

Astro Flyer



OCTOBER 2024

Club News

President's Report

G'day,

Unfortunately the Frogmore Astrocamp was postponed, although I bought a lithium power station and car fridge for the event they won't come in use any time soon as the new dates for the Astrocamp don't work well with the proximity to my wife's due date.

The October meeting will be the last meeting I'll attend this year before I assess the impacts of a toddler and a newborn in the same household. I will try to attend the dinner in December which is currently planned for Club Nowra. More information will follow shortly.

We have the Noah's challenge charity day coming up on October 27th at the Shoalhaven Campus, we will have the observatory open for tours and there will be rides, food and other activities.

We also have an upcoming observation session on the 19th, the last session we were able to observe Venus and Saturn.

I'll see you all at the next meeting Lachlan

The next monthly meeting is on October 18th at 7PM at the Uni of W'Gong, Shoalhaven Campus just off Yahwal Road on George Evans Road.

Contents

Observatory Report
Mark Town
Pages 2

Observation Report
Andrew Wood
Pages 3-4

Astro Quiz
Andrew Wood
Page 5

Astro Events
Frank Gross
Pages 6-8

Comet Tsuchinshan
(C/2023 A3) Gerard
Keyzer Pages 10-12

More Information and
Club News
Page 13



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.

MOON PHASES



New Moon **First Quarter** **Full Moon** **Last Quarter**
Nov 1st **Nov 9th** **Oct 17th** **Oct 24th**
Start here ^

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 are concerned that the training you have done has departed your brain since you completed it - don't worry! We will be running some dedicated training sessions over the next 4 weeks – so you can have some practical experience to refresh your memory and give you the confidence to operate the observatory. We did some training on Saturday 05Oct24 with Larry & Scarlett Wakelin in preparation for an observing session later in the evening. Both Larry & Scarlett successfully completed the “**Basic Computer Assisted Observing**” training module. Well done to both!

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 –Oct/Nov 2024

Our October 18 meeting will coincide with a waning Gibbous Moon. The club's viewing night at the Shoalhaven Observatory on October 19 will see sunset about 7PM with full darkness by 8:30PM. The Moon will be 2 days past Full.

Moon Phases

Full Moon	17th October	The Hunter's 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	24th October	Dark before midnight
New Moon	1st November	Dark all night
First Quarter	9th November	Dark after midnight
Full Moon	16 th November	The Beaver Moon - from native American culture
[The supermoon persists]		

Planets

Mercury is visible low in the western evening sky in the second half of October until late into November. Its highest elevation will be 23 degrees from the Sun on Nov 16. Magnitude -0.3.

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

Mars Rises over this period from about 2am, nearer 1am through November. Its diameter will increase from 8" to 10", brightening from magnitude 0.3 to -0.2.

Jupiter Rises around midnight mid-October, and soon after sunset mid-November. Its angular size will increase from 44" to 47" and the planet's magnitude will be about -3. Coming into prime viewing and imaging time.

Saturn remains visible in the sky before midnight. It is slowly decreasing in size and magnitude, though still prime for observing, especially the shallow angle of the rings.

Uranus rises around 10PM mid-October; rising earlier as it heads for opposition in November. Size 3.8" and magnitude 5.6.

Neptune transits around 11:30PM mid-October, and 9PM mid-November. Size 2.4" and magnitude 7.8.

Comet C/2023 A3 Tsuchinshan-ATLAS: After being a morning object, this comet has now moved to the western evening sky after sunset. Rising higher each evening through late October and into November, a clear western horizon after sunset should show it prominently. Reports on the internet report it to be magnitude -4.

Beyond the Solar System

The inconspicuous constellation of Fornax – The Furnace – is high in the east around 10PM to midnight during our observing period in OCT-NOV. Lacking in bright stars, the constellation is chock-a-block full of galaxies well within reach of amateur telescopes. One very concentrated area of galaxies is called the Fornax Cluster.

One object in the constellation within our own galaxy, however, is the planetary nebula NGC 1360. Figure 1, scanned from the *Herald-Bobroff AstroAtlas*, [HB2000 Publications, 1994], shows the cluster of galaxies at the bottom and NGC 1360 toward the top, as well as a smattering of other galaxies. Figure 2 is a sketch of NGC 1360 by an observer through a telescope.

Observation Report Andrew Wood

Cont...2

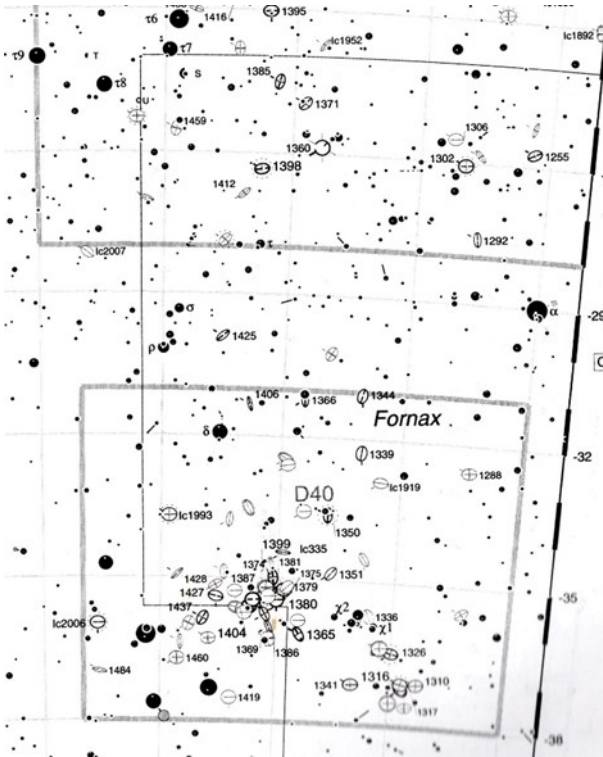


Figure 1: part of the constellation Fornax as shown in the Herald-Bobroff AstroAtlas.

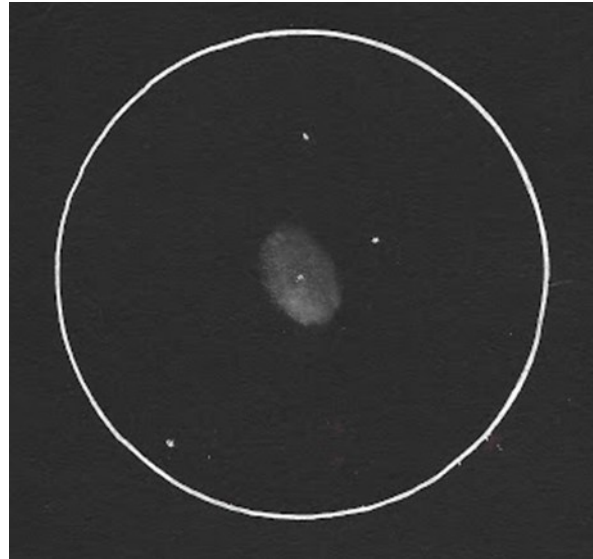
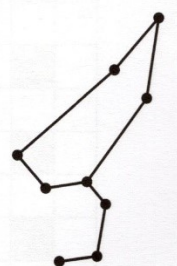
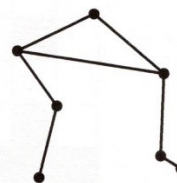
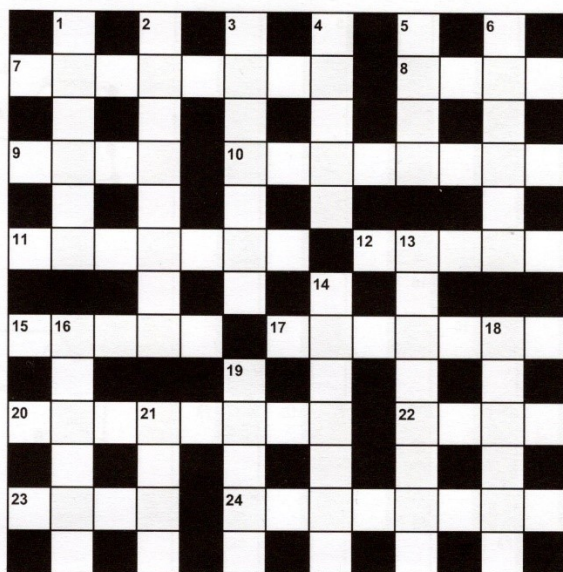


Figure 2: A sketch made of planetary nebula NGC 1360 [Ref: [Ngc 1360 planetary nebula - Sketching - Cloudy Nights](#)]

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 October 2024



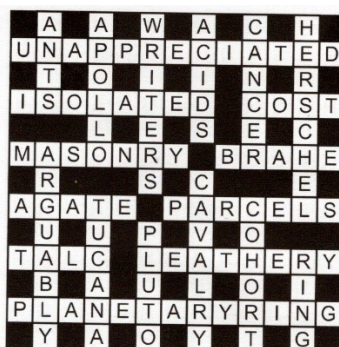
Across

- 7 Type of employment (4-4)
- 8 Eager; keen (4)
- 9 Unit of liquid capacity (4)
- 10 Flatter (6,2)
- 11 Brightest star in 1 Down (7)
- 12 Wedding official (5)
- 15 Small woodland (5)
- 17 Odd (7)
- 20 Material from which we are all said to be made, in a poetic way (8)
- 22 Identical (4)
- 23 Bound (4)
- 24 Most abundant element in our atmosphere (8)

Down

- 1 Constellation close to the Southern Cross (6)
- 2 Places in position (8)
- 3 More than half illuminated (of a moon or planet) (7)
- 4 Small pier (5)
- 5 Mammal similar to a large rabbit (4)
- 6 Sixty seconds (6)
- 13 Metrical analysis of verse (8)
- 14 Written law (7)
- 16 Set of clothes (6)
- 18 Small boring tool (6)
- 19 Bright; cheery (5)
- 21 Clarets (4)

Solution to September 2024



REFERENCE: *Astronomy Crosswords*, Clarity Media, UK

Astro Events from Frank Gross

Meteorite discovery upends our understanding of life on Earth

Michael Dahlstrom 16 September 2024 at 3:17 pm AEST

There's evidence that like Saturn, Earth once had a ring around it, and its shadow likely altered the way life developed.



When a meteorite strikes the Earth it creates a crater in the surface, as this example in Australia highlights.

Source: Getty

Analysis of a strange pattern left on the Earth's surface by a meteor shower has upended our understanding of how the planet appeared 466 million years ago, and how life developed.

A group of Aussie scientists believe a formation of craters around the equator suggests our planet may have once been surrounded by rings, similar to what we now see around Saturn.

The research published in the journal *Earth and Planetary Science Letters* examined 21 impact sites across Australia, China, India, North America, Europe and Russia from the Ordovician period. What they expected to see were random craters on the surface like we see on the Moon. But instead they found all of the craters were clustered within 30 degrees of the equator.

Because over 70 per cent of Earth's continental crust is outside this region, there was little possibility they fell into such a pattern by chance. They calculated the odds of it occurring would be like flipping a three-sided coin and getting heads 21 times in a row.

Related: Ancient discovery in Aussie outback provides clue to development of modern humans

Astro Events from Frank Gross

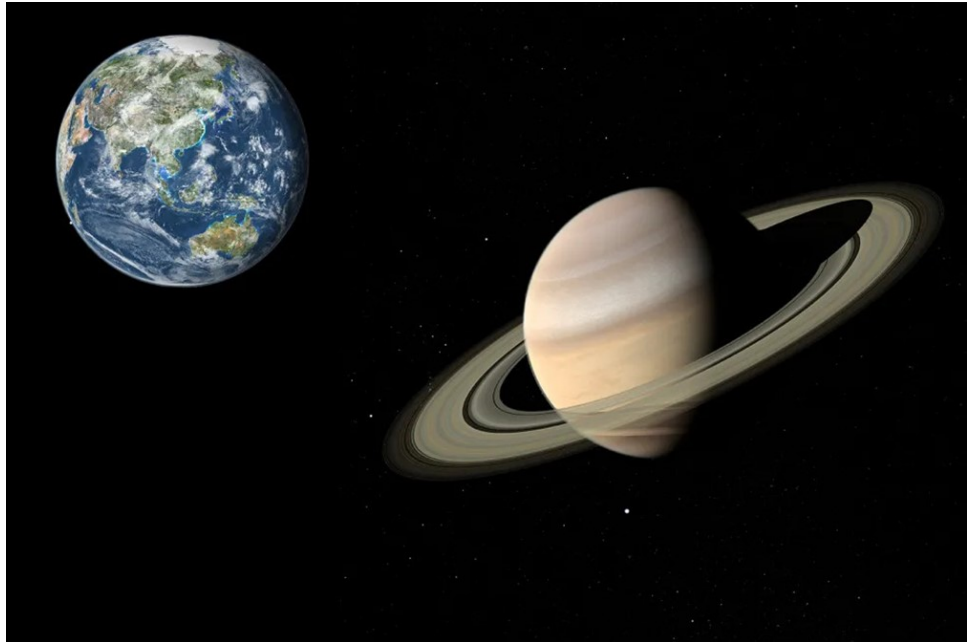
Cont...2

Why does the meteor pattern suggest there was a ring around Earth?

The team of Monash and Melbourne University geologists believe a likely reason for the pattern is that it was produced by a large asteroid which had a close encounter with Earth. As the object was broken apart by tidal forces as it passed within Earth's Roche limit, they theorise it formed a ring of debris. Over time the material in the ring would have fallen to the ground and the larger pieces would have formed impact craters.

Evidence suggests Earth (left) once had a ring around it like Saturn (right) now does.
Source: Getty

“Over millions of years, material from this ring gradually fell to Earth, creating the spike in meteorite impacts observed in the geological record,” lead author Professor Andy Tomkins said.



How did the ring around Earth impact life?

Despite the ring being high above the Earth, it's believed to have had a big impact on the surface below because it could have a large shadow. The cooling effect could have been so immense, it may have contributed to a cooling event at the end of the Ordovician period known as the Hirnantian Icehouse — one of the planet's coldest ever periods.

This intense cold-snap would likely have impacted the development and distribution of life.

“The idea that a ring system could have influenced global temperatures adds a new layer of complexity to our understanding of how extra-terrestrial events may have shaped Earth's climate,” Tomkins added.

Astro Events from Frank Gross

Cont...3

Does the Milky Way orbit anything?

By [Skyler Ware](#) published May 18, 2024

Do galaxies, including our own Milky Way, orbit anything in the universe?



Our galaxy is on a collision course with the Andromeda galaxy. (Image credit: NASA/JPL-Caltech)

It seems like everything orbits something in space. Moons orbit planets. Planets orbit stars. Stars orbit the centers of galaxies. But beyond that, things get a little harder to visualize. Do galaxies — and, specifically, the [Milky Way](#) — orbit anything?

To answer that, we first need to know how orbits work. Consider two objects orbiting each other. Those two bodies exert a gravitational pull on each other, keeping them bound together. The objects orbit their common center of mass — if you could shrink the system, the center of mass would be the point where you could balance it on your finger. But in the case of the [solar system](#), or Earth and the moon, one of the objects is much larger than the other. The center of mass ends up lying inside the larger body, so the larger object doesn't move much and the smaller object moves on a roughly circular path around the bigger one.

At larger scales, things get a little more complicated. Our galaxy is part of a collection of galaxies called the [Local Group](#), which includes the [Milky Way](#); the Andromeda galaxy; a smaller spiral galaxy called Triangulum; and several dwarf galaxies, including the Large and Small Magellanic Clouds. The Milky Way and Andromeda are the two largest objects in the Local Group. Because their masses are comparable, the center of mass lies between the two galaxies, said [Sangmo Tony Sohn](#), an astronomer at the Space Telescope Science Institute in Maryland. There's nothing significantly larger than either galaxy nearby, so the two end up orbiting each other.

But the Milky Way's orbit isn't circular or elliptical like the orbits of planets around the sun. "It's going to be weird to say if the Milky Way is orbiting around something, because that kind of implies that there's a bigger object," Sohn told Live Science. "But that's not the concept here."

Astro Events from Frank Gross

Cont...4

Related: Why aren't all orbits circular?

Instead, both the Milky Way and Andromeda are on mostly radial orbits. "Imagine the gravity of two things pulling on each other, and they're not moving in any way other than the gravitational pull. They will just move directly on the line towards each other. That's a purely radial orbit," said [Chris Mihos](#), an astronomer at Case Western Reserve University in Ohio. The Milky Way's orbit isn't perfectly radial because there's a bit of sideways motion between the two galaxies, Mihos told Live Science.



The Milky Way (seen here) will collide with the Andromeda galaxy in about 4.5 billion years. (Image credit: Kevin Key/Shutterstock)

Their mostly radial orbits toward each other mean that the [Milky Way and Andromeda will eventually collide](#), some 4.5 billion years from now. Individual stars likely won't crash into each other because of the huge distances between them, so the galaxies will pass through each other and separate again — but not for long.

Comet Tsuchinshan (C/2023 A3) Gerard Keyzer

Hello everyone.

At the moment there has been a lot of talk about Comet Tsuchinshan (C/2023 A3) which has been briefly visible in the pre-dawn for about a week looking due east. Below is a very good image taken by Brad Hodge from the Pilbara region. Keep in mind it is a time exposure so the Comet appears brighter than it would to the naked eye. Nevertheless it is very beautiful.

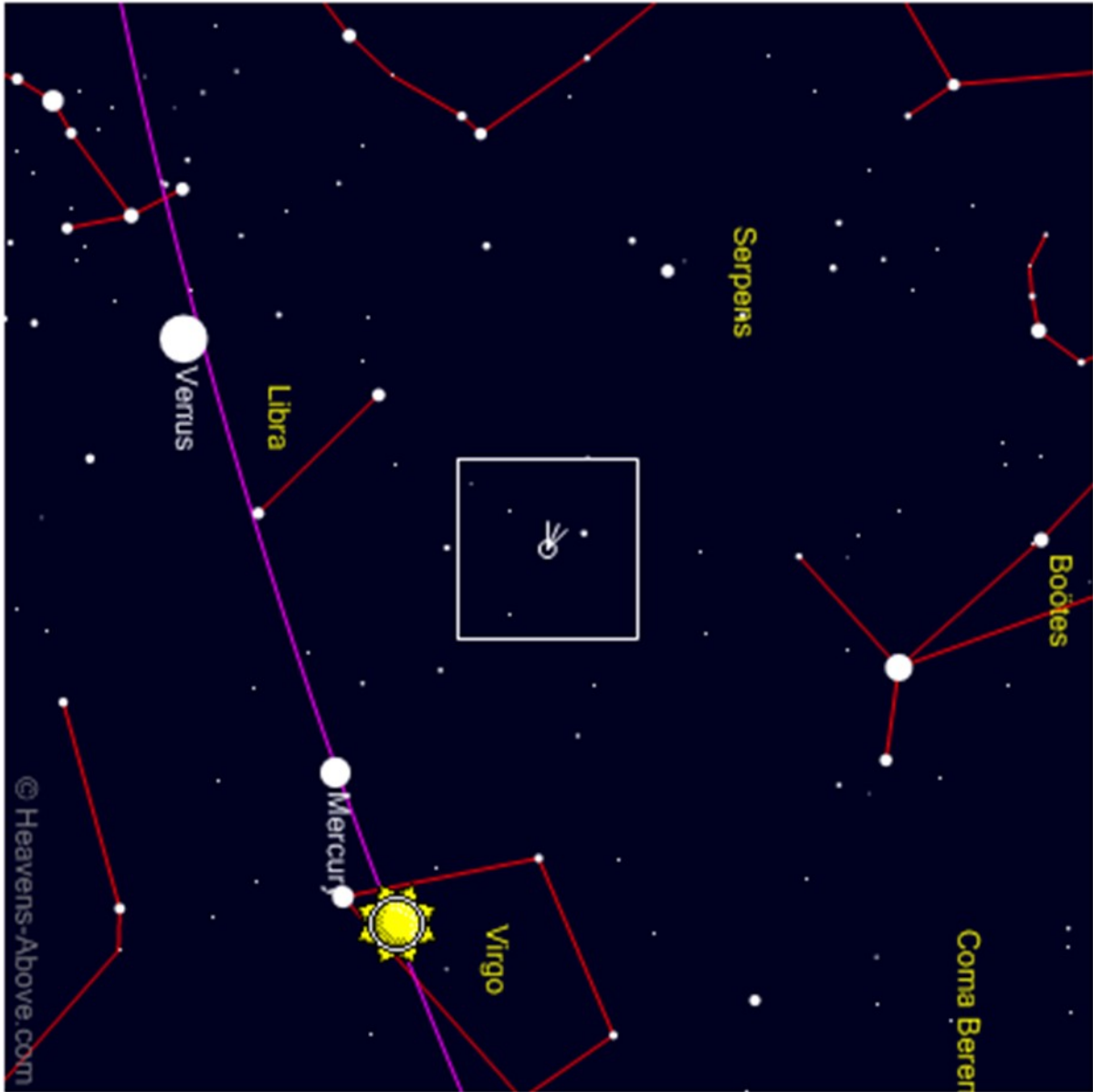
It is currently too close to the Sun to be seen by us and its early trajectory has made it a good object for the northern hemisphere but in a little over a week it may be putting on a show for us in the **WEST** after dusk as it emerges from behind the Sun.



This schematic (below) comes from the website Heavens Above and is set up for 8PM on 14th October as seen from Kangaroo Valley. I've had to rotate it to make it easy to understand that you are looking at the Sun setting in the west, so imagine that has happened and Mercury appears low on the horizon with Venus very very bright above (as the Evening Star). If the comet is visible it will be easy to locate by making a triangle (Mercury, Venus and Comet) with its point to the right or north.

Comet Tsuchinshan (C/2023 A3) Gerard Keyzer

Cont...2



Western Horizon

Position of Comet Tsuchinshan on 14th October

Comet Tsuchinshan (C/2023 A3) Gerard Keyzer

Cont...3

Position	
Right ascension	11 ^h 46.6 ^m
Declination	-4° 46'
Constellation	Virgo
Distance from Earth	0.604 AU
Last observed magnitude	1.3
Date of last reported observation	2024-Oct-04
Altitude	0.7°
Azimuth	265° (W)
Angular separation from Sun	14.5°
Ecliptic latitude	-7.8°

This is the table that shows the Comets position tonight (5/10/24) and if you look carefully the altitude (printed in green) says less than 1 degree above the horizon.

Looking at the table below for the 14th the altitude is indicated at 37 degrees above the horizon. This means it will move quickly up the sky and may be worth searching for after the next few days.

Position	
Right ascension	14 ^h 42.7 ^m
Declination	-0° 7'
Constellation	Virgo
Distance from Earth	0.479 AU
Last observed magnitude	1.3
Date of last reported observation	2024-Oct-04
Altitude	37.5°
Azimuth	302° (WNW)
Angular separation from Sun	22.7°
Ecliptic latitude	12.2°

Please ask me any questions if you have them.
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

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

Astronomy yearbook and calendar

This year, we will not be ordering these publications to sell to members. For anyone wanting to purchase them, the details are as follows:

Astronomy 2024 can be purchased through Quasar Publishing <https://quasarastronomy.com.au/> . This publication, once it becomes available, can also be found in bookshops and newsagents.

Astronomy Calendar 2024 can be purchased through Astrovisuals <https://astrovisuals.com/> .

National Australian Convention of Amateur Astronomers (NACAA)

NACAA will be held in Parkes over the Easter weekend of 2024. See <https://nacaa.org.au/2024/programme> .

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