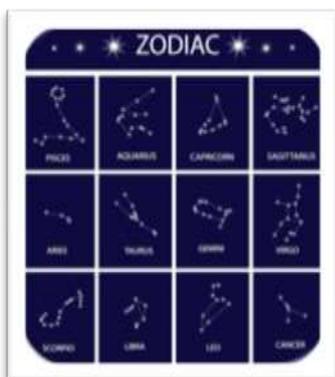




>>> **Ayrshire Astronomical Society Newsletter**

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Forthcoming Events

12th December

The AAS Christmas meal at No 22 Bar and Grill in Ayr.



Next Meeting:

28th November

At Prestwick Academy

Guest Speaker Dr. Alex MacKinnon

"Gamma-ray Astronomy of the Sun and Moon"

Mid November to Mid December Night Sky

The Moon this month:

30th Nov New Moon / 7th Dec First Quarter / 14th Full moon / 21st Last quarter

25th November: Moon and Jupiter

The Moon and Jupiter will make a close approach. You will need to get up early though as they rise at 3am.

Between 4th and 17th December: Geminids Meteor Shower

Unlike most meteor showers, the Geminids are associated not with a comet but an asteroid: the 3200 Phaeton. The peak is expected on the 13th and 14th, however, as you can see above, the full moon will make it difficult to spot them.

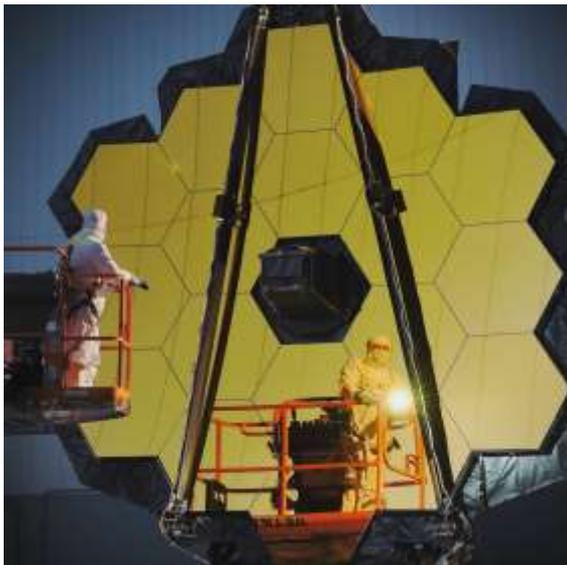
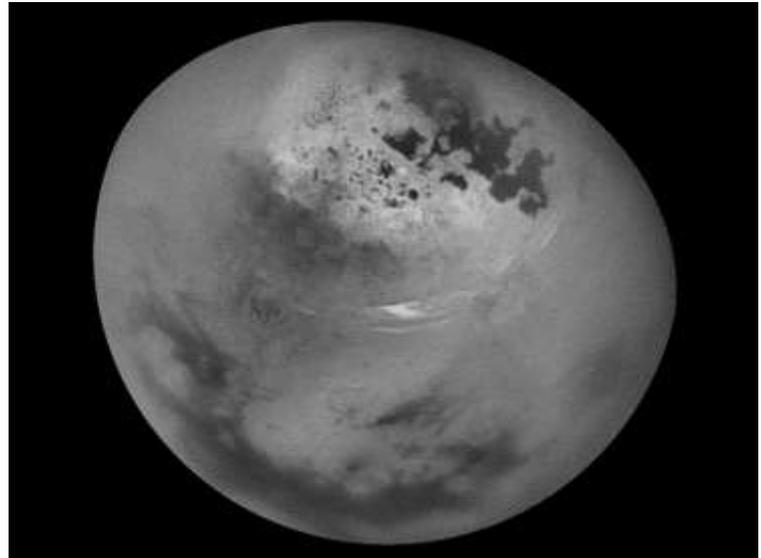
21st December: December Solstice

The December solstice occurs at 10:44 UTC. The South Pole of the earth will be tilted toward the Sun, which will have reached its southernmost position in the sky and will be directly over the Tropic of Capricorn at 23.44 degrees south latitude. This is the first day of winter (winter solstice) in the Northern Hemisphere and the first day of summer (summer solstice) in the Southern Hemisphere.

News

Nasa's Cassini Spacecraft has taken some images at the end of October showing clouds of Methane moving across the northern regions of Titan. The clouds measured to move at a speed of approx. 14 to 22 mph. As such nothing new, but this time NASA has taken images over a short time of period (11 hours) and were able to make a time-lapse movie. You can copy and paste the following link to see it.

<https://www.youtube.com/watch?v=0seT55Jk4Ko&feature=youtu.be>



Engineers and technicians successfully completed the first important optical measurement of James Webb's fully assembled primary mirror, called a Centre of Curvature test.

The telescope is due to launch in October 2018 and is a successor instrument to the Hubble Space Telescope. While Hubble has a 2.4 meter mirror, the JWST features a larger and segmented 6.5 meter diameter.

Tightly packed in a Soyuz MS-03 space capsule atop a Soyuz FG rocket, the team lifted off from the **Baikonur Cosmodrome** in Kazakhstan at 3:20 p.m. EST (2020 GMT).

Russian cosmonaut and Soyuz commander **Oleg Novitskiy**, **NASA astronaut Peggy Whitson** and the European Space Agency's **Thomas Pesquet**, who will become the first French astronaut to live aboard the International Space Station launched into space for their six month mission aboard the ISS.



Events: Past and Forthcoming

Joint Meeting with KESS on 25th October 2016



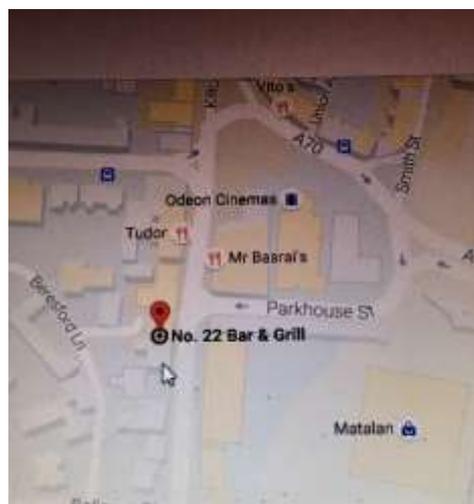
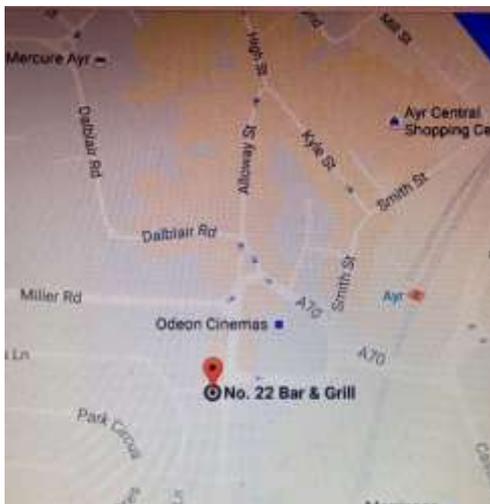
Thanks to those who turned up at the joint meeting with KESS to hear Professor Martin Hendry speak about the build up to, and the first detection of, gravitational waves. It was an excellent, well attended talk, that really brought home the planning, engineering, and science involved. Professor Hendry also gave us an insight into future developments in terms of bigger and better detectors both on land and in space. We look forward to hearing from him again perhaps to inform us of new discoveries as a result of being able to interrogate the universe using gravitational waves.

Christmas Meal 12th December



This year the Christmas meal will be held at Bar 22, Ayr. We have a private room, but numbers will be limited, so please let Derrick know that you wish to join and also pay the deposit. The Christmas meal is always a good social event so make the effort and come along.

<http://www.22ayr.com/> It is located just opposite Sports Direct, on Beresford Terrace.



Presidents' Word

Well, they are here at last, those long dark winter skies that we have all be waiting for! The trouble is, at least in Fenwick, so far, they have been mostly accompanied by plenty of cloud, rain and miserable weather. Still I am ready if it ever clears up. Not only that, I can always go out during the day and do some solar observations, hmm! Maybe not that easy, as in the winter the sun is pretty low and soon disappears behind the trees. However I will not be put off. If you too are having difficulty, or would like to stargaze at a different location with a group, look out for ad hoc meets on our Facebook page as they usually pop up when the weather looks good.

An alternative or indeed, additional possibility, is to pop along and join our colleagues at the Doon Valley Astronomical Society. Our members are welcome to observe with them down at the Roundhouse on Loch Doon. There, they have the benefit of warmth and refreshments AND very dark skies so take the opportunity, you will be welcome. For more information speak to Dave Hancox or Doon Valley Meets can be found on their Facebook page: <https://www.facebook.com/groups/DoonValleyAstro/>

Outreach

Our outreach programme for next year is still to be put together but rest assured we will be doing a few fairs and some schools so what this space. One thing that is fixed and certain is that we will again be joining KESS in their adopted school programme and this year the adopted school is Netherthird Primary School, Cumnock. The first activity is a Community Science Fair that will be held on the Saturday 11 March 2017. The objective of the Fair is to raise interest in science and technology amongst parents and children. These are fun and rewarding events and if you would like to be involved just let me know or speak to Alex Baillie or John Sharp. No special experience is required as these are informal events where we display telescopes and equipment and are available to talk about astronomy in general

Speakers / Presenters

One last final point for this month is the old perennial search for volunteers to give short talks or presentations. Whilst we are always on the lookout for main speakers, there is also a need for speakers who can step up and fill say a 5, 10, or 15minute slot on the meeting nights. This would add variety and interest to the evening and keep things moving. We have a number of people willing to do this, but it is always the same crowd and therefore somewhat unfair on them. Please give it a thought, you don't need massive expertise or oratory skills. The piece could be something new to you that you have researched, a news item, or collection of news items, or magazine article, or some of your astro images or some issue that you would like help on. You can make it clear that it is a new topic to you and whilst you will try to answer questions (or not) you may have to pass. If you have a short topic or would like a shot just catch me at the beginning of the evening (or before by email) and I will fit you into the evening programme – don't be shy give it a go!!!

Alex's Space

A tasty dish!

Here is a recipe Jamie Oliver would be proud of! Take a lump of matter, lots of Hydrogen, a sprinkling of Helium and leave to simmer for 13 billion years. The result? Our Milky Way! A vast spiralling mass of stars, gas, dust and planets, all swirling around a black hole at its centre.

There are billions of highly structured galaxies just like our Milky Way spread all across the Universe. This is because conditions in the Universe meant that the birth of galaxies was inevitable. So, how big is the Universe? Well, it is big. Very, very big. You just won't believe how vast, huge and mind bogglingly big it really is. Measuring the size of the Universe is actually very difficult, if not impossible. The trouble is, we can't see the edge if there even is one!

Some astronomers speculate that the Universe goes on forever in every direction, which is a pretty weird thing to get your head around. But if there is an edge, what would be beyond? Most astronomers now agree that the Universe is expanding, but some think gravity will slow this expansion until it starts 'pulling' back together again. It would mean the Universe would end in a 'Big Crunch' – a 'Big Bang' in reverse.



Milky Way
Photo by Marc Charron



Milky Way
Photo by Danny Cameron

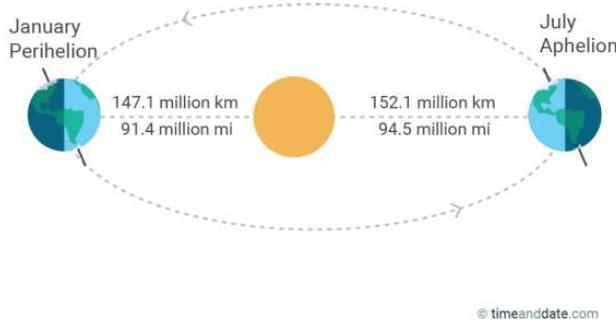
Isabelles' Solar Corner

The 'Super Sun'

Well, everybody was talking about the 'supermoon' recently, so we can also mention the 'Super Sun'. In fact we have a 'Super Sun' every year. Beginning January to be more precise.



On the 4th January 2017, Earth will be closest to the sun. This is called Perihelion. The word originates from Greek, 'peri' meaning 'near' and 'helion' meaning 'Sun'. The distance from the Sun's centre to Earth will be 147'100'998 km or 91'404'322 mi.



Even so we are closest to the sun in January, does not mean it should be hotter for us. The distance to the sun has nothing to do with the seasons we experience. The seasons depend on the tilting of the Earth's axis, 23.4 degrees. For us on the Northern Hemisphere, the North Pole is tilted away from the sun and therefore it is winter for us – it happens around the winter solstice.

NEW!! Fancy a little quiz? Here are some clues about a scientific person. Can you guess who it is?

Answer from October: **Galileo Galilei**

Good luck with this one!

- * I was born in 1867 in Warsaw
- * I was the youngest of five
- * I have got two children, Eve and Irene.
- * I moved to France when I was 24 years old
- * I studied Physics and Math at the Sorbonne University.
- * I shared a Nobel Prize in 1903 in Physics but won a Nobel prize in Chemistry in 1911
- * Myself and my husband are probably most famous for discovering Radium and Polonium.
- * I died in 1934 of aplastic anemia, a blood disease that is often caused by too much exposure to radiation.
- * I was buried next to my husband until 1995, but then they removed my remains to the Pantheon in Paris alongside France's greatest citizens.

AAS 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.

Miscellaneous

Have a look at these great images taken by Marc Charron. Many thanks for sharing them with us.

M31 taken with a 135mm lens, tracking with C8



North American Nebula taken with 135mm lens, tracking C8



Super Moon Comparison each taken with c8 with
0.63x focal reducer

Super Moon Halo 200mm lens



And finally.....

