

Issue: October 2015



>>> Ayrshire Astronomical Society Newsletter

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Next Meeting:

28th September 2015

How's the Space Weather Today?

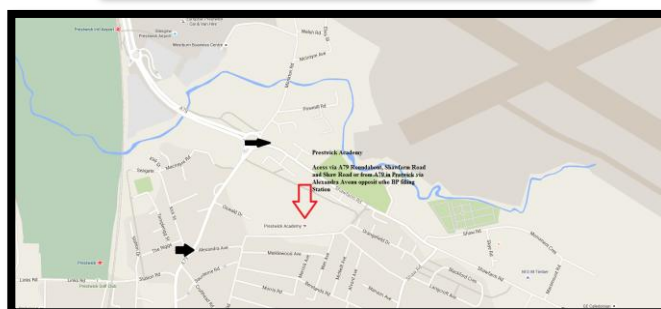
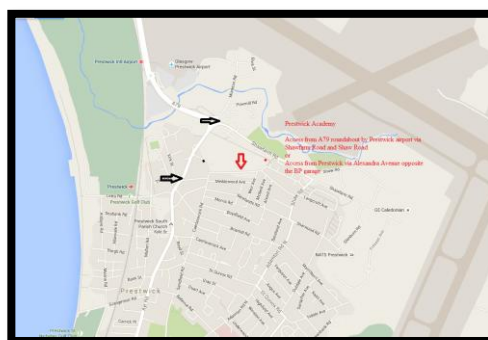
Speaker: Dr Iain Hannah

NEW MEETING VENUE FOR 2015 -2016

Please note that for the new session **COMMENCING 28TH OF SEPTEMBER 2015** all meetings will be held at the Prestwick Academy out by Prestwick Airport.

The Academy provides us with a large flexible room with easy disabled access and good facilities. There is plenty of car parking at the Academy and the Prestwick and Airport Railway Stations are within walking distance.

The first meeting will be at the usual time on Monday the 28th of September. Location maps can be found by following the links on the front page of the website and are included below.



President Word

HAVE YOU VOTED?

As you should be aware from previous emails and newsletters, the public voting for the name an exoplanet competition opened in August. You can now therefore vote on line by following this link:

<http://nameexoworlds.iau.org>.

The process isn't exactly straight forward but it is not too bad. Follow the link and then follow the vote now button. You will simply be thrown into a long list of all the systems and names for which you can vote. You need to scroll through the list until you find our entry which is "upsilon Andromedae" and lists our names Clarke, Moore, Sagan, Scheihalion. Our entry is near the end of the full listing.

BE CAREFULL HERE THAT YOU VOTE FOR OUR LISTING AS THERE ARE SEVERAL OTHER COMPETING LISTING FOR UPSILON ANDROMEDAE – DONT VOTE FOR THE COMPETITION!!!!!!

Notice that when you vote you have also to complete a small check that you are not a robot computer before the vote will be accepted. Once your vote has been successful you will thrown to a "Thank you screen" (It looks like you can vote for as many of the twenty systems as you want but you can only vote once for a particular system using the same computer. Enjoy!

You will be excited to know that if we are successful and our list of names is chosen by the public vote, then we will receive a plaque and the opportunity to name another planet.

DONT DELAY GET YOUR VOTE IN NOW – IF YOU HAVE TROUBLE VOTING ASK FOR HELP.

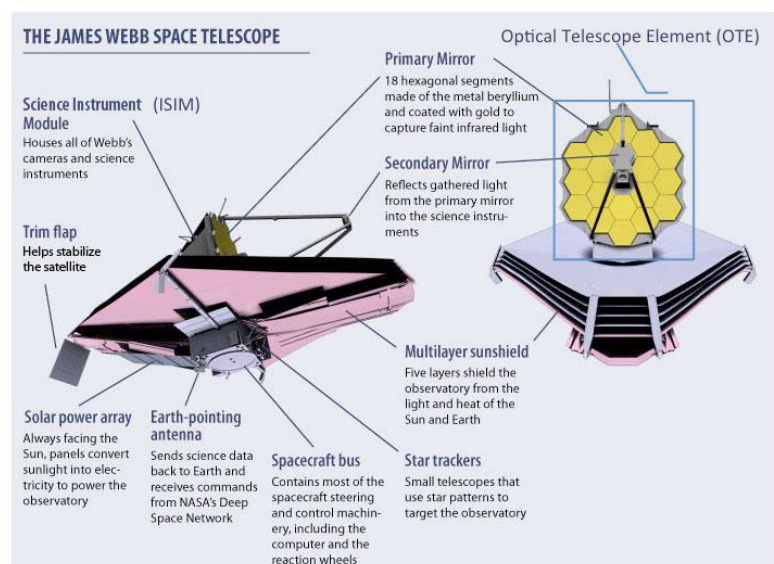
Space/Astronomy

Explore JAMES WEBB SPACE TELESCOPE



Recent Accomplishments *Updated September 4, 2015*

The image below points out various major hardware components of the facility referred to in the list to orient the reader



Events Reminder

By Paul:

Summer is well underway - astronomy is all but forgotten (unless you are one of those strange folk who take pictures of clouds?) but don't worry darkness will soon be back and those glowing clouds will be forgotten! So what have I got planned for the new Astro season I hear you ask?

Next adventure will be in October, date TBA , Bivvy night on summit of Carintable -2000ft high hill in the empty lands between Muirkirk and the Leadhills , great panoramic views - fresh water spring at summit - should be excellent for wide field DLSR, this adventure is free! But all participants must bring a homemade cake, Madeira or Dundee cake, Banana loaf, etc



Next Astro Adventure trip will be going to the legendary White Laggan bothy in November if we spot a window of good weather, the bothy is in the deepest darkest part of Galloway Forest, so the skies should be pretty good, the bothy is small, so there will be a 6 person limit on this trip, although if it works out well, I am sure we will go back! Don't forget the cake! So let's go and have some fun! If anyone is interesting in participating in any of these events, please contact Paul at: pjcayrshire@aol.com

Isabelle Article

A "fishy" sunrise

By Isabelle Morris

We have made immense progress in the past seventy years with observing and understanding the sun. Especially in the past 40 years, new technology has allowed us to study the sun in different and very detailed ways. But already ancient cultures understood that the sun is vital for life on earth. But what exactly did they think about the sun?

Archeoastronomy is the study of ancient astronomy. Ancient cultures worshipped the sun because it gave them life, warmth and acted as their clock. In many cultures there was a sun god and temples were dedicated to them. Have you heard of the Trundholm Sun Chariot? Well, here is a brief look at the Bronze Age. The Sun Chariot is an incredible artefact which has been found in 1902 on the Danish island of Sjaelland and dates back to the Nordic Bronze Age – albeit, the exact age is still debatable.



The 'chariot' consists of a bronze horse, a bronze disc with a thin sheet of gold pressed into one side, and 6 four-spoke wheels made also of bronze. There are two sides of the sun, held together by a bronze ring. One side has a thin sheet of gold applied. This was the side representing the sun, carried across the sky from left to right. Its decoration extends to the outer bronze ring representing the sun rays. The opposite side of the disk, lacking the gold sheet - represents the darkened sun at night on its way back from right to left to its starting point at sun rise. The wheels were added so the sun disk and the horse in ritual ceremonies could be drawn forth and back to make an image of the solar motion.

The sun chariot is a witness of the religion of Bronze Age. The sun was the centre of the religion. People in Bronze Age imagined that the sun was being drawn across the sky in the daytime. In the morning a fish pulls the rising sun from the night-ship to the morning-ship which carried the sun until noon. The sun horse took over and brought the sun to the afternoon ship. At evening a snake brought the sun back to the underworld which lay below the flat earth. Down there the sun was dark and was carried on night ships through the underworld back to the starting point in the morning where the fish once again took over. Thus the cycle of the day was kept for all eternity by the helpers of the sun - the fish, the horse the snake and the ships.

Alex Space

TEMPUS FUGIT



Why is an Earth day 24 hours long? The reason is the rotation of the Earth is controlled by the gravitational pull of the Moon on the tides on Earth. On average it takes 24 hours for the Earth to make a complete rotation on its axes, but the average day however is gradually lengthening, this is because the tides create increasing friction by smashing into cliff faces and moving around the shoreline. As friction is a resistance force, two milliseconds are added to each day every 100 years. About 3 million years ago a day on Earth was only 12 hours long, but a few millions years from now a day on Earth may well be over a month long.....gosh!, just imagine the negotiations between unions and management regarding the working 'day'!!

WIDE OPEN SPACES

Look into deep space and something very odd seems to be going on. In every direction distant clusters of galaxies are rushing away from us and the further a galaxy lies, the faster it is speeding away, it seems that our Milky Way is distinctly unpopular, but in fact every galaxy is moving apart from every other one, some of them at nearly the speed of light. Astronomers can measure a galaxies speed by analysing the dark lines in the galaxies spectrum. The position of these lines is affected by a galaxies motion (The Doppler Effect) this movement of galaxies indicates the Universe is expanding, but what will happen when this expansion stops.....will this be the end of the Universe? No, no, no, it would not be the end, it would not even be the beginning of the end, but it would perhaps be the end of the beginning.



Alex Baillie

Peter & Juan Article

The Antikythera mechanism

More than a hundred years ago an extraordinary mechanism was found by sponge divers at the bottom of the sea near the island of Antikythera. It astonished the whole international community of experts on the ancient world. Was it an astrolabe? Was it an orrery or an astronomical clock? Or something else?



For decades, scientific investigation failed to yield much light and relied more on imagination than the facts. However research over the last half century has begun to reveal its secrets. The machine dates from around the end of the 2nd century B.C. and is the most sophisticated mechanism known from the ancient world. Nothing as complex is known for the next thousand years. The Antikythera Mechanism is now understood to be dedicated to astronomical phenomena and operates as a complex mechanical "computer" which tracks the [cycles of the Solar System](#).

[Previous Antikythera researchers](#) have used the latest technologies available to them -such as x-ray analysis- to try to begin to unravel its complex mysteries. From 2005, a new initiative is building on this previous work, using the [very latest techniques available today](#). The Antikythera Mechanism Research Project is an [international collaboration of academic researchers](#), supported by some of the world's best high-technology companies, which aims to completely reassess the function and significance of the Antikythera Mechanism.

More Info at: <http://www.antikythera-mechanism.gr>

Graham Article

Public speaking seems to be everyone's nightmare, a bit like the one where you are running down the street in only your string vest, however, presenting talks can be rewarding and is not actually as difficult as it appears. The secret is to start off small and follow a few simple rules. That way you are pretty well guaranteed success and a boost to your confidence.

Clearly this article is targeted at getting more internal speakers for our meeting nights something we are always trying to do, and the venue does provide a good starting point.

Guideline one is therefore; choose a venue where you feel comfortable and will not be harassed (well not too much).

Guideline two is; choose a subject that a) you are conversant with or can research, and b) that will interest your audience .

The next step is to decide the length of the talk and this may be ten minutes or forty five to sixty minutes depending on subject, audience and depth of coverage. This will determine the number of "slides" or frames that will form the structure of your talk.

Guideline three; structure the talk. By this I mean write the story that is the talk. It needs to have a beginning and middle and an end. It seems obvious, but you would be surprised at the number of talks that ramble on with no structure and then just stop, leaving the audience wondering what it was all about. This is a common error of even so called "circuit speakers". So, decide on your topic and what you are going to speak about, then draft a short introduction which outlines what you will talk about, next draft the main text making sure it covers the points in your introduction. Finally draft your end piece. This should summarise what you have spoken about and draw any conclusions.

Ok you say so how do I write the talk? A good way that I have found through using Microsoft power point is to assume one slide or frame per minute of talk. This rule of thumb applies generally and will keep the audience interested rather than staring at one slide all night, and it will guide you through the physical presentation on the night. For a ten minute talk therefore you need around ten slides or frames in which you must get across the key points of your story.

Simply take a couple of pieces of A4 size paper and, in pencil sketch out, squares to represent the slides and then fill in what will be on each slide eg a picture of a galaxy, text on the key point that you will talk about regarding that galaxy.

In terms of structure for any length of presentation, you should have a title slide, and one introduction slide, one to two summary/conclusion slides and the rest as main story slides. The slides themselves should have minimal content for example a picture and five points relevant to the talk at that point. You will fill in any detail as you speak, the slide should just give the main points. Do not fill your slides with text as no one can read it! Once you have the slides roughed out, gather then together and run through them telling the story in your head or better still, aloud, following the slides. If you hit lumpy bits adjust the order or content of the slides until it flows. Once you are happy, finalise the slides on paper or transfer them to power point and run through the final version in the same way.

You can write side notes for each slide to remind you what to say or to cover difficult to remember facts and figures. Personally, I never do this as I find that writing the slides fixes the story in my head and I don't need notes – that is UNLESS there are some very specific facts that I might need to know – if so then put them on the slide! I have noticed that if a speaker writes notes they tend to read them out as they talk. This, in most cases, comes across in a flat boring monotone that spoils the talk and suggests that the speaker doesn't really know the subject!

Guideline four therefore is; keep the main story on the slides and use them as memory prompts and fill in the detail by speaking. Also if you use power point avoid all the whizzy features such as sound, flying titles and the like as, for the most part, they look unprofessional and are distracting for the audience..

Guideline five is; practice your talk several times using the slides and check the timing is approximately what you want within a few minutes. If you do this it will be semi automatic on the night and a lot less stress.

You do not need to use power point but it makes presentation easier as it gives the audience something to look at and also provides a visual summary of your talk.

Finally a few pointers when giving the presentation;

- Project confidence even if you don't feel it
- Speak to the audience and not the floor or the projection screen – if you are using a laptop place it between you and the audience such that you read the slides off the laptop but the audience sees the projected version. If you cannot do this then, glance at the big screen to remind yourself of the slide and then turn to the audience and speak. Alternatively use a lectern and have a printout of the slides in front of you.
- Look at the back row and talk to them in a voice that they might hear - or ask for a microphone (and make sure you use it correctly). Remember some of your audience may be hard of hearing or the room may be soaking up your voice
- Speak at a normal conversational pace and speak clearly – do not rush through the talk
- Add the odd humorous comment or audience interaction point – but do not tell jokes or use lots of “humorous asides”.
- Stick to the story in the slides – do not go off at a tangent or start to ad lib
- Move about so that the audience watches you, point at the screen, bring the odd prop to demonstrate a point – but again don't overdo it and don't stand still like a rabbit in the headlights
- Questions can be a nightmare. Control them by saying “I will take questions at the end” or whatever suits you. This is often the best approach as it allows you to give the talk uninterrupted. If you get a question, repeat it so that you have it correctly and also for the benefit of the rest of the audience. Answer it, or if you cannot, then just say so – do not try to make up an answer.

Well! There you are, a potted guide to giving a talk, I hope that it has made you want to give it a go. I look forward to your first talk and those that follow. If you need any support, don't be embarrassed - just ask – we have all been there.

Graham



Sky Dairy



October 1 - Comet C/2013 US10 Catalina. Newly discovered comet C/2013 US10 Catalina may reach naked eye visibility on October 1. The comet will continue to brighten and could reach magnitude 5 by November 6.



October 8 - Draconids Meteor Shower. The Draconids is a minor meteor shower producing only about 10 meteors per hour. It is produced by dust grains left behind by comet 21P Giacobini-Zinner, which was first discovered in 1900. The Draconids is an unusual shower in that the best viewing is in the early evening instead of early morning like most other showers. The shower runs annually from October 6-10 and peaks this year on the night of the 8th. The second quarter moon will block out all but the brightest meteors this year. If you are patient, you may be able to spot a few good ones. Best viewing will be in the early evening from a dark location far away from city lights. Meteors will radiate from the constellation Draco, but can appear anywhere in the sky.



October 11 - Uranus at Opposition. The blue-green planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view Uranus. Due to its distance, it will only appear as a tiny blue-green dot in all but the most powerful telescopes.



October 16 - Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 18.1 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.



October 13 - New Moon. The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 00:06 UTC. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.



October 21, 22 - Orionids Meteor Shower. The Orionids is an average shower producing up to 20 meteors per hour at its peak. It is produced by dust grains left behind by comet Halley, which has been known and observed since ancient times. The shower runs annually from October 2 to November 7. It peaks this year on the night of October 21 and the morning of October 22. The first quarter moon will set shortly after midnight leaving fairly dark skies for what should be a good show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Orion, but can appear anywhere in the sky.



October 26 - Venus at Greatest Western Elongation. The planet Venus reaches greatest eastern elongation of 46.4 degrees from the Sun. This is the best time to view Venus since it will be at its highest point above the horizon in the morning sky. Look for the bright planet in the eastern sky before sunrise.



October 26 - Conjunction of Venus and Jupiter. A conjunction of Venus and Jupiter will take place on October 26. The two bright planets will be visible within 1 degree of each other in the early morning sky. Look to the east just before sunrise for this impressive planetary pair.



October 27 - Full Moon, Supermoon. The Moon will be located on the opposite side of the Earth as the Sun and its face will be fully illuminated. This phase occurs at 12:05 UTC. This full moon was known by early Native American tribes as the Full Hunters Moon because at this time of year the leaves are falling and the game is fat and ready to hunt. This moon has also been known as the Travel Moon and the Blood Moon. This is also the last of three supermoons for 2015. The Moon will be at its closest approach to the Earth and may look slightly larger and brighter than usual.



October 28 - Conjunction of Venus, Mars, and Jupiter. A rare, 3-planet conjunction will be visible on the morning of October 28. The planets Venus, Mars, and Jupiter will all form a tight 1-degree triangle in the early morning sky. Look to the east just before sunrise for this spectacular event.

AAS Library

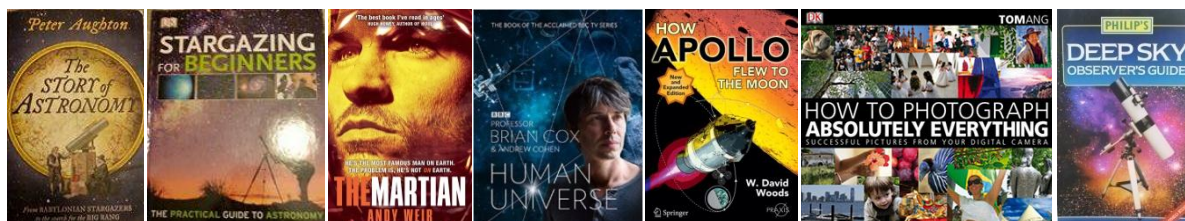
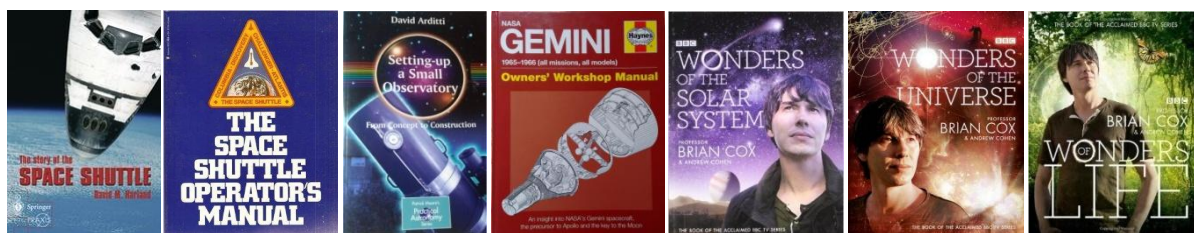
Dear Members:

Welcome to the new AAS Library, I hope you enjoy the variety of books our members kindly put for hire, so we can all have the opportunity to read something different and learn a bit more. Remember, it is only 50p per book; with this small contribution our Society can then buy new books that can help us with our hobby of Astronomy, Space and Astrophotography.

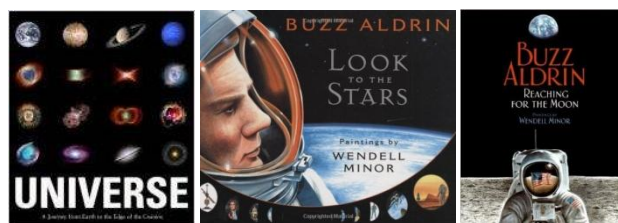
If any of you wish to put some of your books for hire, remember you always keep the ownership on your books, but you can help others to expand their knowledge and get a bit of enjoyment. If you do please send me a list of your books to library@ayraastro.com, a picture of the covers will be good, so I can get them from the internet and put them on our website, so people can see the cover of the book they would like to hire. To the ones without internet facilities we will have some hard copies to bring to our meetings and will try to update this list every month or so.

AAS Library book List:

Update on 21/09/2015



New Books



<<< (Children Books) >>>

Have your say in our Newsletter; send articles or letters to newsletter@ayraastro.com