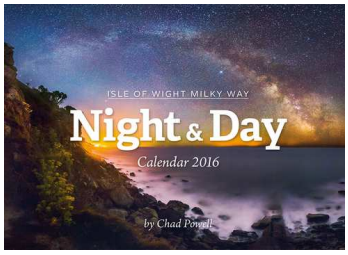
New Zenith

The Monthly Newsletter of the Vectis Astronomical Society

Vol 23 Issue 10 — November 2015 *When Printed, this Newsletter costs VAS at least £1*

Society News



Isle of Wight Milky Way Calendar 2016

Each calendar has a beautiful collection of photographs of Island sunsets and night sky taken by St Lawrence based photographer, Chad Powell

Chad supports VAS by allowing us to use his images on various publications

Calendars are a snip at £7.99 each and 30% of sales is being donated to VAS

They make excellent Christmas presents!

Chad's website is at: ***www.isleofwightmilkyway.com***

Contact Elaine Spear
07970 965105
elainespear1@gmail.com

Thanks to our contributors

Back to the normal 12 pages this month mostly thanks to contributions from Elaine and Simon.

If you have anything to contribute, questions, articles or pictures, they will be gratefully received and almost without exception, published. Please share anything space or astronomy related that you have found.

It's your newsletter and is hopefully aimed at the whole membership from beginners to "old hands". Almost any file format can be accepted, from AutoCad files to handwritten on the back of an old fag packet, so please get writing/drawing/snapping!

Brian Curd
Editor New Zenith.

VAS Website: wightastronomy.org

Submissions or letters to New Zenith are always welcome and should be sent to:

The Editor New Zenith
75 Hefford Road
East Cowes
Isle of Wight PO32 6QU
Tel: **01983 296128** or email: **editor@wightastronomy.org**

Material for the next issue by the 6th of the month please.

VAS Registered Office

75 Hefford Road, East Cowes, Isle of Wight, PO32 6QU

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Observatory Diary

Monday, 19.30hrs	Members Only by arrangement Telescope and night sky training. New arrangements are underway
Thursday, 19.30hrs	Members and Public. Informal meeting and observing

Contents this Month

2015		
Date	**Subject**	**Speaker**
23 Oct	'Pluto': from Myth, Discovery to New Horizons	Graham Bryant
27 Nov	*Medley of talks & discussion:* • Goldilocks Planets • OBAFGKM (The development of Star Classification). • Night Vision • Arcturus	James Fradgley
Please check **wightastronomy.org/meetings/** for the latest information		
2016		
22 Jan	***TBA***	***TBA***
26 Feb	Basket Balls and Beyond ***Bring a Friend***	Jane A Green
25 Mar	Death From Space	Ninian Boyle
22 Apr	Astronomy on the Tablet	Dr Lilian Hobbs
27 May	Meteors	Richard Kacerek
24 Jun	***TBA***	***TBA***
22 Jul	ESA EUCLID Mission Latest Update	Dr Tom Kitching
26 Aug	William Herschel and the Rings of Uranus	Dr Stuart Eves
23 Sep	Galaxy Formation	Prof Chris Lintott
28 Oct	Radiation protection in space (for manned missions)	Dr Elizabeth Cunningham
25 Nov	***TBA***	***TBA***

Observatory Visits Booked

It would be appreciated if members could avoid using the observatory at these times.

VAS Contacts 2014/15

President	Barry Bates president@wightastronomy.org
Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Vacancy secretary@wightastronomy.org
Treasurer	David Kitching treasurer@wightastronomy.org
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NZ Editor	Brian Curd editor@wightastronomy.org
Membership Secretary	Norman Osborn members@wightastronomy.org
NZ Distribution	Brian Bond distribution@wightastronomy.org
Others	Mark Williams & Nigel Lee

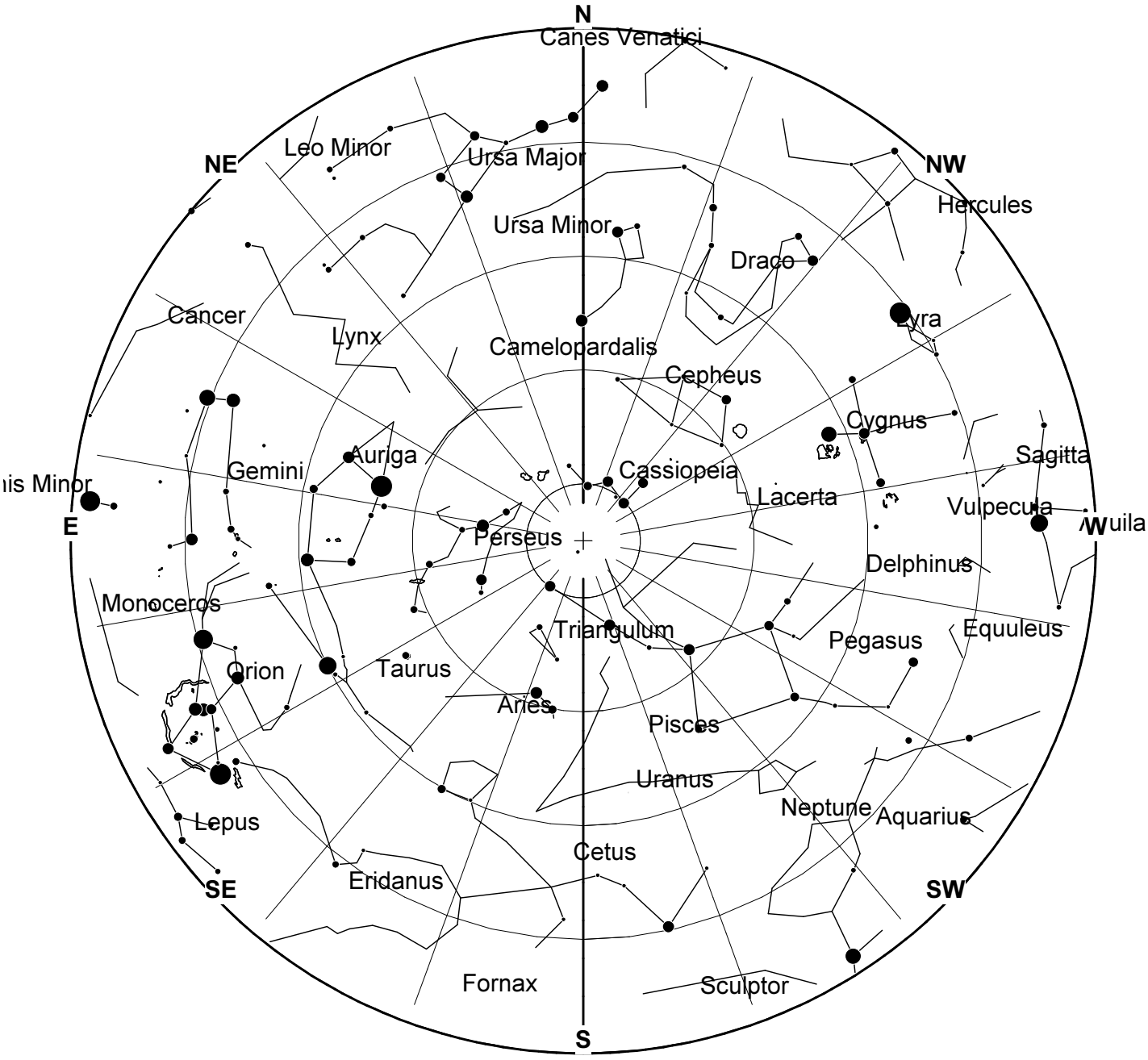
Important

Members using the observatory outside normal Thursday meetings MUST enter a line or two in the Observatory Log Book.

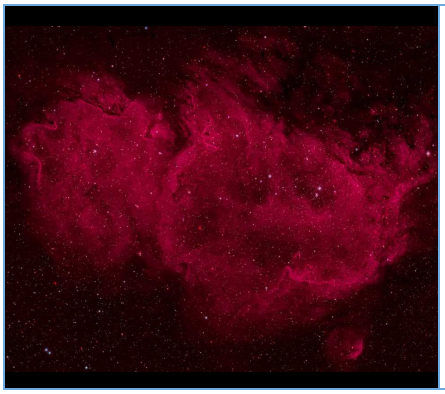
On several occasions, lights, heaters and the Meade LX200 have been left on!

When leaving, please ensure all is secure and all lights, heaters and telescopes are TURNED OFF.

November 2015 Sky Map



View from Newchurch Isle of Wight UK - 2200hrs - 15 November 2015



IC 1848: The Soul Nebula - Stars are forming in the Soul of the Queen of Aethopia. More specifically, a large star forming region called the Soul Nebula can be found in the direction of the constellation Cassiopeia, who Greek mythology credits as the vain wife of a King who long ago ruled lands surrounding the upper Nile river. The Soul Nebula houses several open clusters of stars, a large radio source known as W5, and huge evacuated bubbles formed by the winds of young massive stars. Located about 6,500 light years away, the Soul Nebula spans about 100 light years and is usually imaged next to its celestial neighbor the Heart Nebula (IC 1805).

Image Credit & Copyright: Bob Andersson
From the Astronomy Picture of the Day "IC 1848: The Soul Nebula".

November 2015 Night Sky

Moon Phases

New	First Qtr	Full	Last Qtr
			
11th	19th	25th	3rd

Planets

Mercury

The first few days of November see the conclusion of Mercury's morning apparition. It will however be a difficult object at this time as it is already close to the Sun.

Venus

The morning star is now steadily falling back towards the horizon as each new day dawns. It remains dazzlingly bright and will still be visible for the rest of this year.

Mars

In the morning of the 3rd Mars is in close conjunction with Venus. As the days pass and Venus drops towards the horizon Mars can be found by drawing a line between the two much brighter Venus and Jupiter

Jupiter

This month sees Jupiter climbing higher in the morning sky leaving behind the much brighter Venus.

Saturn

Saturn is in conjunction with the Sun this month and so is not available for observation. It will reappear low down in the eastern sky in the new year.

Uranus

Uranus can be found about 2 degrees below the star Epsilon Piscium. Look for a triangle of magnitude 5 to 6 stars; at the start of the month with these three Uranus makes a diamond shape and by the end makes a Y shape. These stars and Uranus are all of similar brightness.

Neptune

Look about 1.5 degrees from sigma Aquarii towards lambda Aquarii, Neptune is almost stationary this month. At magnitude 7.8 a pair of binoculars or small telescope will be needed to spot this planet.

Deep Sky

NGC1499 California Nebula
RA 4h 1m Dec 36° 21' mag 5.0

This very large nebula can be found just to the north of Menkib, Xi Persei. Although it may have a magnitude of 5 this light is spread out over an area of some 2 x 1 degrees making the surface brightness very low.

It can be seen in large aperture binoculars and rich field telescopes but when using a telescope the magnification must be kept to the minimum

M103 Open Cluster
RA 1h 34m Dec 60° 42' mag 7.0

A celestial Christmas tree. This is a young cluster with many bright blue members, the brightest of which forms the star on top of the tree. It is a colourful cluster with a number of orange and yellow stars that make up the effect of Christmas tree lights.

M103 is the last entry of Messier's catalogue, the remaining objects were added after his death based on his unpublished work.

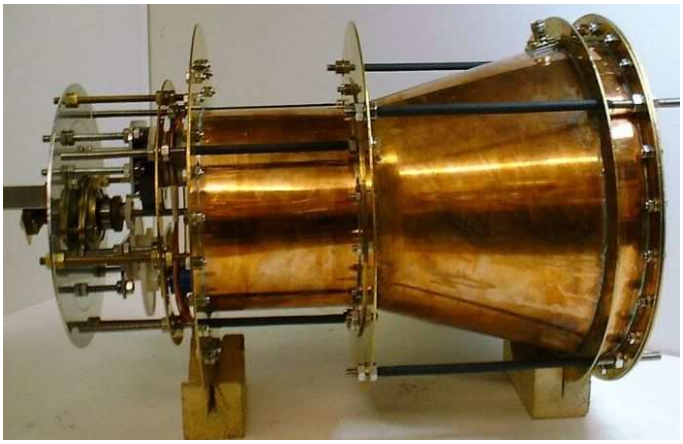
M33 Galaxy
RA 1h 34m Dec 45° 8' mag 7

M33 in Triangulum is one of a number of galaxies that shares the common name Pin Wheel. It is another member of our local group of galaxies, but somewhat smaller than the Milky Way being only 1/7 its size. This galaxy despite its relatively bright apparent magnitude its large size, about that of the full moon makes it very difficult to see. It can be glimpsed in our skies with a pair of 10x50 binoculars as a slight brightening of the background sky.

A telescope of at least 8 inches diameter is needed to see any structure in the spiral arms, and then it can be difficult. Don't be put off by the difficulties it is a worthwhile object for observation.

Peter Burgess

emDrive rears it's head again!



It's a few years ago that I first heard about the emDrive, I even wrote something about it in a previous NZ. For those of you who haven't heard of it, take a look at this link: ***www.popularmechanics.com***

It seems that even NASA are reporting the drive may have something going for it even though that may mean it breaks a few laws of physics!.

VAS

Basketballs and Beyond
A Talk by
Jane A Green
janegreenastronomy.co.uk

A natural, eloquent and captivating speaker, Jane has that rare ability to communicate complexities of astronomy in a warm, easy to understand way. Join her unique illustrated voyage.

BRING A FRIEND

SPREAD THE JOY OF ASTRONOMY

Friday 26th February 2016 at 7.30pm

Newport Parish Hall, Newport PO30 1JU

Vectis Astronomical Society (registered charity)

Suggested donation £2

Committee post available

We are in need of a new organiser for our Friday Monthly Meetings

The role involves finding and contacting speakers and arranging for their travel

The 2016 Calendar is almost complete, so the hard part had been done

You would work alongside Elaine Spear, who promotes and advertises the talks. She is currently finding and organising the speakers as well. There is a large database of speakers which Elaine has been creating since 2009

You would not been left on your own to do this job, and would work in partnership with Elaine

Contact Elaine if you are willing and able to get involved or would like more information

elainespear1@gmail.com
07970 965105

Robert Hooke Society, Freshwater Bi-Monthly Meeting

Totland Parish Hall, Broadway, Totland

Friday 20th November
7.00pm for 7.30pm

'300 years of Measuring the Universe'

by Paul England FRAS, Island Planetarium

From the London Monument to Hipparchus and the Hubble Telescope
The tools and technologies we've used to measure the universe.

Imaging Star Party

You would be forgiven if you thought that a group called the "Disciples of the Dark Arts" sounded like an occult gathering and conjures up images of hooded cloaks and sacrifices under a full moon. However this group is quite the opposite especially as full moons are not popular at all due to the moon light. The hooded cloaks and sacrificing are more likely to be warm hats and a hot drink (maybe a beer or glass of wine); but the "DDA" is in fact an astronomy imaging group that primarily interacts on Facebook and also holds a meeting once a month on the mainland near Guildford.

The last 4 years the DDA has held an astro imaging start party at the unique Brighstone Holiday camp location. This annual gathering is a very relaxed affair with no formal activities and is more akin to a group of very enthusiastic people who like to capture images of the night sky. We all get to know each other through our images and via interaction on Facebook and of course the star party. Whist there are members of the group from Australia, India, USA etc there are many who live in the light polluted regions of London and the outskirts; so having a star party in the beautiful dark skies of the Isle of Wight is a major attraction. Despite the annual grumblings and unbelievable ferry prices members still make the trek, some for a whole week in advance in the hope of being able to image the night sky.

The group was primarily founded by John Slinn with the aim to provide a central point for help and advice with all things astro imaging and this continues along with a showcase of fantastic images of the night sky taken from all round the world from amateur astronomers. The standard can be world class and members often have their work published, although this does not preclude the fact that there are also many newcomers to the hobby who gain valuable assistance and insights to improving their images from capture to processing.

This year the star party was the week end of the 9th and 10th October 2015. The weather forecast was changing but improving every day and we were delighted that the Friday night offered some clear sky from 7 pm to about 2 am. The only downside to the weather was that some very high thin cloud was present which slowly got worse and this creates problems with precision guiding and of course can affect images with wispy clouds "smudging" long exposure images. Clear skies or not, the gathering of fellow astro imagers is always a fun and knowledgeable affair as the

The Soul Nebula

pub always features before the nights imaging session and, failing any clear sky, the night is filled with astro chat and we normally find things to amuse ourselves with.

Being so close to home I have always camped at the event as its cheaper than a chalet and it means I can have my astronomy gear close to the scope. (I do tend to take the kitchen sink with me). Most people stay in one of the holiday centre chalets. The vast majority of telescopes all have cameras on them but some visual astronomy does take place. The DDA star Party is very relaxed and sociable affair for the love of imaging astronomy and is a contrast to many other star parties which can seem rather stuffy and private events where talking outside is not encouraged.

I arrived at the holiday park at around 1pm and was delighted to be met by Brian Curd who popped down to say hi. Timing was superb as Brian offered his services to help put my tent up which is never straight forward, even more so if the wind gets up! This year I had the privilege of borrowing the VAS new refractor for its first test imaging trails and I also took along one of the VAS 10" Dobsonian telescope for some visual delights. In addition I had two Canon cameras with 300mm F4 lenses on the sides of the VAS refractor.

The plan this year was to set my imaging session off and then let it do its thing, I could then pan the skies with the Dobsonian to take in some rare (for me) visual astronomy. On top of the normal visual astronomy a friend of mine had bought his customised night vision camera which adds a whole new dimension. With his Hydrogen alpha filter adapted night vision camera we were able to view the impossible and I was in awe of being able to see many nebula such as the Heart and Soul, Elephants trunk, Horse head, North American nebula, Gamma Cygni, and various globular clusters and Orion as you've never seen it before.

Whilst this is not observational astronomy in its purest form, there are a limited number of objects that we can see via a telescope with the eye even with our dark skies So whilst we can image these invisible objects over many hours work, it is really quite unique being able to see a live view image of them through a regular amateur telescope. The cost of the filter and adapted night vision camera is not cheap so having the opportunity to access such a custom device was a real highlight for me this year. In addition as a self-confessed “lazy” astronomer using my “GOTO” system for searching the night sky, I also got a valuable lesson finding my way round the constellations knowing

Andromeda Galaxy

where these invisible objects are which would otherwise not be something you would attempt to look for.

My imaging session was planned to be aimed at the Soul nebula (*previous page*). I had captured a little data in the days before using a Hydrogen alpha filter because the moon has been flooding the sky and this filter reduces this affect albeit in red/black and white only. I was hoping for a long session to build up a lot of data to produce a clean noiseless Soul Nebula image but the thin cloud cause an issue with guiding accuracy and of course image quality as I mentioned, so I was only able to capture about a 1 hour 20 minutes of images which equates to 8 images of 10 minutes each. I am desperately waiting for a clear night to finish this off.

I have posted a couple of quickly processed images which are not complete but gives you an idea of what I was able to capture in the conditions. I did switch the telescope to the Andromeda Galaxy (*above*) for about 40 minutes in the hope of avoiding clouds to the north but this did not improve and many images were poor quality.

Needless to say, clear skies or not, it was another terrific star party and met some new and old friends.

I know that Facebook can be a bit of a Marmite affair in that many often hate it or love it, I am neither I just use the bits of it that I want. I would recommend that anyone who has an interest in astro imaging, joins the DDA group. It's free and even if it means joining Facebook with the sole purpose of being able to participate in the group (which I know some members do) it would be a valuable focus for your hobby.

If anyone is already astro imaging or would like to take it up then please get in touch or even better join up to Facebook and the DDA. It's the best imaging start party in the UK with a great bunch of people and it's on our doorstep.

Clear Skies

Simon Plumley
splumley69@gmail.com

A couple of pictures of Simon's Astro-Photography setup are on this month's "Back Page".

Great to see the images from the new VAS refractor!

Ed

Nobel Prize for Physics

I was recently in Japan in a amazing whirlwind trip, and occasionally amused myself with some Japanese TV whilst in my hotel room. I saw some crazy programmes, and liked to watch the news Channel to try and work out the stories. I was interested to see that not one, but two Japanese men were awarded a Nobel Prize whilst I was there.

The first was The Nobel Prize in Physiology or Medicine 2015 and was divided, one half jointly to William C. Campbell, in Ireland, and Satoshi Omura, in Japan "for their discoveries concerning a novel therapy against infections caused by roundworm parasites" and the other half to Youyou Tu, in China "for her discoveries concerning a novel therapy against Malaria".

The second prize, only a couple of days later, and of more interest to astronomers was 'The Nobel Prize in Physics 2015' and was awarded jointly to Takaaki Kajita in Japan and Arthur B. McDonald in Canada "for the discovery of neutrino oscillations, which shows that neutrinos have mass".

The prize recognises their key contributions to the experiments which demonstrated that neutrinos change identities. This metamorphosis requires that neutrinos have mass. The discovery has changed our understanding of the innermost workings of matter and can prove crucial to our view of the universe.

Around the turn of the millennium, Takaaki Kajita presented the discovery that neutrinos from the atmosphere switch between two identities on their way to the Super-Kamiokande detector in Japan.

Meanwhile, the research group in Canada led by Arthur B. McDonald could demonstrate that the neutrinos from the Sun were not disappearing on their way to Earth. Instead they were captured with a different identity when arriving to the Sudbury Neutrino Observatory.

A neutrino puzzle that physicists had wrestled with for decades had been resolved. Compared to theoretical calculations of the number of neutrinos, up to two thirds of the neutrinos were missing in measurements performed on Earth. Now, the two experiments discovered that the neutrinos had changed identities.

The discovery led to the far-reaching conclusion that neutrinos, which for a long time were considered massless, must have some mass, however small.

For particle physics this was a historic discovery. Its Standard Model of the innermost workings of matter had been incredibly successful, having resisted all experimental challenges for more than twenty years. However, as it requires neutrinos to be massless, the new observations had clearly showed that the Standard Model cannot be the complete theory of the fundamental constituents of the universe.

The discovery rewarded with this year's Nobel Prize in Physics have yielded crucial insights into the all but hidden world of neutrinos. After photons, the particles of light, neutrinos are the most numerous in the entire cosmos. The Earth is constantly bombarded by them.

Many neutrinos are created in reactions between cosmic radiation and the Earth's atmosphere. Others are produced in nuclear reactions inside the Sun. Thousands of billions of neutrinos are streaming through our bodies each second. Hardly anything can stop them passing; neutrinos are nature's most elusive elementary particles.

Now the experiments continue and intense activity is underway worldwide in order to capture neutrinos and examine their properties. New discoveries about their deepest secrets are expected to change our current understanding of the history, structure and future fate of the universe.

Source: ***http://www.nobelprize.org/nobel_prizes/physics/laureates/2015/press.html***

Elaine Spear

Podcasts

A podcast is a digital audio file made available on the Internet for downloading to a computer, smart phone, tablet or portable media player such as an iPod. Typically available as a series, new instalments can be received and downloaded automatically by subscribers They are usually original audio or video recordings, but can also be recorded broadcasts of a television or radio programme, a lecture, a performance, or other event. Audio podcasts are in the format of an MP3.

An MP3 player is a portable music player. The iPod is the most popular MP3 player produced by Apple Computers. Apple was lucky/smart enough that their brand was wrapped into a term for a new technology much like the Sony Walkman became the popular name for a portable radio/cassette player.

The reason podcasts became linked with the iPod in name was because people downloaded the broadcasts (audio shows) to listen to on their iPods. The word itself, "podcasting", combines the words "broadcasting" and "iPod."

However, you don't have to listen to podcasts only on MP3 players; you can use your computer with some music software such as Windows built-in Media Player or iTunes for Mac (which has a podcast library). It really doesn't matter. As long as you have some way to play music on your computer, you will be able to listen to podcasts.

You can also listen to podcasts on your smartphone, or even in your car (which requires an in-car FM transmitter, to send the signal from your device to play through an empty radio frequency through to your car speakers); or via Bluetooth, if your radio has it.

Like a lot of people, I love music, and I listen to it often - sometimes with the volume very loud. However, sometimes I want to hear the voice of someone talking to me. BBC radio stations will give you many programmes to listen to, however, you are restricted to whatever is being aired at that moment. For this reason I prefer to listen to podcasts.

The key difference between a podcast and a radio show, is that you can tune into your favourite shows at your own convenience and listen directly on a device that is internet-enabled, or has been previously downloaded.

You can have podcasts automatically download whenever they become available or if you would rather not subscribe, you can manually choose which podcasts you want to download. These files can then be listened to on your computer or you can transfer them to your portable player to listen later. When you do subscribe to a podcast, you are subscribing to the podcast updates by that particular podcast producer.

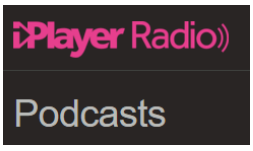
Downloading to Your Computer or MP3 Player

In order to subscribe for a podcast, you need an internet connection and a piece of podcast software which is usually available free of charge. One of the most common podcast subscribing tools is iTunes.

Once you have installed iTunes, go to the menu on the top left hand side, next to the TV icon, to find three dots. Hover over these dots and scroll to click on Podcasts. On the far right hand side, click on 'All categories' and scroll down to Science and Medicine. This is where you will find the astronomy podcasts.

You can then listen to podcast episodes on your computer, or transfer them to a portable device, such as an iPod or mp3 player. The benefit of downloading to your MP3 player allows you to listen on-the-go, rather than being sat still at your computer.

You can set your computer to automatically download and transfer the podcast directly to your iPod when you sync, so you can plug it in and walk away a few minutes later with your latest podcasts downloaded and ready to digest.



BBC iPlayer provides podcasts too http://www.bbc.co.uk/podcasts On the iPlayer homepage, simple click on any of the highlighted shows to open. Choose the podcast you want to listen to and either plug in your MP3 player and click on Download MP3 or click on the little pink icon and listen directly on your computer.

If you have an Apple iPad or iPhone you may automatically have the podcast app, but if not, just download it from the App Store. You can choose subjects under the 'All categories' tab. Find a topic you like, open the podcast and listen. Simples! Sequential episodes are available to subscribers free of charge.

My Top Five Podcasts

Naked Science: Cambridge University includes the latest science news, interviews with top scientists, hands-on science experiments and answers to your science questions. Professional and really well done. Average playtime 50 minutes

Naked Astronomy: In partnership with the Naked Scientist, The Space Boffins look at the latest news from the stars, planets and other heavenly bodies. Plus interviews with professional astronomers and the answers to your space science questions. Average playtime 30 minutes.

Geek Chic: Neuroscientist Dr Jack Lewis and science enthusiast Liliana Bird take an irreverent look at the latest news from the weird and wonderful world of science. Science never sounded so good! Snappy and fast paced. Funky topics. Average playtime 20 minutes

Jodcast: Monthly astronomy news, interviews and questions. Created by astronomers from Jodrell Bank Observatory. Great listen, although not as well put together. Average Playtime 60 minutes

This American Life: Gripping true-life stories about everyday people in the States. There's a theme to each episode, and a variety of stories on that theme. There is lots more to the show, but it's sort of hard to describe. Nothing to do with science or astronomy. Average playtime 60 minutes

Experiential learning is by far the best way to get a grasp of new technology so if you are interested in using podcasts get out there and have a go!

Podcast session 29th October

I will be at the observatory on Thursday 29th October from 7.00pm, so please come along with your laptop, tablet, smartphone, MP3 player (and any connecting cables) to learn more.

Elaine Spear

White House Hosts Second Astronomy Night

Some years ago, renowned comet-hunter David Levy fantasized about the astronomical qualifications that future U.S. leaders might need: “Maybe running for national office in the House of Representatives should require an active career observing variable stars or doing astrophotography. The Senate? How about some original contribution to astronomy being a maxim. And the presidency? A minimum of two comet discoveries should be the requirement.”

If only! But for now I'll settle for the fact that, on October 19th, President Obama hosted his second star party on the South Lawn of the White House. The event, as announced two months ago, brought together “scientists, engineers, and visionaries from astronomy and the space industry to share their experiences with students and teachers as they spend an evening stargazing.”

The first White House Astronomy Night occurred in October 2009, in conjunction with the International Year of Astronomy. That night President Obama and his wife, Michelle, greeted about 150 middle-school students and gave special attention to 14-year-old Caroline Moore, who had discovered a supernova the previous year, and to high-school sophomore Lucas Bolyard, who discovered a pulsar in archived radio-telescope observations. Then the Obamas peered into the eyepiece of a carefully prepositioned telescope to view something cosmic. It was the Double Double in Lyra, an interesting object to be sure — but not what I would have chosen to show the leader of the Free World. (Jupiter, which was well up that night, comes to mind.)

More at: ***http://www.skyandtelescope.com/astronomy-news/white-house-astronomy-night-10202015/#sthash.8MkFrLYw.dpuf***

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Observatory

When visiting the VAS observatory, for your own safety, please bring a torch. Also, please make sure you close and lock the car park gate if you are the last to leave - if you need the combination to the lock, please contact a member of the committee.

Articles Needed

New Zenith needs letters, articles, reviews or pictures related to astronomy. Contributions to the Editor at the email or postal address on the front page.

"But I know somehow, that only when it is dark enough, can you see the stars"
Martin Luther King Jr.

"Duct tape is like the force. It has a light side, a dark side, and it holds the universe together...."
Carl Zwanzig

"After one look at this planet any visitor from outer space would say I want to see the manager"
William S. Burroughs

"Nothing exists except atoms and empty space; everything else is opinion"
Democritus