New Zenith

The Monthly Newsletter of the Vectis Astronomical Society

Vol 26 Issue 10 — November 2018 *When Printed, this Newsletter costs VAS at least £1*

Society News

Subscription Final Reminder

The Annual Subscription is your society's main form of income. Prompt payment aids your committee's budgeting process. VAS Subscriptions were due 1 October.

Rates for 2018/19 are yet again unchanged at:	
Ordinary membership	**£30:00 pa**
Senior (60+)	**£24:00 pa**
Student (under 18 or in full time education)	**£12:00 pa**
Family (2 Adults and 2 children)	**£50:00 pa**

Payment may be made by Cash or Cheque payable to Vectis Astronomical Society at the Observatory or at Friday's Dark Sky event.

Cheques may be sent to

The Membership Secretary
Foxgloves, 23 Woodland Grove
Bembridge
PO35 5SG.

If you have a Standing Order

Please check the amount as some members did not change their Standing Orders when the rates were changed in 2015.

If you prefer to pay by Bank Transfer the Account details are:

Vectis Astronomical Society
Sort Code 30 95 99
Account No 00037505

NOTE: Failure to renew by mid November will result in your membership ending.

If you are not renewing your subscription please let the Membership Secretary know.

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

Monthly meetings are held at the Newchurch Pavilion next to the Observatory and start at 19.30 unless stated.

2018 Monthly Meetings

Date	Subject	Speaker
Check *http://www.wightastronomy.org/meetings/* for the latest information		
26 Oct	Dark Skies Stargazing Night	VAS/AONB
23 Nov	Noise Effects in Astronomical Processes	Dudley Johnson

2019 Monthly Meetings

Date	Subject	Speaker
Check *http://www.wightastronomy.org/meetings/* for the latest information		
25 Jan	TBA	TBA
22 Feb	Imaging the Sun	John Slinn
22 Mar	TBA	TBA
26 Apr	Can we Live on Mars?	Greg Smye-Rumsby
24 May	The Rise and fall of the Herstmonceux Observatory	Keith Brackenborough
28 June	Nuclear Physics - Life, the Universe and Everything!	Dr Elizabeth Cunnigham
26 July	Young Astronomers' Event	
23 Aug	AGM and Social Evening	
27 Sept	A transportable/deployable radio telescope for hydrogen line observation	Alan and Martin Thompson
25 Oct	Dark Skies Event	
22 Nov	TBA	TBA

Observatory Visits Booked

Wed Nov 14	Newchurch Cubs
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 2018/19

President	Barry Bates president@wightastronomy.org
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Membership Secretary	Norman Osborn members@wightastronomy.org
NZ Distribution	Graham Osborne
Others	Mark Williams, Nigel Lee, Stewart Chambers, Elaine Spear

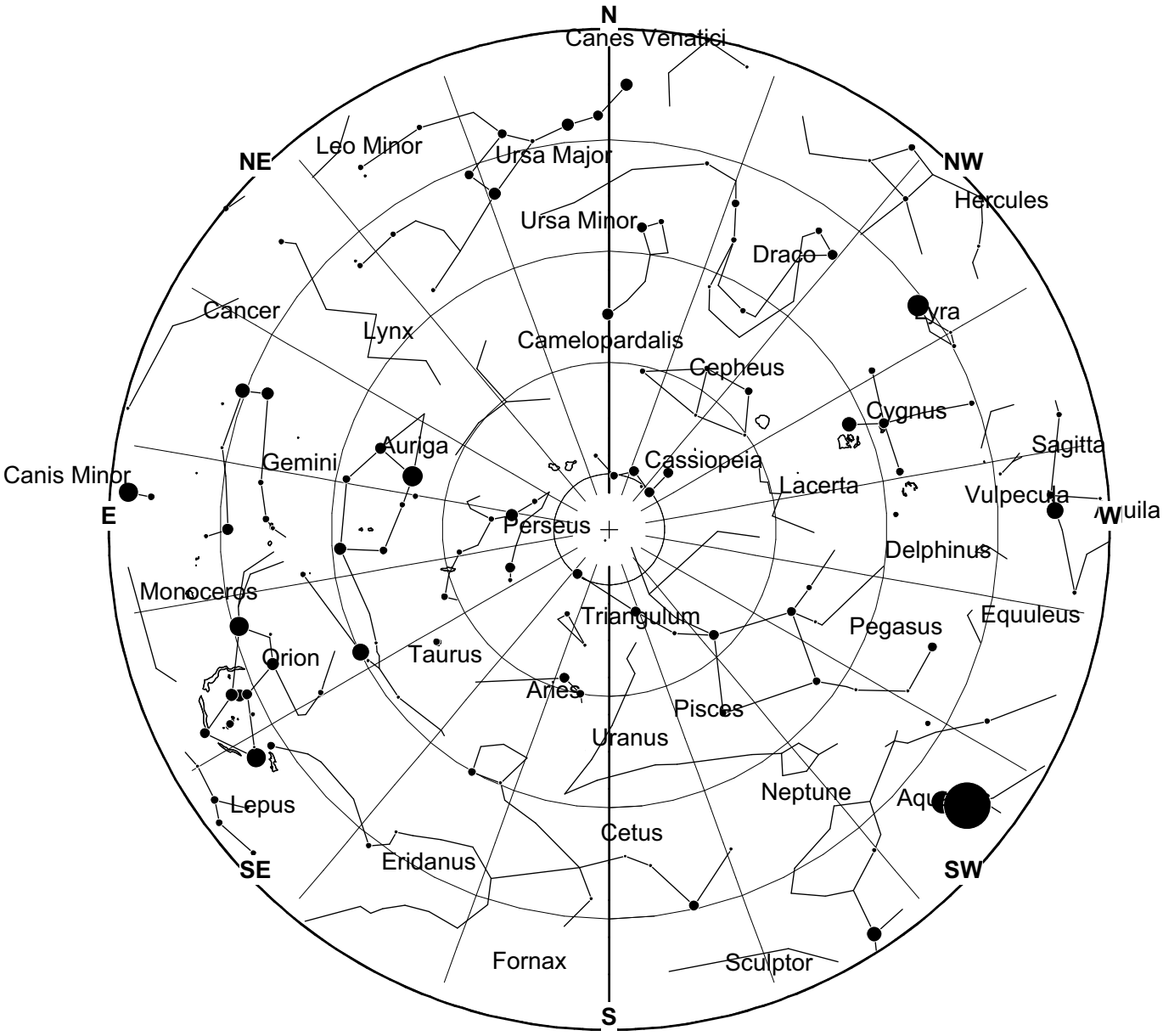
Important

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.

November 2018 Sky Map



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

The Moon is in synchronous rotation with Earth, and thus always shows the same side to earth, the near side. The near side is marked by dark volcanic maria that fill the spaces between the bright ancient crustal highlands and the prominent impact craters. Its surface is actually dark, although compared to the night sky it appears very bright, with a reflectance just slightly higher than that of worn asphalt. Its gravitational influence produces the ocean tides, body tides, and the slight lengthening of the day.

The Moon's average orbital distance is 384,402 km (238,856 mi), or 1.28 light-seconds. This is about thirty times the diameter of Earth. The Moon's apparent size in the sky is almost the same as that of the Sun (because it is 400x farther and larger). Therefore, the Moon covers the Sun nearly precisely during a total solar eclipse. This matching of apparent visual size will not continue in the far future, because the Moon's distance from Earth is slowly increasing.

November 2018 Night Sky

Moon Phases

New	First Qtr	Full	Last Qtr
			
7th	15th	23rd	30th

Planets

Mercury

Mercury is technically visible in the evening sky but if too faint and too close to the horizon at sunset to be visible from our latitude.

Venus

By the end of the first week of the month Venus starts to make its appearance as the Morning Star, and by mid month it will be clearly visible low in the southeast before sunrise.

Mars

As the evening sky darkens Mars can be found in the south. Each night it climbs a little higher in the sky although it is still fading, the rate of change is now much lower than it has been, it will be magnitude zero by the end of the month, easily brighter than any nearby star.

Jupiter

Jupiter is invisible, on the far side of the Sun this month. It will re-appear in the morning sky next month.

Saturn

Saturn may just be glimpsed low in the southwest just after sunset. It is too close to the horizon for observation.2

Uranus

At mid evening Uranus is just less than 2 degrees above and to the left of the 4th magnitude star Omicron Piscium. A half a degree further on is the star HIP8558, of similar brightness to Uranus.

Neptune

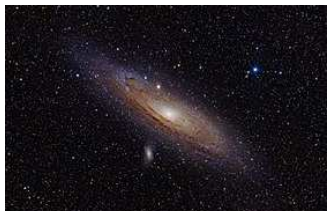
Neptune can be found about two thirds the way from Phi Aquarii to Lambda Aquarii forming a straight line with the two magnitude 6 stars 81 & 82 Aquarii, with Neptune the lower of the three.

Deep Sky

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

A celestial Christmas tree. This is a young cluster with many bright blue members, the brightest of which forms the star on top of the tree. It is a colourful cluster with a number of orange and yellow stars that make up the effect of Christmas tree lights. M103 is the last entry of Messier's catalogue; the remaining objects were added after his death based on his unpublished work.

M31 Galaxy
RA 0h 43m Dec 41° 54' mag 4.5



Easily visible to the naked eye this galaxy is at least twice the width of the full moon and the largest member of the local group. It is seen as an oval smudge in the central northern part of Andromeda. Viewed from this galaxy our own Milky Way would look very similar if somewhat smaller.

In dark skies binoculars just show Andromeda's two companion galaxies, but a telescope is really needed to appreciate them. Through a small telescope the view of Andromeda is not that much better than binoculars, it is such a large object that it completely fills the field of view with anything other than very low magnification. A larger telescope will show the dust lanes and allow tracing out of the spiral arms.

M74 The Phantom Galaxy
RA 1h 37m Dec 15° 50' mag 9.1

This low surface brightness face on spiral galaxy and is probably one of the most challenging of all the Messier objects. With a large aperture telescope and dark skies detail can be glimpsed in the spiral arms.

Peter Burgess

Ghost Objects in the Sky

Astronomers typically study objects that are visible night after night or explode suddenly, like supernovas, but Casey Law is scouring vast amounts of data in search of bright objects that disappear, never to be seen again.

That search turned up the first of what may be many "ghost" objects in the sky: in this case, an extremely bright source of radio emissions that blazed into existence in the 1990s and then faded out over next 25 years.

Based on the extreme brightness of the radio source and the type of galaxy in which the flare-up occurred, Law argues that it was the afterglow of the explosion of a massive star, which would have emitted an undetected long-duration gamma-ray burst. Gamma-ray bursts, whose origins are still contentious, are among the most intense flashes in the universe because much of their explosive energy is collimated into a tight beam, like that from a lighthouse.

"We believe we are the first to find evidence for gamma-ray bursts that could not be detected with a gamma-ray telescope," said Law, an assistant research astronomer in the Department of Astronomy at the University of California, Berkeley. "These are known as 'orphan' gamma-ray bursts, and many more such orphan GRBs are expected in new radio surveys that are now underway."

Gamma-ray bursts, such as that detected last year accompanying gravitational waves from the merger of two neutron stars, are rarely seen because the source of the gamma rays – a relativistic jet of material emerging from the explosive merger – must be pointing directly at Earth. Perhaps only one in 100 explosions can be seen from Earth by NASA's Fermi Gamma-ray Space Telescope, for example.

The fact that these explosions are followed by a decades-long radio afterglow provides a way for astronomers to find the rest of these explosive events, not just those heralded by a gamma-ray burst.

Finding many more gamma-ray bursts will help resolve a major question in astronomy today: *What are these massive stellar explosions that generate gamma-ray bursts, and what's left behind afterward?*

Much more to see at: http://news.berkeley.edu/

Incredible and Unaffordable Solar System Wristwatch with Orbiting Planets

Van Cleef & Arpels' Midnight Planétarium timepiece features a mechanical orrery integrated in the watch face. It is only US$214,000.

From the company:

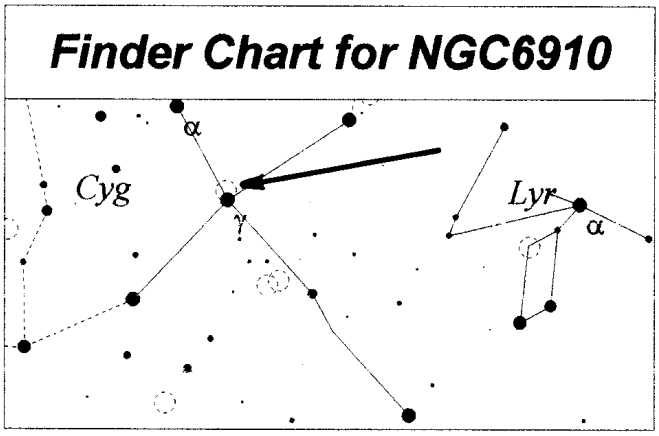
The movement of each planet is true to its genuine length of orbit: it will take Saturn over 29 years to make a complete circuit of the dial, Jupiter will take almost 12 years, Mars 687 days, Earth 365 days, Venus 224 days and Mercury 88 days...
44 mm pink gold case; pink gold bezel; aventurine dial, pink gold sun and shooting star, serpentine Mercury, chloromelanite Venus, turquoise Earth, red jasper Mars, blue agate Jupiter, sugilite Saturn. Pink gold crown with sapphire case back. Matte black alligator strap with pink gold folding clasp. Self-winding mechanical movement (Stern Manufacture), equipped with a Christiaan Van der Klaauw module developed exclusively for Van Cleef & Arpels, 48 hour power reserve. Numbered edition.

Start saving for Christmas

My 100 Best Night Sky Sights

Open Cluster

Coordinates: RA 20h 23m 06s, +40' 47"



The constellation of Cygnus the Swan, otherwise known as the Northern Cross, holds so many delights for users of small telescopes it's strange Charles Messier only found that three of them interfered with his comet hunting. Stranger still that, whilst two are galactic clusters, he missed two others that are more prominent. In my view the ones he omitted are more attractive objects than those he listed and NGC6910 is one of the best.

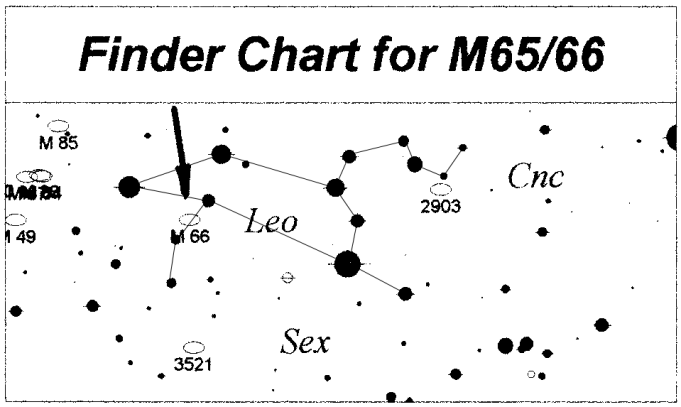
Whilst the cluster contains only 20 or so stars they're nearly all bright, well separated and arranged in a peculiar branch-like structure that in my experience is unique. But a second striking feature is the total dominance of the cluster by two very bright yellow stars that shine like beacons. The group is on show throughout the summer and early autumn less than a degree due north of Sadr, the bright star at the centre of the Cross, and best viewed through powers of 100x or less.

If you're lucky enough to have a very dark sky and a night of excellent seeing you may just glimpse patches of nebulosity behind and surrounding the cluster on all sides. This is a vast area of emission nebulae known as IC1318 in which NGC6910 is embedded. I've yet to detect this from my less than ideal site, but I'm still trying!

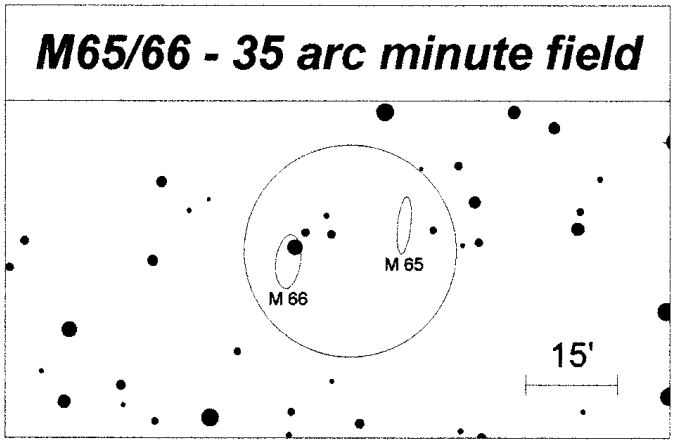
Spiral Galaxies

Coordinates: RA 11h 20m 30s, +13' 02"

I've previously said that spiral galaxies generally disappoint when viewed through small telescopes, but when you find two or more in the same field the enjoyment factor soars and the M65/66 pair in the springtime constellation of Leo is one of the best examples available to most of us. Using an eyepiece that provides a field of view of around ½º (Moon size) both galaxies are neatly captured and seen almost edge-on. Whilst M66 is considerably 'fatter' than its neighbour, its outer regions are too faint to be seen clearly with telescopes less than 12" with the rather nice result that the two look like identical twins.



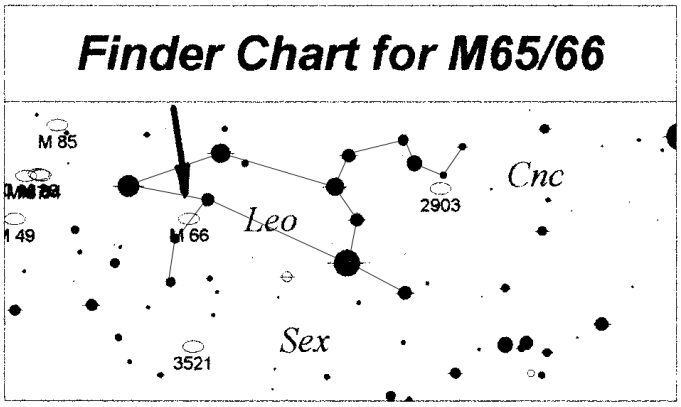
Completing the scene and adding significantly to its pleasure are four brightish stars (one mag 9, the other mag 11) that seem to be reaching out from M66 towards M65 also serving to identify which galaxy is which as they're much closer to the former. This is such an exquisite sight I've included a second star chart to show how they appear at a magnification of about 100x through a 10" telescope (35' field) although the full extent of the galaxies are not seen, so all four stars appear outside M66.



If you use an 8" or larger telescope and the seeing is good, change to a lower power to increase the field to around 50 arc minutes. Position the two galaxies at the top edge (Schmidt-Cassegrains = bottom edge) and you may be fortunate enough to detect yet a third galaxy at the lower edge (north) of the field. This is NGC3628, a faint spiral seen completely edge-on and, in the best conditions revealing a band of dark matter bisecting it along its length, just like the celebrated NGC4565 in Coma Berenices.

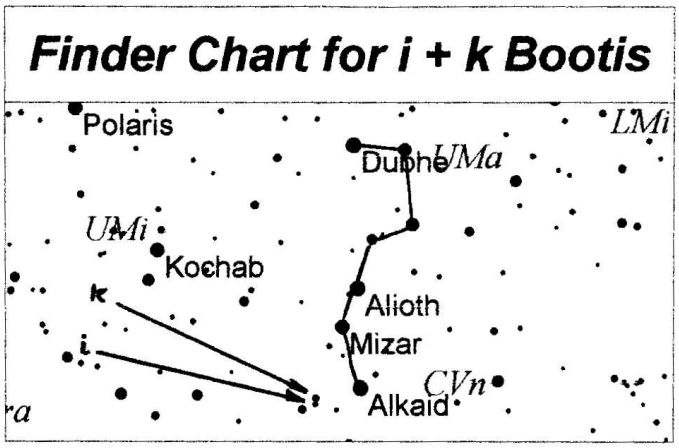
It lies due north of M66 with an even brighter, mag 8 star entering the scene almost halfway and a little north of a line from M65 to NGC3628 and, if the Editor has room, yet a third chart shows the wider field view at about 60x.

Bear in mind these telescopic view charts show the configuration as it is in the sky. Depending on its type your telescope will either show the scene inverted or reversed left/right.



Double Stars

Coordinates:
Iota: RA 14h 16m 12s, +51' 22"
Kappa: RA 14h 13m 30s, +51' 47"



From April to June Boötes the Herdsman rides high in the sky and, at his north western border with Ursa Major are to be found not one but two of the prettiest pairs of double stars you could wish for - Iota and Kappa Boötis. Both are yellow and blue although the colours of iota are more pronounced, especially at high powers. But the best view is obtained with a low power giving a field of 45' or more when both pairs are visible together and vie for your admiration. Not only are their colours similar but also their brightness, the primaries shining at around mag 4.7 with mag 7 companions. There are better examples of yellow/blue double stars but I know of no others where you have two such in the same field, which makes these well worth seeking out.

The finder chart for ι and κ Boo doesn't show the host constellation as they're easier to locate with reference to Ursa Major than to Boötes, being situated adjacent to Alkaid, the first star in the handle of the Plough.

Before locating these two take a look at the Mizar/Alcor pair in Uma, the second star in the plough handle, then move to ι and κ Boo and you will see just what a difference colour makes. Also try different eyepieces to see how intensity of colour varies with changes in magnification.

Bert Paice
Originally published in NZ - June 1999

CHRISTMAS OBSERVATORY CLOSURES

This years Christmas and New Year period rather clashes with our normal Thursday meetings so we have decided to close the observatory as follows:

Thurs 20th Dec OPEN

Thurs 27th Dec CLOSED

Thurs 03rd Jan CLOSED

Hubble's Gyroscope Seems Fixed by Turning it Off and On Again

If you've ever worked in IT, you know that most problems have simple solutions. *Check it's plugged in. Turn it off and back on again. Wiggle some things around*.

Seems this fixed the Hubble Space Telescope, which entered a safe mode recently after a gyroscope failure.

The NASA Press Release:

In an attempt to correct the erroneously high rates produced by the backup gyro, the Hubble operations team executed a running restart of the gyro on Oct. 16. This procedure turned the gyro off for one second, and then restarted it before the wheel spun down. The intention was to clear any faults that may have occurred during startup on Oct. 6, after the gyro had been off for more than 7.5 years. However, the resulting data showed no improvement in the gyro's performance.

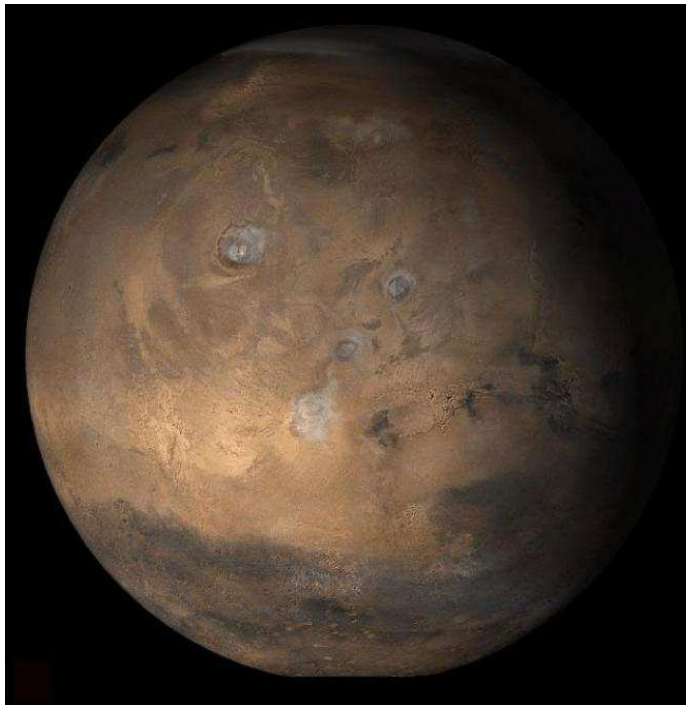
On Oct. 18, the Hubble operations team commanded a series of spacecraft manoeuvres, or turns, in opposite directions to attempt to clear any blockage that may have caused the float to be off-center and produce the exceedingly high rates. During each manoeuvre, the gyro was switched from high mode to low mode to dislodge any blockage that may have accumulated around the float.

Following the Oct. 18th manoeuvres, the team noticed a significant reduction in the high rates, allowing rates to be measured in low mode for brief periods of time. On Oct. 19th, the operations team commanded Hubble to perform additional manoeuvres and gyro mode switches, which appear to have cleared the issue. Gyro rates now look normal in both high and low mode.

Seems technical, but sounds just like something IT would tell you to do if a printer was playing up:

Restart it. Clear any jams. Ooh, it's fixed!

Salty Waters on Mars Could Host Earth-Like Life



Mars is an unlikely place for life as we know it to thrive. The surface is bombarded by DNA-damaging radiation. Water has only been confirmed on the frigid landscape in the form of ice and hydrated minerals. And there's barely even a wisp of oxygen in its paltry atmosphere.

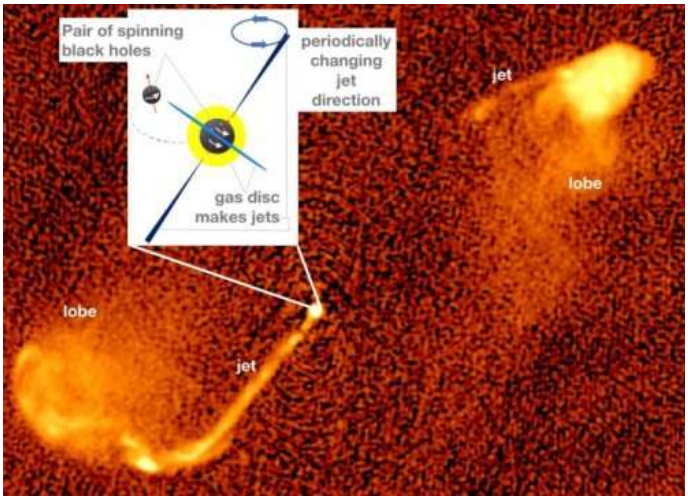
But the case for life on the red planet just got a little stronger with a new study that suggests salty waters thought to potentially exist near the surface could hold enough dissolved oxygen to support familiar forms of microbial life. In some special cases, there would even be enough of the element to harbor basic oxygen-loving animals like sponges.

This certainly doesn't mean there is life on Mars—scientists aren't even sure if liquid water flows on or near its surface. However, the surprising research, published today in Nature Geoscience, hints that perhaps the modern Mars environment is not quite as inhospitable as we once thought.

"That's the thing of habitability; we never thought that environment could have that much oxygen," says the study's lead author Vlada Stamenkovic, a planetary scientist and physicist at NASA's Jet Propulsion Laboratory. "It completely changes our understanding of the potential for life on current-day Mars."

More at: https://www.nationalgeographic.com/

Astronomers Spot Signs of Supermassive Black Hole Mergers



Jets from double black holes change direction continuously. The effect can explain features in this 5 GHz radio map of 3C 334 and many powerful radio sources in the sky. The jet emanates from the nucleus of a galaxy (its stars are not visible at radio frequencies) about 10 billion light years from our own. The image spans five million light years from left to right. The peculiar structure of the jets signifies a periodic change of the direction of the jet (precession), an effect that is predicted for jets from black hole pairs. The inset diagram schematically illustrates the physical processes in the black hole pair. Jets may form in gas discs around black holes. The direction of the jets is tied to the spin of the black hole. The spin axis is shown as a red arrow. The latter changes direction periodically due to the presence of the second black hole.

Credit: M. Krause / University of Hertfordshire

New research, published Wednesday 24 October in the journal Monthly Notices of the Royal Astronomical Society, has found evidence for a large number of double supermassive black holes, likely precursors of gigantic black hole merging events. This confirms the current understanding of cosmological evolution - that galaxies and their associated black holes merge over time, forming bigger and bigger galaxies and black holes.

Astronomers from the University of Hertfordshire, together with an international team of scientists, have looked at radio maps of powerful jet sources and found signs that would usually be present when looking at black holes that are closely orbiting each other.

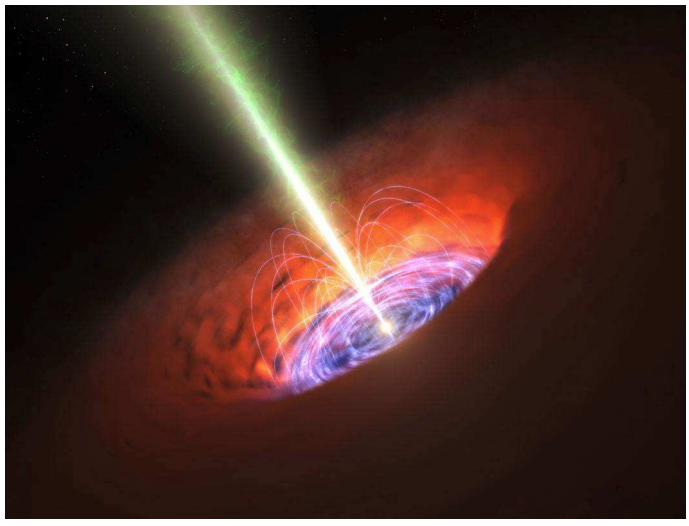
Before black holes merge they form a binary black hole, where the two black holes orbit around each other. Gravitational wave telescopes have been able to evidence the merging of smaller black holes since 2015, by measuring the strong bursts of gravitational waves that are emitted when binary black holes merge, but current technology cannot be used to demonstrate the presence of supermassive binary black holes.

Supermassive black holes emit powerful jets. When supermassive binary black holes orbit it causes the jet emanating from the nucleus of a galaxy to periodically change its direction. Astronomers from the University of Hertfordshire studied the direction that these jets are emitted in, and variances in these directions; they compared the direction of the jets with the one of the radio lobes (that store all the particles that ever went through the jet channels) to demonstrate that this method can be used to indicate the presence of supermassive binary black holes.

Dr Martin Krause, lead author and senior lecturer in Astronomy at the University of Hertfordshire, said: “We have studied the jets in different conditions for a long time with computer simulations. In this first systematic comparison to high-resolution radio maps of the most powerful radio sources, we were astonished to find signatures that were compatible with jet precession in three quarters of the sources.”

The fact that the most powerful jets are associated with binary black holes could have important consequences for the formation of stars in galaxies; stars form from cold gas, jets heat this gas and thus suppress the formation of stars. A jet that always heads in the same direction only heats a limited amount of gas in its vicinity. However, jets from binary black holes change direction continuously. Therefore, they can heat much more gas, suppressing the formation of stars much more efficiently, and thus contributing towards keeping the number of stars in galaxies within the observed limits.

Much more at: https://academic.oup.com/



NASA Soon End Active Efforts to Restore Contact With Opportunity

NASA expects to soon end efforts to contact the Opportunity Mars rover, silent for more than four months after a major dust storm, but will continue to listen for signals from the spacecraft for months to come.

NASA expects to end daily "pinging" of the Opportunity rover in the next one to two weeks, but will keep listening for any signals from the rover for several more months.

Opportunity, which has been on Mars since January 2004, last contacted Earth June 10. A powerful globe-spanning dust storm blocked the sun and deprived the rover of solar power, putting it into a low-power mode.

On Sept. 11, NASA's Jet Propulsion Laboratory said that the optical depth, a measure of the haziness of Martian skies, had dropped to a level low enough to allow enough sunlight to reach the rover for it to generate power. At that point, controllers started an effort known as "active listening" where they transmitted commands to the rover in the event it was unable to revive itself and listened for any transmissions by the rover in response.

After more than a month, Opportunity has not responded to those commands, and that active listening effort will soon end. "We intend to keep pinging Opportunity on a daily basis for at least another week or two," said Lori Glaze, acting director of NASA's planetary science division, during a presentation Oct. 22 at the annual meeting of the American Astronomical Society's Division for Planetary Sciences here.

Glaze said that a factor in ending the active listening campaign is to prepare for the landing of the InSight spacecraft on Mars Nov. 26. "We want to wind that down before InSight gets to Mars and make sure all our orbital assets are focused on a successful landing of InSight," she said.

That schedule is consistent with previous plans for attempting to restore contact with Opportunity. NASA said Aug. 30 that, once skies cleared sufficiently, it would attempt active listening for 45 days. "If we do not hear back after 45 days, the team will be forced to conclude that the sun-blocking dust and the Martian cold have conspired to cause some type of fault from which the rover will more than likely not recover," John Callas, Opportunity project manager, said in a statement outlining those plans.

Some former rover controllers were critical about that plan, arguing that it wasn't enough time to see if Opportunity could be revived, particularly if its solar panels were coated in dust. NASA countered that, once the active listening effort ends, it will continue to listen for any transmissions by Opportunity for months to come, but not transmit any commands to it.

That remains the case, Glaze said. "Just because we're not actively pinging Opportunity, no one is giving up," she said. "We're going to keep listening for quite a while just to see if there's a chance that the solar panels might get some dust blown off and it may be able to recharge the batteries."

One challenge to those efforts is the health of those batteries. Glaze noted that, while the dust storm moderated temperatures, the return of clear skies means sharp drops in temperature each night. "The batteries may be getting too cold, and that may be too much for the little rover that could," she said.

For now, the active listening effort continues, with rover controllers following a tradition similar to past NASA human spaceflight missions by playing a "wakeup song" each day. After playing a song by the classic rock band The Who one night, the band's Twitter account responded, "Wake up, Mars! The Who are here."

From: https://spacenews.com/nasa-to-soon-end-active-efforts-to-restore-contact-with-opportunity/

"It's Going to Be Historic": New Horizons Team Prepares for Epic Flyby of Ultima Thule

An artist's illustration of NASA's New Horizons spacecraft flying by the distant object Ultima Thule.
Credit: Steve Gribben/NASA/JHUAPL/SwRI

In less than 10 weeks, NASA's New Horizons mission will explore the most distant target ever visited by a spacecraft.

In the early-morning hours of Jan. 1, 2019, New Horizons will ring in the New Year by flying past the Kuiper Belt object (KBO) officially called 2014 MU69 but nicknamed Ultima Thule, a city-size rock regarded as a frozen relic from the birth of the solar system.

Although scientists have a rough size estimate for Ultima Thule — about 23 miles (37 kilometres) wide — they don't have much more information. They aren't sure if it's elongated, if it has a moon or ring system or even if it's a single object. Indeed, some of the very limited observations of Ultima Thule suggest it might actually be two close-orbiting bodies.

"Really, we have no idea what to expect," New Horizons principal investigator Alan Stern, of the Southwest Research Institute in Boulder, Colorado, said during a news conference here yesterday (Oct. 24) at the American Astronomical Society's Division for Planetary Sciences meeting.

But New Horizons should reveal Ultima Thule's secrets, just as the probe lifted the veil on Pluto during its historic flyby of the dwarf planet in July 2015.

Not only will New Horizons reveal insights about the size, surface and possible orbital companions of Ultima Thule, it should also help planetary scientists understand how the solar system formed, Stern said.

"Whatever we do, it's going to be historic," he said.

More at: https://www.space.com/

A Ghostly Nebula Glows in Cassiopeia

IC 63 appears to melt away in the autumn sky under the onslaught of radiation from a nearby bright star.

The Hubble Space Telescope has released what is likely the most detailed image of IC 63 ever recorded.
Credit ESA/Hubble, NASA

Just in time for Halloween, the NASA/ESA Hubble Space Telescope has released a new, highly detailed image of IC 63, located 550 light-years from Earth in Cassiopeia the Queen and sometimes referred to as the Ghost Nebula or the Ghost of Cassiopeia. The nebula, which hangs near the bright star Gamma Cassiopeiae (the central point in the constellation's "W" shape), is disappearing in the wake of the ultraviolet light pouring from the star. As the ghostly nebula fades under the onslaught of energetic photons, its hydrogen glows with reddish light. The blue light in this stunning image comes not from emission, but from reflection, as the dust within IC 63 reflects some of Gamma Cas's incoming light. Because it both emits and reflects light, the Ghost Nebula is classified as an emission and reflection nebula.

The Ghost Nebula isn't the only nearby region affected by the star's extreme emission. In fact, Gamma Cas is slowly eroding clouds in an area that spans 2° on the sky, or about four times the width of the Full Moon. Though the star itself is easy to find, IC 63 and neighbouring IC 59 are dim and difficult to see without dark skies and a large telescope. By Halloween, the Moon will remain about 60 percent illuminated, so if you want to shoot for this cosmic apparition, it'll be best to wait a few more days and aim for the New Moon on November 7.

From: http://www.astronomy.com/

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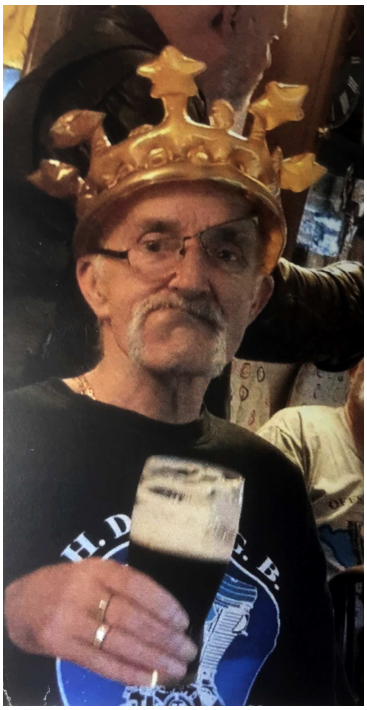
LINKS, COMMENTS AND OBSERVATIONS

John Nicholas Gaudian

28th May 1950 - 5th October 2018



It is my sad duty to report the recent death of John Gaudion.

John was a real stalwart member of VAS and he was always keen to help in any way he could.

His knowledge and practical expertise guided the rest of us through the building modifications at the Observatory. We really couldn't have done it without him

John's jokes and tall, but apparently true, stories will be remembered for many years.

John had chosen a Celebration of Life ceremony to let us say goodbye to him - and he left his mark on that too. He asked that all attending should wear colourful clothes and odd socks!

We were welcomed to the crematorium by the sound of UB40's "Kingston Town" and left to Monty Python's "Always Look on the Bright Side of Life".

John was a proud family man, a good friend, a star and purveyor of fun/chaos right to the end.

The Universe Has A Speed Limit, And It Isn't The Speed Of Light

When it comes to speed limits, the ultimate one set by the laws of physics themselves is the speed of light. As Albert Einstein first realized, everyone looking at a light ray sees that it appears to move at the same speed, regardless of whether it's moving towards you or away from you. No matter how fast you travel or in what direction, all light always moves at the same speed, and this is true for all observers at all times. Moreover, anything that's made of matter can only approach, but never reach, the speed of light. If you don't have mass, you must move at the speed of light; if you do have mass, you can never reach it.

But practically, in our Universe, there's an even more restrictive speed limit for matter, and it's lower than the speed of light. Here's the scientific story of the real cosmic speed limit.....

OK Spoiler Alert.....

There is a speed limit to the particles that travel through the Universe, and it isn't the speed of light. Instead, it's a value that's very slightly lower, dictated by the amount of energy in the leftover glow from the Big Bang. As the Universe continues to expand and cool, that speed limit will slowly rise over cosmic timescales, getting ever-closer to the speed of light.

Read why at: https://www.forbes.com/

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.
Contact details on page 1.

"We've learned from experience that the truth will come out"

"The first principle is that you must not fool yourself — and you are the easiest person to fool"

"We are trying to prove ourselves wrong as quickly as possible, because only in that way can we find progress"

"The most amazing thing happened to me tonight... I saw a car with the license plate ARW 357. Can you imagine? Of all the millions of license plates in the state, what was the chance that I would see that particular one tonight? Amazing!"

Richard Feynman