New Zenith

The Monthly Magazine of the Vectis Astronomical Society

Vol 21 Issue 9 — October 2013

When Printed, this Newsletter costs VAS at least £1

Society News

Bestival

A few of us were invited to take our telescopes to Bestival again this year. While we weren't blessed with good weather, no planets were available for viewing and, as usual, the event's light pollution didn't help, we still managed to attract about 5-600 people to look through the telescopes and stop to ask us questions.

All in all a good outreach result and a very enjoyable event. *Special thanks to Elaine, Madeline Laura and Martyn.*

Dark Skies Help

Via the Dark Skies Initiative, VAS are working closely with the Island's Area of Outstanding natural Beauty (AONB). In the near future we are hoping to add a lot more data to the Dark Skies Map (***http://www.wightrabbit.co.uk/sqm/tagged-mapr.html*** which is the 'work in progress' version - if your browser complains about javascript, just 'continue').

AONB has kindly agreed to fund more Sky Quality meters to help with this and we now need volunteers to take the readings in all areas across the Island. If you can help with a few hours over the next few months we'd be very pleased to hear from you! *Please contact Chris Wood, Brian Curd or Mark Williams for details.*

VAS Christmas Dinner

The VAS Christmas dinner this year will be held at **19.30 on Friday 29th November at The Merrie Garden** (*near Morrison's Lake*)

Booking forms are available at the observatory on Thursday evenings and at monthly meetings. Please return your booking by the October meeting and pay by the November meeting (cheques to society) £15.99.

Spinning Moon

Stunning!
http://www.space.com/22844-spinning-moon-video-lunar-reconnaissance-orbiter.html

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
Sandown PO36 0JY

Tel: **01983 864303** or email: **editor@wightastronomy.org**

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

VAS Registered Office

35 Forest Road, Winford, Isle of Wight, PO36 0JY

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.

Contents this Month

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 or Chris Wood at ***progorg@wightastronomy.org***

Check the website for up to the minute information.

Travel for our monthly speakers is sponsored by:

WIGHTLINK
PART OF ISLAND LIFE

Date	Subject	Speaker
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
28 Feb	History of the Dark Sky	Alan Dowdell
25 April	Cosmic Rays	Alan Watson
23 May	TBA	Dr Thomas Kitching
27 June	The Radio Sky	Paul Hyde

Telescope Training

Telescope training starts again on Oct 7th at 19.30 and the first session is already fully booked. Members wanting training should contact Barry Bates on 872979.

Observatory Bookings

It would be appreciated if members could avoid using the observatory on the following dates:

Wed 2nd October - IW PC User Group

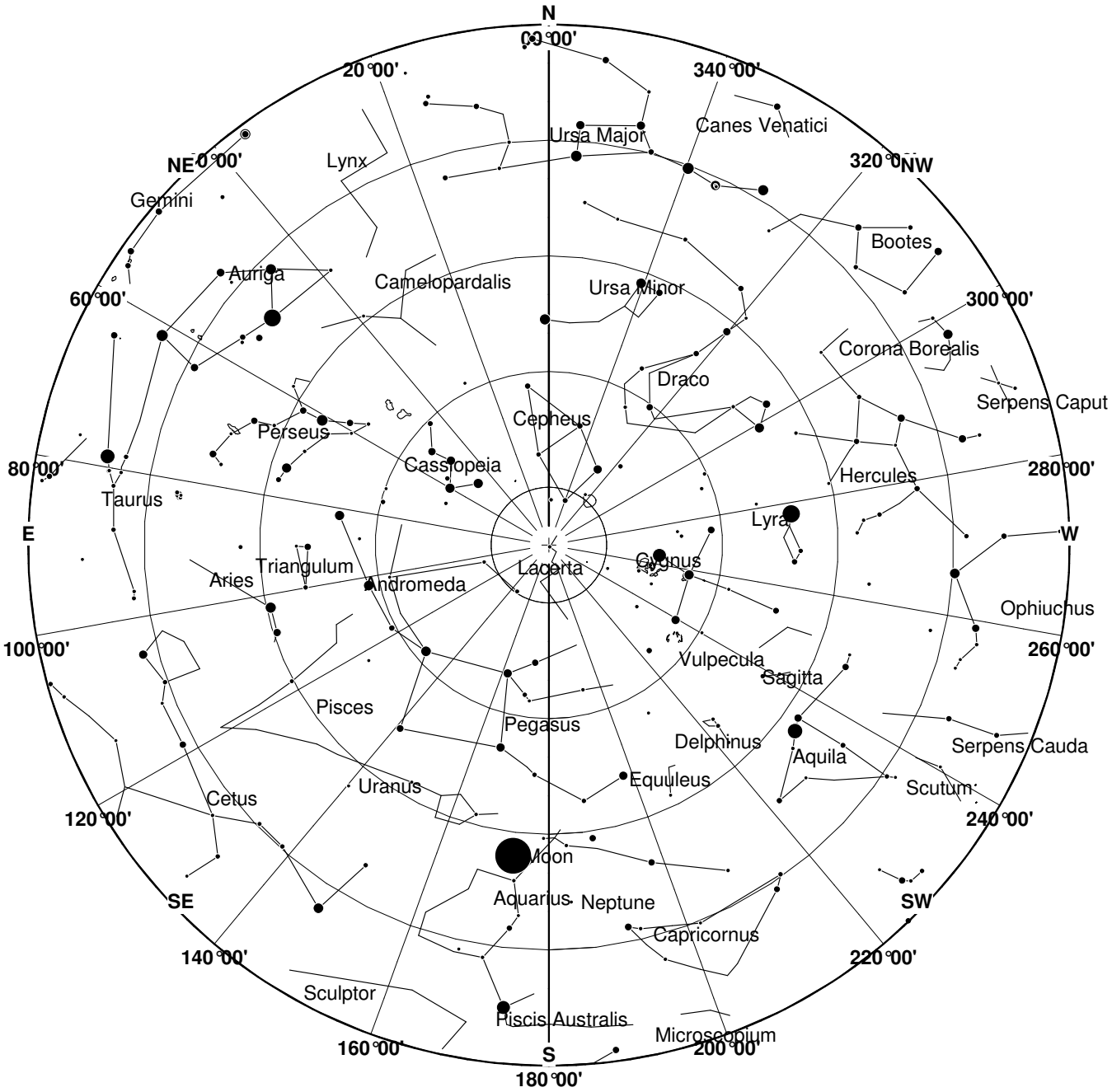
Wed 16th October - 8th Newport Scout group

VAS Contacts 2013/14	
Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Rebecca Mitchelmore secretary@wightastronomy.org
Treasurer	David Kitching treasurer@wightastronomy.org
Observatory Director	Brian Curd director@wightastronomy.org
Programme Organiser	Elaine Spear & Chris Wood progorg@wightastronomy.org
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

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.

October 2013 Sky Map



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

C/2012 S1, also known as Comet ISON or Comet Nevski–Novichonok, is a sungrazing comet discovered on 21 September 2012 by Vitali Nevski and Artyom Novichonok. The discovery was made using the 0.4-meter (16 in) reflector of the International Scientific Optical Network near Kislovodsk, Russia and the automated asteroid-discovery program CoLiTec. Precovery images by the Mount Lemmon Survey from 28 December 2011 and by Pan-STARRS from 28 January 2012 were quickly located. Follow-up observations were made on 22 September by a team from Remanzacco Observatory in Italy using the iTelescope network. The discovery was announced by the Minor Planet Center on 24 September.[6] Observations by SWIFT suggest that C/2012 S1's nucleus is around 5 kilometers (3.1 mi) in diameter

October 2013 Night Sky

Moon Phases

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

Planets

Mercury

The month starts with Mercury in the middle of very poor evening apparition. Autumn is a very poor time for viewing the planets in the early evening sky. While its angular separation from the Sun may be well over 20º it is only about 3º at best above the horizon at sunset.

Venus

Further west and a little higher in the sky, Venus because of its much greater brightness is relatively easy to spot low down in the south west for about an hour after sunset. Being so low down the chances of being obscured by cloud on all but the clearest of evenings is quite high.

Mars

Early risers or insomniacs will be able to observe Mars from the early morning hours until sunrise as it passes through the stars of Leo. On the 16th it passes about two moon widths to the upper left of Regulus the brightest star in Leo. Mars is moving quite quickly against the background stars so a day either side does make a difference to the appearance of this conjunction.

Jupiter

Rising just before 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. It is almost stationary against the stars of Gemini

Saturn

Saturn is now lost in the bright evening twighlight as it passes behind the Sun for the next few weeks.

Uranus

From the circlet of Pisces star hop to the left almost an outstretched hands width to the star Delta Piscium. Using a pair of binoculars follow the line of three stars (Delta included) to the lower right. The next 'star' of about the same brightness is Uranus. It is a little over half a binocular field of view away from Delta, assuming a pair of10x50s.

Neptune

Neptune remains about halfway between the stars Sigma and 39 Aquarii. Aquarius is a rather faint constellation with few bright stars to assist in finding the outermost gas giant. A star chart is essential until the star patterns are memorised then it is relatively easy to find. Use the finder chart in the August N.Z.

Comet

ISON

Those with moderate to large size telescopes and who are early risers should be able to start following comet ISON into the inner solar system. During the first week of the month it will be close to Mars in the morning sky. Use a star mapping program with the latest orbital elements to plot its position each day before observing. It should, if we are lucky brighten considerably as it heads towards possibly its encounter with the Sun in late November.

Deep Sky

NGC7000 North America Nebula
RA 20h 59m Dec 44° 28' mag 4.0

Located 3 degrees to the east of Deneb in Cygnus is this large misty patch in the Milky Way that can be seen with the naked eye. Unless the sky is very dark this nebulosity is the light from the myriad of background stars, if conditions are suitable the darker rift of the 'Gulf of Mexico' can be visualised. Large aperture binoculars or a rich field telescope will help reveal the nebulosity. Most of the light emitted is the deep red of hydrogen alpha, to which our eyes lack sensitivity. A nebula filter can help to increase the contrast with the background sky glow. This is a rewarding area for long exposure photography.

NGC7662 Planetary Nebula
RA 23h 26m Dec 42° 32' mag 8.3

A small but relatively bright planetary nebula sometimes referred to as the blue snowball. The planetary is only about a quarter the size of the famous Ring Nebula, but being bright takes magnification well. A large telescope is needed to reveal a central void and the 13th magnitude white dwarf that powers the surrounding nebula.

NGC6910 Open Cluster
RA 20h 23m Dec 40° 48' mag 7.4

NGC6910 is a small cluster located about ½ degrees north of Sadr the central star of Cygnus. The brighter members make a cluster of three short spokes.

Peter Burgess

ATLAS, the Large Hadron Collider, CERN, and Recent Results

Lecture Report 23 August 2013

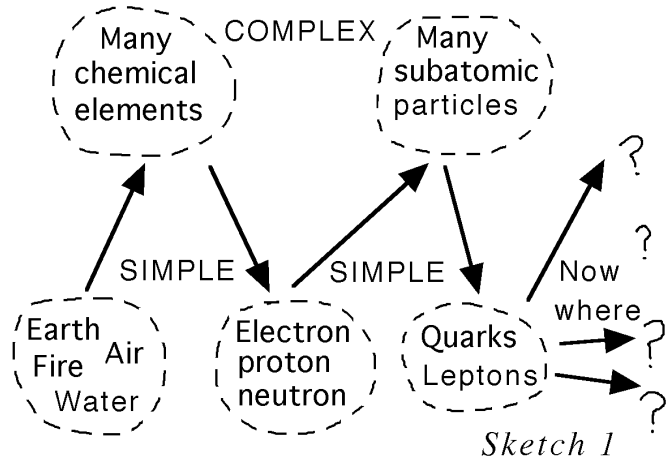
Dr. Christopher Lester - Peterhouse, Cambridge

Following the AGM and an update by Chris Wood on IoW Dark Skies, Brian Curd, Observatory Director, introduced the speaker, who thanked the VAS for the invitation. He emphasized that he is a particle physicist, not an astronomer, but common ground is cosmic rays and much of the Universe is made of dark or unseen matter. There is a common interest in solving this mystery. Copiously illustrated, including a picture of the lecturer inside a central part of the LHC, with parts made at the Cavendish Laboratory, this dynamically presented lecture was enthusiastically received, with plenty of discussion during the interval, centred around the spark chamber. This revealed muons passing downwards through the ceiling, as crackling orange streaks, occurring every several seconds or so. This captivating apparatus, also exhibited in the Science Museum for many years, demonstrates an early method for detecting cosmic particles. An LHC exhibition opens at the Science Museum this November for six months.

The Sketches here are mere approximations of just a few of the pictures seen. One of them included labels in Chinese reflecting, amusingly, our generally comparable understanding of subproton particle physics.

What do the patterns in Nature tell us? Not much pattern was seen in the Earth, Air, Fire and Water of the ancient Greeks, but a pattern in Nature became very apparent with John Dalton's Law of Simple Proportions of 1803, when gases at the same pressure and temperature were found to react *only* in simple integer volume ratios. This reinforced the belief in another theory of the ancient Greeks, the underlying *atomic* structure of matter. Atomic weight measurements and octave patterns of elements culminated in Mendeleev's Periodic Table of 1869, with missing elements predicted and subsequently found, such as Helium, found first in the Sun from its spectrum (hence its name). Puzzlingly no 'halfway' substances between any elements occurred. Although they can be mixed, (metals make alloys) and elements react to form compounds, each element has distinct properties. With nearly a hundred, the world looked rather complicated, suggesting that elements cannot represent the basic state of 'ultimate matter'. There must be hidden building blocks beneath.

The world appeared much simpler when the elements were found to be made of nuclei containing protons and neutrons, with orbiting electrons - just three basic particles - and all these elements with their varieties of properties could be explained with **Bohr's atomic structure**. But then many subatomic particles were found, so Nature looked complicated again. All these particles became reduced to the **Quarks and Leptons** of a simpler underlying system called 'the Standard Model'. **Whither now?** - see Sketch 1 - will Nature become even simpler or yet more complicated? This is the task of the LHC.



Sketch 1

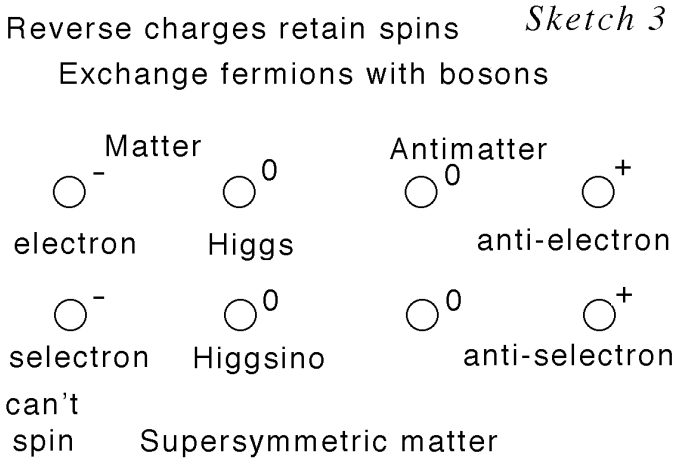
The Standard Model. Why are particles of the Standard Model, Sketch 2, small, medium and large? Pulled apart, they just make more of the same. They obey various basic rules, such as the top row, minus the second row, give unity (for some quantity). But nobody yet knows the substructure of these particles. Astronomers observe mass which isn't glowing in galaxy clusters, but in the Standard Model, there are no suitable particles to explain dark matter. The best candidate was the neutrino but it is much too light and there would need to be far too many. **If there really is dark stuff up there** it might be supersymmetric matter, Sketch 3.

Quarks	u	c	t	γ	Force
	d	s	b	g	
Leptons	ν_e	ν_μ	ν_τ	z	carriers
	e	μ	τ	w	
	I	II	III		

Sketch 2

Collisions. J.J. Thomson only needed 13 volts to remove electrons from atoms - that's an energy of 13 electron-volts. In 1897 the electron was the first subatomic particle to be isolated. In 1932 Cockcroft and Walton at the Cavendish laboratory, with their famous machine making more than a million volts, accelerated ionized hydrogen atoms (protons), and used them to bombard lithium atoms, splitting them into alpha-particles. 100 million volts is needed to knock a proton from out of a nucleus. 100 billion

volts is needed to get quarks from out of protons, and 14 thousand-billion volts is needed to break quarks - enough volts to jump 5 km, comparable to lightning. New ways of accelerating particles were devised, rather different from how electrons are accelerated in a cathode ray tube. An animated picture of donkeys attracted to 'sinusoidally presented carrots' illustrated how to accelerate bunches of protons, 10^{11} per bunch, using alternating voltages. In the LHC, this takes place at 40 MHz within boiler-shaped plumbing, ready for injection into the ring.

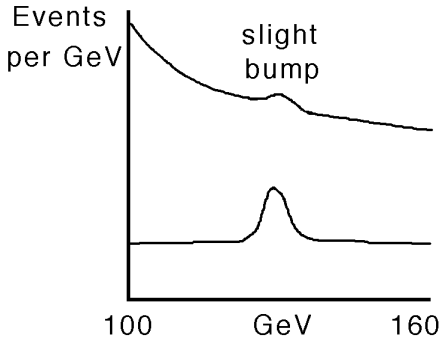


Sketch 3

27 km circular ring. In the ring, the beam, guided around by magnetic fields, takes half an hour to build up in strength, and another forty minutes to accelerate the beam to working speed. A target for the beam to smash into for studying collisions is out of the question - the beam has a kinetic energy equivalent to a thousand stampeding elephants, the same as an A320 landing, or enough energy to melt half a ton of copper. This energy can be absorbed in a large concrete-carbon block, but if the beam wandered off course in the ring, it would destroy the apparatus. Two countercirculating beams are used, so protons can collide head on with equal and opposite velocities. This takes place in four interaction areas around the circumference, ATLAS is located at one such place. With 10^9 interactions per second and only 1 in 10^{13} singled out by all the computing as especially interesting, it is tens of minutes between fruitful collisions. Many of the interactions are near misses, the equivalent of cars colliding, not head-on, with just the wing mirrors and windscreen-wipers falling off. The total energy, 14 TeV, of two protons in a head-on collision, is equivalent to the kinetic energy of 14 mosquitoes, each weighing 1.3 milligrams, flying at 0.5 metres per second, but concentrated into such small particles, their speeds are only a few metres per second less than the speed of light. The products of collisions die close to the interaction zone, only what emerges can be observed and used to deduce what happened. This uses rapid response particle trackers, surrounded by calorimeters and muon detectors, analyzed by a world-wide collaborative computing network called "The LHC Computing Grid".

The Transition Radiation Tracker, uses apparatus made at the Cavendish, and records tracks of charged particles, using reverse-biased diodes. A magnetic field curves the paths to give the signs of particle charges and momentum data. Light particles are easy to make, heavy ones are more difficult. The gluino mass is unknown. The writing is on the wall for the detection of various theoretical particles 0-2000 GeV.

The Higgs Field is like sticky treacle in space, giving particles mass by reducing their speeds to less than that of light. The **Higgs Boson** allows us to see the treacle itself and means that the Higgs field exists. The evidence for the Higgs Boson is a small bump in a curve, Sketch 4. You don't ever get to see the Higgs boson, but it gives a signal.



Sketch 4

The first man-made dark matter has not yet been made.

Discussion concerned the response times of the detectors, what makes the Higgs field stick to particles, whether the Higgs field has a mass per unit volume and if it has an absolute zero of velocity - the field is relativistically invariant but there are problems with setting the level for the zero energy density.

For more information, Google for the downloadable Wiki book "Large Hadron Collider, Experiments, Technology, Theory and Future" (155 pages) and other subjects. Also see the variety of "arxiv hep-ex" papers such as:

- 0711.4008 "Weighing Wimps with Kinks at Colliders...". AJ Barr, B Gripaios, CG Lester 2007.
- 1102.5290 "Search for quarks and gluinos..." approx 3000 authors (includes the lecturer) 2011.
- 1105.2977 "A storm in a "T" cup: the connoisseur's guide to transverse projections and mass-constraining variables" AJ Barr et al. 2011.
- 1303.7367 "A search for direct heffalon production using the ATLAS and CMS experiments at the Large Hadron Collider" AJ Barr, CG Lester 2013.

Dr. Guy Moore

The Garlic Festival 2013

We had another successful weekend despite the mixed weather on the Saturday afternoon. On Friday evening the usual team of Barry Bates, Brian Curd and I met on the field, bolstered by this season's new signings of Norman Osborne and Chris Wood to erect our display. Readers may recall that the assembly of the tent (kindly loaned by the Radio Society) is a highly technical and complicated affair - in the first year of use it took five people three hours to erect! Calling on our accumulated experience and only one minor error we had the edifice up in 70 minutes (can we break the one hour barrier next year chaps?)

Brian has already summarised the result in the August edition, I would just like to thank everyone who contributed to the marshalling side of the operation. John & Pam Ash, George Beesley, Bryn Davies, Faith Jordan, John Langley, Norman & Linda Osbourne, Alan Watts, Mark Williams and a magnificent effort from the Bates family - Barry, Glynis, Jennifer and Felicity.

Over the years the VAS has developed a strong symbiotic relationship with the Festival - we provide the Lion's share of the marshals and we are recompensed with a large proportion of the Society's fund raising.

If you would like to note the dates of August 16/17th 2014 - I will be recruiting from next spring!

Thank you again to all concerned.

Richard Flux

National Astronomy Week 2014

Jupiter, photographed by Damian Peach

National Astronomy Week, will be taking place from Saturday 1 to Saturday 8 March 2014.

National Astronomy Weeks run approximately every 5 or 6 years and they are usually linked with important astronomy events. The March date was chosen for the next Astronomy Week because Jupiter will reach a high declination of 62º altitude during this time, the greatest northern altitude for 12 years. It will be clearly visible in the southern sky in the early evening in the UK. Many observers should get their best view ever of this giant planet.

The 5th March 2014 also marks the 35th anniversary of the Voyager 1 fly-by of Jupiter, and, in addition, this week is also convenient for observing a number of other night sky objects. Mars and Saturn will both be near opposition and the impressive and familiar constellation of Orion will be prominent in the evening sky. The dwarf planet Ceres and the asteroid Vesta will also be visible.

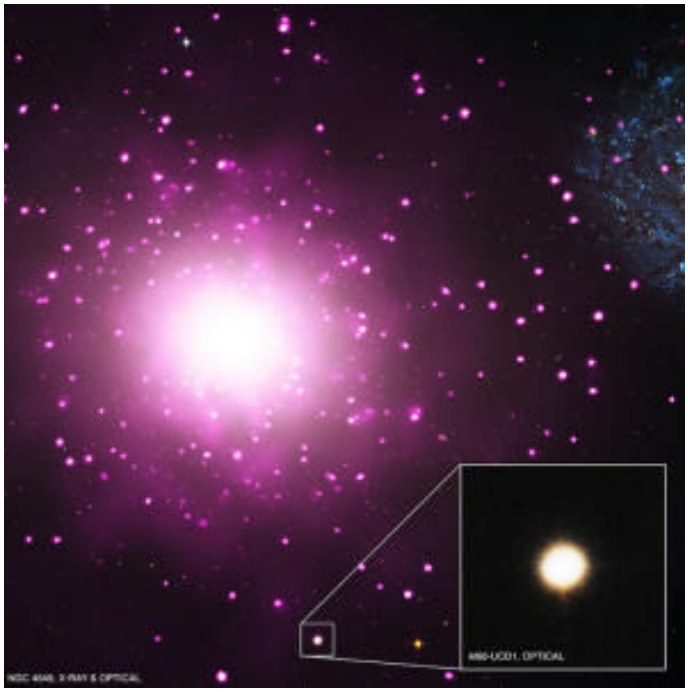
Having this wide variety of impressive celestial objects to look at will help participating organisations to offer inspiring events.

One of the key aims of National Astronomy Week is to help organisations to organise events. Information Packs, downloadable resources such as press releases, posters, guides for organising events and further information will all shortly be available at the NAW's dedicated website, www.astronomyweek.org.uk.

Mrs Laurie Marsden - NAW Co-ordinator

Editors Note: This news has only just reached me so no plans have been made yet but VAS hope to join in with this event and hope to arrange something for either Friday 7th or Saturday 8th. The more telescopes and members available the better so if you can help please contact any member of the Committee.

Astronomers Discover Densest Galaxy Ever



Credit: X-ray: NASA/CXC/MSU/J.Strader et al, Optical: NASA/STScI

Sep. 24, 2013 — Imagine the distance between the sun and the star nearest to it -- a star called Alpha Centauri. That's a distance of about 4 light years. Now, imagine as many as 10,000 of our suns crammed into that relatively small space.

That is about the density of a galaxy that was recently discovered by an international team of astronomers led by a Michigan State University faculty member.

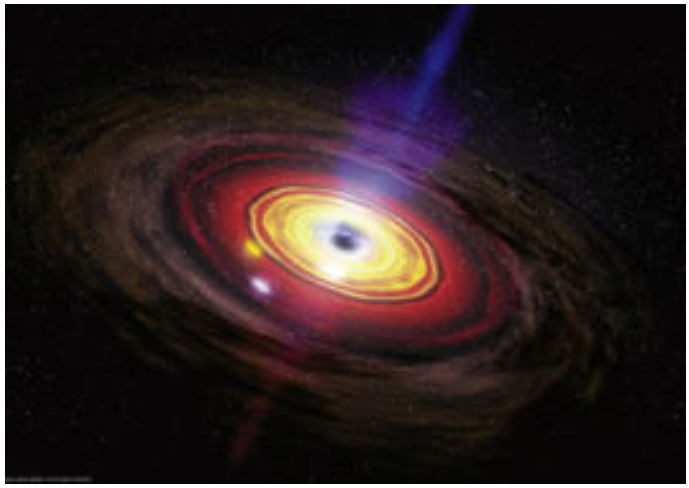
"This galaxy is more massive than any ultra-compact drawfs of comparable size," said Jay Strader, MSU assistant professor of physics and astronomy, "and is arguably the densest galaxy known in the local universe."

As detailed in the recent edition of the publication Astrophysical Journal Letters, the ultra-compact dwarf galaxy was found in what's known as the Virgo cluster of galaxies, a collection of galaxies located about 54 million light years from our own Milky Way.

What makes this galaxy, dubbed M60-UCD1, so remarkable is that about half of its mass is found within a radius of only about 80 light years. This would make the density of stars about 15,000 times greater than found in Earth's neighbourhood in the Milky Way.

More at: ***http://www.sciencedaily.com/***

Colossal Explosion from Supermassive Black Hole at Centre of Galaxy Revealed



Credit: NASA/Dana Berry/SkyWorks Digital

Sep. 24, 2013 — Two million years ago, a supermassive black hole at the heart of our galaxy erupted in an explosion so immensely powerful that it lit up a cloud 200,000 light years away, a team of researchers led by the University of Sydney has revealed.

The finding is an exciting confirmation that black holes can 'flicker', moving from maximum power to switching off over, in cosmic terms, short periods of time.

"For 20 years astronomers have suspected that such a significant outburst occurred, but now we know when this sleeping dragon, four million times the mass of the sun, awoke and breathed fire with 100 million times the power it has today," said Professor Joss Bland-Hawthorn, lead author of an article on the research to be published in The Astrophysical Journal, from the University's School of Physics.

Ahead of publication, Professor Bland-Hawthorn will unveil the research at the international Galaxy Zoo science conference on 24 September in Sydney.

"It's been long suspected that our Galactic Centre might have sporadically flared up in the past. These observations are a highly suggestive 'smoking gun'," said Martin Rees, Astronomer Royal, who was one of the first scientists to suggest that massive black holes power quasars.

The evidence for the findings comes from a lacy filament of hydrogen gas called the Magellanic Stream. It trails behind our galaxy's two small companion galaxies, the Large and Small Magellanic Clouds.

More at: ***http://www.sciencedaily.com/***

Scientists Reveal Earth's Habitable Lifetime and Investigate Potential for Alien Life

Habitable conditions on Earth will be possible for at least another 1.75 billion years – according to astrobiologists at the University of East Anglia.

Findings published today in the journal Astrobiology reveal the habitable lifetime of planet Earth – based on our distance from the sun and temperatures at which it is possible for the planet to have liquid water.

The research team looked to the stars for inspiration. Using recently discovered planets outside our solar system (exoplanets) as examples, they investigated the potential for these planets to host life.

The research was led by Andrew Rushby, from UEA's school of Environmental Sciences. He said: "We used the 'habitable zone' concept to make these estimates – this is the distance from a planet's star at which temperatures are conducive to having liquid water on the surface."

"We used stellar evolution models to estimate the end of a planet's habitable lifetime by determining when it will no longer be in the habitable zone. We estimate that Earth will cease to be habitable somewhere between 1.75 and 3.25 billion years from now. After this point, Earth will be in the 'hot zone' of the sun, with temperatures so high that the seas would evaporate. We would see a catastrophic and terminal extinction event for all life.

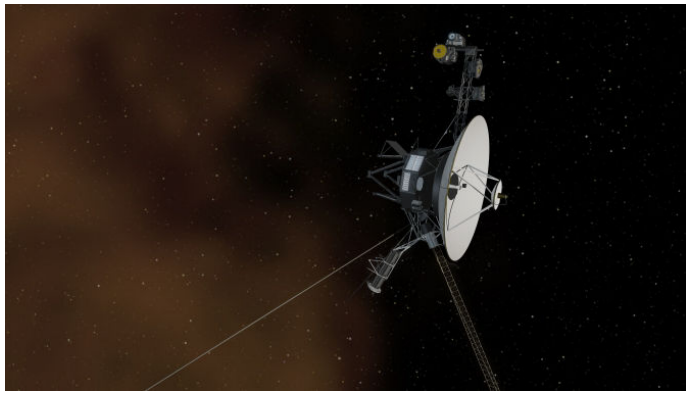
"Of course conditions for humans and other complex life will become impossible much sooner – and this is being accelerated by anthropogenic climate change. Humans would be in trouble with even a small increase in temperature, and near the end only microbes in niche environments would be able to endure the heat.

"Looking back a similar amount of time, we know that there was cellular life on earth. We had insects 400 million years ago, dinosaurs 300 million years ago and flowering plants 130 million years ago. Anatomically modern humans have only been around for the last 200,000 years – so you can see it takes a really long time for intelligent life to develop.

"The amount of habitable time on a planet is very important because it tells us about the potential for the evolution of complex life – which is likely to require a longer period of habitable conditions.

More at: ***http://www.uea.ac.uk/***

NASA Spacecraft Embarks on Historic Journey Into Interstellar Space



PASADENA, Calif. -- NASA's Voyager 1 spacecraft officially is the first human-made object to venture into interstellar space. The 36-year-old probe is about 12 billion miles (19 billion kilometers) from our sun.

New and unexpected data indicate Voyager 1 has been travelling for about one year through plasma, or ionized gas, present in the space between stars. Voyager is in a transitional region immediately outside the solar bubble, where some effects from our sun are still evident. A report on the analysis of this new data, an effort led by Don Gurnett and the plasma wave science team at the University of Iowa, Iowa City, is published in Thursday's edition of the journal Science.

"Now that we have new, key data, we believe this is mankind's historic leap into interstellar space," said Ed Stone, Voyager project scientist based at the California Institute of Technology, Pasadena. "The Voyager team needed time to analyze those observations and make sense of them. But we can now answer the question we've all been asking -- 'Are we there yet?' Yes, we are."

Voyager 1 first detected the increased pressure of interstellar space on the heliosphere, the bubble of charged particles surrounding the sun that reaches far beyond the outer planets, in 2004. Scientists then ramped up their search for evidence of the spacecraft's interstellar arrival, knowing the data analysis and interpretation could take months or years.

Voyager 1 does not have a working plasma sensor, so scientists needed a different way to measure the spacecraft's plasma environment to make a definitive determination of its location. A coronal mass ejection, or a massive burst of solar wind and magnetic fields, that erupted from the sun in March 2012 provided scientists the data they needed.

More at: ***http://www.nasa.gov/***

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Technological Challenges and Solutions for Astronomy

The Institute of Engineering and Technology are holding a talk at Quay Arts, Newport on 28 November 2013 - 19:30-21:00.

This talk will focus on ground-based astronomy and cover the development of a number of recent facilities, concluding with a view of the outstanding challenges and the current plan for the future of European Astronomy.

Speaker - Professor Gavin Dalton, MA, D.Phil, FRAS, University of Oxford and STFC-RALSpace

Details and Registration: ***http://www.theiet.org/events/local/187481.cfm***

Astronomy Photographer of the Year 2013

The Royal Observatory Greenwich is proud to present the winning images of Astronomy Photographer of the Year 2013. This free exhibition showcases some incredible images of the sky, ranging from within our solar system to far into deep space. *19th Sept 2013- 23rd Feb 2014*

The transit of Venus, comets, nebulae, aurorae and more can be found in the images on display. Winning entries have come from all around the world in another record-breaking year, with more images entered than ever before.

More at: ***http://www.rmg.co.uk/***

WA Radio Telescope Helps Track Space Junk

Australia's newest radio-astronomy project is helping to detect potentially lethal space junk, an eminent scientist says.

The Murchison Widefield Array in WA's Mid West region went into "full science" mode two months ago and will soon be peering back in time to image the first stars and galaxies that formed after the Big Bang.

More at: ***http://www.smh.com.au/***

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.

"The Moon and the stars no longer come to the farm. The farmer has exchanged his birthright in them for the wattage of his, all-night sun. His children will never know the blessed dark of night."

Leslie Peltier

"It is impossible to travel faster than the speed of light, and certainly not desirable; one's hat keeps blowing off."

Woody Allen

*"**Student:** Dr. Einstein, aren't these the same questions as last years [physics] final exam?*
***Dr. Einstein:** Yes, but this year the answers are different."*

Albert Einstein