Shoalhaven Astronomers Inc.
www.shoalhavenastronomers.asn.au

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Issue 11

Astro Flyer

NOVEMBER 2024

Club News

President's Report

G'day, The end of October saw the observatory open for the Noah's Challenge day. A large number of public attendees were able to see the observatory and look at the Sun and Venus with our telescopes.

Thank you to everyone who had taken part in the survey for nexts years meeting schedule, it will make the meetings next year more interactive and cover a vast spectrum of content.

Unfortunately this will be the last you'll hear of me til next year as I am currently writing this in a maternity ward in Sydney. Thank you to everyone for their contributions this year. Unfortunately the weather has been about as bad as it could have been.

Stay Safe and have a good Christmas
Lachlan

The next monthly meeting is on November 1t5h at 7PM at the Uni of W'Gong, Shoalhaven Campus just off Yalwal Road on George Evans Road.

Contents

MOON PHASES

New Moon	First Quarter	Full Moon	Last Quarter
Dec 15th	Dec 9th	Nov 16th	Nov 23rd

Start here ^

Viewing Nights

We are aiming, once daylight saving is over, to make observing at Friday meetings a priority if the weather permits.

New and Last Quarter moon phases are good times for Dark Sky Observing.

More Information and Club News Page 13

Observatory open for for the Noah's Challenge Day

Observatory Report Mark Town

Current Status
The observatory is fully operational and can be used for both basic and more advanced activities.

Remote Access
Remote access to the observatory – so you can operate the observatory systems from the comfort of a warm room, either on campus or in your own home – has been tested successfully.
If this capability is of interest to you, please take the time to let me know either in person or via email to marktown@shoal.net.au so your committee will know the level of interest within the association.
Assistance and training will be provided to get you setup and operational.

Training
If you want to do your initial training or are concerned that the training you have done has departed your brain since you completed it - don't worry! We run dedicated training sessions on demand – so you can have some practical experience to give you the confidence to operate the observatory.

If you want to get some training you need to let us know – email to marktown@shoal.net.au or sms to 0474859788 – and we will arrange a mutually convenient date and time.

Observatory Access
Remember, to avoid disappointment, check the access code on the website before going to the observatory!

Time on the observatory can be booked via the Members Area / Observatory Activities page on our website.

Thanks and
Best regards,
Mark Town
M: 0474859788

Email: marktown@shoal.net.au

Observation Report Andrew Wood

What's on in the Cosmos –Nov/Dec 2024

Our November 15 meeting will coincide with a nearly Full Moon. The club's viewing night at the Shoalhaven Observatory on November 16 will see sunset about 7:30PM with full darkness by 9:15. It will be Full Moon.

Moon Phases

Full Moon	16th November	The Beaver Moon – from native American culture
[Also a supermoon- a Moon that is full and near the closest point (perigee) in its orbit around Earth]		
Last Quarter	23rd November	Dark before midnight
New Moon	1st December	Dark all night
First Quarter	9th December	Dark after midnight
Full Moon	15th December	The Frost Moon - from native American culture

Planets

Mercury is visible in the western evening sky, highest on Nov 16. It then starts to drop in altitude, soon returning to the morning sky in December. Its highest elevation will be 23 degrees from the Sun on Nov 16. Magnitude 0.1.

Venus Prominent at magnitude -4 in the western evening sky. The gibbous phase gradually diminishing. Diameter 15", increasing to 19".

Mars Rises around 1AM mid-November, and 11PM by mid-December. Its diameter will increase from 10" to 13", brightening from magnitude -0.2 to -0.8. Mars will be at Opposition in January.

Jupiter Is approaching Opposition. Rising before sunset mid-November and becoming more prominent each night. Its diameter will be a maximum of 48" at a magnitude -2.8. Get those scopes and imaging equipment ready!

Saturn remains visible in the sky before midnight, highest at 8PM mid-November. With Daylight Saving and summer we will have to wait until after 9PM when it in the west for observation. It is slowly decreasing in size and magnitude, though still prime for observing, especially the shallow angle of the rings. Dec 5 will see the planet at Quadrature – Sun-Earth-Saturn angle 90°. Observing at this time can give the planet a 3-D appearance as the maximum shadow of the planetary disc casts a shadow on the rings.

Uranus Is at Opposition on Nov 17. It will be highest around midnight. Diameter 4" magnitude 5.6.

Neptune Highest around 9PM mid-December. Diameter 2.3" magnitude 7.9.

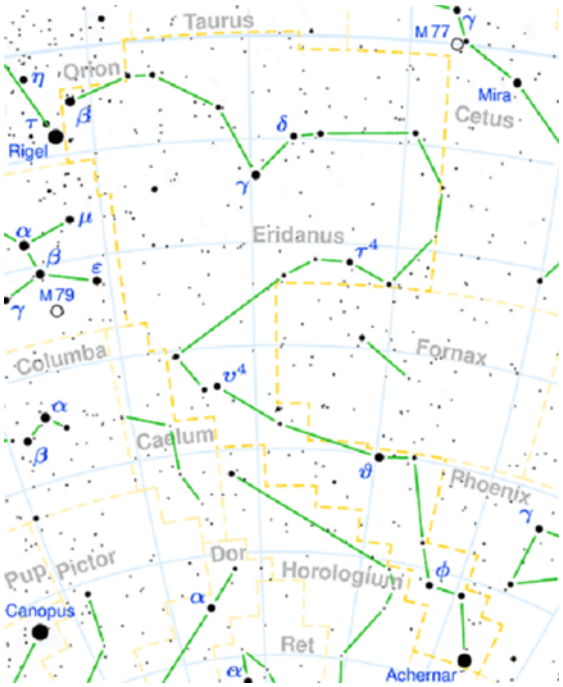
Beyond the Solar System

As full darkness sets in about 10PM this time of year, the Southern Cross is very low on the southern horizon. On the other side of the celestial pole, the star Achernar is at transit. Achernar is the brightest star in the constellation Eridanus – The River. From Achernar Eridanus winds its way through the sky to Rigel in Orion. See below, left.

Observation Report Andrew Wood

Cont...2

Eridanus has many deep sky objects, mainly galaxies. It also has a large, bright planetary nebula: NGC 1535. My only record of this object is from my Wollongong suburban backyard, through a 10-inch Newtonian: "Quite large and bright and easy to pick as a planetary at low power. Increasing magnification showed no extra detail. There is a very bright centre, possibly a star." This description sounds like that shown in the image below right. Interestingly, *Hartung's Astronomical Objects for Southern Telescopes* says, "No central star is visible but the prism image [Hartung used a prism to bring out extra detail] is elongated as if two images were overlapping and there is a definite central steak from the hidden star".



www.universetoday.com/20722/eridanus/

www.phys.ttu.edu/~ozprof/1535c.htm

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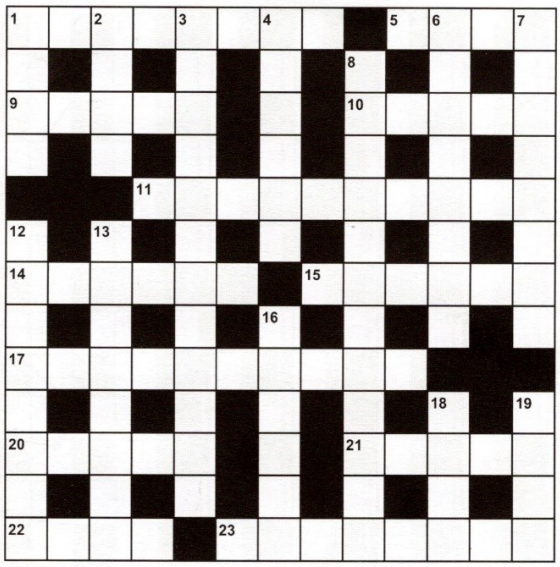
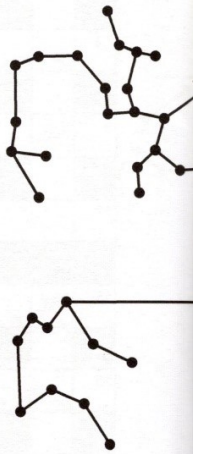
Always great to read and hear reports of observations of Solar System and Deep Sky Objects made by members, either visual descriptions or via images. Write a report of your observations for the *Astroflyer* or request a spot to speak at meetings.

Astro Quiz Andrew Wood

Crossword November 2024





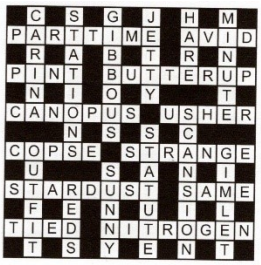
Across

1 Breathing in sharply (8)
5 Chickens lay these (4)
9 Belonging to them (5)
10 Self-supporting wooden frame (5)
11 Halt (10)
14 Constellation whose name derives from the Latin word for crow (6)
15 Happenings (6)
17 Brief eruption from the surface of the sun (5,5)
20 Unit of weight (5)
21 Certain to end in failure (2-3)
22 Petty quarrel (4)
23 Permits to do something (8)

Down

1 Locate or place (4)
2 Freezes over (4)
3 Moon phase when half of the moon's face is lit up (5,7)
4 Labelling (6)
6 Huge planet composed mainly of hydrogen and helium (3,5)
7 Disregarding oneself (8)
8 Car-sized Mars rover (12)
12 Cutting instrument (8)
13 Formerly Ceylon (3,5)
16 Former pupils (6)
18 Nocturnal birds of prey (4)
19 Antelopes (4)

Solution to October 2024



REFERENCE: *Astronomy Crosswords*, Clarity Media, UK

Astro Events from Frank Gross

Rare illusion gives comet a seemingly impossible 2nd tail after closest approach to Earth for 80,000 years

By Harry Baker published 16/10/24

New photos of comet Tsuchinshan-ATLAS appear to show a faint "anti-tail" pointing away in the wrong direction. The puzzling extra limb is the result of a rare illusion that is only possible when our planet is in a certain posiiion.

Comet Tsuchinshan-ATLAS was spotted with a thin streak of light, known as an anti-tail, pointing in the complete opposite direction to its bright streaming tail. This photo was taken on Monday (Oct. 14). (Image credit: Michael Jäger) The "once-in-a-lifetime" comet Tsuchinshan-ATLAS looks like it has grown a physics-defying second tail after reaching its closest point to Earth for more than 80,000 years, new photos reveal. However, in reality, the extra limb is a visual illusion that occurs thanks to the position of our planet relative to the naked-eye object. C/2023 A3, more commonly known as Tsuchinshan-ATLAS, is an unusually bright comet that likely originates from the Oort Cloud — a reservoir of icy objects in the outer reaches of the solar system. It was first discovered in early 2023 barreling between Saturn and Jupiter as it headed toward the inner planets. Follow-up observations revealed that the comet likely orbits the sun once every 80,660 years — and suggested that it may have been disintegrating, which later turned out to be inaccurate.

Tsuchinshan-ATLAS has been visible to the naked eye over the last few weeks after slingshotting around the sun in late September. However, it peaked in brightness over the last few days after reaching its closest point to Earth on Saturday (Oct. 12), when it was around 43.9 million miles (70.6 million kilometers) from our planet — around 180 times farther away from us than the moon. The comet was potentially visible to millions of people across large parts of the globe.

On Sunday (Oct. 13), astrophotographer Michael Jäger photographed Tsuchinshan-ATLAS streaking across the night sky near Martinsberg, Austria. In addition to showing the usually bright tail, enhanced versions of the photos revealed the comet had a fainter streak of light, known as an "anti-tail," coming off its body in the opposite direction, according to Spaceweather.com. On Monday (Oct. 14), Jäger captured another even clearer shot of the comet and its additional appendage (see above) and sent it to Live Science.

Astro Events from Frank Gross

Cont...2

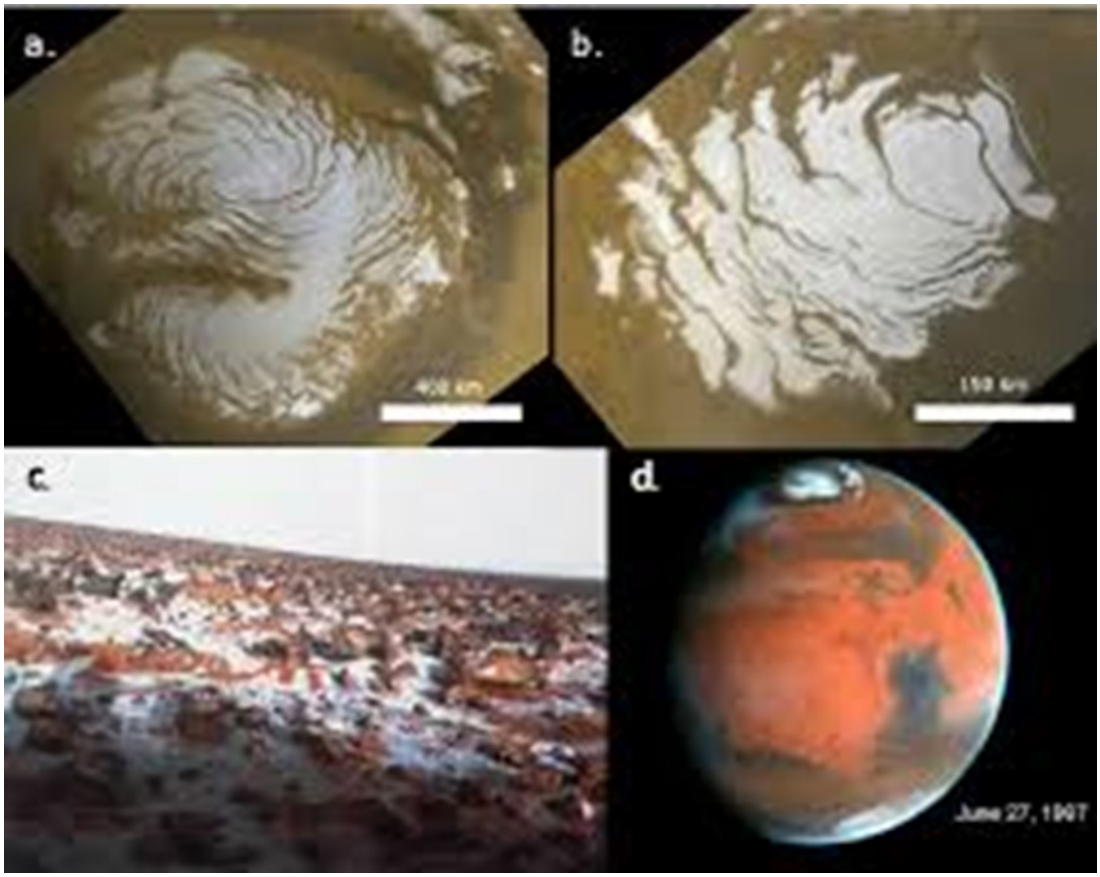
A comet's tail is made up of twin trails of dust and gas that are blown off the comet by solar radiation, meaning its tail always points away from the sun.

Anti-tails, therefore, seem to defy physics because they can be pointed toward the sun. However, these extra tails are not made of debris being blasted off the comet. Instead, they are made from dust that has recently been left behind by the comet in its orbital plane around the sun. When Earth passes through this plane, as it did over the weekend, this residual debris is illuminated by the sun and reflects back to Earth, giving the impression of a second tail.

Alien life could lurk on Mars beneath protective ice, study suggests

By Robert Lea published October 18, 2024

'We believe that dusty Martian ice exposures in the mid-latitudes represent the most easily accessible places to search for Martian life today.'



Astro Events from Frank Gross

Cont...3

Ice on Mars

The conditions needed for photosynthesis to occur on Mars could exist beneath the surface of dusty ice at the Red Planet's mid-latitudes, new research suggests.

Photosynthesis is the process by which living things like plants, algae and cyanobacteria create chemical energy. It requires water and light to proceed and creates the majority of the oxygen in Earth's atmosphere. The new study suggests that a thick enough layer of ice on Mars could filter out harsh radiation from the sun but also allow enough sunlight through for photosynthesis, creating so-called "radiative habitable zones."

Just as photosynthesis needs just the right light to proceed, these results must be viewed in the right light. While they don't suggest that life currently exists on Mars or has ever existed in the history of the Red Planet, the results do give scientists engaging in this ongoing search an idea of where to look.

"We are not stating we have found life on Mars, but instead we believe that dusty Martian ice exposures in the mid-latitudes represent the most easily accessible places to search for Martian life today," research leader Aditya Khuller Postdoctoral Research Fellow at NASA's Jet Propulsion Laboratory told Space.com.

Both Earth and Mars exist within the so-called "habitable zone" of the sun, the region around a star in which temperatures are right to allow liquid water to exist on a planet's surface. Yet, while 71% of Earth's surface is covered in liquid-water oceans, Mars appears to be a mostly dry landscape.

Observations from Mars missions such as the Curiosity and Perseverance rovers have shown that this wasn't always the case. Geological features explored by these robots, such as dry lake beds and river tributaries, indicate that liquid water ran across the vistas of the Red Planet billions of years ago. Additionally, missions flying over Mars, such as NASA's Mars Reconnaissance Orbiter (MRO), have found water ice on Mars, often in unexpected regions.

Comet Tsuchinshan (C/2023 A3) Gerard Keyzer

A nearly final word on Comet Tsuchinshan

Hello everyone,

As Comet Tsuchinshan rapidly heads out on its return journey to the outer reaches of our Solar System I bid a not so fond goodbye! I long for a good comet to grace our skies and a few cloud free nights or early mornings to view it.

One of the things that makes me the most cranky are all the internet feeds with brilliant shots of a comet arcing across the sky. Wellllll NO! They are very misleading. It's quite rare (on average once every 20 years) that we will have a truly AVAILABLE naked eye comet and for most of us who do not live where dark skies are common it is a matter of searching the sky with a pair of binoculars.

The beautiful shots we see posted are usually time exposures - say 3 minutes or more - and obviously your camera is gathering lots of light for a long time, not the tiny amount you can see in an instant with your eye. A nice aspect of these images is they are often quite wide angle and they include beautiful sky and landscapes.

The fact that a Comet is drawn by gravity toward the Sun, whips around it (often quite closely) and slingshots away into space is both a bonus and a drawback for viewers on Earth. Firstly, until it comes close enough to the Sun - we can't see it! Comets are not massive fireballs bringing raining doom to poor Earthlings, blazing out because they are rocketing infernos. They are actually more like snowballs, massive agglomerations of ice and dirt particles. We can only see the comet because the Sun is shining on it. To be truthful, reflected sunlight is the only reason we can see any of the planets in our solar system as well as our Moon.

So, we want the comet to come close to the Sun in order to see a great spectacle but if it is too close to the Sun it is hard to pick up in the morning or evening twilight. The higher in the sky we see a comet, the further it is from the Sun and likely fainter. The other problem is that comets quite regularly come so close to the Sun that they can be destroyed.

When Tsuchinshan came into our evening sky its trajectory kept it so close to the Sun that it was very low in the sky and hence night was barely dark by the time it was setting.

Comet Tsuchinshan (C/2023 A3) Gerard Keyzer

Cont...2

Thankfully we know some very skilled astro imagers that have brought Tsuchinshan into our lounge rooms. We have seen Niall's iPhone image of Comet T, his lovely all sky image over his observatory from Wattle Flat, but he's gone one better and sends us a beautiful two panel close up image.

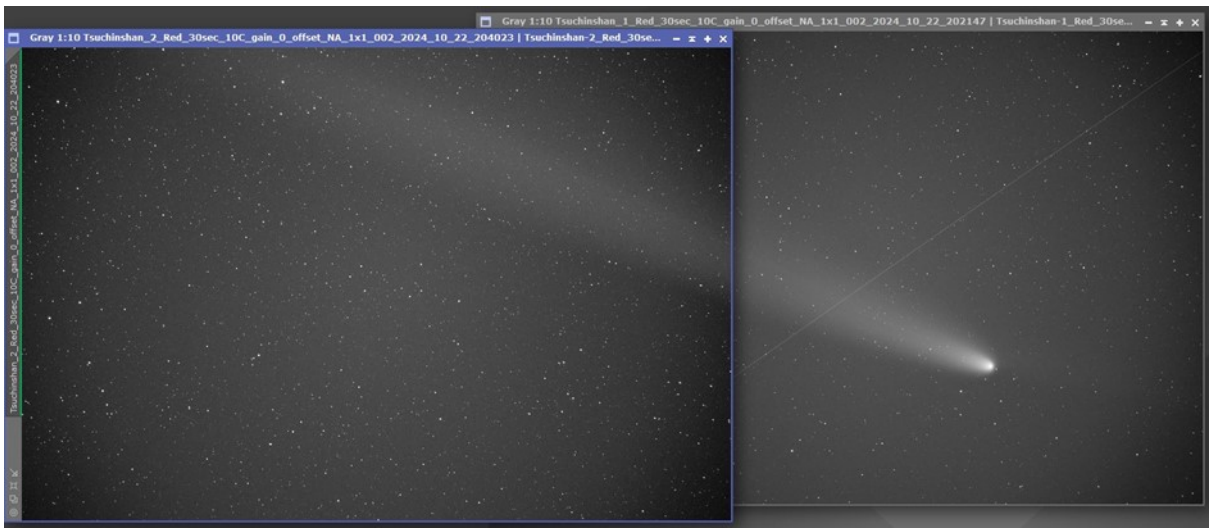
Comet Tsuchinshan (C/2023 A3) Gerard Keyzer

Cont...3

These images are quite something and encourage me to keep looking. Just take the clickbait with a grain of salt.

Niall has also sent us the link to Astrobin where Adam Block has made an animation of the Comet actually shedding material and parting ways with its ion tail. https://astrob.in/rh5g5v/0/ Fascinating and humbling to know amateurs can do this work.

Clear Skies
Gerard



Club News

The AGM was held at the July 2024 monthly meeting. Elected officials for 2024- 2025

Executive
President: Lachlan Mabbutt
Vice President: Laurence Wakelin
Secretary : Andrew Wood
Treasurer: Frank Gross
Public Officer; Frank Gross

Operation Positions
Website Manager: Steve Holloway
Observation Officers: Andrew Wood, Mark Town and John Gould
Editor: Kaye Johnston
Librarian: Chris O'Hanlon
Equipment Officer: Andrew Wood
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Committee Members:
Andrew Wood
Mark Town
John Gould
Ian Scott
Paul Gwynne
Welcome to Lachlan Mabbutt as our new President and to Dr Paul Gwynne as a new committee member.

Club Notices

Dear Members of Shoalhaven Astronomers
This is a reminder to members who paid last year, and have not yet paid membership for 2024-5, that fees are due. My apologies if there has been a mistake. If you have paid let me know and I will check with our treasurer Frank Gross. I know that in some cases illness may be a factor at the present time.

Payment ($30) can be made at club meetings.

Or Pay by direct deposit into the club IMB account – Please ensure your name is in the reference section. BSB 641800 Account 009135475

Check out the Astro Flyer on the web site: www.shoalhavenastronomers.asn.au

Shoalhaven Astronomers PO BOX 1053 Nowra NSW 2541	**The deadline for Articles for the Astro Flyer is The First Friday of the Month.** **Editor Kaye Johnston**