-**

<http://fedastro.org.uk/fas/>

**THE NIGHT SKY THIS MONTH - CONTINUED**

## Ocultations – for September 2018

Date	Time (UT)	D R	Lunar Phase	Sun Alt (°)	Star Alt (°)	Mag	Star
21 Sep 2018	20:29:13 21:21:16	D R	0.90+	-23 -29	20 21	3.7	40 Cap, $\gamma$ Cap
23 Sep 2018	21:08:22	D	0.98+	-29	24	4.2	91 Aqr, $\psi$ 1 Aqr
23 Sep 2018	21:43:43	D	0.98+	-32	27	4.4	93 Aqr, $\psi$ 2 Aqr

## Comets

Comet name	Mag	Constellation	Separation from Sun	Trend
<a href="#"><u>21P/Giacobini-Zinner</u></a>	7.4	<a href="#"><u>Camelopardalis</u></a>	81°	Brightening (peak at mag 6.5 on 10 Sep 2018)
<a href="#"><u>C/2016 N6 (PANSTARRS)</u></a>	12.4	<a href="#"><u>Cancer</u></a>	24°	Brightening (peak at mag 12.2 on 28 Nov 2018)
<a href="#"><u>46P/Wirtanen</u></a>	12.9	<a href="#"><u>Cetus</u></a>	135°	Brightening (peak at mag 3.2 on 16 Dec 2018)
<a href="#"><u>69P/Taylor</u></a>	13.2	<a href="#"><u>Eridanus</u></a>	101°	Brightening (peak at mag 11.9 on 2 Dec 2018)
<a href="#"><u>C/2018 L2 (ATLAS)</u></a>	13.6	<a href="#"><u>Libra</u></a>	65°	Brightening (peak at mag 12.7 on 10 Dec 2018)

## The moon

**1<sup>st</sup> September** – Waning gibbous 68%, moon rise 22:36

**3<sup>rd</sup> September** – Third quarter, moon rise 23:40

**9<sup>th</sup> September** – New moon, moon rise 05:38

**17<sup>th</sup> September** – First quarter, moon rise 13:12

**25<sup>th</sup> September** – Full moon, moon rise 19:29

**30<sup>th</sup> September** – Waning gibbous 71%, moon rise 21:47

