

Society News

Membership Sec. - Change of Address

Please note the new contact details for our Membership Secretary, Norman Osborn.

*Foxgloves, 23 Woodland Grove,
Bembridge
PO35 5SG.*

Norman's new phone is: 01983 872089 but his mobile is unchanged at 07895 901668

Garlic Festival

The 2018 festival takes place over the weekend of 18th & 19th August. VAS will have a tent/stand at the show between 10am and 6pm each day and there is also a need for site marshals

The weekend can be conveniently divided into 4 sessions (morning and afternoon on each day) and we would like to have members available for each session.

If you can help over the weekend, please contact Richard Flux for further details.

Been a Bit of a Rush This Month

As the school summer holidays have now started, I have been very busy at work. I apologise if this edition of NZ arrives late or seems perhaps a little rushed. It really has had to take second place in my list of priorities this month.

*Brian Curd
Editor New Zenith*

AGM Last Call!

**Nomination form is on page 11 of this edition.
A strong Committee is essential for the secure
future of VAS.**

Please consider volunteering

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.

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

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

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PLEASE NOTE

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

2018 Monthly Meetings

| Date | Subject | Speaker |
|--|---|-------------------|
| Check http://www.wightastronomy.org/meetings/ for the latest information | | |
| 27 Jul | The European Extremely Large Telescope | Dr Aprajita Verma |
| 24 Aug | AGM from 19.00hrs Members BBQ | |
| 28 Sep | | |
| 26 Oct | Dark Skies Stargazing Night | VAS/AONB |
| 23 Nov | Noise Effects in Astronomical Processes | Dudley Johnson |

Observatory Visits Booked

No current bookings.

BUT

There may be ongoing maintenance, painting and cleaning.

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 |

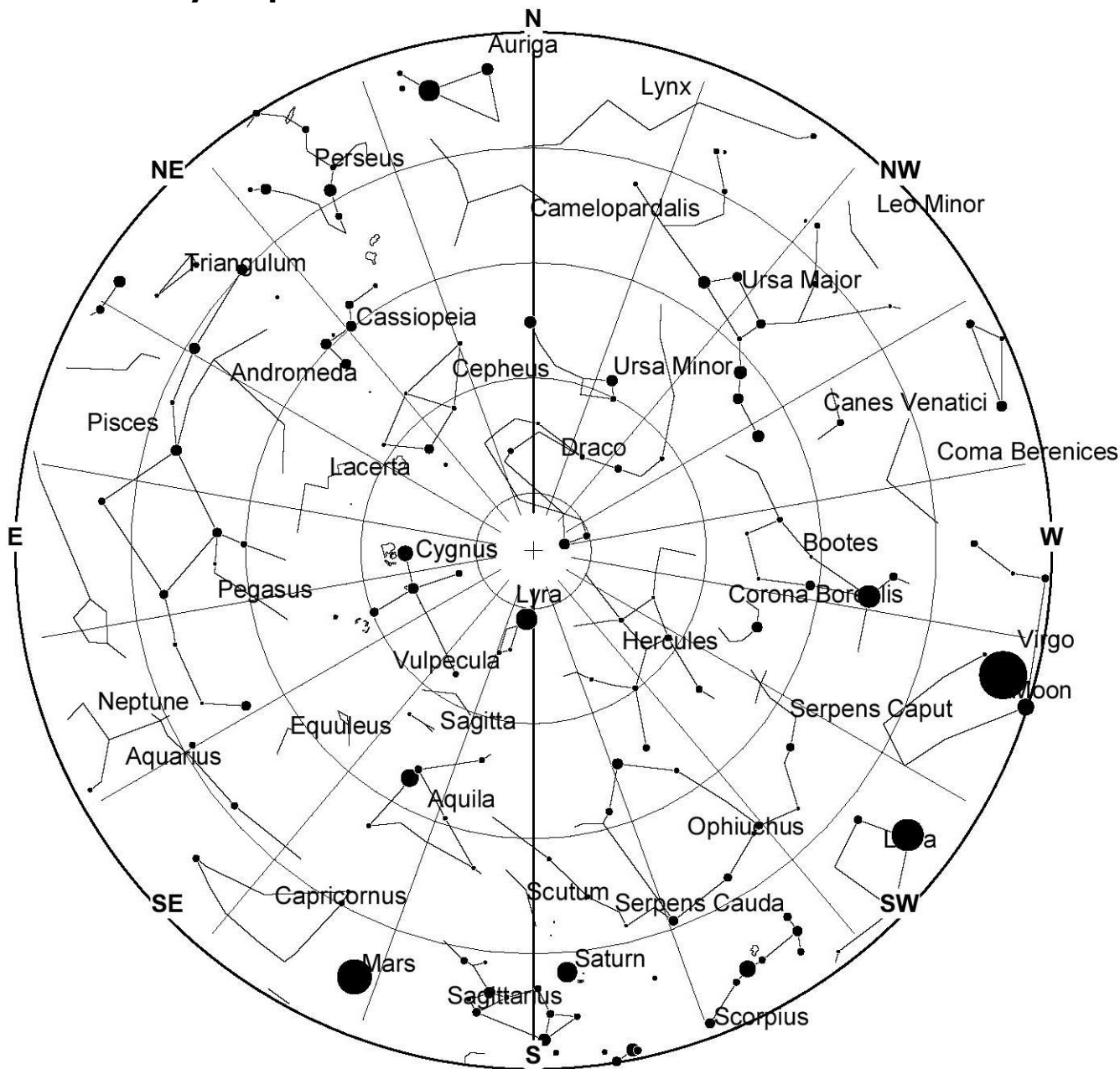
Important

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

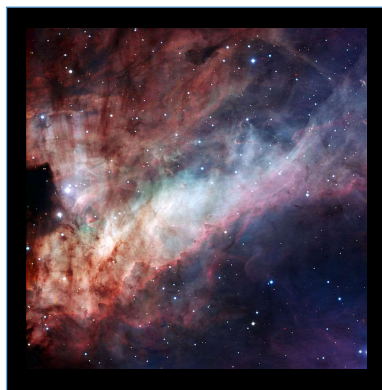
On several occasions, lights, heaters and the Meade LX200 have been left on!

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

August 2018 Sky Map



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







The Omega Nebula, also known as the Swan Nebula, Checkmark Nebula, and the Horseshoe Nebula (catalogued as Messier 17 or M17 or NGC 6618) is an H II region in the constellation Sagittarius. It was discovered by Philippe Loys de Chéseaux in 1745. Charles Messier catalogued it in 1764. It is located in the rich starfields of the Sagittarius area of the Milky Way.

The Omega Nebula is between 5,000 and 6,000 light-years from Earth and it spans some 15 light-years in diameter. The cloud of interstellar matter of which this nebula is a part is roughly 40 light-years in diameter and has a mass of 30,000 solar masses. The total mass of the Omega Nebula is an estimated 800 solar masses

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August 2018 Night Sky

Moon Phases

| New | First Qtr | Full | Last Qtr |
|---|---|---|---|
|  |  |  |  |
| 13th | 19th | 27th | 6th |

Planets

Mercury

Mercury continues the evening apparition started last month but is now fading as its phase shrinks from a full disk to crescent and is becoming a challenging object against the still bright twilight sky. As a guide, on the 14th Mercury is 2.5 degrees to the left of the crescent moon.

Venus

As the month progresses Venus starts to drop towards the horizon and move to the southwest at sunset. Now that we are past the mid summer solstice and the Sun is heading back towards the south, the evening planets mark out this path heading lower in the sky. Conversely planets in the morning sky are riding high where the Sun has just been.

Mars

By the end of the month Mars is at opposition; make the most of the coming few weeks Mars will not be as bright or as large again for at least another two years. Its size increases and decreases again quite dramatically as the Earth passes by and overtakes the slower Mars.

Jupiter

Jupiter is now past its best, but is still worthy of observation. It can be found due south at sun set. It is the brightest object in the southern sky and can be seen shortly after sunset or with binoculars or a telescope can be seen before sunset.

Saturn

Saturn is now at opposition and is a well placed for observation as it will be this year. It is low in the sky against the stars in the constellation of Aquarius rising at sunset passing through south at midnight and setting at sunrise.

Uranus

Uranus has moved from Pisces to just over the border into Aries. By the time it is high enough above the horizon to be observable the sky has become too bright for the 6th magnitude planet to be visible.

Neptune

Neptune can be found in the early morning 1 degree to the west of the 4th magnitude star Phi Aquarius on a line between Phi and Lambda Aquarius.

Deep Sky

NGC6633 Open Cluster **RA 18h 28m Dec 6° 34' mag 4.5**

Although it is clearly visible in binoculars it is best viewed through a rich field telescope where the brighter members of this cluster form a rather wavy looking wedge of stars. If viewed before the sky darkens too much restricting the number of visible stars the scene is reminiscent of a miniature Leo, the backward question mark is a little indistinct, but the back and haunches are easily distinguishable.

IC4756 Open Cluster **RA 18h 39m Dec 5° 27' mag 4.5**

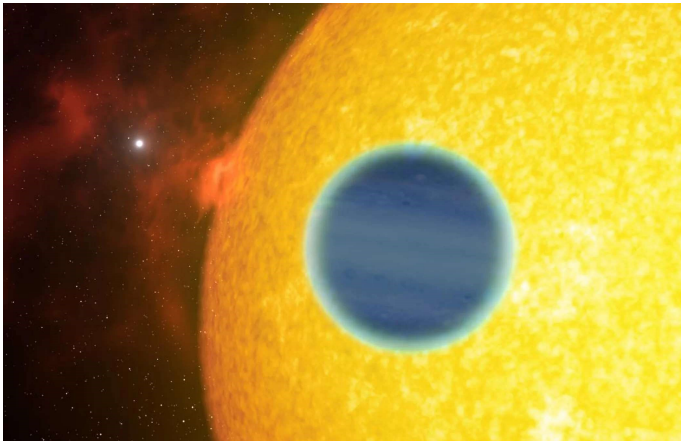
Located a short distance to the southeast of NGC6633 this cluster is also an easy binocular target, but again is best views through a small low magnification telescope. There are a number of long chains of stars throughout the cluster the brighter ones form a rough five pronged Catherine wheel shape covering most of the cluster. The brighter foreground stars form a slight distraction when observing this cluster.

M17 The Omega Nebula **RA 18h 21m Dec -16° 11' mag 7**

If it were not for the Orion Nebula this would be the great show piece of the sky. Binoculars show the curved shape of this giant glowing gas cloud and stellar nursery. Some times called The Swan nebula, the swan swimming upside down through the Milky Way becomes more obvious through a small telescope.

Peter Burgess

Weird Stuff Swirls in Air of Huge, Puffy Alien Planet



Artist's illustration shows of planet WASP 127b — which is ultralight but bigger than Jupiter — orbiting its star.

Credit: Gabriel Pérez, SMM (IAC)

An international team of astronomers has identified traces of metals and possible signs of water in one of the least dense exoplanets ever found, according to a new study.

The exoplanet, called WASP-127b, is about 1.4 times larger than Jupiter but only 20% as massive, with a surface temperature of 1,127°C. WASP-127b, which was discovered in 2016, lies approximately 332 light-years away from Earth. The “hot Jupiter” alien world takes just over four Earth days to orbit its parent star.

Using the OSIRIS instrument on the Great Telescope of the Canary Islands (GTC), the researchers found a high concentration of alkali metals in the atmosphere of WASP-127b, including sodium, potassium and lithium. The presence of these metals suggests that the planet has partly clear skies, study team members said.

“The particular characteristics of this planet allowed us to perform a detailed study of its rich atmospheric composition,” lead author Guo Chen, a postdoctoral researcher at the Instituto de Astrofísica de Canarias (IAC), said in the statement. “The presence of lithium is very valuable to understand the evolutionary history of the planetary system and could shed light on the mechanisms of planet formation.”

The planet’s host star, WASP-127, is also believed to have an abundance of lithium. This suggests that this extrasolar system formed from a cloud of material that was enriched by a supernova, or the death of a giant star called an asymptotic giant branch (AGB) star, the researchers said.

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

It Would Take 200,000 Years at Light Speed to Cross the Milky Way

The disk of our home galaxy – the Milky Way – is bigger than we previously thought. A new study shows it would take 200,000 years for a spaceship traveling at the speed of light to go across the entire galaxy.

Researchers made the find after analyzing the abundances of metals (heavy elements) in stars, also known as their metallicities. When looking beyond the previously assumed boundary of the Milky Way's disk, scientists were surprised to see stars with compositions resembling those of disk stars.

“We have shown that there is an appreciable fraction of stars with higher metallicity, characteristic of disc stars, further out than the previously assumed limit on the radius of the galaxy disc,” study co-author Carlos Allende, a researcher at Astrophysics Institute of the Canary Islands (Instituto de Astrofísica de Canarias, said in a statement.

The new study estimates the size of the Milky Way's disk at 200,000 light-years across. Past studies have suggested the Milky Way is between 100,000 light-years and 160,000 light-years across. (One light-year is the distance light travels in a year, about 6 trillion miles or 10 trillion kilometers.)

To put the find in perspective with the location of our own sun, astronomers said the newly found disk stars are about three times farther from the galaxy center than the sun. It's possible there could be even more disk stars about four times farther away, the team added in the statement.

Researchers made the find after analyzing survey data from the Apache Point Observatory Galactic Evolution Experiment (APOGEE) and the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST), which collect the spectra of stars. A star's spectrum is the breakdown of its light into different colors. By analyzing the pattern of colors, scientists learn what elements are present within the star.

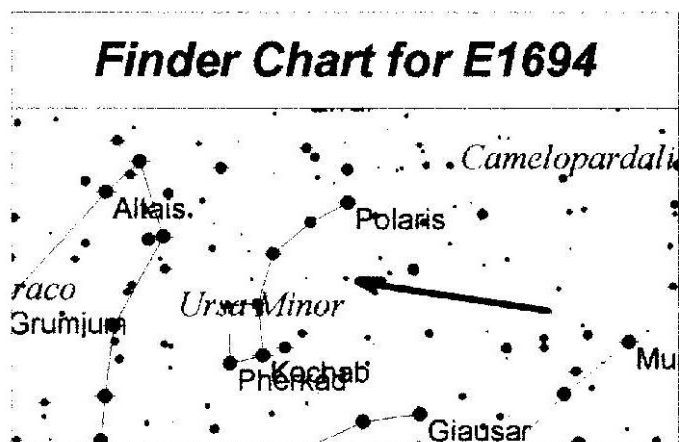
It's not the first time scientists have revised a galaxy's parameters. A recent study of the Andromeda galaxy revealed that the celestial body is actually about the same mass as the Milky Way, instead of larger. This affects predictions of the two galaxies' motions as they head for an inevitable crash in 4 billion years.

Links etc at: <https://www.space.com/>

My 100 Best Night Sky Sights

Double Star

Coordinates: RA 12h 49m 12s, Dec +83' 25"



If asked to name a few constellations most astronomers wouldn't find Camelopardalis springs immediately to mind and no, it isn't a camel but a giraffe (*Girafeopardalis* would be just too much). A really obscure constellation, it has no star brighter than mag 4 and few visible to the naked eye, yet it spreads over a very large area of sky, winding its way around the pole star and bordered by no fewer than eight other constellations.

Despite being the 18th largest constellation in the sky (out of 88) it doesn't hold a great deal of fascination for the amateur but does contain two or three objects of interest amongst which is the very nice double $\Sigma 1694$ this is a pair of bright blue-white identical twins that, at magnitudes of 5.3 and 5.8 and a separation of 22 arc seconds, are easily seen in any telescope. As with all double stars the clarity with which they're observed depends partly on the magnification employed. I find that around 100x provides a fine view of this pair, keeping each out of the glare of the other with dark sky between them.

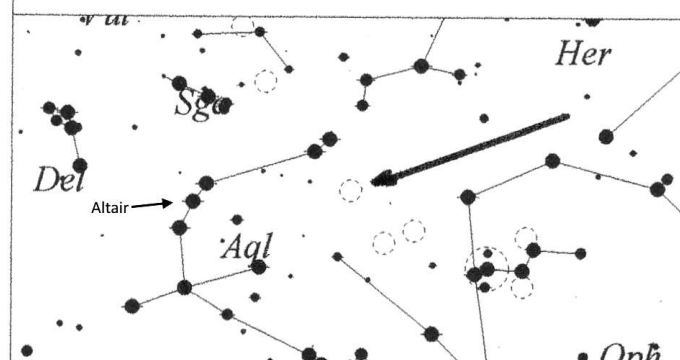
Although Camelopardalis is primarily a winter constellation, $\Sigma 1694$ is in its far eastern region rising nearly 10 hours after the western edge and therefore best viewed in mid to late spring when it is to be found 6° south of Polaris.

Open Cluster

Coordinates: RA 18h 51m 30s, Dec +10' 21"

Given only a passing reference in some star atlases and totally ignored in others is *NGC6709* in *Aquila*, which is strange as, in my opinion, it's significantly more impressive than six or seven Messier clusters. This is one advantage of creating one's own catalogue, however you don't have to miss it now. At least two dozen bright stars and many others although scattered about the field of view

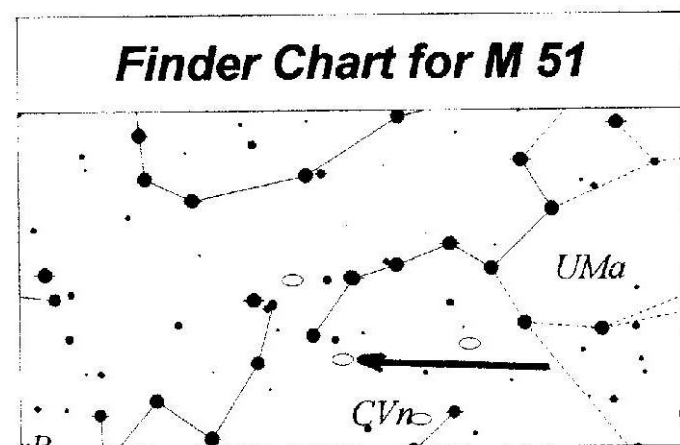
Finder Chart for NGC 6709



nevertheless appear to have achieved a peculiar juxtaposition that traces the outline of a - wait for it - wire-haired terrier! OK, so you have to use a little imagination but it's far more dog-like than either Canis Major or Minor and this is certainly how it appeared to me when I first set eye upon it. If you're sceptical have a look yourself with any telescope in July or August 15° due west of the brilliant Altair. Adding to this enchanting scene is a bright double star, part of the cluster and situated towards the eastern end. As the 'dog' faces west this places it somewhere in its nether region - I'll leave you to identify its position more precisely.

Spiral Galaxy

Coordinates: RA 13h 30m 00s, Dec +47' 16"



One of the night sky's most beautiful and awe-inspiring spectacles is that of the lovely spiral galaxy *M51* (*NGC5194*) in *Canes Venatici* that, with its companion galaxy *NGC5195* adorns the cover jacket of many an astronomical book. This of course is the celebrated Whirlpool Galaxy with the smaller member seemingly hooked on to the end of one of big brother's spiral arms. In fact it's an interloper that just passed by the neighbourhood a mere 100 million years or so ago.

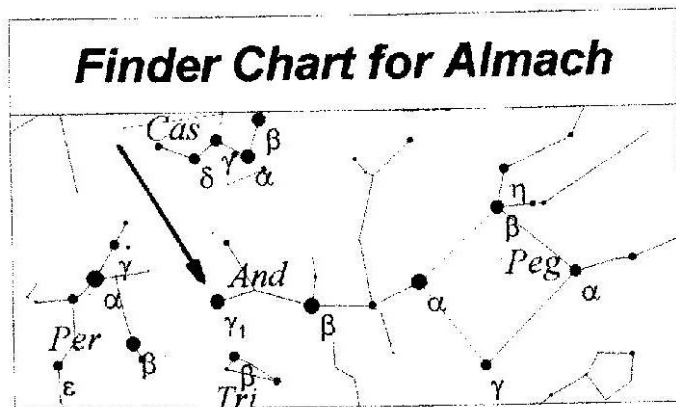
Unfortunately, it requires a large telescope to see *M51* at its best but I was privileged to view it from the dark skies

of the Algarve using a 20" instrument through which the view was simply stunning. The spiral arms of the large galaxy were clearly on view and the delicate connecting bridge of matter between it and its companion was visible - an unforgettable sight. But these articles are about what we can see with modest equipment from the Isle of Wight and M51, at a respectable mag 8.4, will not disappoint.

A 6" telescope will show M51 as a round, hazy patch with a star-like centre and another whitish spot, NCG5195, on one edge looking like an out of focus dim star. An 8" will separate the two and reveal the smaller member as a tiny, faint fuzz. Through my 10" in clean skies on a night of fairly good seeing, although there was no sign of the 'bridge' the spiral nature of NGC5194 was faintly but positively identified. A 12" didn't improve the view but the Observatory 18" should provide a better spectacle.

Multiple Star

Coordinates: RA 02h 03m 54s, Dec +42° 20"



This heading is slightly misleading as the third member of the triple star **Gamma Andromedae** is so close to the secondary (currently around 0.3 arc seconds) that it cannot be separated by amateur telescopes. What can be seen however is a positive delight - a very bright yellow primary with a less bright, but distinctly blue companion. Separated by 10 and with magnitudes of 2.3 and 5.0 the colour contrast is beautiful and the pair makes a fine sight in any telescope. As is often the case with multiple stars, the use of different powers provides different perspectives by changing separation and brightness of the components, adding considerably to ones enjoyment.

Gamma And is known as Almach or Alamac, whichever you prefer, and can be found high in the heavens from October to December.

Bert Paice

Originally published in NZ - March 1999

Study Reveals Secret Origins of Asteroids and Meteorites

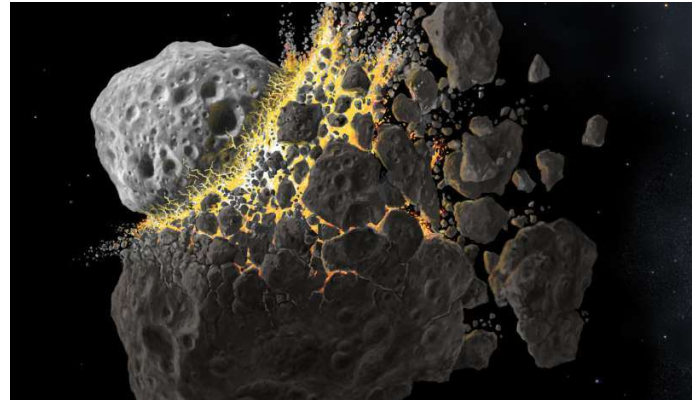


Illustration of a large asteroid splintering.

Credit: Don Davis

Most asteroids and meteorites originate from the splintering of a handful of minor planets formed during the infancy of our solar system, a new study shows.

A study appearing online today (July 2nd 2018) in *Nature Astronomy* found at least 85 percent of 200,000 asteroids in the inner asteroid belt—the main source of Earth's meteorites—originate from five or six ancient minor planets. The other 15 percent may also trace their origins to the same group of primordial bodies, said Stanley Dermott, lead author and a theoretical astronomer at the University of Florida.

The discovery is important for understanding the materials that shaped our own rocky planet, Dermott said.

The finding provides a more robust understanding of the evolutionary history of asteroids and the materials that form them—information Dermott says could prove essential to protecting the Earth and ourselves from meteorites the size of the Statue of Liberty and asteroids more powerful than atomic bombs.

“These large bodies whiz by the Earth, so of course we're very concerned about how many of these there are and what types of material are in them,” said Dermott, professor emeritus in UF's College of Liberal Arts and Sciences. “If ever one of these comes towards the earth, and we want to deflect it, we need to know what its nature is.”

Dermott's team demonstrated that the type of orbit an asteroid has depends on the size of the asteroid. This finding suggests that differences in meteorites found on Earth appear because of the evolutionary changes that occurred inside a few large, precursor bodies that existed more than four billion years ago, Dermott said.

Read more at: <https://phys.org/>

Astronomers Discover 12 New Moons Orbiting Jupiter - One on Collision Course With the Others

A head-on collision between two Jovian moons would create a crash so large it would be visible from earth



*Nasa photograph showing two of Jupiter's 79 moons.
Photograph: JPL/NASA*

One of a dozen new moons discovered around Jupiter is circling the planet on a suicide orbit that will inevitably lead to its violent destruction, astronomers say.

Researchers in the US stumbled upon the new moons while hunting for a mysterious ninth planet that is postulated to lurk far beyond the orbit of Neptune, the most distant planet in the solar system.

The team first glimpsed the moons in March last year from the Cerro Tololo Inter-American Observatory in Chile, but needed more than a year to confirm that the bodies were locked in orbit around the gas giant. "It was a long process," said Scott Sheppard, who led the effort at the Carnegie Institution for Science in Washington DC.

Jupiter, the largest planet in the solar system, was hardly short of moons before the latest findings. The fresh haul of natural satellites brings the total number of Jovian moons to 79, more than are known to circle any other planet in our cosmic neighbourhood.

Nine of the new moons belong to an outer group that orbit Jupiter in retrograde, meaning they travel in the opposite direction to the planet's spin. They are thought to be the remnants of larger parent bodies that were broken apart in collisions with asteroids, comets and other moons. Each takes about two years to circle the planet.

More at: <https://www.theguardian.com/>

The Milky Way's Long-lost Sibling Finally Found



Scientists at the University of Michigan have deduced that the Andromeda galaxy, our closest large galactic neighbor, shredded and cannibalized a massive galaxy two billion years ago.

Even though it was mostly shredded, this massive galaxy left behind a rich trail of evidence: an almost invisible halo of stars larger than the Andromeda galaxy itself, an elusive stream of stars and a separate enigmatic compact galaxy, M32. Discovering and studying this decimated galaxy will help astronomers understand how disk galaxies like the Milky Way evolve and survive large mergers.

This disrupted galaxy, named M32p, was the third-largest member of the Local Group of galaxies, after the Milky Way and Andromeda galaxies. Using computer models, Richard D'Souza and Eric Bell of the University of Michigan's Department of Astronomy were able to piece together this evidence, revealing this long-lost sibling of the Milky Way. Their findings were published in *Nature Astronomy*.

Scientists have long known that this nearly invisible large halo of stars surrounding galaxies contains the remnants of smaller cannibalized galaxies. A galaxy like Andromeda was expected to have consumed hundreds of its smaller companions. Researchers thought this would make it difficult to learn about any single one of them.

Using new computer simulations, the scientists were able to understand that even though many companion galaxies were consumed by Andromeda, most of the stars in the Andromeda's outer faint halo were mostly contributed by shredding a single large galaxy.

"It was a 'eureka' moment. We realized we could use this information of Andromeda's outer stellar halo to infer the properties of the largest of these shredded galaxies," said lead author D'Souza, a postdoctoral researcher at U-M.

More at: <https://www.eurekalert.org/>

Are LED Lights Making Us Ill?

Over the last decade, much of Europe and the US have changed the way they illuminate city and town streets.



Councils and local governments from Paris to Brooklyn have replaced high-energy sodium bulbs (the warmer, yellow ones) with energy-saving LED bulbs (with a blue light emitting diode, which can feel harsh in comparison). **As well as street lights, most of us are exposed to blue light through smartphones, computers, TVs, and in the home.**

Earlier this year, the World Journal of Biological Psychiatry published a paper by a group of prominent psychiatrists that warned of the potential effects of LED lighting on mental illness.

It raised concerns about the influence of blue light on sleep, other circadian-mediated symptoms, use of digital healthcare apps and devices, and the higher sensitivity of teenagers to blue light.

“My concern about LED lighting followed from a larger, earlier concern about the relationship between light exposure and the occurrence of manic and mixed symptoms in bipolar disorder,” said John Gottlieb, Clinical Assistant Professor of Psychiatry and Behavioral Sciences at Feinberg School of Medicine in Chicago and an author of the paper.

“Because they are ubiquitous, smartphones represent the larger public health hazard,”

“I had already clearly seen that supplemental light exposure - in the form of bright light therapy - was extremely helpful to patients with depression. What I was slower to realize was that excess and poorly-timed light exposure could have adverse effects on manic states and the sleep-wake cycle,” he said.

The paper has implications for the treatment of mental illness. If a person is prescribed a self-monitoring app, and instructed to use their smartphone to document mood changes, for example, and they do this before bed, it could have an adverse effect on their sleep, circadian rhythms and health.

“Because they are ubiquitous, smartphones represent the larger public health hazard,” said Gottlieb. “Streetlights, though, are not benign and together with the entire set of nocturnal lighting for entertainment, traffic, reading, etc contribute to the phenomena of light pollution, which we are becoming increasingly sensitised to.”

Studies of the impact of blue light on healthy adults show it inhibits melatonin secretion which disrupts sleep and can affect quality of life, physical and mental health and susceptibility to illness. Previous studies of sleep disorders in children and adolescents show a clear and consistent relationship between sleep disorders and frequency of digital device usage.

Currently, the National Sleep Foundation guidelines suggest not using technology 30 minutes before bed and removing technology for the bedroom. However, there are currently no specific guidelines for people with an underlying mental illness or sensitivity to circadian disruption.

As LED technology has rapidly spread across the globe, the focus has been on the visual element and the energy-saving element. Now, scientists, health professionals and the LED industry are working to minimise the blue light in LEDs and create customisable lights that won't harm those suffering from psychiatric disorders.

By Lucy Jones

<https://www.bbcearth.com/blog/?article=are-led-lights-making-us-ill>



The Edge of Space Just Crept 12 Miles Closer to Earth



Where does Earth's atmosphere end and space begin? According to a new study, it might be just 50 miles above Earth — right about where the blue turns to black in this photo. Credit: NASA

Did you feel that? Does it suddenly feel a little bit stuffier in here to you? Does it feel like, I don't know... outer space just got 12 miles (20 kilometers) closer?

Nothing actually moved, of course (unless you count the constant and increasing expansion of the universe). But according to a new study published online this week, it might be high time Earthlings shifted our mental and mathematical ideas about where, exactly, Earth's atmosphere ends and outer space begins.

If astrophysicist Jonathan McDowell's calculations are correct, the cosmic boundary where the laws of airspace suddenly give way to the laws of orbital space might be a lot closer than we think — a full 12 miles closer than previous estimates suggest.

“The argument about where the atmosphere ends and space begins predates the launch of the first Sputnik,” McDowell, an astrophysicist at the Harvard-Smithsonian Center for Astrophysics, wrote in his new paper, which will appear in the October issue of the journal *Acta Astronautica*. “The most widely accepted boundary is the so-called Karman Line, nowadays usually set to be 100?k

Here's the problem: According to McDowell, that Karman line that many scientists accept today is based on decades of misinterpreted information that doesn't actually take real orbital data into account. Luckily, data is McDowell's business (and his pleasure — in his free time he keeps meticulous records of every rocket launch on Earth) and he knew just where to look to find an evidence-based answer to the question, “Where does space begin?”

Where Satellites Fall

In his new study, McDowell pored over data describing the orbital paths of some 43,000 satellites, which he collected from the North American Aerospace Defense Command (NORAD), which monitors aerospace in the United States and Canada. Most of these satellites were negligible to McDowell's study — they orbited far higher than the proposed Karman line, and were well within the grasp of orbital space.

About 50 of these satellites, however, stood out. While re-entering the atmosphere at the end of their missions, each of these satellites successfully completed at least two full rotations around the Earth at altitudes below 62 miles (100 km). The Soviet Elektron-4 satellite, for example, circled the planet 10 times at around 52 miles (85 km) before tumbling into the atmosphere and burning up in 1997.

It seemed clear from these cases that the physics of space still held sway well below the Karman line. When McDowell used a mathematical model to find the exact point at which various satellites finally broke loose of their orbits and made a fiery return to the atmosphere, he found that this could occur anywhere between 41 to 55 miles (66 and 88 km). Usually though, when a craft dipped below the 50-mile (80 km) mark, there was no hope of escape.

Astronaut Wings

For this reason, McDowell chose 50 miles as the true lower edge of space. The number fit neatly with several other cultural and atmospheric factors, as well. For example, McDowell wrote, in the 1950s, US Air Force pilots were awarded a special set of “astronaut wings” for flying their planes above 50 miles, this being considered the outermost edge of the atmosphere.

Atmospherically, the choice fits, too: The mesopause — the coldest belt of Earth's atmosphere — stretches roughly between 52 and 62 miles above the planet's surface. Here, the atmosphere's chemical composition begins to change drastically and charged particles become more abundant. (In other words, things look a lot spacier.) It's clear that, below the lower edge of the mesopause, Earth's atmosphere becomes a stronger force for airborne objects to reckon with, McDowell wrote.

“It is noteworthy that meteors (traveling much more quickly) usually disintegrate in the 70 -100 km (43 miles to 62 miles) altitude range, adding to the evidence that this is the region where the atmosphere becomes important,” McDowell wrote.

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

VAS Officers and Committee Nominations 2018/19

For those wishing to stand for election at the AGM of the Society to be held on Friday 24th August 2018 at 7.00pm.

Name and Address of Nominee:

Standing for

- Chairman
- Treasurer.....
- Secretary
- Observatory Director
- Membership Secretary.....
- Programme Organiser.....
- Committee

Proposed by:

Seconded by:

Signature of Nominee:.....

Notes

- The Committee meets once each month usually on a Thursday evening before the usual club night.
- No person can be elected to more than one position.
- Only adult fully paid-up members may stand for election (or propose or second).
- All completed nomination forms to be received by the Secretary at least 7 days before the AGM.

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

AGM - Committee Nominations etc

We are rapidly approaching our AGM in August.

Page 11 has a nomination form for Committee positions.

VAS is your Society and you have the opportunity to help keep it going into the future. We do have a solid core at the moment but there is room for more volunteers either on the Committee or helping out with other jobs. For example, in August, Elaine Spear will be stepping down from the position of Meetings Organiser.

Please consider helping out, without willing volunteers VAS will struggle, with them we can easily grow and thrive - it really is that simple.

The End of Iridium Flares?

Several people have reported Iridium Flares not showing up as predicted in the last few weeks. It seems that many of the first generation of satellites are now being de-orbited to make way for the next generation which are becoming operational. We just went through the list of satellites which we have tagged as flare producers and removed over 20 which have already left their operational orbit. The satellites are still there, but because the attitude is presumably no longer being tightly controlled, they may not produce reliable flares. We will endeavour to keep the database up-to-date over the coming weeks using the information on Ron Sladen's status list.

Several of the first generation satellites are presumed to be kept in orbit as spares for the new generation, and it could be that the attitude is not tightly controlled when they are in the spare status, meaning there could be further disappointments with flares predicted for these satellites.

Unfortunately, the new satellites are not expected to produce flares, so it looks like they could soon become a thing of the past.

<https://heavens-above.com/IridiumDemise.aspx>

Thanks to John Langley for reporting this

Right Again, Einstein: Special Relativity Works Even in Ghostly High-Energy Neutrinos

Once again, scientists have shown that Albert Einstein's theory of special relativity is right — this time, thanks to a particle detector buried deep beneath Antarctica.

Scientists from the 1-gigaton IceCube Neutrino Observatory examined subatomic particles called neutrinos: elusive, chargeless subatomic particles that are as small as electrons. The researchers wondered if these tiny, high-energy particles would deviate from the behaviour predicted by the theory of special relativity. Specifically, they were testing Lorentz symmetry — the principle that the laws of physics are the same, whether you're an astronaut zooming through space at a million miles an hour or a snail inching along on Earth at a tiny fraction of that speed.

More at: <https://www.livescience.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.

“You may not feel outstandingly robust, but if you are an average-sized adult you will contain within your modest frame no less than 7×10^{18} joules of potential energy— enough to explode with the force of thirty very large hydrogen bombs, assuming you knew how to liberate it and really wished to make a point”

Bill Bryson

“If you see an antimatter version of yourself running towards you, think twice before embracing”

J. Richard Gott III

“What we usually consider are impossible are simply engineering problems ... there's no law of physics preventing them”

Michio Kaku