

Society News

Garlic Festival



The raffle winners with their new telescope

The raffle draw ended a very successful weekend at the Garlic Festival. Ticket 135 was the winner, and Ian Green and family were delighted to collect the telescope. From Kent and visiting the Island for the first time, Ian said "I just can't believe this, I never win anything!" More Garlic Festival news and pictures inside this issue.

Doug White

It is my sad duty to inform members that Doug White died on Thurs 8th August at Kite Hill Nursing Home.

The County Press published a full obituary at <http://iwcp.co.uk/news/obituaries/mr-douglas-white-50588.aspx>

Clear Skies!
Brian Curd
Observatory Director

VAS Website: www.wightastronomy.org

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

The Editor New Zenith
35 Forest Road
Winford
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Tel: 01983 864303 or email: editor@wightastronomy.org

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

VAS Registered Office

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The Vectis Astronomical Society and the Editor of the New Zenith accept no responsibility for advice, information or opinion expressed by contributors.

Registered Charity No 1046091

Observatory Diary

Monday, 19.30hrs	Members Only by arrangement Telescope and night sky training. Contact Barry Bates 01983 872979
Thursday, 19.30hrs	Members and Public. Informal meeting and observing.

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Monthly Meeting Calendar 2013

Do You Know a Speaker?

If you know speaker, or perhaps you would be prepared to have a go, please contact Elaine Spear at progorg@wightastronomy.org

Check the website for up to the minute information.

Travel for our monthly speakers is sponsored by:		
		
Date	Subject	Speaker
23 Aug	Particle Physics, ATLAS and the LHC AGM - Start at 19.00hrs	Dr Christopher Lester
27 Sep	Atmospheric electricity and high energy particles	Prof Giles Harrison
25 Oct	Radio Astronomy	Dr Sadie Jones
22 Nov		

All details correct at time of publication.

Monthly Meeting Calendar 2014

Date	Subject	Speaker
April	Cosmic Rays	Alan Watson
June	The Radio Sky	Paul Hyde

VAS Life President

Committee is delighted to announce that Barry Bates has accepted nomination as **VAS Life President**.

As a VAS founder member, Barry has contributed to the Society over many years and his dedication continues to this day. Barry's work fully deserves recognition and while he is stepping down from the committee at the AGM, he will continue to offer telescope training and be fully involved in the Society.

Congratulations Barry!

VAS Contacts 2013/14

Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Rebecca Mitchelmore 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	Barry Bates Mark Williams Chris Wood

If you can spare a few hours each month to help with the administration of the Society, please don't be shy!

The Committee need help, and volunteers are always welcome.

Island Planetarium @Fort Victoria

The Island's Telescope Professionals

New and Used Meade Celestron Telescopes
New dealers in Skywatcher & Vixen in 2013

Used equipment in stock

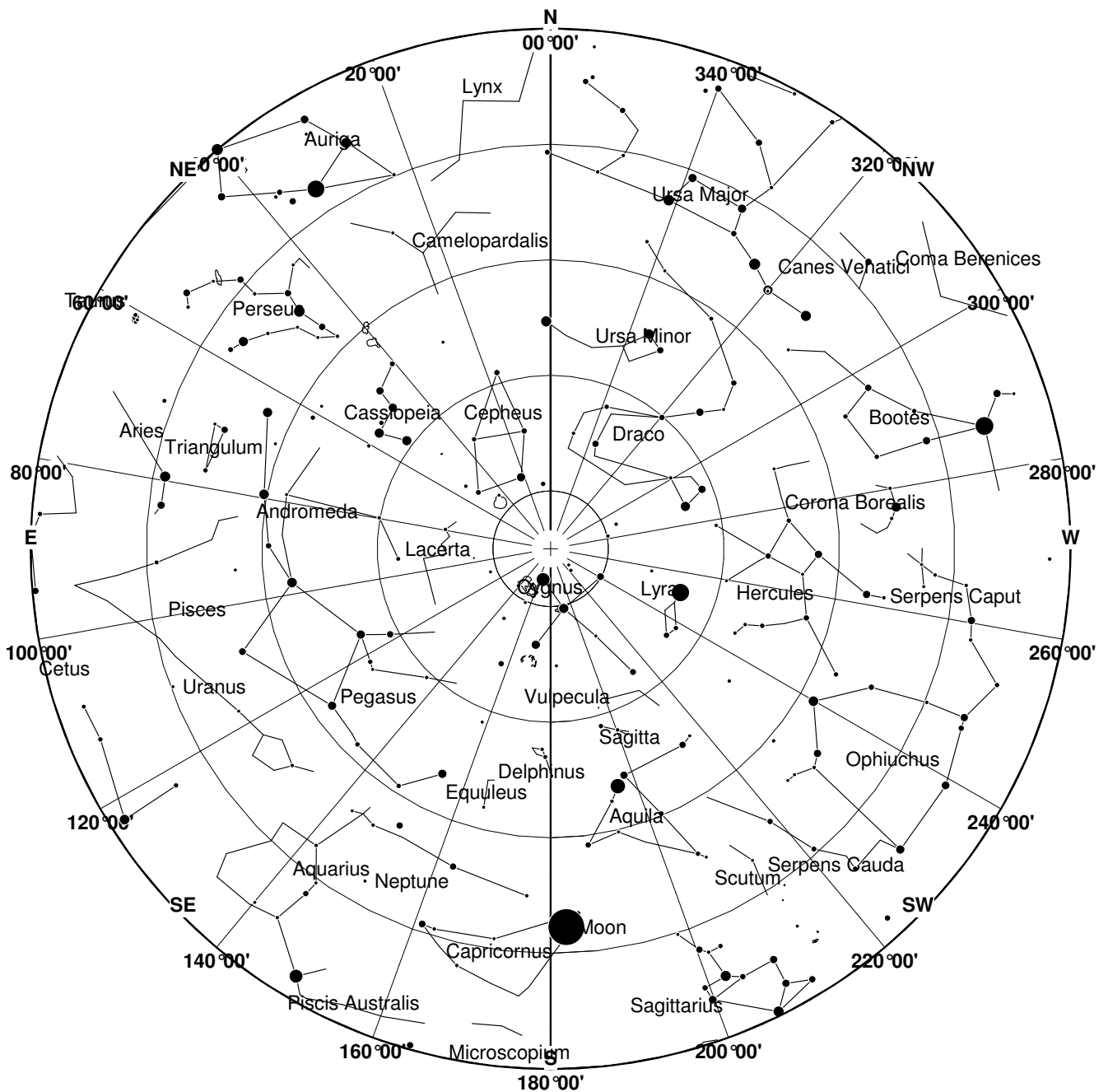
TAL 200mm Newtonian Reflector
Skywatcher 180mm Maksutov Cassegrain
Celestron 150mm Reflector (NEW)
Celestron 120mm Refractor
Skywatcher 120mm Refractor

Various starter scopes and accessories

Discounts and deals for VAS members

Call Paul England – VAS Member
on 761555 - leave your number
if I am not there and I'll call you back
also - enquiry @islandastronomy.co.uk

September 2013 Sky Map



View from Newchurch Isle of Wight UK - 2200hrs - 15 September 2013



Messier 72 (also known as NGC 6981) is a globular cluster in the Aquarius constellation discovered by French astronomer Pierre Méchain on August 29, 1780. French astronomer Charles Messier looked for it on the following October 4, and included it in his catalog. Both decided that it was a faint nebula rather than a cluster. With a larger instrument, British astronomer John Herschel called it a bright “cluster of stars of a round figure”. American astronomer Harlow Shapley noted a similarity to Messier 4 and Messier 12.

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September 2013 Night Sky

Moon Phases

New	1 st Qtr	Full	Last Qtr
5th	12th	19th	27th

Planets

Mercury

Unless you are able to observe from a much more southerly latitude than the Isle of Wight, Mercury's apparition in the evening sky will go unnoticed. At our latitude it sets, at best only about a half an hour after the Sun and is only 5° above the horizon at sunset.

Venus

During Autumn the ecliptic, the path that the Sun and the planets follow on their journey around the sky, lies very close to the horizon in the evening sky.

Venus is suffering from this effect keeping it close to the horizon and difficult to observe in the bright twilight. It is about 8° above the horizon at sunset, but being much brighter than Mercury is much easier to find.

Mars

In the pre dawn sky Mars still has not risen very far before the sky starts to brighten. This together with its small size means it remains a relatively poor object for observation. It passes through M44, the beehive cluster on the 9th it is still close by on the 8th and 10th

Jupiter

Rising just after midnight Jupiter is visible during the early morning hours until sunrise. After the Moon it is the brightest object in the sky at that time of night so should be unmistakable.

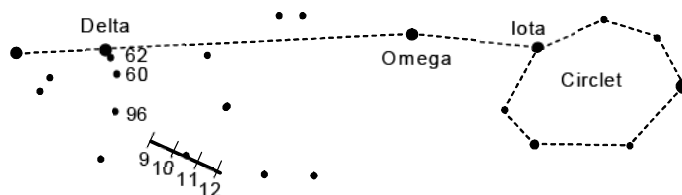
Saturn

Saturn is now difficult object, low down in the southwest as the sky darkens. It passes about 3 degrees above the very much brighter Venus on the 17th.

Uranus

The finder chart shows the movement of Uranus against the stars of Pisces from now until the end of the year. The chart shows the circlet of Pisces and the stars

adjacent to Uranus down to 7th magnitude. Uranus is magnitude 5.7, comparable to 60, 62 and 96 Piscium.



Neptune

Neptune can be found about halfway between the stars Sigma and 39 Aquarii. It can be found using a pair of binoculars and star hopping. It takes time and a little patience Neptune is not very bright and there are no easily recognised guide stars close by. Use the finder chart in last month's New Zenith.

Deep Sky

M72 Globular Cluster RA 20h 54m Dec -12° 31' mag 10.0

Visually a rather small globular but it can be forgiven its apparent size when you consider that it is on the other side of the galaxy from us. It can be just seen in binoculars and a small to medium sized telescope with some magnification is needed to resolve any of the stars. It is not as tightly packed in the core as many globulars.

M73 Star Cluster RA 20h 59m Dec -12° 36' mag 9.0

This is a grouping of just four stars that form a Y pattern or perhaps a lambda depending on which way up it appears. The stars can be resolved in the smallest of telescopes used today and shows no sign of nebulosity. This is perhaps another pointer to the quality of some optical instruments being used in Messier's time that he mistook this object for something that looked like a comet. It is not known if this is just a chance alignment of stars or whether they form a true cluster.

M39 Open Cluster RA 21h 32m Dec 48° 32' mag 4.5

The Milky Way is full of star clusters, many are dimmed by intervening dusts or are so surrounded by other stars that it can be difficult to identify them. M39 can be spotted with the naked eye under good conditions, it is large, about the size of the full moon, so binoculars or a rich field telescope are the best instruments to use to observe this triangular shaped cluster.

Peter Burgess

Practical Radio Astronomy for Amateurs

Lecture Report 26 July 2013

Paul Hyde G4CSD

BAA Radio Astronomy Group Coordinator

The Chairman, Professor Bryn Davis, introduced the speaker who had travelled from Basingstoke, to give a very interesting talk at our well-attended meeting, helping to bridge the gap between radio and optical astronomy.

The sketches here are approximations. For more data, if a web reference isn't given, Google the various "items". A good place to start is www.britastro.org/radio/

Radio gives a different picture of the sky compared to the visual picture. Often the information is complementary, such as studying meteors. A big problem is the size of the sky. Space is very large, and objects, such as radio-stars, are very far away so their signal strengths are very weak - see the list below where the numbers are field strengths in watts per m² per Hz bandwidth of signal.

- Broadcast : 10⁻¹³
- Communications receiver : 10⁻¹⁷
- Supernova remnants : 10⁻²¹
- Radio galaxies and pulsars: thousands to millions of times weaker.

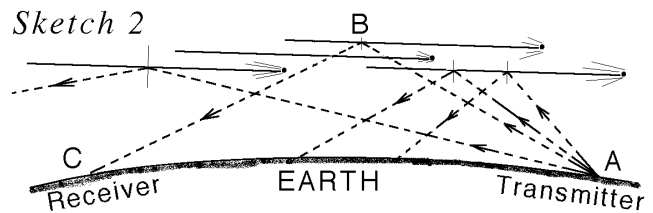
Nowadays, many tall buildings support aerials, amounting to thousands of transmitters, but these are narrow band and well regulated. However, other devices such as energy saving light bulbs, broadband computer connections using mains wiring and solar panels, can make strong local radio interference.

Obviously projects involving the strongest signals are the easiest, such as SIDs and meteors. These are easily observed indirectly using simple equipment because of their effects on strong terrestrial radio transmissions. Then come the natural radio emitters themselves, the Sun and Jupiter. Weak signals from the deep sky are studied by amateurs with more elaborate equipment.

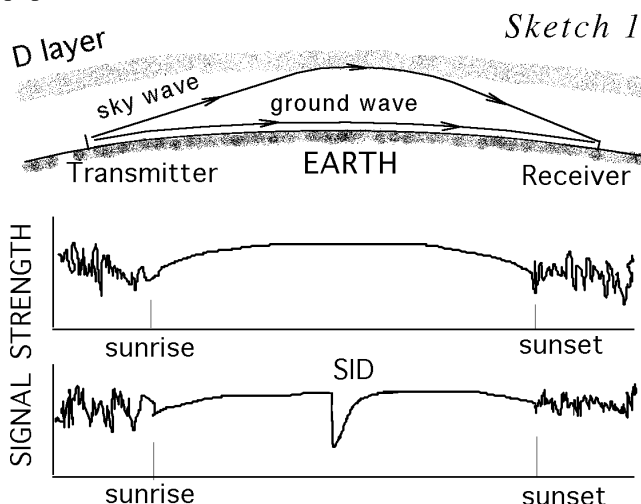
the net signal at the receiver can become weaker or stronger, depending upon their relative phases. The effect dies away over several tens of minutes to an hour, giving 'shark fin' shapes on graphs, up or down. Several graphs were seen for signals received from transmitters in Cumbria and France operating near to 20kHz, used for submarine communication and time-signals. This enables ionospheric modelling and a calculation of 67.9 km for the minimum height of the D layer.

Particles from solar storms take some 60 hours to arrive, upsetting the Earth's magnetism and causing aurora, so SIDs give a forewarning since the UV-light which causes them, takes only 8 minutes to get here from the Sun.

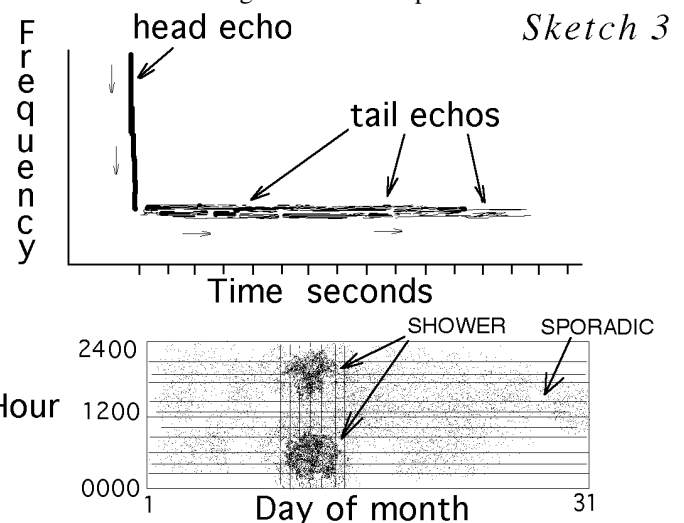
The equipment is simple, a loop aerial connected to an aerial tuning unit, a receiver and a PC.



Radio Meteor Scatter complements optics but can be done in daytime too and meteors too weak to be seen at night are detectable. The forward scatter method (as opposed to backscatter pulsed radar) *Sketch 2*, depends on listening for a chosen over-the-horizon transmitter. A meteor arriving at high speed, colliding with the atmosphere, is surrounded by plasma emitting lots of light, also reflecting radio transmissions in many directions. In the wake, a radio-conductive tail is made, having characteristics like a length of reflecting wire, bursting out radially to make a thicker conductor, reflecting more waves. For a parallel stream of meteoroids, the tails are parallel - although they drift and change due to wind shear. They give specular reflections (like a mirror) favouring particular positions in the sky from where a receiver obtains the strongest reflections of a particular transmitter for a particular meteor cluster. If there are several broadcast transmitters on the same frequency, separated by hundreds of kilometres - commonly the case - it can be tricky working out which transmitter has been received. Thus the 'stand-alone' megawatt-sized GRAVES transmitter (143.050MHz,) near Dijon, is very good in the UK for observing meteors over southern France. GRAVES is used by the French Air Force for monitoring satellites and space debris.



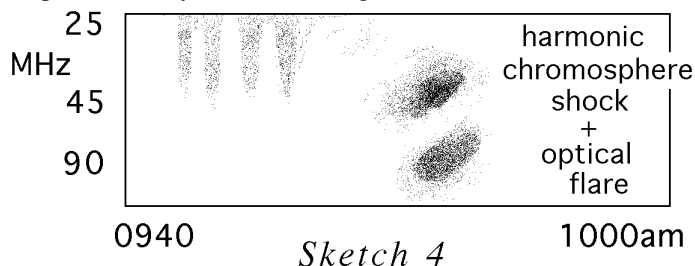
Sporadic Ionospheric Disturbances, SIDs, are caused by intense UV-light from solar flares and storms producing extra ionization in the D-layer. They become apparent within minutes because of their sudden effects on very low frequency (VLF) radio signals. The sky waves travel by reflections from the D-layer which combine with ground waves in the receiver making the signal either stronger or weaker. The D-layer exists in the daytime, giving smooth radio reception, becoming irregular at night, see *Sketch 1*. Whereas a SID makes the skywave stronger,



The fast moving plasma ball around the meteor gives the 'head echo', of high Doppler shift and exceedingly rapid deceleration, *Sketch 3*. A 500Hz change is equivalent to a 1000m/sec change in speed along the line of sight. As the meteor decelerates, the Doppler shift rapidly reduces, then the head echo

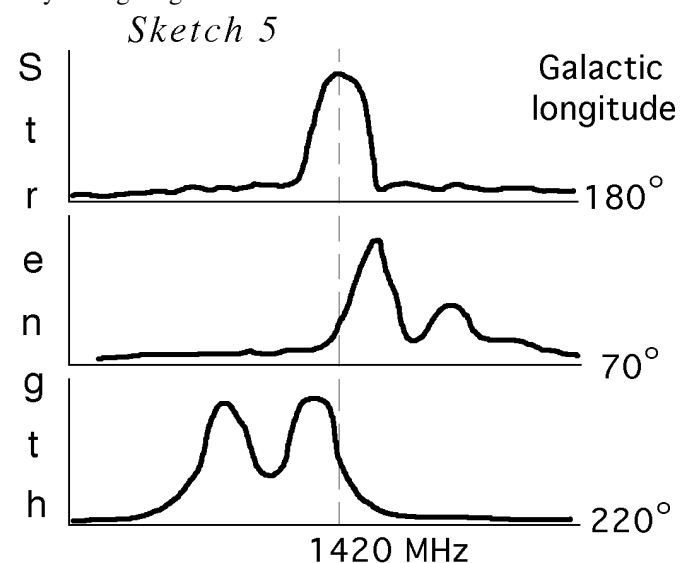
vanishes, leaving the tails to develop and reflect radio from a series of parallel lines in the sky, giving Fresnel diffraction, decreasing over minutes. Smaller Doppler shifts occur in the tails and upper atmospheric winds and shear can split them into several tubes visible on the radio-reception screen. The whistles in radio recordings are generated by having the receiver set to SSB, a kilohertz offset from the carrier, characteristic "ping" recordings were demonstrated. The duration of the signals is proportional to the mass of the meteor. Over several days and nights, pictures of meteor showers become apparent - see *Sketch 3*.

The AMSAT-UK FUNcube Dongle Pro (c £150) is a versatile receiver, plugging into the USB socket of a PC, covering 200kHz to 2GHz. Using free software, it can be used as a spectrum analyser and scanning receiver.



The Sun. Recordings of the Sun were played, sounding like white noise getting louder then quieter, over minutes. When displayed as a frequency spectrum versus time, on one particular day (6 Nov 2006) a rather puzzling plot with sweeping bars on the top left, like in *Sketch 4*, was seen, this was found to agree closely with professional data. X-class solar flares can be received at home with a wire antenna and a SW receiver, 18.7MHz being suitable.

Jupiter reaches opposition (north at midnight) on 5 Jan 2014, so good observing times span this date, from now to May 2014 on 15m (20MHz). The radiation emerges from a combination of strong gravitation, strong magnetic fields, very high ionization, and interactions with particles emitted from Io. The system emits slower L bursts, and faster S bursts which sound like streams of clicks. Recordings of the S-clicks, when slowed down, give characteristic whistles of decreasing pitch due to electrons gyrating into the weaker regions of Jupiter's very strong magnetic field.



Weak signals from the deep sky. Instruments using a single antenna can receive the 1420MHz hydrogen line, broad band black body radiation and synchrotron radiation. Advanced amateur work, can be studied:-

Sketch 5 represents some very impressive data obtained from hydrogen line emissions from parts of the spiral arms of the Milky Way galaxy. This is definitive proof of differential rotation. Obtaining such data requires a steerable dish greater than 2.4 metres diameter.

Amateurs also use **interferometry** with yagi pairs spaced by 30m to explore the Virgo A radio galaxy.

Conclusion. Radio astronomy can be straightforward for astronomers, using receivers which plug into laptops, without requiring lots of radio knowledge. The aerials are easy to make following the various published designs and they can be bought. Collaboration between astronomy societies and amateur radio clubs has great potential.

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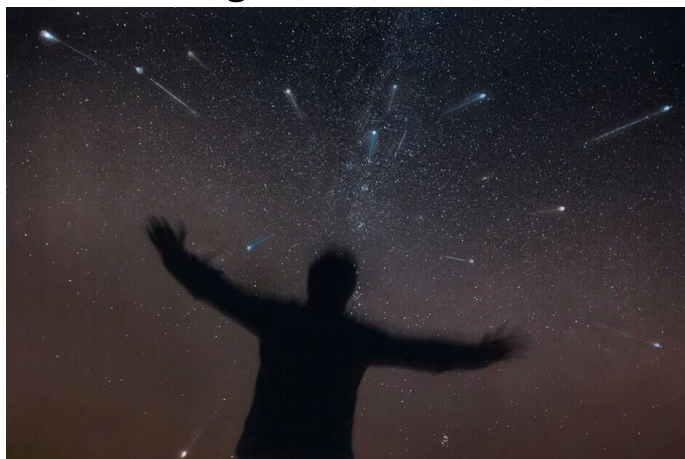
Discussion:

A lively discussion session end the talk and some of the questions and answers are shown below

- Q:** *Are SIDs visible?*
A: *No, they reflect radio, not light.*
- Q:** *That Dongle is quite expensive, are there cheaper ones?*
A: *Yes, ten to fifteen quid, of lower 8-bit resolution - you can do a lot with them, but they're easily destroyed by nearby lightning, but at that price...*
- Q:** *How do you know the signals believed to come from Jupiter, really do come from Jupiter?*
A: *There is a predictive timetable and the observed signals tally with the physics, with the aerial design, and position of Jupiter in the sky.*
- Q:** *Are optically quiet sites, i.e. dark sky areas, also radio quiet?*
A: *Yes if they are well away from radio interference sources. When there's local interference, being in a bowl or dell can act as a screen. Actually, the optical astronomers have it easy compared to radio!*

Dr.Guy Moore G3RVU

Essays from a beginner: On clanking



Picture Credit: James Birchall

I inspected the sky crossly. The peak night of the Perseids should have been a good chance to observe, with the moon well out of the way for once, except that cloud cover was eighty or ninety percent. Nevertheless, in solidarity with thousands of other sky watchers, I lugged the recliner into the garden, struggling with the tubular metal frame as it clanked and twangled and clashed and turned itself inside-out without provocation. Out came the seldom-used meteor blanket (long, wide and thick), the thermals, and a padded coat, and I wedged myself in.

Sounds which would be inaudible by day now travelled easily up and down the road. In nearby premises people encouraged their dogs to pee, told off their children, dealt with nasty coughs. Happy campers ambling from pub to tent shared confidences with each other and (had they but known it) with me. The trees had exchanged the swishing of spring for a gentle dry rattle, prefiguring autumn. A cold breeze brought the last faint wafts of lily and honeysuckle, and at the same time pushed away the sounds of the sea, making room in the garden for quietude like a feather comforter. I began to watch.

Acts of faith are sometimes their own reward. The rifts in the cloud cover were small but at least I knew where to focus. A long bright trail zipped from east to west; then I spotted a tiny streak right in the belly of the Swan, where there happened to be a small sucker hole. We were off. Over the next hour I saw about a dozen meteors. They were mostly quite bright, to my eye showed a faintly yellow tint, and some of them left persisting trails of smoke or dust. One perverse meteor travelled against the traffic, shooting from the Great Square towards Perseus; it seemed a bluer white, and a different shape from the others, with a bright distinct head and long narrow trail, and whatever its source it was obviously not a Perseid.

Gradually the lower clouds thinned and the Summer Triangle swung round, Pegasus climbed the sky and a smear of Milky Way appeared. At the same time, however,

I began to doze in my cocoon, waking occasionally to wonder how many Perseids I had missed. At last a distinct thought penetrated: *Must Go To Bed.*

Now here's the thing. As I mentioned, it is pretty quiet out our way, and by two a.m. you can hear the sparrows turning over wondering if it's morning yet.

Drunken with sleep, I contemplated the recliner, knowing that I couldn't fold it without waking the village. Eventually I calculated holding points which would not cause an immediate ironmongery disaster, and teetered up the garden like a sedated Charlie Chaplin. After a couple of preliminary feints, I inserted myself and the chair crabwise into the house before becoming entangled with the piano and a vacuum cleaner which happened to be lying about.

Not for the first time, I was glad that astronomy is done in the dark!

Rebecca Mitchelmore

Perseids

The Perseids are a prolific meteor shower associated with the comet Swift-Tuttle. The Perseids are so-called because the point from which they appear to come, called the radiant, lies in the constellation Perseus.

The stream of debris is called the Perseid cloud and stretches along the orbit of the comet Swift-Tuttle. The cloud consists of particles ejected by the comet as it travels on its 133-year orbit. Most of the particles have been part of the cloud for around a thousand years. However, there is also a relatively young filament of dust in the stream that was pulled off the comet in 1865, which can give an early mini-peak the day before the maximum shower.

Credit for recognising the shower's annual appearance is given to Adolphe Quetelet who reported in 1835 that there was a shower emanating from the constellation Perseus. Some Catholics refer to the Perseids as the "tears of St. Lawrence", since 10 August is the date of that saint's martyrdom.

The shower is visible from mid-July each year, with the peak in activity between 9 and 14 August, depending on the particular location of the stream. During the peak, the rate of meteors reaches 60 or more per hour. They can be seen all across the sky, but because of the path of Swift-Tuttle's orbit, Perseids are primarily visible in the northern hemisphere. Most Perseids disappear while at heights above 80 kilometres (50 mi).

This article is licensed under the [GNU Free Documentation License](#). It uses material from the [Wikipedia article "Perseids"](#)

2013 Garlic Festival



As most members will know, the annual Garlic Festival is our major fund-raising event. To all those who helped marshal the event, THANK YOU; VAS hope to raise a substantial donation to our funds.

This year we had a tent to ourselves and divided it into two areas. Half was setup to promote the Society and answer astronomy related questions (*and to sell raffle tickets!*) while the other half was used to explain our ongoing dark skies project.

Both sides were kept busy and it was very encouraging to see how many visitors were interested in the PFI streetlight replacement program, our work with the AONB (Area of Outstanding Natural Beauty) and our project to achieve international dark sky status.



Outside the tent, the Meade refractor was aimed at Appuldurcombe Down and the Trig Point monument (almost 4 miles away). Most of the weekend was clear so there was a lot of interest in viewing - Of course the standard question was then "Why is the monument upside down?".

As in previous years we raffled a telescope and the excited winners are shown on the front page. We managed a profit from the raffle as 224 tickets were sold.



The rain wasn't welcome but fortunately didn't last for too long when it did come. The forecasters got it almost exactly right and I even managed to use the downpour on Sunday morning to clean a lot of "crud" from the mirror of the 12" scope shown on the right above.

Again, many thanks to those who helped at the weekend and to the The Isle of Wight Radio Society for the loan of their tent.

Brian Curd and Chris Wood

On This Planet, a New Year Every 8.5 Hours

Researchers have discovered an Earth-sized exoplanet that whips around its host star in a mere 8.5 hours — one of the shortest orbital periods ever detected.

In the time it takes you to complete a single workday, or get a full night's sleep, a small fireball of a planet 700 light-years away has already completed an entire year.

Researchers at MIT have discovered an Earth-sized exoplanet named Kepler 78b that whips around its host star in a mere 8.5 hours — one of the shortest orbital periods ever detected. The planet is extremely close to its star — its orbital radius is only about three times the radius of the star — and the scientists have estimated that its surface temperatures may be as high as 3,000 degrees Kelvin, or more than 5,000 degrees Fahrenheit. In such a scorching environment, the top layer of the planet is likely completely melted, creating a massive, roiling ocean of lava.

What's most exciting to scientists is that they were able to detect light emitted by the planet — the first time that researchers have been able to do so for an exoplanet as small as Kepler 78b. This light, once analyzed with larger telescopes, may give scientists detailed information about the planet's surface composition and reflective properties.

More at: Earthsky.org

Astronaut Leadership Training

The aim of ISSET is to utilise space exploration to inspire and motivate young people to believe that they can become what they want to be. We run Astronaut Leadership Experiences where young people and adults can work with astronauts and NASA trainers on leadership and team-building activities in select locations around the world.

This year we are running two programmes, one in the Lake District and one in Kenya.

Our Lake District trip running in September, will allow you to train like a real astronaut with Astronaut Mike Foale and a team of experienced guides and mountain leaders.

You will explore the beautiful natural surroundings by taking part in an exhilarating zip-wire challenge and Via Ferrata exercises. You will work towards a team project to strengthen your teamwork, communication and leadership skills and unleash your adventurous side with mountain safety and navigation skills, gorge and cascade scrambling

The range of interactive team-building activities are thrilling challenges set in fantastic surroundings. They are your opportunity to work together with the very best leaders and trainers from NASA, astronaut trainers, experienced mountain guides and activity coaches.

http://isset.org/astronaut_leadership_experience/lake_district.php

On our Kenya trip running in October, you will join NASA astronauts, astronaut trainers and astronomers this November on the adventure of a lifetime to Kenya, one of the most beautiful places on Earth, to witness one of the Earth's most mesmerising astronomical phenomena - a total solar eclipse.

Boasting plentiful exotic wildlife and beautiful scenery, not only will you have the chance to watch lions, elephants and giraffes in their native habitat; but you will also get to experience the amazing atmosphere of being on the Earth's equator. Throw snowballs at the top of Mount Kenya, before resting at the edge of serene turquoise waters at Lake Turkana - the Cradle of Humanity.

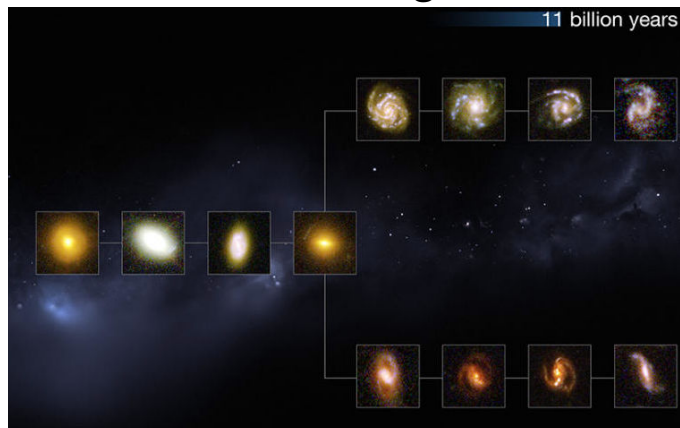
http://isset.org/astronaut_leadership_experience/kenya.php

If you have any further questions, please do not hesitate to contact me at this email address or call 02920 710295.

We hope you hear from you soon.

Tabitha Fry - ISSET

Galaxies Had 'Mature' Shapes 11.5 Billion Years Ago



Aug. 15, 2013 — *Studying the evolution and anatomy of galaxies using the Hubble Space Telescope, an international team of astronomers led by doctoral candidate BoMee Lee and her advisor Mauro Giavalisco at the University of Massachusetts Amherst have established that mature-looking galaxies existed much earlier than previously known, when the universe was only about 2.5 billion years old, or 11.5 billion years ago.*

“Finding them this far back in time is a significant discovery,” says lead author Lee.

The team used two cameras, Wide Field Camera 3 (WFC3), and Advanced Camera for Surveys (ACS), plus observations from the Hubble's Cosmic Assembly Near-infrared Deep Extragalactic Legacy Survey (CANDELS), the largest project in the scope's history with 902 assigned orbits of observing time, to explore the shapes and colors of distant galaxies over the last 80 percent of the Universe's history. Results appear in the current online issue of *The Astrophysical Journal*.

Lee points out that the huge CANDELS dataset allowed her team to analyze a larger number of these galaxies, a total 1,671, than ever before, consistently and in detail. “The significant resolution and sensitivity of WFC3 was a great resource for us to use in order to consistently study ancient galaxies in the early Universe,” says Lee.

She and colleagues confirm for an earlier period than ever before that the shapes and colors of these extremely distant young galaxies fit the visual classification system introduced in 1926 by Edwin Hubble and known as the Hubble Sequence. It classifies galaxies into two main groups: Ellipticals and spirals, with lenticular galaxies as a transitional group. The system is based on their ability to form stars, which in turn determines their colors, shape and size.

Read more at: <http://www.sciencedaily.com/>

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Sad News - Winding up of a member society

Greetings:

I am sorry to have to tell you that the Galloway Forest Astronomical Society is likely to wind up at an AGM to be held in early November. Please circulate the following to all member societies.

The Galloway Forest Astronomical Society is to wind up, and, as a Scottish Charity, we have to select another body with similar objectives to whom we will hand over our assets - telescopes, binoculars, laptop, projector, mounts, library and bank balance - plus a large sliding roof observatory if required.

Details of equipment, etc, can be obtained from robin@bilbo88.plus.com, but bids, including a copy of club/society constitution must be sent by post to GFAS, "Glenamour", Newton Stewart, DG8 7AE", to arrive no later than Friday 13th September. The successful applicant must undertake to remove ALL equipment within one month of being informed of the successful bid.

--

Robin Bellerby
Chairman
Galloway Forest Astronomical Society

A Magnetar at the Heart of Our Milky Way



Aug. 14, 2013 — Astronomers have discovered a magnetar at the centre of our Milky Way.

This pulsar has an extremely strong magnetic field and enables researchers to investigate the direct vicinity of the black hole at the heart of the galaxy. An international team of scientists headed by the Max Planck Institute for Radio Astronomy

in Bonn have, for the first time, measured the strength of the magnetic field around this central source and were able to show that the latter is fed by magnetic fields. These control the inflow of mass into the black hole, also explaining the x-ray emissions of this gravity trap.

The discovery of a pulsar closely orbiting the candidate supermassive black hole at the centre of the Milky Way (called Sagittarius A*, or Sgr A* in short) has been one of the main aims of pulsar astronomers for the last 20 years. Pulsars, those extremely precise cosmic clocks, could be used to measure the properties of space and time around this object, and to see if Einstein's theory of General Relativity could hold up to the strictest tests.

Shortly after the announcement of a flaring X-ray source in the direction of the Galactic centre by NASA's Swift telescope, and the subsequent discovery of pulsations with a period of 3.76 seconds by NASA's NuSTAR telescope, a radio follow-up program was started at the Effelsberg radio observatory of the Max Planck Institute for Radio Astronomy (MPIfR).

Read more at: <http://www.sciencedaily.com/releases/2013/08/130814132319.htm>

Observatory

For your own safety, when visiting the VAS observatory, 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 or pictures related to all aspects of astronomy. Contributions to the Editor please at the email or postal address on the front page.

“Douglas Adams’ use of “don't panic” was perhaps the best advice that could be given to humanity”

“It has yet to be proven that intelligence has any survival value.”

“If we have learned one thing from the history of invention and discovery, it is that, in the long run — and often in the short one — the most daring prophecies seem laughably conservative.”

“Behind every man now alive stand 30 ghosts, for that is the ratio by which the dead outnumber the living.”

Arthur C Clarke