New Zenith

The Monthly Newsletter of the Vectis Astronomical Society

Vol 26 Issue 3 — April 2018 *When Printed, this Newsletter costs VAS at least £1*

General Data Protection Regulation

As promised last month, please read the article "General Data Protection Regulation" on page 11.

This details how VAS collect and protect your personal information. Recent changes to the law means we have to have each member's **explicit permission** to hold that information.

Please follow the instructions on the page and return the completed form as soon as you can.

Wikipedia has more information about the law

Dark Skies News

A draft document regarding the proposed additions and changes to the planning process referencing Dark Skies is now in circulation on the Isle of Wight.

VAS (along with many others) have been asked to provide comments and suggestions.

It will obviously take some time to collate the responses but, the aim is to use the completed document as the foundation of the application for Dark Sky status with the IDA.

Brian Curd
Editor New Zenith

VAS Website: wightastronomy.org

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

The Editor, New Zenith
Carpenter's Cottage
Dennett Road
Bembridge
Isle of Wight PO35 5XF
Tel: **01983 872875** or email: **editor@wightastronomy.org**

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

Registered Charity No 1046091

Observatory Diary

Monday, 19.30hrs	Members Only and by arrangement Telescope and night sky training. Please contact Martyn Weaver 07855 116490
Thursday	Members (19.30hrs) and Public (20.00hrs). Informal meeting and observing

VAS Website: wightastronomy.org

Contents this Month

Society News 1
April Sky Map 3
April Night Sky 4
Is Dark Matter a Pluto or a Vulcan? 5
My 100 Best Night Sky Sights 6
Transiting Exoplanet Survey Satellite 8
NASA Finds a Large Amount of Water 9
A Star Disturbed the Comets 10
General Data Protection Regulation 11
The Back Page 12

PLEASE NOTE

Monthly meetings are now held at the Newchurch Pavilion next to the Observatory All meetings start at 19.30

2018 Monthly Meetings

Date	Subject	Speaker
Check *http://www.wightastronomy.org/meetings/* for the latest information		
23 Mar	Seven Moons: Some weird and wonderful satellites of the solar system	Bob Mizon
27 Apr	An Overview of the Development of the Universe to date	John Currigan
25 May	The Rise and Fall of the Herstmonceux Observatory	Keith Brakenborough
22 Jun		
27 Jul		
24 Aug	**AGM** The European Extremely Large Telescope	Dr Aprajita Verma
28 Sep		
26 Oct	Dark Skies Stargazing Night	
23 Nov	Noise Effects in Astronomical Processes	Dudley Johnson

Observatory Visits Booked

No current bookings	
Please phone me for the current situation (number on the front page)	
It would be appreciated if members could avoid using the observatory at these times.	

VAS Contacts 2017/18

President	Barry Bates president@wightastronomy.org
Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Richard Flux secretary@wightastronomy.org
Treasurer	Simon Plumley treasurer@wightastronomy.org
Observatory Director	Brian Curd director@wightastronomy.org
Programme Organisers	Elaine Spear progorg@wightastronomy.org
Astro Photography	Simon Plumley ap@wightastronomy.org
NZ Editor	Brian Curd editor@wightastronomy.org
Membership Secretary	Norman Osborn members@wightastronomy.org
NZ Distribution	Graham Osborne
Others	Mark Williams, Nigel Lee & Stewart Chambers

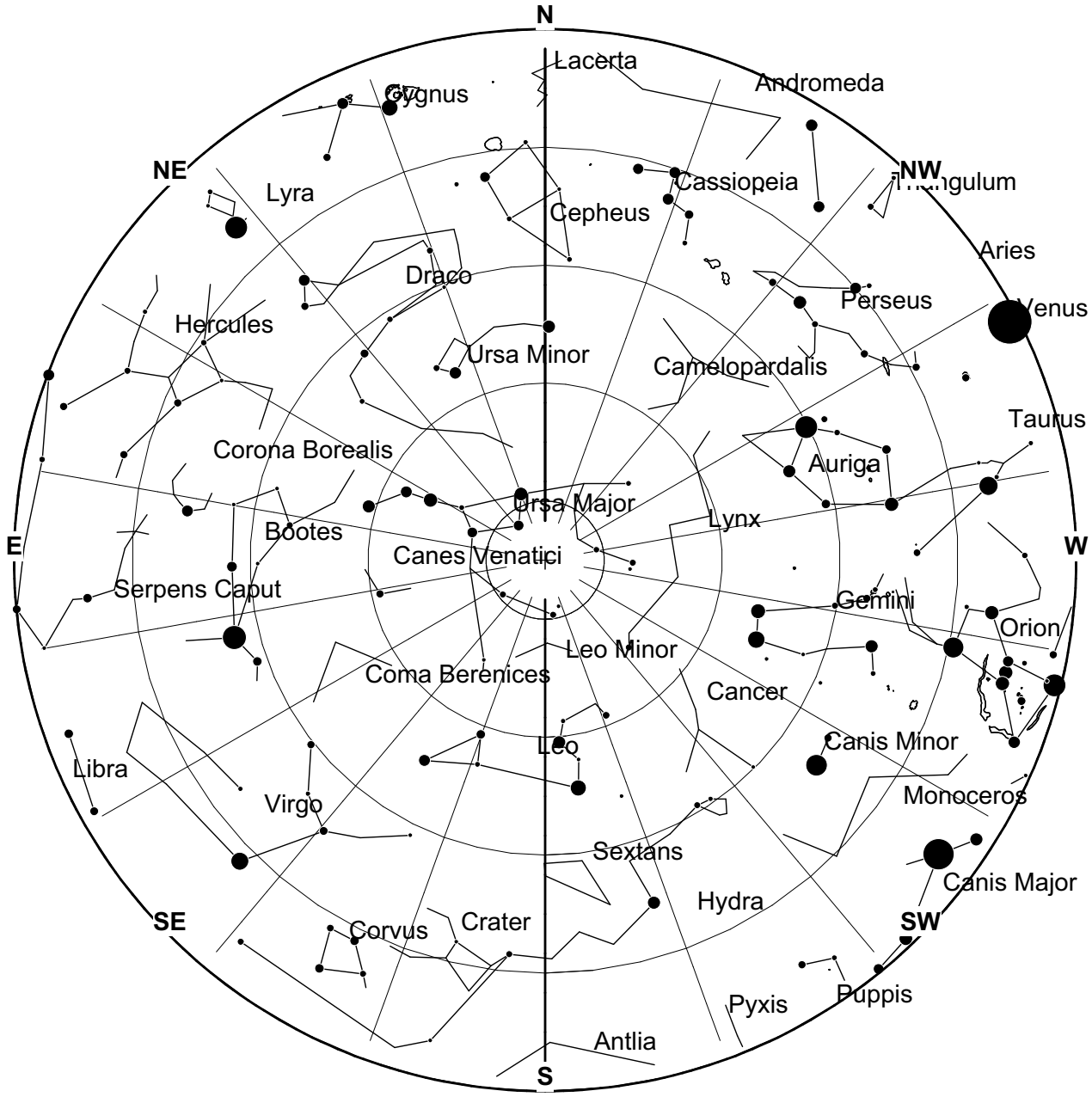
Important

Members using the observatory MUST enter a line or two in the Observatory Log Book.

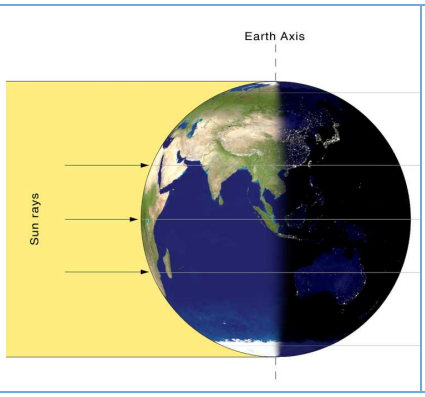
On several occasions, lights, heaters and the Meade LX200 have been left on!

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

April 2018 Sky Map



View from Newchurch Isle of Wight UK - 2200hrs - 15 April 2018



An Equinox is when the sun passes directly over the equator. There are two equinoxes each year. Equinox can also mean either of the two days when this happens. On these days, the nights are equal in length. The word equinox comes from two Latin words meaning “equal” and “night”.

Around the day of the equinox, the length of the day is a little over twelve hours and the length of the night is a little under twelve hours. They are not exactly equal because the sun is not a point in the sky and because the sunlight bends as it comes to earth. The exact day and time when this happens depend on how far away from the equator it is being measured. They occur on or around March 21 and September 21.

April 2018 Night Sky

Moon Phases

New	First Qtr	Full	Last Qtr
			
16th	22nd	30th	8th

Planets

Mercury

Although Mercury is at it greatest western elongation from the Sun towards the end of the month the geometry between its orbit and ours make it difficult to observe as it rises only very shortly before the Sun. It can be observed during the day time, this does require a telescope and for the sky to be very clear. Great care has to be taken to ensure that there is no likelihood of the telescope being accidentally pointed at the Sun. A safe way is to place the telescope well in the shade of a building.

Venus

The bright Evening Star can be easily found in the west for an hour or so after sunset.

Mars

Mars is still an early morning object and is steadily brightening and making its way eastward against the star background as we head toward opposition later in the summer. On the 3rd it passes close below the much slower moving Saturn.

Jupiter

At mid month Jupiter rises at about 11pm. At this point in its orbit it is in the constellation of Libra does not get very high in our skies. Being so low down restricts the amount of time available for observation and also because we are looking through so much of the atmosphere restricts the quality of those observations. Look for it in low in the south at around 2am.

Saturn

Saturn can be found amongst the stars of Sagittarius and at its best is even closer to the horizon than Jupiter. It is visible low in the south east from when it rises at about 3am until dawn.

Uranus & Neptune

Neither of the outer planets are visible this month, both being lost in the pre-dawn twighlight.

Deep Sky

Leo Triplet M65, M66, NGC3628
RA 11h 20m Dec 13° 14'

Just under the loins hind legs in an area not much larger than the full moon are three spiral galaxies. Using a low power all three can be seen in the same field of view. Each is about half way between edge on and face on so appear as an oval smudge with a bright core. Why NGC3628 is the largest of the three and the faintest, just (mag 9.5), why it does not have its own place in the Messier catalogue we will never know, perhaps it says something for the quality of 18th century optical equipment.

NGC2903 Galaxy
RA 9h 32m Dec 21° 28' mag 9.6

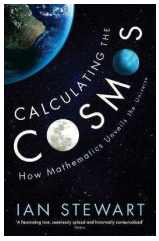
When comet hunting Charles Messier did not find all the fuzzy objects that could be mistaken for these elusive visitors to our skies. There are many relatively bright galaxies that he could have put into his catalogue if his telescope had happened upon them. NGC2903 is one of these; commonly regarded as one of the best NGC objects for small telescopes it is a large almost face-on barred spiral galaxy. This is a young galaxy with a much higher rate of star formation than our own Milky Way. In larger telescopes this activity can be glimpsed in the spiral arms which have a mottled appearance when viewed with averted vision.

NGC5866 / M102 Spindle Galaxy
RA 15h 7m Dec 55° 44' mag 10.5

Is this really M102? Did Messier ever see this galaxy or was it all a great mistake, and just a duplicate observation of M101, perhaps we will never know. An almost perfectly edge on galaxy, visually it lives up to its name, small telescopes show it as a silvery spindle of light against a hopefully dark background. Larger 'scopes may, if the seeing is good enough show a thin dust lane cutting through the central bulge.

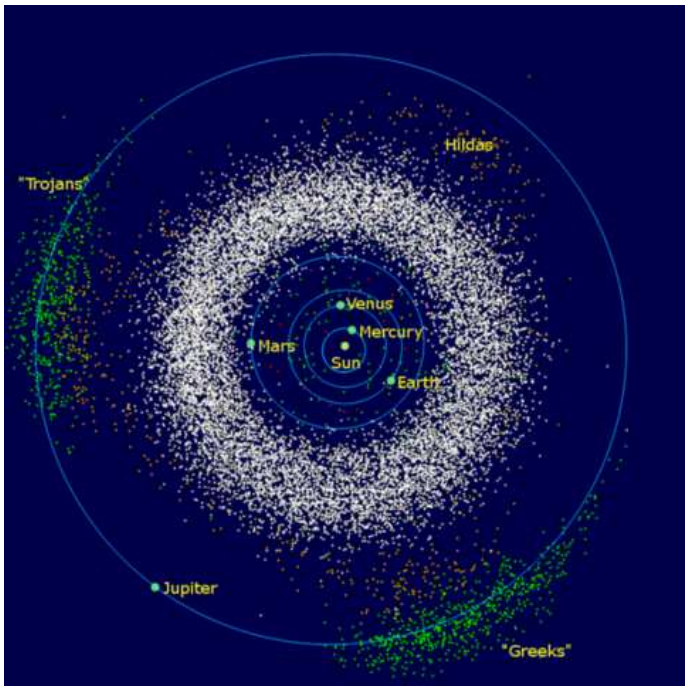
Peter Burgess

Is Dark Matter a Pluto or a Vulcan?



Book Review: *Calculating the Cosmos: How Mathematics Unveils the Universe* by Ian Stewart (published by Profile Books, 2017; available in paperback)

Ian Stewart is a mathematician who has written over three dozen popular science books. In *Calculating the Cosmos* he tells the story of how the history of astronomy has progressed hand-in-hand with techniques in mathematics, which has provided models to help make sense of new observations, and at other times predicted new objects and phenomena for astronomers to search for. This has been a continuous dance between new theories of how the universe works and new observational methods and instruments to test them out.



We can now understand the strange distribution of asteroids in the inner solar system. [Picture credit: Mdf at English Wikipedia - Public Domain]

However much you already know about the history of science, there will be surprises here, and fresh retellings of familiar stories. In Chapter 5 (*"The Celestial Police"*) I was intrigued by the account of the discovery of the asteroid belt. At the start of the 19th century, fresh from the discovery of Uranus, astronomers were searching for a new planet between Mars and Jupiter. The pattern of the distances of planets from the sun seemed so regular – where was the missing one? Not one but several objects were found there, but they seemed too small: each had no planetary disc but appeared a point of light, like a little star, hence "asteroid". The group of scientists including Messier and Herschel, who coordinated the search, were nicknamed the "Celestial Police" as they tried to tidy up all the new discoveries!

Then in Chapter 11 (*"Great Balls of Fire"*) Ian Stewart summarises the science that has revealed what stars are made of, and how it's made. Stellar spectroscopy, the study of the details of the light spectrum of a star, is a window on the engine in the core of each star that makes all the elements that we – and everything else – are made of. Models of the nuclear reactions going on inside stars of different sizes and temperatures give extraordinary agreement with observations. The current theory says that to get to the heaviest elements requires recycling of matter from supernova explosions. But wait! Recent observations may alter this view: new evidence from looking at energetic young stars in Orion may mean that heavy elements could be made *without* supernovas. ["Nucleosynthesis" – where the elements came from – is a fascination of mine, so I'll try to follow up this one.]

In the last few chapters this book really comes alive as Stewart leads us through the more recent concepts in cosmology, and is not shy of giving his own thought provoking opinions. He carefully develops the story of the Big Bang as it unfolded over the last 90 years since Hubble famously revealed that the stars and galaxies are rushing away from us, and that if you run the sums backward in time it appears to have started at a point nearly 14 billion years ago. But when the sums didn't entirely add up, Cosmic Inflation theory was invented. And then later the concepts of Dark Energy and Dark Matter were bolted on to try to make the theory work. The author looks afresh at the evidence and especially the lack of evidence for Dark Matter: every test or experiment devised so far to identify it has drawn a blank. The climax of the book is, for me, when he sums up the current problem with astrophysics: "Either the law of gravity or the traditional modelling assumptions must be wrong"! And so the story goes on… sometimes the predictions from mathematics prove to be right, like those leading to the discovery of Pluto. And sometimes the predictions are wrong, like the fruitless search for another planet, Vulcan. From wobbles in Mercury's orbit, Vulcan was expected to lie even closer to the sun. But there is nothing there. Will Dark Energy turn out to be a Pluto or a Vulcan?

Stewart's book spans the earliest observations of the sky in ancient times, through to the insights of the Large Hadron Collider and space telescopes; from peoples' first ideas about our place in the Universe through to current speculations about the "multiverse". You don't need any maths to enjoy this book – I thoroughly recommend it.

Simon Gardner - simongardner344@gmail.com

EasyFundRaising for VAS?

Did you know that whenever you buy anything online - from your weekly shop to your annual holiday - you could be collecting free donations for Vectis Astronomical Society?

There are over 3,000 shops and sites on board ready to make a donation, including Amazon, John Lewis, Aviva, thetrainline and Sainsbury's - and it doesn't cost you a penny extra!

It's as easy as 1, 2, 3...

1. Head to *https://www.easyfundraising.org.uk/causes/vectisastronomicalsociety/* and join for free.

2. **Every time you shop online, go to easyfundraising first to find the site you want and start shopping.**

3. **After you've checked out, that retailer will make a donation to VAS at no cost to you!**

There are no catches or hidden charges and VAS will be really grateful for your donations

FOR SALE

I have decided to sell my Coronado PST

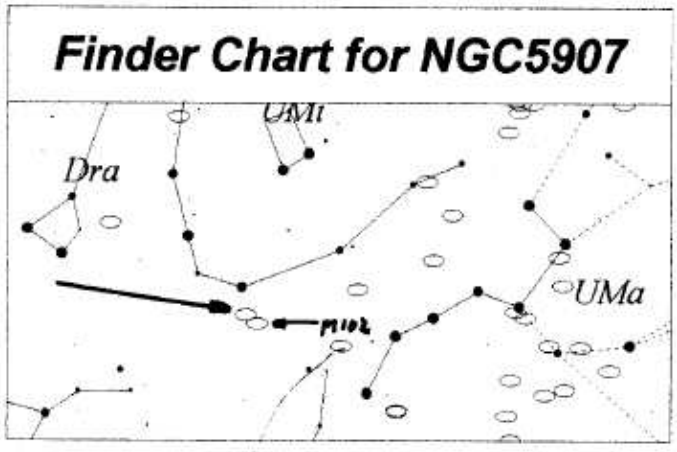
Anyone in VAS having an interest in solar observation and acquiring a decent instrument please leave me a text message on **07443 034887** with offers

John Langley

My 100 Best Night Sky Sights

Spiral Galaxy

Coordinates: RA 15h 15m 54s, DEC +56° 20"



High in the sky from May to August is the fine galaxy **NGC5907** in **Draco.** It's frequently overlooked by observers studying this area of the sky in favour of the two Messier galaxies close by, M101 and M102 but I find it a much superior object to observe, in my view at least the equal of the more celebrated NGC4565 in Coma Berenices seen through modest instruments. M101 is a large face-on spiral but very faint through any instrument, M102, a lenticular galaxy is brighter but unexciting in most amateur telescopes. NGC5907 however is a spiral seen exactly edge-on and although nearly two magnitudes dimmer than M101 it's orientation makes it far easier to see (a good example of why you should treat quoted magnitudes of extended objects with caution). At mag 10.4 it's still not very bright (few galaxies are) but a 6" telescope should have no problem spotting this extremely thin, straight sliver of light against the starry backdrop on nights of good seeing - a celestial needle in a stellar haystack. Try various powers for the best view - I find 100x on my 10" just right. Telescopes over 6" brighten and extend the image slightly - the VAS 18" might ***just*** pick out the dark dust lane bisecting its long axis. Locate it 3° SSW of Iota Draconis

Galactic Clusters

Coordinates:

M6: RA 17h 40m 06s, DEC -32' 13"

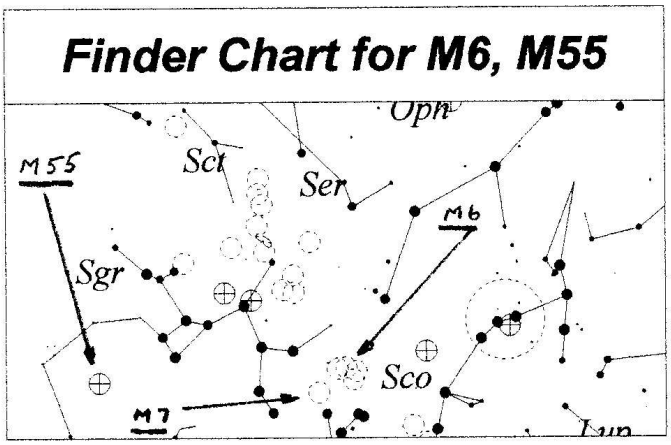
M7: RA 17h 53m 54s, DEC -34' 49"

This is worth a little preparation in two stages:

1. Get some shuteye early on a June or July evening.

2. Get up around midnight and unwrap your telescope.

Very low in the south just 8° above the horizon is **M6** the **Butterfly Cluster** in **Scorpius**. If you can't see down to this level from your garden take your telescope somewhere you can (if this isn't an option take your binoculars). M6 can be seen with any optical instrument, in fact at mag 4.3 it's well within naked eye range, seen as a fuzzy spot if the sky is clean. Binoculars have one advantage over telescopes - with M6 at upper right of the field of view its next door neighbour M7 puts in an appearance bottom left (see New Zenith, August 2017). Both clusters are home to numerous stars although M7 spreads them around an area over 20 times larger and is 3° lower in the sky, partially compensating for this by being a magnitude brighter. Through my 10" at f10 and at 100x M6 fills the field with 20 bright stars (one very bright at NE) and 30 or so fainter ones - a magnificent sight. Whatever your telescope, try every eyepiece you possess - M6 will reward you with a different spectacle for each magnification and so enthralled will you be, dawn will catch you unawares and terminate your enjoyment. Still this will be around 3 or 4 a.m. so there'll be plenty more sleep time before breakfast.

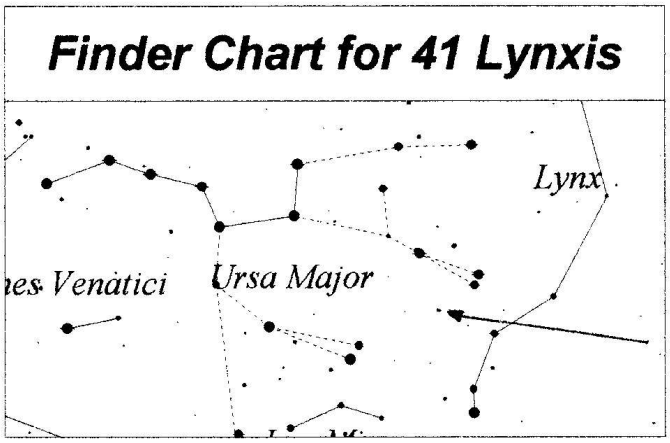


Globular Cluster

It might ***just*** be possible that it's still dark when you've had your fill of M6 (stranger things ***have*** happened!), if so give yourself an additional treat with the large globular cluster **M55** a degree or so higher in the sky in neighbouring **Sagittarius**. It's a shame that its low altitude denies us its full glory - if it was 10 degrees higher it would rank alongside the great M13 in Hercules. Nevertheless it's sheer size is something to behold, at 250x magnification it spills out of my field of view and is the complete visual opposite of last month's globular (M80 in Scorpius). Whilst M80 is a tight, unresolved ball of light M55 is an unusually loose cluster, none of its thousands of stars exceeding mag 11 yet the whole shining at an integrated magnitude of 7.0. Despite being so low in the sky almost any telescope will resolve some stars given a clean, steady atmosphere and even on indifferent nights my 10" has no trouble with the outer members. Should dawn have overtaken you before you left Scorpius you can visit M55 an hour or two earlier in July or August.

Multiple Star

Coordinates: RA 09h 29m 00s, DEC +45' 35"

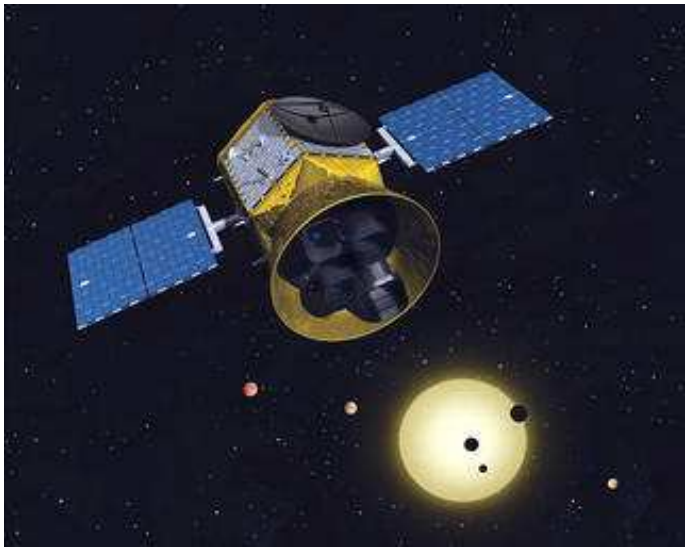


'Now here's a pretty how d'you do' (with acknowledgement to WSG).

Question:- In which constellation would you expect to find the star **41 Lynxis**? Yes, so would I but we'd both be wrong because it isn't in Lynx at all but in **Ursa Major**! One would think the astro-cartographers would have corrected this anomaly long ago, but not so. Instead their preferred solution is to refer to it as '41 Lynxis in Ursa Major' - crazy but true - which, not surprisingly seems to confuse producers of star atlases and the like for, although many ***show*** the star, most don't ***annotate*** it which means you can only find out where it is if you know where it is! However, whilst even the mighty Uranometria 2000 doesn't identify it (my copy does now!) the simple Collins Gem Night Sky and Collins Stars & Planets Pocket Guide do, which is fortunate because 41 Lyn in Uma is a neat triple star forming the best right angle triangle you're likely to find anywhere in the sky. The primary is bright white mag 5, the secondary a blue mag 8 star 77 arc seconds away almost due south at position angle 162°. Completing the triangle is the faint, mag 10 tertiary 83" away almost due east, PA 80° - pure celestial geometry. Try this any time January to May - you won't be disappointed.

Bert Paice
Originally published in NZ - October 1998

Transiting Exoplanet Survey Satellite (TESS)



This is a conceptual image of the TESS mission
Credits: MIT

The Transiting Exoplanet Survey Satellite (TESS) is the next step in the search for planets outside of our solar system, including those that could support life. The mission will find exoplanets that periodically block part of the light from their host stars, events called transits. TESS will survey 200,000 of the brightest stars near the sun to search for transiting exoplanets. The mission is scheduled to launch no earlier than April 16, 2018, and no later than June 2018.

TESS scientists expect the mission will catalog more than 2,000 planet candidates and vastly increase the current number of known exoplanets. Of these, approximately 300 are expected to be Earth-sized and super-Earth-sized exoplanets, which are worlds no larger than twice the size of Earth. TESS will find the most promising exoplanets orbiting our nearest and brightest stars, giving future researchers a rich set of new targets for more comprehensive follow-up studies.

Mission Approach

TESS will survey the entire sky over the course of two years by breaking it up into 26 different sectors, each 24 degrees by 96 degrees across. The powerful cameras on the spacecraft will stare at each sector for at least 27 days, looking at the brightest stars at a two-minute cadence. From Earth, the moon occupies half a degree, which is less than 1/9,000th the size of the TESS tiles.

The stars TESS will study are 30 to 100 times brighter than those the Kepler mission and K2 follow-up surveyed, which will enable far easier follow-up observations with both ground-based and space-based telescopes. TESS will also cover a sky area 400 times larger than that monitored by Kepler.

In addition to its search for exoplanets, TESS will allow scientists from the wider community to request targets for astrophysics research on approximately 20,000 additional objects during the mission through its Guest Investigator program.

The Transit Method

animation illustrating how a dip in the observed brightness of a star may indicate the presence of a planet

This animation shows how a dip in the observed brightness of a star may indicate the presence of a planet passing in front of it, an occurrence known as a transit.

The transit method of detecting exoplanets looks for dips in the visible light of stars, and requires that planets cross in front of stars along our line of sight to them. Repetitive, periodic dips can reveal a planet or planets orbiting a star. Transit photometry, which looks at how much light an object puts out at any given time, can tell researchers a lot about a planet. Based on how much of a dip in light a planet causes in its star, we can determine that planet's size. Looking at how long it takes a planet to orbit its star, scientists are able to determine the shape of the planet's orbit and how long it takes the planet to circle its sun.

TESS will create a catalog of thousands of exoplanet candidates using this transit photometry method. After this list has been compiled, the TESS mission will conduct ground-based follow-up observations to confirm that the exoplanets candidates are true exoplanets and not false positives. These ground-based telescopes will collaborate with other ground-based telescopes to measure the masses of the planets. Using the known planet size, orbit and mass, TESS and ground-based follow-up will be able to determine the planets' compositions. This will reveal whether the planets are rocky (like Earth), gas giants (like Jupiter) or something even more unusual. Additional follow-up with ground- and space-based missions, including NASA's James Webb Space Telescope, will also allow astronomers to study the atmospheres of many of these planets.

TESS team partners include the Massachusetts Institute of Technology, the Kavli Institute for Astrophysics and Space Research, NASA's Goddard Space Flight Center, MIT's Lincoln Laboratory, Orbital ATK, NASA's Ames Research Center, the Harvard-Smithsonian Center for Astrophysics, and the Space Telescope Science Institute.

Article from: *https://www.nasa.gov/content/about-tess*

NASA Finds a Large Amount of Water in an Exoplanet's Atmosphere

Much like detectives study fingerprints to identify the culprit, scientists used NASA's Hubble and Spitzer space telescopes to find the "fingerprints" of water in the atmosphere of a hot, bloated, Saturn-mass exoplanet some 700 light-years away. And, they found a lot of water. In fact, the planet, known as WASP-39b, has 3x as much water as Saturn does.

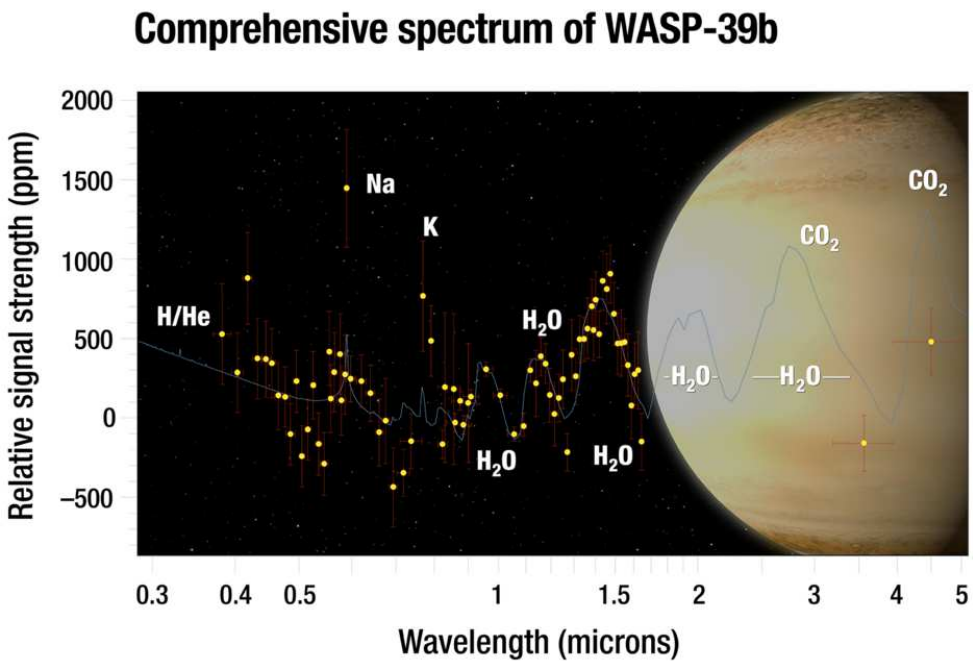
Though no planet like this resides in our solar system, WASP-39b can provide new insights into how and where planets form around a star, say researchers. This exoplanet is so unique, it underscores the fact that the more astronomers learn about the complexity of other worlds, the more there is to learn about their origins. This latest observation is a significant step toward characterizing these worlds.

Although the researchers predicted they'd see water, they were surprised by how much water they found in this "hot Saturn." Because WASP-39b has so much more water than our famously ringed neighbor, it must have formed differently. The amount of water suggests that the planet actually developed far away from the star, where it was bombarded by a lot of icy material. WASP-39b likely had an interesting evolutionary history as it migrated in, taking an epic journey across its planetary system and perhaps obliterating planetary objects in its path.

"We need to look outward so we can understand our own solar system," explained lead investigator Hannah Wakeford of the Space Telescope Science Institute in Baltimore, Maryland, and the University of Exeter in Devon, United Kingdom. "But exoplanets are showing us that planet formation is more complicated and more confusing than we thought it was. And that's fantastic!"

Wakeford and her team were able to analyze the atmospheric components of this exoplanet, which is similar in mass to Saturn but profoundly different in many other ways. By dissecting starlight filtering through the planet's atmosphere into its component colors, the team found clear evidence for water. This water is detected as vapor in the atmosphere.

Using Hubble and Spitzer, the team has captured the most complete spectrum of an exoplanet's atmosphere possible with present-day technology. "This spectrum is thus far the most beautiful example we have of what a clear exoplanet atmosphere looks like," said Wakeford.



"WASP-39b shows exoplanets can have much different compositions than those of our solar system," said co-author David Sing of the University of Exeter in Devon, United Kingdom. "Hopefully this diversity we see in exoplanets will give us clues in figuring out all the different ways a planet can form and evolve."

Located in the constellation Virgo, WASP-39b whips around a quiet, Sun-like star, called WASP-39, once every four days. The exoplanet is currently positioned more than 20 times closer to its star than Earth is to the Sun. It is tidally locked, meaning it always shows the same face to its star.

Its day-side temperature is a scorching 1,430 degrees Fahrenheit (776.7 degrees Celsius). Powerful winds transport heat from the day-side around the planet, keeping the permanent night-side almost as hot. Although it is called a "hot Saturn," WASP-39b is not known to have rings. Instead, is has a puffy atmosphere that is free of high-altitude clouds, allowing Wakeford and her team to peer down into its depths.

More at: https://www.nasa.gov/feature/goddard/2018/nasa-finds-a-large-amount-of-water-in-an-exoplanets-atmosphere

A Star Disturbed the Comets of the Solar System 70,000 Years Ago

About 70,000 years ago, a small reddish star approached our solar system and gravitationally disturbed comets and asteroids. Astronomers from the Complutense University of Madrid and the University of Cambridge have verified that the movement of some of these objects is still marked by that stellar encounter.

At a time when modern humans were beginning to leave Africa and the Neanderthals were living on our planet, Scholz's star -- named after the German astronomer who discovered it -- approached less than a light-year from the Sun. Nowadays it is almost 20 light-years away, but 70,000 years ago it entered the Oort cloud, a reservoir of trans-Neptunian objects located at the confines of the solar system.

This discovery was made public in 2015 by a team of astronomers led by Professor Eric Mamajek of the University of Rochester (USA). The details of that stellar flyby, the closest documented so far, were presented in The Astrophysical Journal Letters.

Now two astronomers from the Complutense University of Madrid, the brothers Carlos and Raúl de la Fuente Marcos, together with the researcher Sverre J. Aarseth of the University of Cambridge (United Kingdom), have analyzed for the first time the nearly 340 objects of the solar system with hyperbolic orbits (very open V-shaped, not the typical elliptical), and in doing so they have detected that the trajectory of some of them is influenced by the passage of Scholz´s star.

"Using numerical simulations we have calculated the radiants or positions in the sky from which all these hyperbolic objects seem to come," explains Carlos de la Fuente Marcos, who together with the other coauthors publishes the results in the MNRAS Letters journal.

"In principle," he adds, "one would expect those positions to be evenly distributed in the sky, particularly if these objects come from the Oort cloud; however, what we find is very different: a statistically significant accumulation of radiants. The pronounced over-density appears projected in the direction of the constellation of Gemini, which fits the close encounter with Scholz´s star."

The moment in which this star passed close to us and its position during prehistory coincide with the data of the new investigation and in those of Mamajek and his team. "It could be a coincidence, but it is unlikely that both location and time are compatible," says De la Fuente Marcos, who points out that their simulations suggest that Scholz´s star approached even more than the 0.6 light-years pointed out in the 2015 study as the lower limit.

The close fly-by of this star 70,000 years ago did not disturb all the hyperbolic objects of the solar system, only those that were closest to it at that time. "For example, the radiant of the famous interstellar asteroid` Oumuamua is in the constellation of Lyra (the Harp), very far from Gemini, therefore it is not part of the detected over-density, "says De la Fuente Marcos. He is confident that new studies and observations will confirm the idea that a star passed close to us in a relatively recent period.

Scholz´s star is actually a binary system formed by a small red dwarf, with about 9% of the mass of the Sun, around which a much less bright and smaller brown dwarf orbits. It is likely that our ancestors saw its faint reddish light in the nights of prehistory.

Article from: https://www.sciencedaily.com/releases/2018/03/180320123455.htm

General Data Protection Regulation

To comply with the new Regulation, which comes into force in May 2018, the Society is required to obtain your explicit consent to use your personal data. Fines for a Breach of Compliance have been increased to 20m Euro.

1. Data is held to enable the Society to communicate with our members and maintain membership information.

   The data held on each member is:
   - Name
   - Postal Address
   - Telephone Number (Landline and mobile)
   - Email address
   - Month and year of joining.
   - Date and method of renewing subscription
   - Class of membership
   - How New Zenith is received

2. The data is held on the computer of the Membership Secretary. It is backed up on local hard storage.

3. The data is not shared with, or available to, any organisation or individual.

4. An extract containing name and email address is shared with the member responsible for distributing New Zenith by email for those members wishing to receive New Zenith by email.
   A further extract containing name and postal address is shared with the member responsible for distributing New Zenith by post for those members wishing to receive New Zenith by post.

5. Data is deleted two years after a member leaves the Society.

6. A member may request a copy of the data held on him/her.

Please print off, date and sign the form below and return to:

Membership Secretary
9 Woodside Avenue
Alverstone Garden Village
Isle of Wight
PO36 0JD

As the database is being updated, please also enter your mobile phone number to the form.

General Data Protection Regulation – Consent Form

I hereby give my consent for my personal data to be held by the Vectis Astronomical Society.

Full Name

.....

Mobile Phone Number

.....

Signed

.....

Date .....

This marks an important change in the laws VAS must work to and we must comply.

Please complete and return the form as soon as you can.

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

A Few Words From Stephen Hawking

8 January 1942 – 14 March 2018

"We are just an advanced breed of monkeys on a minor planet of a very average star. But we can understand the Universe. That makes us something very special"

"Shouldn't we be content to be cosmic sloths, enjoying the universe from the comfort of Earth? The answer is no. The Earth is under threat from so many areas that it is difficult for me to be positive"

"The human failing I would most like to correct is aggression. It may have had survival advantage in caveman days, to get more food, territory or partner with whom to reproduce, but now it threatens to destroy us all"

"We are close to the tipping point, where global warming becomes irreversible. Trump's action could push the Earth over the brink, to become like Venus, with a temperature of 250ºC, and raining sulfuric acid"

"Although the chance of a disaster to planet Earth in a given year may be quite low, it adds up over time, and becomes a near certainty in the next thousand or 10 thousand years"

"What was God doing before the divine creation? Was he preparing hell for people who asked such questions?"

"The development of full artificial intelligence could spell the end of the human race"

"If aliens ever visit us, I think the outcome would be much as when Christopher Columbus first landed in America, which didn't turn out very well for the Native Americans"

"The whole history of science has been the gradual realization that events do not happen in an arbitrary manner, but that they reflect a certain underlying order, which may or may not be divinely inspired"

"It is a waste of time to be angry about my disability. One has to get on with life and I haven't done badly. People won't have time for you if you are always angry or complaining"

"I regard the brain as a computer which will stop working when its components fail. There is no heaven or afterlife for broken-down computers; that is a fairy story for people afraid of the dark"

Observatory

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

Articles Needed

NZ needs letters, articles, reviews or pictures related to astronomy.
Send to the Editor, contact details on the front page.

"The easiest way to do anything is properly"
K.J Parker

"Every intelligent being, whether it breathes or not, coughs nervously at some time in its life"
Terry Pratchett

"It is often stated that of all the theories proposed in this century, the silliest is quantum theory. In fact, some say that the only thing that quantum theory has going for it is that it is unquestionably correct"
Michio Kaku

"To invent, you need a good imagination and a pile of junk"
Thomas Edison