New Zenith

The Monthly Newsletter of the Vectis Astronomical Society

Vol 29 Issue 11 — December 2021

When Printed, this Newsletter costs VAS at least £1

SOCIETY NEWS

Merry Christmas & Thanks to All

I'd like to thank all VAS members for their support and patience as we all tried to get things going normally again.

In the main I think we succeeded although it was very lonely at the observatory on most Thursdays since we reopened.

Unfortunately the Covid news has taken a turn for the worse in the last couple of days and it's looking a little bleaker than it was a few weeks ago. Please keep your eyes on the website to see if we have to, once again, make changes to our operation.

Monthly Meeting Program

Please note the new meeting program listed on Page 2. Simon Gardner has done a great job in getting bookings through until May next year. Thanks Simon.

Please also note that, so far, the February and March meetings are via ZOOM only and login details are included on the Back Page of this NZ.

Brian Curd

VAS Website: wightastronomy.org

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

The Editor, New Zenith
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Sandown
Isle of Wight
PO36 8EE
Tel: 07594 339950 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

2022 Monthly Meetings

Check *http://www.wightastronomy.org/meetings/* for the latest information

Date	Subject	Speaker
28 Jan	Galaxy Bars	Dr Justus Neuman
25 Feb	***Unmanned Satellites - The Basics (ZOOM Meeting)***	***Ralph Melligio***
25 Mar	***Rebel Star: The Sun's Greatest Mysteries (ZOOM Meeting)***	***Colin Stuart***
22 Apr	Arrokoth and the Sentinels	Greg Smye-Rumsby
27 May	James Webb Space Telescope	Dr Stephen Wilkins
24 Jun	TBA	
22 Jul	Outreach TBA	
26 Aug	AGM	
23 Sep	TBA	
20 Oct	TBA	
25 Nov	TBA	

Observatory Visits Booked

No bookings so far

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.

IMPORTANT

Could all VAS members please ensure they notify the Membership Secretary of any change of address.

To ensure our compliance with GDPR rules, we must maintain accurate membership records.

VAS Contacts 2021

President	Barry Bates president@wightastronomy.org
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NZ Distribution	Graham Osborne distribution@wightastronomy.org
Others	Dudley Johnson

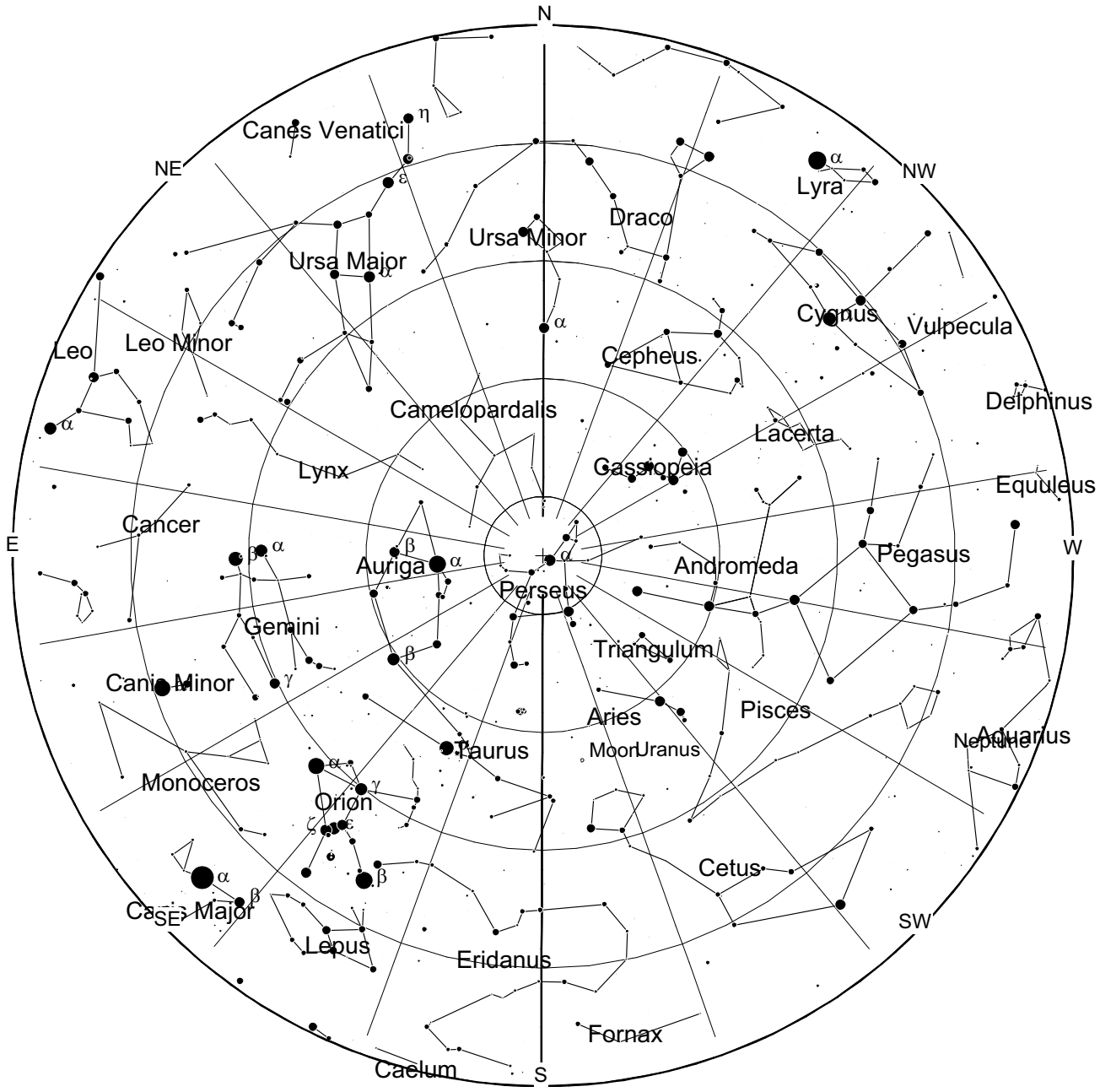
Important

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

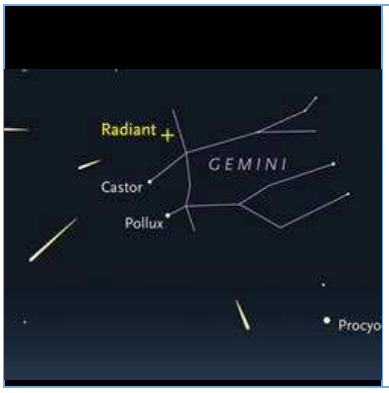
On several occasions, lights, heaters and the Meade LX200 have been left on!

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

DECEMBER 2021 - SKY MAP



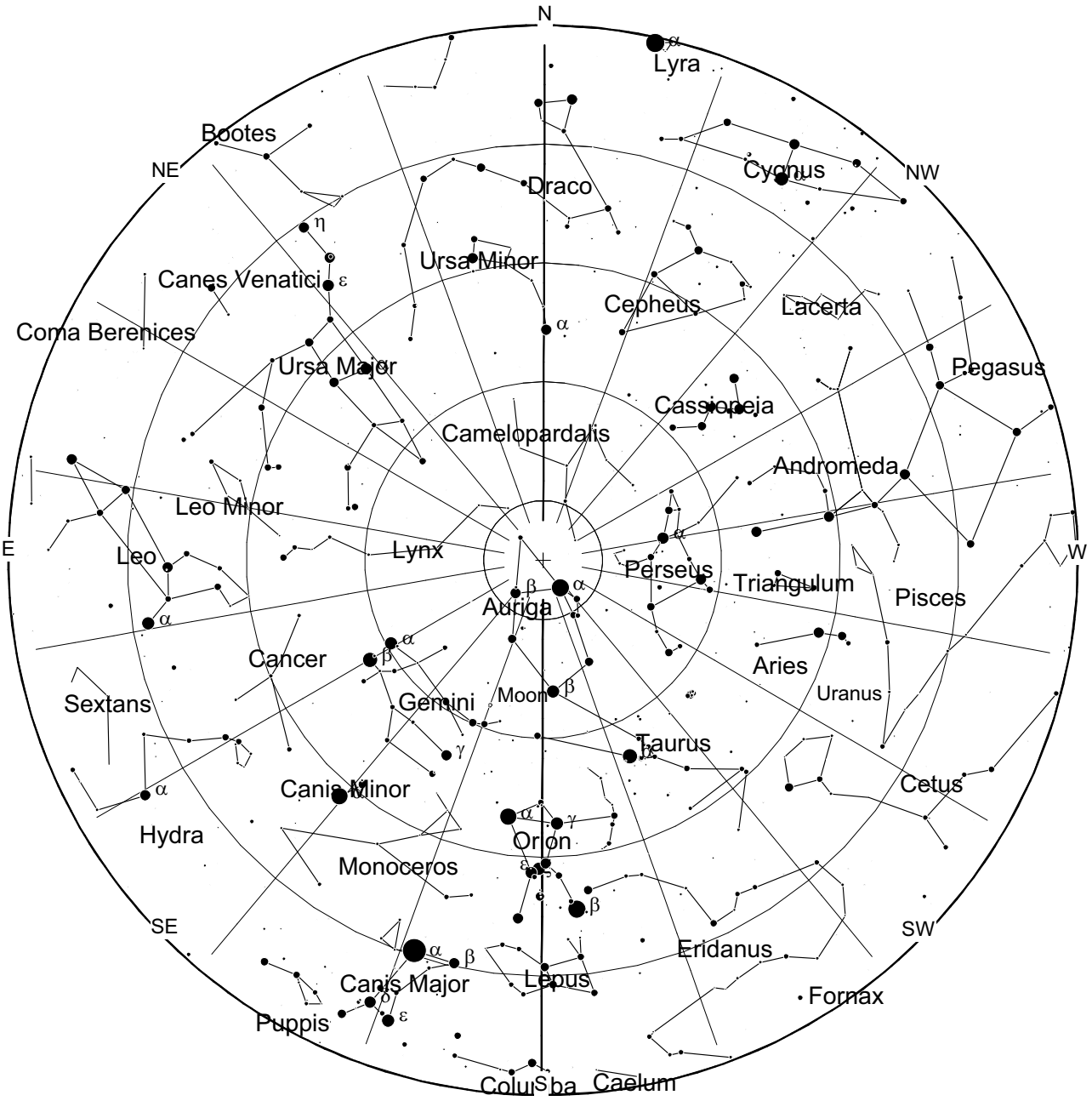
View from Newchurch Isle of Wight UK - 2200hrs - 15 December 2021



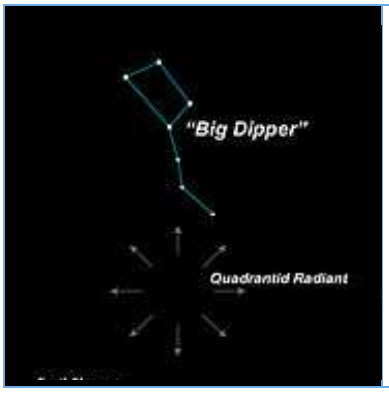
The Geminids are a prolific meteor shower caused by the object 3200 Phaethon, which is thought to be a Palladian asteroid with a "rock comet" orbit. This would make the Geminids, together with the Quadrantids, the only major meteor showers not originating from a comet.

The meteors from this shower are slow moving, can be seen in December and usually peak around December 4 - 16, with the date of highest intensity being the morning of December 14.
The meteors in this shower appear to come from the radiant in the constellation Gemini (hence the shower's name).

JANUARY 2022 - SKY MAP



View from Newchurch Isle of Wight UK - 2200hrs - 15 January 2022



The Quadrantids (QUA) are a meteor shower that peaks in early January and whose radiant lies in the constellation Boötes. The zenithal hourly rate (ZHR) of this shower can be as high as that of two other reliably rich meteor showers, the Perseids in August and the Geminids in December, yet Quadrantid meteors are not seen as often as those of the two other showers because the time frame of the peak is exceedingly narrow, sometimes lasting only hours. Moreover, the meteors are quite faint, with mean apparent magnitudes between 3.0 and 6.0).

DEC 2021/JAN 2022 - NIGHT SKY

Moon Phases Dec 2021

New	First Qtr	Full	Last Qtr
4th	11th	19th	27th
			

Moon Phases Jan 2022

New	First Qtr	Full	Last Qtr
2nd	9th	17th	25th
			

Winter Solstice

The winter solstice, the time at which the Sun is at its most southerly point in the sky occurs this year on December 21 at 15:59. Just before sunset on that day.

Meteor Showers

Geminids

The night of December 13 -14 sees the peak of the Geminids meteor shower. This shower can produce good numbers of bright meteors; it will however be somewhat subdued this year because of the waxing gibbous moon. After moon set in the early hours visibility will be much improved.

Quadrantids

The Quadrantids is a long lasting shower, from December 28 to January 12, with a short sharp peak lasting only about 5 hours or so this year at 20:40 on January 3rd.

The constellation of the Quadrant, after which this shower is named, is one that is now obsolete. It was located in the area between Bootes, Hercules, Draco and Ursa Major.

Planets

Mercury

During Christmas week Mercury makes a rather poor evening apparition. It sets less than an hour after the Sun making it difficult to see again the bright twilight sky. At 4:30pm on the 27th of December it is only 4 degrees above the horizon and directly below the very much brighter Venus. On New Years day at the same time it is about 8 degrees to the left of Venus.

Venus

During December Venus is rapidly overtaking us on the 'inside track' moving closer to the Sun each day. On the January 7 it is in conjunction with the Sun. It is technically possible to observe it at this time as it passes a few degrees to the north and shows a very thin crescent, this should only be attempted by very experienced observers who appreciate the dangers of making such an observation and have the equipment to do so safely. During the last fortnight of January Venus re-appears for normal observation as the Morning Star.

Mars

Throughout both December and January Mars is in the morning sky, but remains too close to the Sun to be easily seen against the brightening sky It will remain a difficult object for the next few months, when it will start to move westwards.

Jupiter

In the early evening Jupiter is an easily seen object in the south and south-western sky. Over the next two months it moves from being well placed due south at sunset to low in the southwest. Being so bright it stands out from all other objects in that part of the sky.

Saturn

During the first few weeks of December Saturn which is although bright is noticeably fainter than Jupiter to its left, can be seen low in the south-western sky after sunset for a few hours. It is not well placed for observation, and by Christmas has all but disappeared from our skies until it makes a return in the early morning later in the New Year.

Uranus

Uranus is well placed for observation during the evening; it is however not near any bright stars to aid with its location. It is about 5 degrees above the 4th magnitude star mu Ceti move very much over the next 2 months. At magnitude 6 it is just at the limit of naked eye visibility, assuming ideal conditions, and can be found quite easily using a pair of binoculars. The easiest way to locate it is to use a planetarium program.

Neptune

At magnitude 8 Neptune is quite faint and does not have any nearby bright stars to help with its location; about 3 degrees to the east of the 4th magnitude star Phi Aquarii. During January it starts to move further to the east, but by this time when the sky is dark enough to be able to see it, it is getting too low in the southwest for any serious observation.

Deep Sky

NGC752
RA 1h 58m Dec 37°41' mag 5.7

A large object, this is an open star cluster a little larger than the full moon and just visible to the naked eye in a dark sky. A pair of binoculars will resolve up to 20 stars, and an 8 inch telescope with low magnification shows over 50. Some stars show colour, mainly yellow and orange.

NGC457 The Owl or ET Cluster
RA 1h 20m Dec 58° 20' mag 6.4

Best viewed in large binoculars or a low powered telescope, it is visible in 10x50s but the ET outline is just a little too small, it really needs more than 10 times magnification, but not too much. The star Phi Cass and a close companion make the two bright eyes and two more chains make the arms and body of the stick figure.

NGC2264
RA 6h 41m Dec 9° 38' mag 4.1

This is a large relatively bright cluster surrounded by a faint diffuse nebulosity. It is visible to the naked eye as a fuzzy patch, but observation with a pair of binoculars will show the inverted triangle shape that gives this cluster is popular name, the Christmas Tree Cluster. The brightest star in the group marks the trunk of this upside down tree. Just to the south of the 7th magnitude star on the top of the tree is the cone nebula. This along with the other surrounding nebulosity is best observed using a CCD camera.

NGC1662 Open Cluster
RA 4h 49m Dec 10° 54' mag 6.4

About 2 degrees towards the Hyades from the northern tip of Orion's shield can be found this large but rather sparse group of stars. About half way along the lower edge is a small diamond of tenth magnitude stars that along with an 11th magnitude outsider form a group that has a resemblance to a miniature, slightly squashed Delphinu.

Peter Burgess

COMET LEONARD C2021 A1

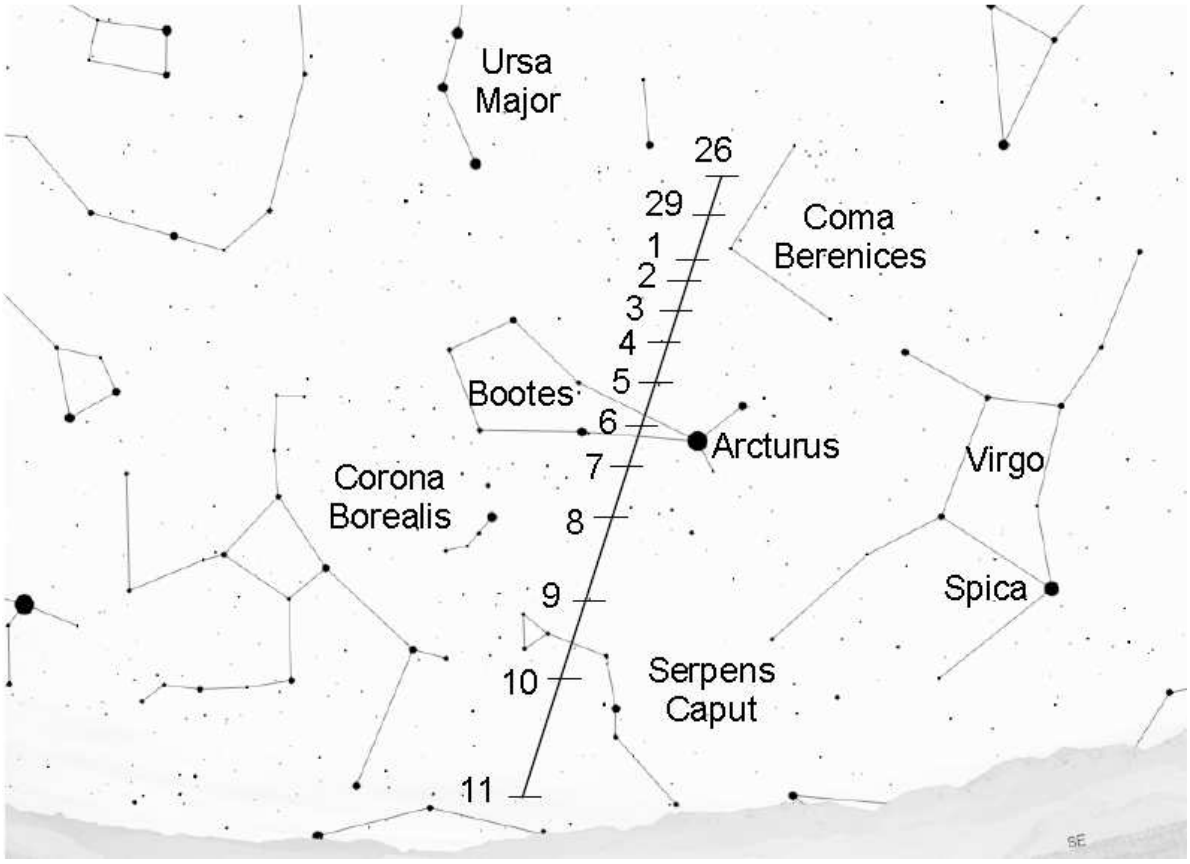
Early risers may be treated to an early Christmas present this year in the form of a bright comet. Comet Leonard was first spotted back in January of this year and will pass within 0.6 astronomical units of the Sun in January next year. An astronomical unit is the distance from the Earth to the Sun. Although there is still some uncertainty to its exact orbit, this is a long period comet that has not visited the inner solar system for maybe 80,000 years. It is travelling at an unusually high speed; almost 160,000 miles per hour so won't be spending long here.

Being a long period comet means that it should still have plenty of gas and dust to be boiled off as it is heated by the Sun. At the time of writing (mid November) it is about magnitude 9 and a good target for photography. During early December it is predicted to increase to magnitude 4 or 5 making it a good binocular object. It is possible that it may be very much brighter than this particularly as it slides down close to the horizon, this would be caused by forward scattering of the sunlight. For this to happen the geometry has to be right and there has to be a significant amount of gas and dust present and under such conditions it may even become a daylight comet.

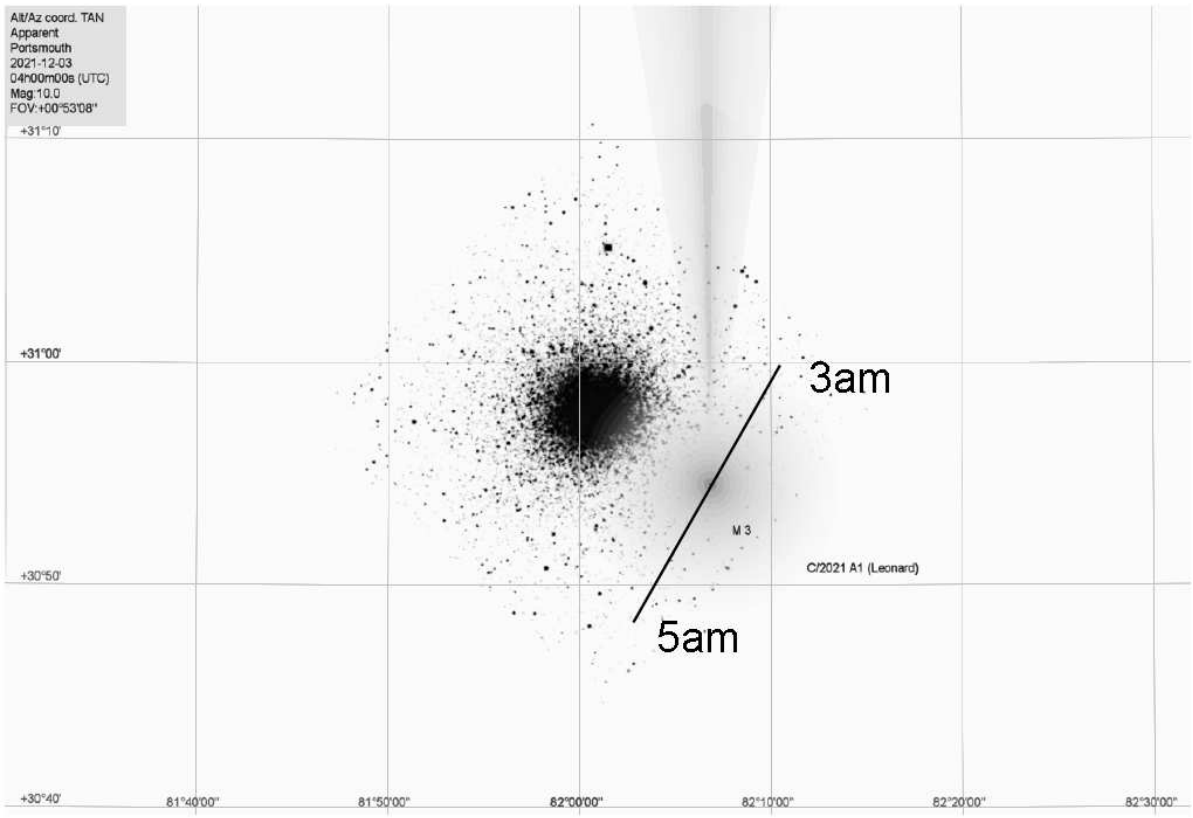
The 3rd of December, if it is clear, will present a very rare and unusual photo opportunity, between 3 and 5am the comet slides past the globular cluster M3. At about 4am the comet will overlap the outer edge of the cluster. The chart for December 3 shows the Cartes du Ciel prediction for the comet at 4am together with its path between 3 & 5am.

Comets are notoriously unpredictable and will always confound and surprise, hopefully the weather will cooperate this one will reward anyone who gets up early to observe it.

Peter Burgess



Comet Leonard C2021 A1 - 26 November to 11 December at 0600



Comet Leonard and M3 December 3

PERSEVERENCE ROVER HELICOPTER

Though Ingenuity continues to break its own records as the first powered, controlled flying machine on another planet, we haven't had have much visual evidence of its exploits. There's the telemetry data that NASA scientists receive on Earth, but not much in the way of photos and videos. Happily, NASA has now released the most detailed footage yet of Ingenuity in flight.

The two videos were taken during the rotorcraft's 13th flight, which took place on September 4. The 16-second flight saw Ingenuity travel nearly 700 feet horizontally, at an altitude of 26 feet. The Perseverance rover recorded the rotorcraft's maneuvers using its two-camera Mastcam-Z, from a distance of about 1,000 feet away.

"The value of Mastcam-Z really shines through with these video clips," Justin Maki, deputy principal investigator for the Mastcam-Z instrument at NASA's Jet Propulsion Laboratory in Southern California, said in a NASA press release. "Even at 300 meters [984 feet] away, we get a magnificent closeup of takeoff and landing through Mastcam-Z's 'right eye.' And while the helicopter is little more than a speck in the wide view taken through the 'left eye,' it gives viewers a good feel for the size of the environment that Ingenuity is exploring."

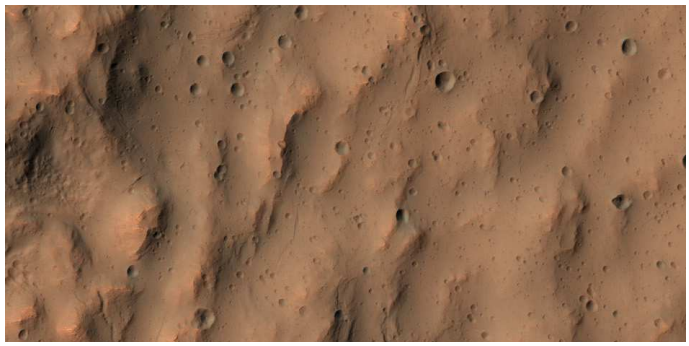
Recently, the scientists at NASA had to program Ingenuity to move a little faster, to compensate for the thinner atmosphere on Mars as the planet's seasons change. The helicopter's navigation system is automated and uses artificial intelligence to constantly measure and correct for environmental variables like wind speed and the level of the ground below it."It's awesome to actually get to see this [automatic correction] occur," said Håvard Grip, Ingenuity's chief pilot, in the same release. "It reinforces the accuracy of our modeling and our understanding of how to best operate Ingenuity."

On its 13th flight, Ingenuity took 10 images of some interesting rock outcrops on the ground as part of its ongoing scouting mission for Perseverance. The Perseverance rover is basically a rolling geologist (complete with a mini-lab), and Ingenuity, having graduated from being a mere technology demonstration, is now using its flights to locate intriguing rock deposits.

With the solar conjunction over, during which time the Sun interrupted communications between Earth and Mars, Ingenuity will begin its journey back to its first airfield. The road ahead is long for Perseverance rover, but where Ingenuity's going, it doesn't need roads.

Videos at: https://gizmodo.com/

SECONDARY CRATERS ON MARS



This image of a southern mid-latitude crater was intended to investigate the lineated material on the crater floor. At the higher resolution of HiRISE, the image reveals a landscape peppered by small impact craters.

These craters range from about 2 - 30m in diameter. Such dense clusters of small craters are frequently formed by secondary craters, caused by the impact of material that was excavated and ejected from the surface of Mars during the creation of a larger nearby crater by the impact of a comet or an asteroid.

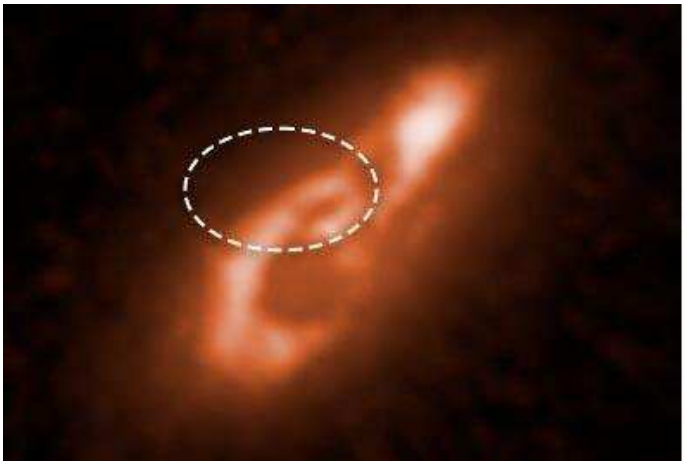
Secondary impact craters show the trajectories of the material that was ejected from the primary impact with the greatest speeds, typically material from near the surface of the blast zone. Secondary craters are often found along the traces of crater rays, linear features that extend radially from fresh impact craters and can reach many crater diameters in length. Secondary craters can be useful when crater rays are visible and the small craters can be associated with a particular primary impact crater. They can be used to constrain the age of the surface where they fell, since the surface must be older than the impact event. The age of the crater can be approximately estimated from the probability of an impact that produced a crater of such a size within a given area of Mars over a given time period.

Secondary craters can also be perplexing when no crater rays are preserved and a source crater is not easily identifiable. The impact that formed these secondary craters took place long enough ago that their association with a particular crater has been erased. They do not appear along the trace of a crater ray that is still apparent in visible or thermal infrared observations. This complicates estimating the age of the lineated material on the crater floor.

It is necessary to distinguish secondary craters from the primary impacts that we rely upon to estimate the ages of Martian surfaces. The large number of small craters clustered together here is typical of crater rays elsewhere on Mars and suggests that these are indeed, secondary impact craters.

See: http://spaceref.com/

THE HOST GALAXY OF A FAST RADIO BURST



Fast radio bursts (FRBs) are bright pulses of emission at radio wavelengths (seen mostly at wavelengths of tens of centimeters) whose physical mechanism(s) are mysterious. The bursts last between hundredths of a millisecond to a few milliseconds, and none of them has been associated with a specific source, even though thousands of FRBs have been detected since the first one was spotted fourteen years ago. Equally puzzling is the fact that most FRBs do not repeat, one of the reasons why follow-up observations to identify the originating sources are so difficult. Nevertheless, a small minority of FRBs do repeat, and four of these "repeaters" have been found to originate within host galaxies whose environments include modest star formation, possibly a clue to the nature of the objects or environments responsible for them.

CfA astronomer Tarraneh Eftekhari was a member of a team that used the thirty-six telescope Australian Square Kilometre Array Pathfinder facility to detect five bursts from a new repeater, FRB 20201124A, and to identify its location within a faint galaxy about 1.5 billion light-years away. The team then used the Binospec instrument on the MMT to measure the optical spectrum of the host galaxy, as well as X-ray data from the Swift Observatory.

Like the four previously identified hosts of FRBs, this galaxy exhibits an unremarkable, modest level of star formation with a rate of about five solar-masses of new stars per year (for comparison, the Milky Way makes about one per year). The host galaxy contains about twenty billion solar-masses in stars whose average age is relatively young, about five billion years old. It contains an abundance of warm dust, but no evidence of emission from a supermassive black hole nucleus.

The new study demonstrates the advantage of using complementary tools to track down the origins of these mysterious radio bursts.

From: https://phys.org/

A SPACE ROCK CALLED KAMO'OALEWA MAY BE A PIECE OF THE MOON

The moon's violent history is written across its face. Over billions of years, space rocks have punched craters into its surface, flinging out debris. Now, for the first time, astronomers may have spotted rubble from one of those ancient smashups out in space. The mysterious object known as Kamo'oalewa appears to be a stray fragment of the moon.

Discovered in 2016, Kamo'oalewa — also known as 2016 HO3 - is one of Earth's five known quasisatellites. Little is known about Earth's space rock entourage because these objects are so small and faint. Kamo'oalewa, for instance, is about the size of a Ferris wheel and strays between 40 and 100 times as far from Earth as the moon, as its orbit around the sun weaves in and out of Earth's.

Researchers used the Large Binocular Telescope and the Lowell Discovery Telescope to peer at Kamo'oalewa in visible and near-infrared wavelengths. "The real money is in the infrared," says Vishnu Reddy, a planetary scientist at the University of Arizona in Tucson. Light at those wavelengths contains important clues about the minerals in rocky bodies, helping distinguish objects such as the moon, asteroids and terrestrial planets.

Kamo'oalewa reflected more sunlight at longer, or redder, wavelengths. This pattern of light, or spectrum, looked unlike any known near-Earth asteroid, but it did look like grains of silicate rock from the moon brought back to Earth by Apollo 14 astronauts.

Kamo'oalewa, has an orbit that is nearly identical to Earth's, causing the object to weave around Earth as it circles the sun.

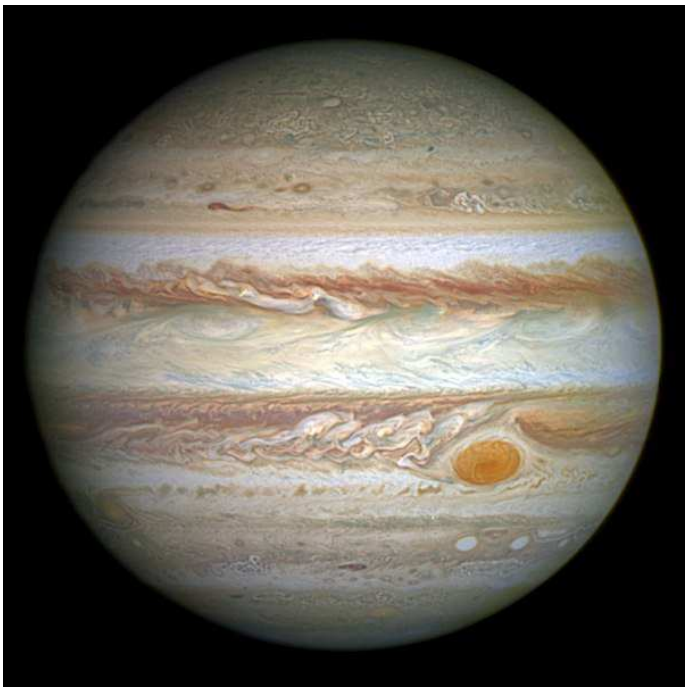
"To me," Binzel says, "the leading hypothesis is that it's an ejected fragment from the moon, from a cratering event."

More detailed observations could help confirm Kamo'oalewa is made of moon stuff. "If you really wanted to put that nail in the coffin, you'd want to go and visit, or rendezvous with this little quasisatellite and take a lot of up-close observations," says Daniel Scheeres, a planetary scientist at the University of Colorado Boulder not involved in the work. "The best would be to get a sample."

China's space agency has announced plans to send a probe to Kamo'oalewa to scoop up a bit of rock and bring it back to Earth later this decade.

More at: https://www.sciencenews.org/

JUPITER'S POWER SOURCE



Orbiting Jupiter, 779 million km from the sun, where physics and logic say it ought to be very, very cold. Sunlight there is less than 4% as intense as it is on Earth. If solar heating were the only factor at play, the planet's upper atmosphere would average 70° C below zero.

It actually exceeds 400° C - and scientists have puzzled over it for half a century. They have sometimes spoken of Jupiter as having an "energy crisis." Now, an international team led by James O'Donoghue of JAXA, the Japanese space agency, says they've found an answer.

Jupiter's polar auroras are the largest and most powerful known in the solar system - and O'Donoghue says the energy in them, caused as Jupiter's atmosphere is buffeted by solar wind, is strong enough to heat the outer atmosphere of the entire planet.

"The auroral power, delivered by the auroral mechanism, is actually 100 terawatts per hemisphere, and I always like that fact," says O'Donoghue. "I think that's something like 100,000 power stations."

The auroras had been suspected as Jupiter's secret heat source since the 1970s. But until now, scientists thought Jupiter's giant, swirling east-west cloud bands might shear the heat away before it could spread very far from the poles. Winds in the cloud bands reach 500 km/h.

To try to solve the mystery, the research team set out to create an infrared heat map of Jupiter's atmosphere. They used the 10m Keck II telescope, one of the five largest in the world, to take spectrographic readings of the planet on two nights: 14 April 2016 and 25 January 2017.

Their April 2016 heat map revealed that indeed the regions around the polar auroras were hottest, and the heat did spread from there - though the effect tailed off toward Jupiter's equator... The heat was strong enough to propagate despite those powerful winds.

It was a promising find, but they needed more. Fortunately their next observation turned up, in O'Donoghue's words, "something spectacular."

The auroras the team observed in January 2017 are about 100° hotter than they were on the first night - and so are temperatures at every point from there to the equator.

The researchers soon learned that Jupiter had around the time of their January 2017 observation been hit by an outsized surge in solar wind, ionized particles which would compress Jupiter's magnetic field and make the aurora more powerful.

It was sheer luck - a "happy accident," says O'Donoghue - that the surge of particles happened on their second night. Such pulses of energy probably happen every few weeks on average, but it is hard to know exactly when.

Other researchers had already tried to explain Jupiter's warmth by other means - perhaps some sort of acoustic-wave heating or convection from the planet's core, for instance - but they couldn't create models that worked as well as the auroras. O'Donoghue and his colleagues worked for years on the resulting paper. They say they went through more than a dozen drafts before it was accepted for publication in the journal Nature.

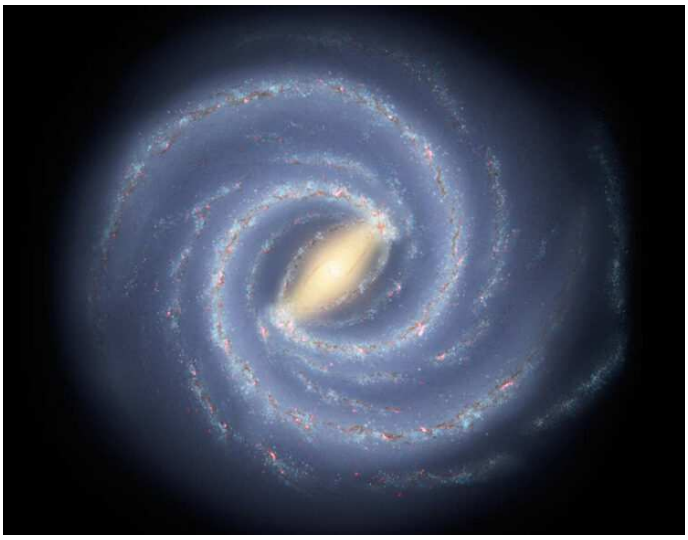
Where does this lead? It's too early to say, but scientists will want to replicate the findings and then see if they also explain the heating they see on the other gas giants in the solar system - Saturn, Uranus and Neptune. Understanding of the auroral effects may also affect our picture of Jupiter's moons, including Europa and Ganymede, which are believed to have briny oceans beneath their icy outer crusts and may be good places to look for life. But we're getting ahead of ourselves. For now, the research continues.

"It's funny," says O'Donoghue, "the reactions from some people in the field. Some people thought, 'Oh, yeah, we knew it was the aurora all along.' And then other people are saying, 'Are you sure it's the aurora?' It tells you there's an issue, and hopefully our observations have solved it definitively.

"We once thought that it could happen, that the aurora could be the source," he says, "but we showed that it does happen."

https://spectrum.ieee.org/

Astronomers Have Found the Milky Way's First "Feather"



The Milky Way has a "feather" in its cap. A long, thin filament of cold, dense gas extends jauntily from the galactic center, connecting two of the spiral arms, astronomers report November 11 in the Astrophysical Journal Letters. This is the first time that such a structure, which looks like the barb of a feather fanning off the central quill, has been spotted in the Milky Way.

The team that discovered our feather named it the Gangotri wave, after the glacier that is the source of India's longest river, the Ganges. In Hindi and other Indian languages, the Milky Way is called Akasha Ganga, "the river Ganga in the sky," says astrophysicist Veena V.S.

She and colleagues found the Gangotri wave by looking for clouds of cold carbon monoxide gas, which is dense and easy to trace, in data from the APEX telescope in San Pedro de Atacama, Chile. The structure stretches 6,000 to 13,000 light-years from the Norma arm of the Milky Way to a minor arm near the galactic center called the 3-kiloparsec arm. So far, all other known gas tendrils in the Milky Way align with the spiral arms.

The Gangotri wave has another feature: waviness. The filament appears to wobble up and down like a sine wave over thousands of light-years. Astronomers aren't sure what could cause that, Veena says.

Other galaxies have gaseous plumage, but when it comes to the Milky Way, "it's very, very difficult" to map the galaxy's structure from the inside out, she says. She hopes to find more galactic feathers and other bits of our galaxy's structure. "One by one, we'll be able to map the Milky Way."

https://www.sciencenews.org/

VLT Uncovers Closest Pair of Supermassive Black Holes Yet

Close-up (left) and wide (right) views of the two bright galactic nuclei, each housing a supermassive black hole

Using the European Southern Observatory's Very Large Telescope (ESO's VLT), astronomers have revealed the closest pair of supermassive black holes to Earth ever observed. The two objects also have a much smaller separation than any other previously spotted and will eventually merge into one giant black hole.

Voggel and her team were able to determine the masses of the two objects by looking at how the gravitational pull of the black holes influences the motion of the stars around them. The bigger black hole, located right at the core of NGC 7727, was found to have a mass almost 154 million times that of the Sun, while its companion is 6.3 million solar masses.

Astronomers suspected that the galaxy hosted the two black holes, but they had not been able to confirm their presence until now since we do not see large amounts of high-energy radiation coming from their immediate surroundings, which would otherwise give them away. "Our finding implies that there might be many more of these relics of galaxy mergers out there and they may contain many hidden massive black holes that still wait to be found," says Voggel. "It could increase the total number of supermassive black holes known in the local Universe by 30 percent."

The search for similarly hidden supermassive black hole pairs is expected to make a great leap forward with ESO's Extremely Large Telescope (ELT), set to start operating later this decade in Chile's Atacama Desert. "This detection of a supermassive black hole pair is just the beginning," says co-author Steffen Mieske, an astronomer at ESO in Chile and Head of ESO Paranal Science Operations. "With the HARMONI instrument on the ELT we will be able to make detections like this considerably further than currently possible. ESO's ELT will be integral to understanding these objects.

More at: https://phys.org/

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LINKS, COMMENTS AND OBSERVATIONS

Important News - Virtual Monthly Meetings

As the Observatory is now **OPEN** and we can now use the Newchurch Pavilion, most monthly meetings will now be back to normal.
That is they will be held in the Pavilion.

We may still use Zoom from time-to-time and these meetings will be clearly marked in the Monthly Meetings list on Page 2.

If there are Zoom meetings please use this link:

https://us02web.zoom.us/j/81142510951?pwd=a2RCQXZKMmRMeXBMSXEvU0dxS2gzUT09
Meeting ID: 811 4251 0951 and Passcode: 346096

Isle of Wight - Information Please!

Our speaker from November, Martin Lunn, has sent an e-mail with an appeal to VAS members to ask if anyone could help with a bit of astronomical & local history. Here's an extract from his message:

"I have a question for any member of the Vectis Astronomical Society who might be able to help me with some research. When I was in York I took a particular interest in the telescope maker Thomas Cooke, one of his telescopes was sold in 1867 to ***Edward Crossley*** *of Crossley carpet fame in Halifax, Yorkshire. He had a 9 inch Cooke that is still used today at the Carter Observatory in New Zealand.*

However I am deviating, ***Crossley*** *brought a 10 bedroomed house on the Isle of Wight around 1881 called* ***Southfield(s)****, which I think was in or very near Ryde and, try as I might, I cannot find out much about this property and I do wonder if he had a telescope or indeed even an observatory there. Would any of your members be able to help?*

He was a religious person and founded in 1883 The Evangelical Protestant Church in Ryde which I believe today is now a residential building."

Please email any information yo find to: **lunn_martin@sky.com**

Martin Lunn

At The Observatory

1. **Please bring a torch.**
2. **Make sure you close and lock the car park gate if you are the last to leave.**

Articles Needed

NZ needs relevant content. Contact details on page 1.

"Mystery creates wonder and wonder is the basis of man's desire to understand"
Neil Armstrong

"Gravity hurts"
Viktor Alexandrov

"Somewhere, something incredible is waiting to be known"
Carl Sagan

"The probability of success is difficult to estimate; but if we never search, the chance of success is zero"
Giuseppe Cocconi

"Because there is such a law as gravity, the universe can and will create itself from nothing"
Stephen Hawking

"The only thing that you absolutely have to know, is the location of the library"
Albert Einstein

Student: "Dr. Einstein, Aren't these the same questions as last year's final exam?"
Dr. Einstein: "Yes; But this year the answers are different"
Albert Einstein