

Issue January 2019



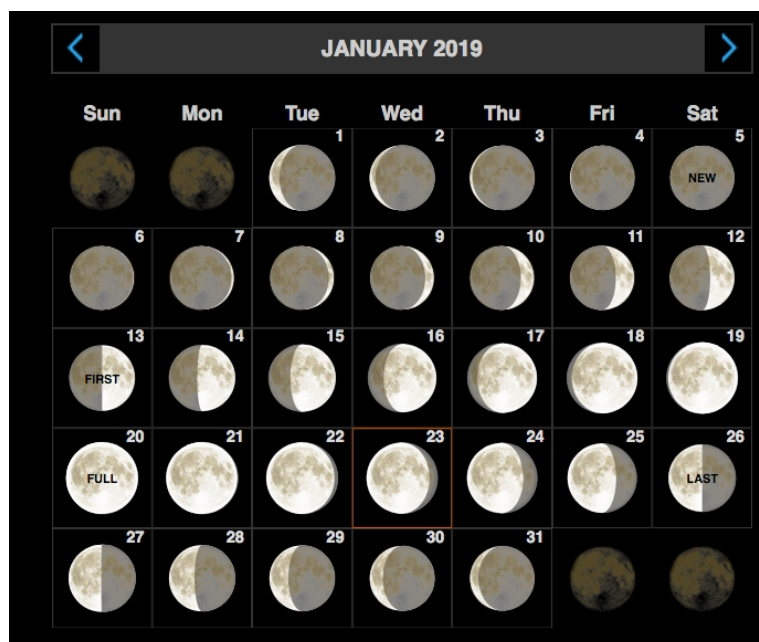
Ayrshire Astronomical Society Newsletter

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28th January
7pm at
Prestwick Academy

Speaker:
Dr Alec MacKinnon
'Antimatter in Space'



Moon phases for January 2019

President's Word

Holy Cow!

I hope you all have had an enjoyable festive season with not too many hangovers and moderate weight gain! Unfortunately, I was struck down by the lurgy shortly after I arrived in Wales for Christmas and the New Year, and consequently didn't get a chance to image Comet Wirtenan as I had planned, but have seen some very nice photos from some of our members and others in the various groups I frequent.

Big news for this month is that scientists have been debating a huge celestial outburst that you may have been aware of happening last summer.

One explanation had a white dwarf torn apart in a cataclysmic tidal disruption event when it passed too close to a black hole with a mass ranging from 100,000 to 1 million times that of our sun. The doomed dwarf was destroyed by the black hole's enormous gravity, breaking apart in a stream of gas that whipped back around the hole and collided with itself, creating a huge elliptical cloud of debris.

"We've never seen anything exactly like the Cow, which is very exciting," said Amy Lien, an assistant research scientist in Greenbelt, Maryland. "We think a tidal disruption created the quick, really unusual burst of light at the beginning of the event and best explains Swift's multi-wavelength observations as it faded over the next few months."

The second explanation argues the Cow outburst was the result of a massive star exploding in a supernova, giving birth to a collapsed neutron star or black hole. If so, it would mark the first time such an event has been observed as it happened.

"We saw features in the Cow that we have never seen before in a transient, or rapidly changing, object," said Raffaella Margutti, an astrophysicist at Northwestern University in Illinois, USA.

"Our team used high-energy X-ray data to show that the Cow has characteristics similar to a compact body like a black hole or neutron star consuming material. But based on what we saw in other wavelengths, we think this was a special case and that we may have observed – for the first time – the creation of a compact body in real time."

Data from NASA's NuSTAR and the European Space Agency's XMM-Newton and INTEGRAL satellites, along with the Very Large Array, indicate the optical and ultraviolet flash initially detected was generated by a supernova blast and that X-ray emissions seen after the outburst came from gas heating up as it fell toward a neutron star or black hole.

"If we're seeing the birth of a compact object in real time, this could be the start of a new chapter in our understanding of stellar evolution," said co-author Brian Grefenstette, a NuSTAR instrument scientist at Caltech. "We looked at this object with many different observatories, and of course the more windows you open onto an object, the more you can learn about it. But, as we're seeing with the Cow, that doesn't necessarily mean the solution will be simple."

This is really fascinating news, and I'm sure we all look forward to further developments.

I look forward to seeing you all at January's meeting.

For now though, wishing you all, clear skies and dew free optics!

Roger Harman

News and Events

19th February 2019

Professor Brian Cox Universal – World Tour 2019. He will be at the SSE Hydro in Glasgow if anyone is interested, book tickets online.

Marc's Article

Monday's Lunar Eclipse

For those intrepid enough to get up early in the morning and lucky enough with the weather Monday morning's eclipse did not disappoint.

I got up early enough to see the moon just after it had been swallowed a little more than half way by the earth's shadow, well in time to witness totality. Even though there was quite a bit of cloud about, I was fortunate it did not obscure things too badly.



The moon entered totality at around 4:41, however, in hindsight, I made the poor decision to take a series of spaced short exposures rather than more continuous longer exposures, as a meteor hit the moon less than a minute later (4:41:43 UTC), so I missed it completely.

To see and find out more about it, please visit: www.spaceweather.com or https://www.popastro.com/main_spa1/blog/2019/01/21/lunar-eclipse-photos/ (link courtesy of Dave Hancox).



Shortly afterward, I did switch to taking longer exposures and was rewarded with a quite a few good images of totality. I concur with several other observers who thought the moon looked darker than it was during some recent eclipses, to my eye it looked more like a slightly reddish brown in colour, even in binoculars, much like the image on the left.



Unfortunately, this was the best lunar eclipse we will see from the UK for quite some time. There is a partial lunar eclipse that will be visible at moonrise from the UK on the 16th of July this year, however, after that, there won't be a full total lunar eclipse visible from our location until the 20th of December 2029, so if you wish to see one in the interim you will have to travel. Otherwise, weather permitting, we will see the starts or ends of three others in the intervening years. Information about future and historical eclipses can be found here:

<https://eclipse.gsfc.nasa.gov/lunar.html>.

Marc Charron

Alex's article

What's in a name?

At one time it was assumed that The Wilson Observatory in America was named after President Woodrow Wilson, but it is not so, it was named after Mount Wilson where the observatory is sited. Woodrow Wilson did have a passion for Astronomy and ,when he was President, he made sure there were sufficient funds available to keep the observatory up to date with the latest technology. Less well known however are his limerickshumorous poems with five lines, here is one of Woodrow Wilson's limericks;

For beauty I am not a star,
There are others more perfect by far,
But my face I don't mind it
For I am behind it
It is those in front that I jar

Scientists are to start a project that could see new materials created in space with properties that are impossible to develop on Earth. The Strathclyde University led project will be carried out on the International Space Station in 2021. It will take advantage of the micro gravity conditions to create alloys and medicines. A scientist on the project said; "with these experiments we aim to investigate how, by shaking a complex fluid in micro gravity conditions, we can create materials with structures that we cannot make on Earth. They may even shed new light on the formation of asteroids and planets".

Alex Baillie

Jan 2019

Our Solar System Library

Open for business!

THE LIBRARY IS A RESOURCE FOR MEMBERS -PLEASE SUPPORT IT AND MAKE USE OF IT

The Library list is also available on the website under “links” and can be downloaded



The library is now full up - if you would like to obtain a list or borrow an item

– contact Alex at the next meeting or give him a call on 01563 520887.

Unfortunately Alex does not have email, however messages via library@ayrastro.com will reach him the old fashioned way after a short delay but please contact him directly if at all possible.

THE LIBRARY IS WAITING FOR YOUR CALL!! There are a lot of interesting items to borrow

Member's photos

One of the main events in December is the Geminid meteor shower, here is a photo by Marc Charron showing one of them next to the Pleiades, along with Comet 46P Wirtanen and the Hyades in the frame:



Comet 46P/Wirtanen was an early Christmas present, becoming visible to the naked eye for much of December. It has since faded, but is still visible in binoculars or a small telescope.

Image by Nick Martin taken remotely using iTelescope (T14 - Takahashi 106 FSQ).



Showing what great optics and dark skies can deliver. According to Nick there are four 14th magnitude galaxies in the image, two above and two to the left.

Here is an image of the comet next to NGC 2685, the Helix Galaxy, mag 12.7, taken by Marc on the 17th of Jan.



Lastly, an image of part of Orion, also by Marc taken in early December.

