

Society News

Your New Committee

Following last month's AGM we now have a new committee in place. Details can be found on page 2 of this New Zenith.

I'd like to offer special thanks to David Kitching who has kindly agreed to take over as Treasurer for the year.

Plans for the Future

The Planning Sub-committee has now met a couple of times and we are beginning to get some feel for where we would like to see the Society in 5, 10 and 15 years from now. Some of the ideas are BIG and will take time to achieve even if they are deemed feasible.

"Thinking BIG" can cause problems as it may appear that we are losing some of the things which make VAS what it is. I'd like to make it quite clear that this is all about keeping what is good about the Society now, and building on it.

Your ideas are welcome, which leads on nicely to....

The Letters Page

The long awaited Letters Page has finally arrived and is open for business on page 5.

I'd like to see 3 or 4 letters per month but, of course, I have no control over that so it's down to you to fill the space.

Observatory

Thanks to Thomas and Richard for their recent work to clear the overgrown vegetation around the site. It seems that the grounds maintenance we were used to has stopped and the area around the observatory was looking very scruffy. Not any more!

There has been some vandalism to the pavillion recently; broken guttering etc has been strewn across the field and pathways. If you find material like this near the observatory please collect it and put it somewhere it won't/can't be used to cause further damage to the buildings.

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

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

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Observatory Diary

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

Contents this Month

<i>Society News</i>	1
<i>Monthly Meeting Calendar 2012.</i>	2
<i>October Sky Map</i>	3
<i>October Night Sky</i>	4
<i>Dear VAS</i>	5
<i>Observing & Sketching.</i>	6
<i>Bestival Report</i>	7
<i>Milky Way is Surrounded by Halo.</i>	8
<i>The Chandra Telescope</i>	8
<i>Deepest ever view of the Universe.</i>	9
<i>The Back Page.</i>	10

Monthly Meeting Calendar 2012

Travel for our monthly speakers is sponsored by:		
		
Date	Subject	Speaker
28 Sep	The future is out of this world	Dr Stuart Eves
26 Oct	Observing Galaxy Clusters	Owen Brazell
23 Nov	The Search for Intermediate Mass Black Holes	Dr Tom Maccarone

Monthly Meeting Calendar 2013

Date	Subject	Speaker
25 Jan	Mapping the Universe	Dr Rita Tojeiro
22 Feb	Galaxy and Mass Assembly	Dr Jon Loveday
22 Mar	Active Galaxies	Nick Hewitt
Apr		
May		
Jun		
Jul		
Aug		
27Sep	History of the Dark Sky	Alan Dowdell
Oct		
Nov		

All details correct at time of publication.

VAS Contacts 2012/13

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NZ Distribution	Brian Bond distribution@wightastronomy.org
Others	Barry Bates Mark Williams

New Members

A very warm welcome to our latest members:

- Toby Dawson
- Julia Mustchin
- Gill Stokes
- Peter Baker
- Simon Plumley

Keys Found

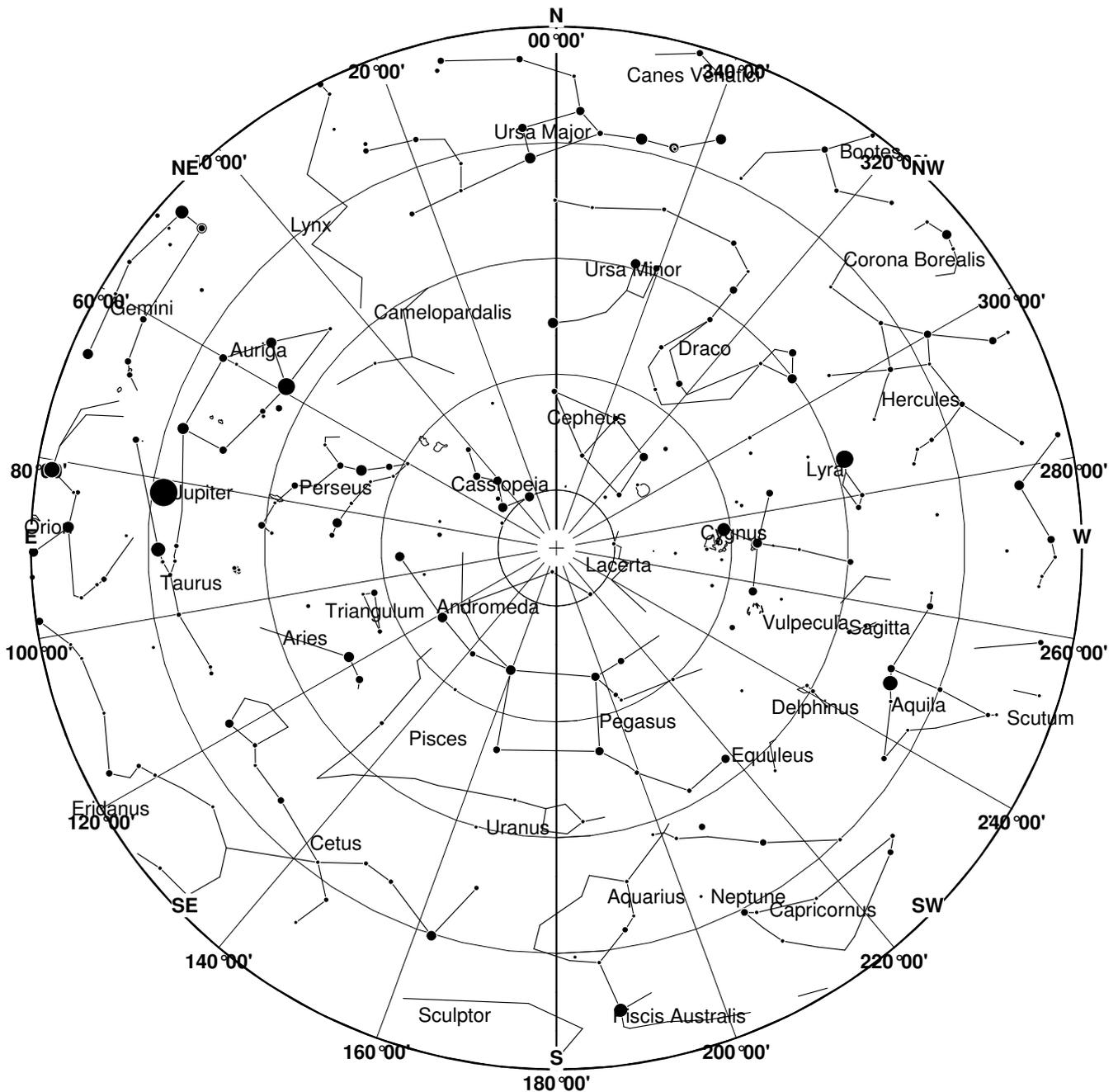


Some keys have been left in the observatory. There is a car key with a St. Christopher. If they are yours you will know the make of the car - please let me know and I'll make sure they are returned to you.

You could aslo explain how you managed to get home that night ;)

Brian Curd

October 2012 Sky Map



View from Newchurch Isle of Wight UK - 2300hrs - 15 October 2012



NGC 6946, (also known as the **Fireworks Galaxy**, **Arp 29**, and **Caldwell 12**), is an intermediate spiral galaxy about 65 million light-years away, in the constellations Cepheus and Cygnus. It was discovered by William Herschel on September 9, 1798. NGC 6946 is highly obscured by interstellar matter of the Milky Way galaxy, as it is quite close to the galactic plane. Nine supernovae (SN 1917A, SN 1939C, SN 1948B, SN 1968D, SN 1969P, SN 1980K, SN 2002hh, SN 2004et, and SN 2008S) have been observed in NGC 6946.

*This article is licensed under the [GNU Free Documentation License](https://www.gnu.org/licenses/old-licenses/gpl-2.0.html).
It uses material from the Wikipedia article "NGC 6946"*

October 2012 Night Sky

Moon Phases

New	1 st Qtr	Full	Last Qtr
15th	23rd	29th	8th

Planets

Mercury

This month Mercury makes an unfavourable evening apparition, from our latitude setting just a half an hour after the Sun.

Venus

Venus is starting its rapid dive down towards the Sun as it crosses the stars of Leo into Virgo. Look for it on the morning of the 3rd when it will be just 10 arc seconds from Leo's brightest star Regulus. The waning crescent Moon will be just over 7° to the south on the 12th.

Mars

This planet has been reluctant to leave the evening sky, hanging low in the south west just after sunset for the past few months. If you have a good western horizon it will present a challenging object. It has now faded to below mag 1 making it difficult against the bright twilight sky.

Jupiter

Jupiter is very bright and well placed for observation between the horns of Taurus. It is rising earlier each day making it more accessible to those who do not want to stay up until the small hours. At the end of the month it will be rising before 7pm GMT.

Saturn

Saturn has now passed conjunction but is still too close to the Sun in the morning sky to be visible.

Neptune

Neptune is less than 1/2° south of the mag 5.4 star 38 Aquarii. There are no stars as bright as Neptune this close to the star so it should be relatively easy to spot. Neptune is mag 7.8. Well placed in the south in the mid evening sky.

Uranus

Uranus is just passed opposition and is well placed for viewing in the south at around midnight. It lies below the left hand edge of the square of Pegasus. Follow the line from Alpheraz through Algenib into Pisces. Uranus is about 1° west of the magnitude 5.7 star 44 Piscium.

Meteors

There is a favourable third peak of the **Piscids** meteor shower on the 13th with an expected hourly rate of about 5.

The 21st/22nd marks the peak of the **Orionid** shower with an expected rate of 30 per hour. The last quarter moon will affect the numbers seen after midnight.

Deep Sky objects

NGC7331 Galaxy RA 22h 37m Dec 34° 24' mag 9.5

This magnitude 9.5 galaxy is like a miniature version of the nearby Andromeda Nebula, an almost edge on spiral galaxy that is adjacent to a galaxy group called Stephan's quintet. These other members of the group are a challenge for small telescopes being just a faint haze in smaller apertures. A good CCD target.

NGC6946 Galaxy RA 20h 35m Dec 60° 11' mag 9.7

Just off the plane of the Milky Way, the intervening material in our own galaxy helps makes this face on spiral galaxy represents a rather challenging object. At a distance of about 10M light years it is relatively close by galactic standards, but this does not make it any easier to see. Use as large an instrument as you can on this galaxy to reveal the structure in the spiral arms. This galaxy has hosted 8 supernovae in the past 90 years, something of a record. After observing this galaxy or if the sky or your eyes fail you with this target, stop by at the nearby open cluster NGC6939. At low power both object will be in the same field of view.

Melotte 20 Open Cluster RA 3h 20m Dec 49° 2' mag 1.2

Centred on Mirfack, Alpha Persei and easily visible to the naked eye this magnificent cluster is best observed using binoculars. The view is that of a multitude of dazzlingly bright blue stars centred on the bright Mirfack. This cluster is rather too large for a telescope but ideal for binoculars.

Peter Burgess



Dear VAS...

Hello to all our members

I'm Norman Osborn and I have just taken over as your Membership Secretary. I took over from Tony Williams as he has decided that over the years he has devoted more than enough time to this interesting task. I would like to add my thanks to those of all members for the effort he has given to the society.

Although I perform a similar task for a like sized sailing group I am now getting to grips with the idiosyncrasies of our monthly, rather than annual, subscription renewals. But more of that later.

Of immediate news to us all is that at the recent AGM our subscriptions were increased to the still amazingly good value of £24 for Ordinary members and £20 for Senior members. Juniors/Students will, I hope, be pleased to note the subscription has been held at £10.

In an effort to hold down the costs to our society, I will in future be sending out renewal reminders by email to all those who currently receive their NZ Newsletter by email. This will save us more than £100 per year on the cost of mailings.

Also, I am aware there are a number of members who have email but currently choose to receive their NZ by post. I would appreciate it if they would email me to confirm they are happy to receive their renewals by email. Thus helping to hold down our costs.

That's all, for now.

Norman (members@wightastronomy.org)

Peter Burgess's talks

I would like to add my voice to Faith's thanks to Peter at the AGM.

I feel that Peter's talks are of the highest quality, although I still struggle with the finer points of his opening planetary movement diagrams! They are always fact-filled informative, lucid, and well illustrated, as well as being bang up-to-date.

Long may they continue.

Tony Williams

Errors in 2011 AGM Minutes

Just to point out that on taking over as membership secretary in Aug 2010 the Senior Citizens fees were put up from £15 from £16, then in Aug 2011 to £18, not £20 as asserted. However £20 was the Adult fee 2010-2011, so my understanding is that I have made no error. May I also point out that I was not on the committee, also as stated.

As membership fees require some thought, would it not be advantageous in future for the committee to discuss, and suggest, rises necessary in say May/June, then publish in the NZ in July with appropriate comments so that members are aware of proposals before the AGM, and can give it some thought before voting? Alternatively, as fees are vital to our cashflow, perhaps this should be left until after the AGM, with the Treasurer's report with his recommendations as to the generation of the necessary cash over the following year. This will become increasingly important as we consider moving/uprating our equipment. I'm sure the newly created working committee will consider this in it's financial considerations. This approach is surely necessary also for any other matter that is likely to be contentious, or requiring explanation. Hopefully this would reduce the number of abstentions, which was surely a peculiar feature of the AGM. What happens if abstentions win the day?

As retiring membership secretary I would strongly advise changing to a once-a-year payment, as the present system is now becoming outdated.

Tony Williams

LETTERS TO THE EDITOR

This is your chance to have your say.

*Please send your letters to:
editor@wightastronomy.org
 or post to the address on the front page*

Please note:

- 1. The Editor reserves the right to edit letters although every effort will be made to ensure publication.*
- 2. As you must agree to your name being attached to your contributions, anonymous submissions will be ignored.*

Visual Deep Sky Observing and Sketching

Faith Jordan (VAS member) Lecture Report 24 August 2012

This was a busy evening for Faith who, as outgoing chairman, received a well-deserved round of applause, shortly to be welcomed again to give her talk. It was going to be about galaxies, but the computer produced slides appropriate for a different talk, which was well received. Deep Sky Observers have the problem of attempting to see past the bright Moon (“Get it out the way!” would exclaim the late Roger Haywood). With the atrocious weather this year - Faith avoided the word “summer” - even more of the Moon’s light is being scattered across the field of view. However plenty of drawings from Faith’s collection over two decades of observing were seen and if you didn’t know, her pencil sketches (inverted in Photoshop to white on black) could easily be mistaken for the real thing!

Sketching is about learning to look at an object, and how to see the detail in it. The more you observe and sketch, the more you see and appreciate what is there. Faith much prefers this process using the natural light of the object compared to imaging. For a small outlay to acquire a telescope or binoculars on a tripod and a pencil & paper, rewarding celestial experiences are close at hand. ‘Everybody can draw dots’, so that’s where to start, the dots represent the stars in the region of interest, with a planetary nebula or other object in the centre. When drawing nebulae, a ‘smudging’ technique uses the finger or a special stick (so the pencil needs to be HB or softer, notebooks contained lined or plain sheets and appeared to contain normal paper). An ‘erasure shield’ protects parts of the sketch during construction and a red torch is essential to see the sketch and consult atlases as well as choose filters, such as H-beta to see the Horsehead nebula.

Notes are made of the location, the sky transparency and steadiness (by checking how the planets look - do they shimmer?) the percentage cloud cover, the equipment, filters, magnification, and comments on how easy the object was to find. With **galaxies**, their shape, size, brightness, contrast and orientation are noted, and if averted vision was needed. Spiral galaxy arms can be subtle, like in M51, brightness variations in the disc and the structure of the nucleus are recorded. **Globular clusters** of various shapes can be enormous, some resolve into a granular structure, others appear as a homogeneous glow, some contain condensations around loose bright centres.

Planetary Nebulae jump out when using a nebula filter, revealing ring, dumbbell, rugby ball and many other shapes. Some are greenish, bluish, sometimes with a hint

of red, but our eyes vary - some people are more sensitive to blue than green. Nebula edges can be fuzzy or sharp, and look for a central star. **Nebulae** include Faith’s particular favourite - Hubble’s Variable Nebula of fan-shaped appearance, changing over months. There may be associated star clusters. **Open Clusters**, like Pleiades, can fit into the field of view. Clusters can be rich and compressed, have associated nebulosity, and they often contain coloured member stars, like in NGC 6910. The Rocking Horse contains two bright orange stars - there’s no substitute for receiving their true light directly with our own eyes! Sketching teaches us how to see.

Most important - have fun!

Books and Catalogues:

The Messier catalogue is the easiest to use, Faith has seen about 500 objects in the NGC (New General Catalogue) and uses advanced catalogues giving Hickson galaxy groups, Abel planetaries, and Arp’s Atlas of Peculiar galaxies (see <http://ned.ipac.caltech.edu/level5/Arp/Arp82.html>).

- ‘Pocket Atlas’ Sky & Telescope.
- ‘Deep Sky Wonders’ Walter Scott Houston. (ed. S.J. O’Meara)
- ‘The Deep Sky, An Introduction’ Philip Harrington.
- ‘Deep Sky Observer’s Guide’ Neil Bone
- ‘Night Sky Observers Guide’ Kepple and Sanner, vols 1 and 2, and now 3.
- ‘An Introduction to Visual Deep-Sky Observing’ Faith Jordan.

Web sites:

- <http://www.cloudynights.com>
- <http://www.perezmedia.net/beltofVenus>
- <http://everyoneweb.com/observingthenightsky/>
- <http://www.andreas-domenico.de>
- <http://www.fjastronomy.com/>

Discussion:

Q: When you sketch these objects do you see art or do you see science?

A: ... not sure I understand the question.

Q: Do you think about these objects with their various structures, like an artist looking at flowers in a meadow, or do you think about infrared radiation from a central star heating up the dust and emitting light according to Stefan's fourth power radiation law, and so on?

A: I don't believe in intelligent design!

The NZ of April 2010 reports on different aspects of a similar lecture given by Faith to the VAS on 26 Feb 2010. It is also interesting to recall Peter Burgess's regular presentation of that evening, when pictures of the geology of a Martian hillside were shown, with clays at the bottom, requiring water in their original formation, whereas the sulphate rocks higher up have never been immersed. With Curiosity now exploring Mars, hopefully some more details will soon appear on this subject.

Dr. Guy Moore

FOR SALE

CELESTRON C5 TELESCOPE

With EQ2 MOUNT & TRIPOD

Celestron C5 Schmidt-Cassegrain telescope, 5" aperture with equatorial mount, tripod, finder, dew shield, star diagonal, and two eyepieces. Excellent optics. Ideal starter 'scope or 'grab and go' telescope to take to dark sky site or star party.

£150 complete

SKYWATCHER EXPLORER 10" REFLECTOR

Optical tube only complete with 2" and 1.25" Crayford focuser, red dot finder, tube rings and dovetail. Ideal for both visual and photographic purposes. No mount so excellent upgrade telescope.

£220 complete

Reason for sale, purchase of new telescope, so I need the space.
Glyn Salmon 01983 403047

Bestival Report



A couple of weeks ago VAS was asked to provide a few telescopes at this year's Bestival. I was a little concerned that this might not be a great idea as the levels of light pollution, the noise music and the huge numbers of people could be a real problem. Anyway, a few brave souls represented us over the weekend and I was wrong!

Yes it was noisy, light and crowded on **Thursday** evening but all these annoyances faded into the background as we attracted at least a hundred festival revelers to look through telescopes and binoculars. The site's bright lights made viewing very difficult but we did have good views of the moon and Jupiter (with 4 moons) before we called it a night at about 12.30 am Friday.

It was even busier on **Friday!** The skies were clearer too! A rough count was made of punters showing an interest and it looks as if we were showing the moon and Jupiter to about 90-100 per hour. Good going in anyone's book I reckon. As the evening drew on, things got a little rowdier so we called it a night at about 12.15am.

Saturday was pretty mad - great skies and loads of punters. Again great views of the moon and Jupiter despite the cloud of dust which was hanging over the site for most of the day.

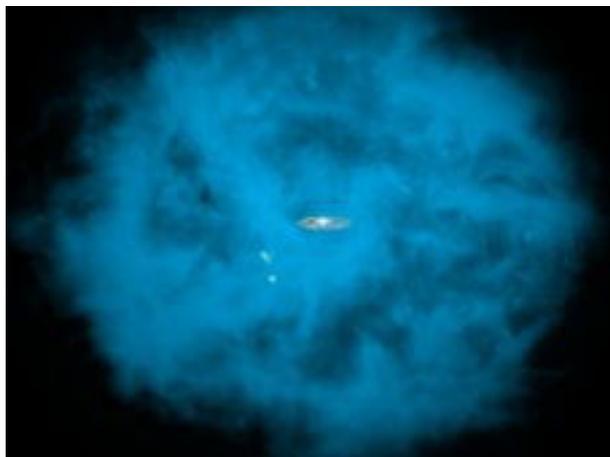
On **Sunday** we took a day off from astronomy apart from me giving a talk in the evening. Unfortunately I was in competition with Stevie Wonder so it's no surprise that I had a very small audience.

All in all I think we can say that the Bestival was an astronomy success, we had some 800-1000 people looking through scopes and a lot of interest - perhaps we'll do it again next year?

Thanks to everyone who helped.

Brian Curd

NASA's Chandra Shows Milky Way is Surrounded by Halo of Hot Gas



Credit: NASA/CXC/M.Weiss; NASA/CXC/Ohio State/A.Gupta et al.

Astronomers have used NASA's Chandra X-ray Observatory to find evidence our Milky Way Galaxy is embedded in an enormous halo of hot gas that extends for hundreds of thousands of light years. The estimated mass of the halo is comparable to the mass of all the stars in the galaxy.

If the size and mass of this gas halo is confirmed, it also could be an explanation for what is known as the "missing baryon" problem for the galaxy.

Baryons are particles, such as protons and neutrons, that make up more than 99.9 percent of the mass of atoms found in the cosmos. Measurements of extremely distant gas halos and galaxies indicate the baryonic matter present when the universe was only a few billion years old represented about one-sixth the mass and density of the existing unobservable, or dark, matter. In the current epoch, about 10 billion years later, a census of the baryons present in stars and gas in our galaxy and nearby galaxies shows at least half the baryons are unaccounted for.

In a recent study, a team of five astronomers used data from Chandra, the European Space Agency's XMM-Newton space observatory and Japan's Suzaku satellite to set limits on the temperature, extent and mass of the hot gas halo. Chandra observed eight bright X-ray sources located far beyond the galaxy at distances of hundreds of millions of light-years. The data revealed X-rays from these distant sources are absorbed selectively by oxygen ions in the vicinity of the galaxy. The scientists determined the temperature of the absorbing halo is between 1 million and 2.5 million kelvins, or a few hundred times hotter than the surface of the sun.

Other studies have shown that the Milky Way and other galaxies are embedded in warm gas with temperatures between 100,000 and 1 million kelvins. Studies have indicated the presence of a hotter gas with a temperature greater than 1 million kelvins. This new research provides evidence the hot gas halo enveloping the Milky Way is much more massive than the warm gas halo.

"We know the gas is around the galaxy, and we know how hot it is," said Anjali Gupta, lead author of The Astrophysical Journal paper describing the research. "The big question is, how large is the halo, and how massive is it?"

To begin to answer this question, the authors supplemented Chandra data on the amount of absorption produced by the oxygen ions with XMM-Newton and Suzaku data on the X-rays emitted by the gas halo. They concluded that the mass of the gas is equivalent to the mass in more than 10 billion suns, perhaps as large as 60 billion suns.

"Our work shows that, for reasonable values of parameters and with reasonable assumptions, the Chandra observations imply a huge reservoir of hot gas around the Milky Way," said co-author Smita Mathur of Ohio State University in Columbus. "It may extend for a few hundred thousand light-years around the Milky Way or it may extend farther into the surrounding local group of galaxies. Either way, its mass appears to be very large."

Read more at: http://www.nasa.gov/mission_pages/chandra/news/H-12-331.html

The Chandra Telescope



NASA's Chandra X-ray Observatory is a telescope specially designed to detect X-ray emission from very hot regions of the Universe such as exploded stars, clusters of galaxies, and matter around black holes. Because X-rays are absorbed by Earth's atmosphere, Chandra must orbit above it, up to an altitude of 139,000 km (86,500 mi) in space. The Smithsonian's Astrophysical Observatory in Cambridge, MA, hosts the Chandra X-ray Center which operates the satellite, processes the data, and distributes it to scientists around the world for analysis. The Center maintains an extensive public web site about the science results and an education program.

More at: <http://chandra.harvard.edu/>

Hubble goes to the eXtreme to assemble the deepest ever view of the Universe



Like photographers assembling a portfolio of their best shots, astronomers have assembled a new, improved portrait of our deepest-ever view of the Universe. Called the eXtreme Deep Field, or XDF, the photo was assembled by combining ten years of NASA/ESA Hubble Space Telescope observations taken of a patch of sky within the original Hubble Ultra Deep Field. The XDF is a small fraction of the angular diameter of the full Moon.

The Hubble Ultra Deep Field is an image of a small area of space in the constellation of Fornax (The Furnace), created using Hubble Space Telescope data from 2003 and 2004. By collecting faint light over one million seconds of observation, the resulting image revealed thousands of galaxies, both nearby and very distant, making it the deepest image of the Universe ever taken at that time.

The new full-colour XDF image is even more sensitive than the original Hubble Ultra Deep Field image, thanks to the additional observations, and contains about 5500 galaxies, even within its smaller field of view. The faintest galaxies are one ten-billionth the brightness that the unaided human eye can see.

Magnificent spiral galaxies similar in shape to the Milky Way and its neighbour the Andromeda galaxy appear in this image, as do large, fuzzy red galaxies in which the formation of new stars has ceased. These red galaxies are the remnants of dramatic collisions between galaxies and are in their declining years as the stars within them age.

Peppered across the field are tiny, faint, and yet more distant galaxies that are like the seedlings from which today's magnificent galaxies grew. The history of galaxies — from soon after the first galaxies were born to the great galaxies of today, like the Milky Way — is laid out in this one remarkable image.

Hubble pointed at a tiny patch of southern sky in repeat visits made over the past decade with a total exposure time of two million seconds. More than 2000 images of the same field were taken with Hubble's two primary cameras: the Advanced Camera for Surveys and the Wide Field Camera 3, which extends Hubble's vision into near-infrared light. These were then combined to form the XDF.

“The XDF is the deepest image of the sky ever obtained and reveals the faintest and most distant galaxies ever seen. XDF allows us to explore further back in time than ever before,” said Garth Illingworth of the University of California at Santa Cruz, principal investigator of the Hubble Ultra Deep Field 2009 (HUDF09) programme.

Read More at: <http://www.spacetelescope.org/news/heic1214/>

This is a “must see” web article containing some fantastic photos and videos

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

VAS Planning Sub-committee Report Sept 2012

The planning sub committee continues to meet approximately bi-weekly. We have had very interesting initial discussions with a university regarding dark sky research possibilities and other possible involvement. We are developing observatory location and design parameters and continue to explore options for project funding. Discussions and plans are developing with considerable enthusiasm and we are hopeful that our October 2012 update will provide a more concrete progress report.

Chris Wood

Café Scientifique Meetings

Monday 8th October at 7.00pm

The speaker is Professor Heather Viles from the School of Geography & the Environment at Oxford University. She will be talking about the *Conservation of World Heritage Sites from pristine Eco-Islands to prehistoric art.*

Monday 12th November at 7.00pm

The speaker is John Yelland, another regular at our Café, and very well qualified to talk about *The science and engineering matters involved in wind energy. Are we using it effectively?*

Meetings are held at The Regency Suite, above the Conservative Club in Shanklin in Palmerston Road just off The High Street. The nearest car park is in Landguard Road and only two or three minutes walk to the Conservative Club. Parking is free after 6.0.p.m.

A donation of at least £3 on the door is requested

More at: <http://cafescientifique.onthewight.com>

Pam Ash

Daytime Astronomy!

The Cloud Appreciation Society may be our salvation during this apparently permanent period of bad weather. Here's their manifesto:

WE BELIEVE that clouds are unjustly maligned and that life would be immeasurably poorer without them.

We think that they are Nature's poetry, and the most egalitarian of her displays, since everyone can have a fantastic view of them.

We pledge to fight 'blue-sky thinking' wherever we find it. Life would be dull if we had to look up at cloudless monotony day after day.

We seek to remind people that clouds are expressions of the atmosphere's moods, and can be read like those of a person's countenance.

Clouds are so commonplace that their beauty is often overlooked. They are for dreamers and their contemplation benefits the soul. Indeed, all who consider the shapes they see in them will save on psychoanalysis bills.

And so we say to all who'll listen: Look up, marvel at the ephemeral beauty, and live life with your head in the clouds!

More at: <http://cloudappreciationsociety.org/>

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 welcomes letters, articles or pictures related to all aspects of astronomy. Contributions to the Editor at the email or postal address on the front page.

“If you try and take a cat apart to see how it works, the first thing you have on your hands is a non-working cat.”

Douglas Adams

Quotations

“Far out in the uncharted backwaters of the unfashionable end of the western spiral arm of the Galaxy lies a small unregarded yellow sun. Orbiting this at a distance of roughly ninety-two million miles is an utterly insignificant little blue green planet whose ape-descended life forms are so amazingly primitive that they still think digital watches are a pretty neat idea.”

Douglas Adams