Shoalhaven Astronomers Inc.
www.shoalhavenastronomers.asn.au

Volume 24
Issue 5

Astro Flyer

MAY 2024

Club News

President's Report. Hello Everybody

It's my last three Shoalhaven Astronomers, Inc meetings before I resign from the executive as President and Treasurer. I have been doing something with the club for the last 32 years, since its inception. Time for a rest. Please consider taking one or both of the jobs, they are not hard to do. I will help the new treasurer get started if need be.

Observatory viewing and photography. Sometimes the skies are clear. Contact Mark Town **M:** 0474859788 for bookings to have a look. You can also book through the Shoalhaven Astronomers website www.shoalhavenastronomers.asn.au

I'll have a couple of good Astro Videos for us to view and further, I hope for clear skies on the night Friday, May 17. Meeting starts at 7 PM and finishes by 9:30 PM for University security provisions, unless otherwise organized.

Please don't park in the bus zone in front of the monthly meeting room until after 6 PM. Infringements can ensue. Plenty of parking close to the meeting room otherwise.And always be aware of Kangaroos on George Evans Road (off Yawal Road), on the way to and out of the Uni.

Frank Gross, Public Officer, President and Treasurer

Our next meeting will be at the Wollongong Uni, May17th, 2024 starting at 7:00 PM.

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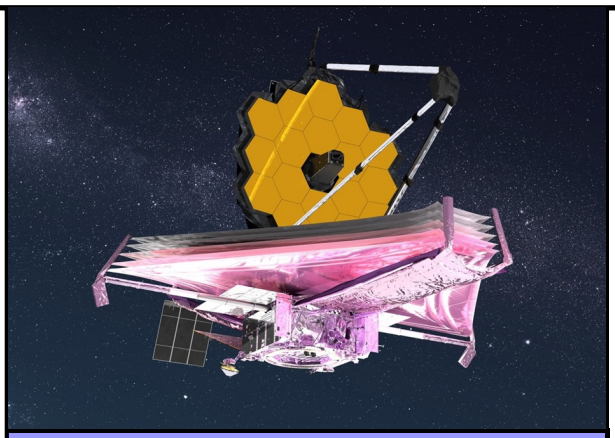

MOON PHASES

New Moon **Jun 6th**
First Quarter **May15th**
Full Moon **May 23th**
Last Quarter **May 31st**

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.

Observatory Report Mark Town

Current Status
The observatory is fully operational and can be used for both basic and more advanced activities. Integration of the observatory systems into a cohesive whole is progressing with the system control program – called N.I.N.A. – able to exercise reliable control over the CEM120 mount, the dome/shutter and the cameras. SharpCap is also available for those who prefer that program. If you have a preferred program that could benefit other members, please let the observatory managers (John Gould & Mark Town) know so it can be assessed.

Equipment donated to the association has undergone some refurbishment and is now ready for use and stored in our observatory. These items are available for use onsite or for loan so you can use them at your home. The items can be checked out to you – Just like a library! – on the website. The items are:

- A pair of 8 x 50mm binoculars.
- Two 8" LX90 Meade Scmidt- Cassegrain "GoTo" telescopes fork mounted on tripods
- A Coranado solar scope mounted on a lightweight manual tripod
- A Vixen 4" refractor on a manual equatorial mount with tripod.

Training
If you are concerned that the training you have done has departed your brain since you completed it - don't worry! We are running some dedicated training sessions – both during the day and in the night hours – so you can have some practical experience to refresh your memory and give you the confidence to operate the observatory. The first was done Monday 29Apr24 in the morning with 3 of our members attending. Future sessions will be advised by email.

The training is easy to do and done in the observatory in small groups so each person gets some practical experience of using the systems - in the meantime you can accompany an SA member who has done the training so you become familiar with the observatory equipment and how to operate it.

Observatory Access
The observatory is locked and the key is stored in a lock box at the door. You will need the current access code (available on the website) to open the lock box. Check the access code before going to the observatory!
Time on the observatory can be booked via the Members Area / Observatory Activities page on our website. You will need a username and password to login so message or email myself for that information.

Best regards,
Mark Town
M: 0474859788 **Email:** marktown@shoal.net.au

Observation Report Andrew Wood

What's on in the Cosmos May-June 2024

Our May 17 meeting occurs midway between First Quarter and Full Moon. The club's viewing night at the Shoalhaven Observatory on May 18 will see sunset about 5:00PM with full darkness by 6:30. We will, however, be accompanied by a waxing gibbous Moon.

Moon Phases

First Quarter	15th May	Dark after midnight
Full Moon	23rd May	Enjoy the Moon
Last Quarter	31st May	Dark before midnight
New Moon	6th June	Dark all night
First Quarter	14th June	Dark after midnight

Planets

The evening over the next month is still planet-free. Any planetary viewing or imaging will need to take place in the early hours.

Comets

Likewise with comets. There are plenty around; though none are bright or visible enough to warrant special mention.

Beyond the Solar System

Looking south around 9PM, the Southern Cross and Centaurus stand prominent. Among the vast richness of this region of sky, one not-often-mentioned object, **The Blue Planetary,** or **NGC 3918**, lies close to the border between Crux and Centaurus. At magnitude 8 and 12" in diameter, it is large enough and bright enough to be seen in small telescopes, though larger aperture will bring out the blue colour first noted by John Hershcel in 1834.

This planetary nebula is extensively described – object 54 – in *Southern Gems* (SJ O'Meara, Cambridge University Press, 2013). E.J Hartung, in *Astronomical Objects for Southern Telescopes*, describes it as,"…round, well defined and vivid pale blue…and lies in a fine starry field."

Observation Report Andrew Wood

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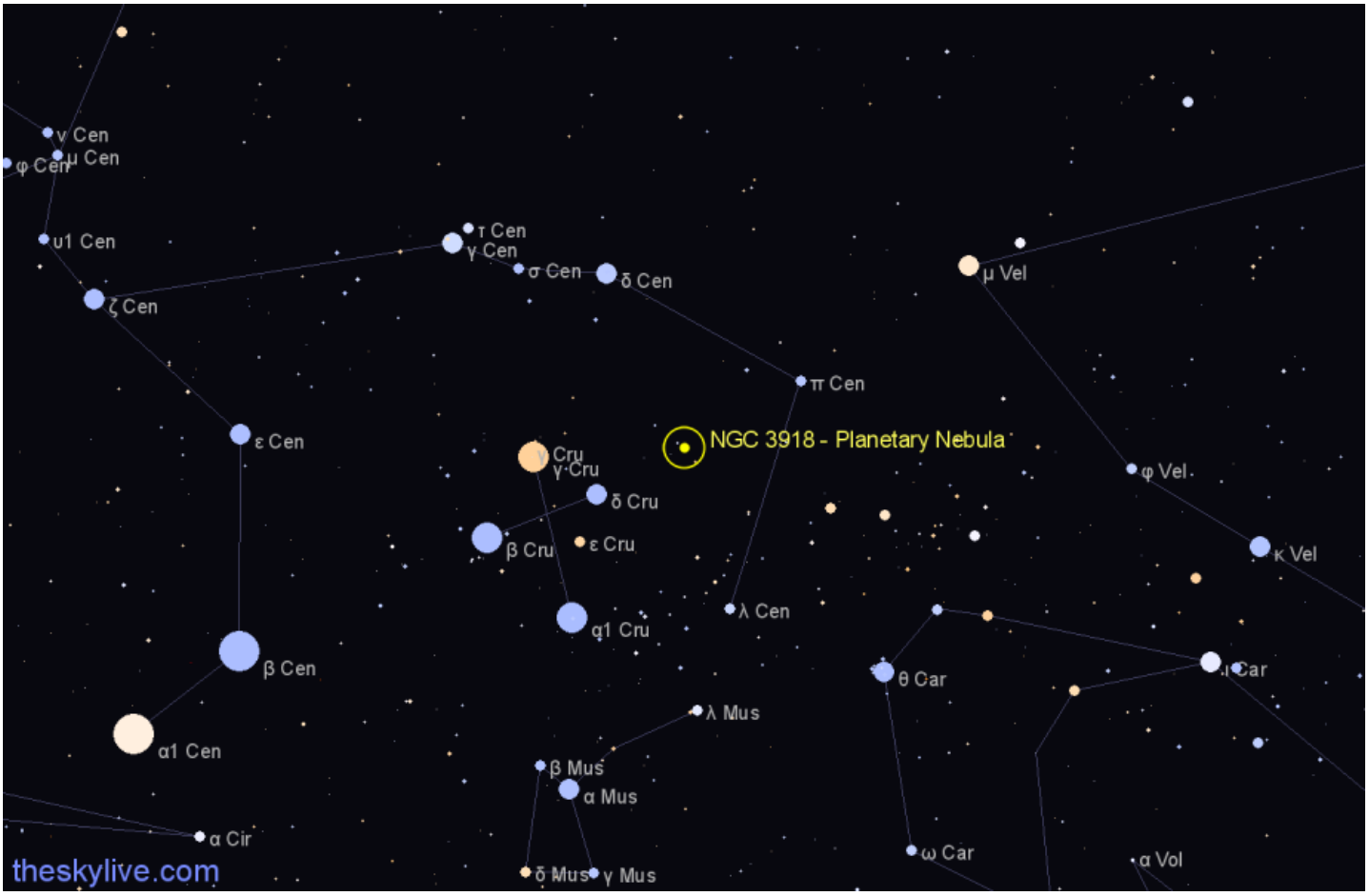
From my own observations, I described it as, “Large, bright, solid and spherical” through a 250mm Newtonian at 55X in 2003. In 2019, through a 400mm Newtonian at 200X, I noted a, “faint halo visible around the solid structure.” Both these observations included a UHC filter and were made from fairly dark though not perfect locations.

The picture above and below from the internet are a finder chart and an image that equates to a realistic view through a large telescope.

NGC 3918 is 4,900 light years away from our Sun.



Clear skies and happy viewing.
Andrew Wood.

Astro Quiz Andrew Wood

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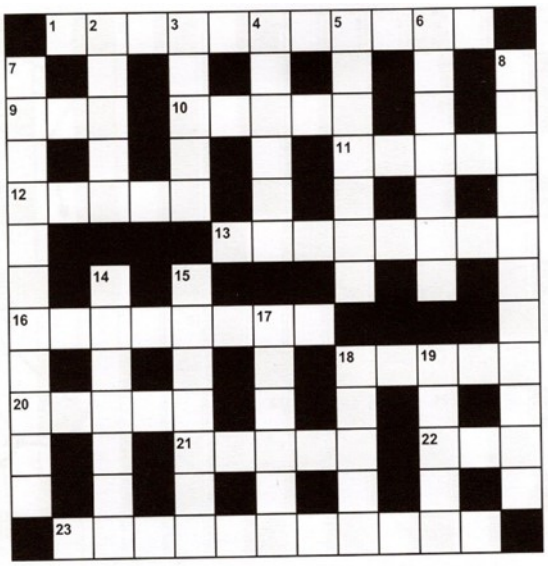
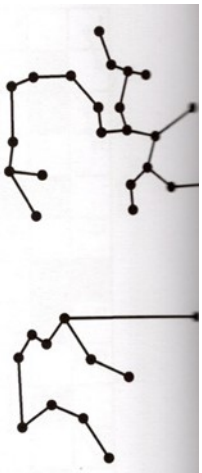
Crossword 2024





Across

1 Founded (11)
9 Palindromic constellation near Scorpius (3)
10 Ironic metaphor (5)
11 Grape (anag) (5)
12 Instrument used by Cassini to send radio waves at surfaces (5)
13 Defeated (8)
16 Exactly on time (informal) (2,3,3)
18 Our planet (5)
20 Horse's cry (5)
21 Moment in time used as a reference point in astronomy (5)
22 Longing (3)
23 Mean (5-6)

Down

2 Piece of broken pottery (5)
3 Religious table (5)
4 Alexei ___ : Soviet cosmonaut and first person to undertake a spacewalk (6)
5 Alan ___ : first American to travel into space (7)
6 Mournful (7)
7 Faint constellation between Sagittarius and Aquarius (11)
8 Having a widespread range (3-8)
14 Uncomplaining (7)
15 Faint constellation near Cassiopeia and the Pole Star (7)
17 Unique (3-3)
18 Work spirit (5)
19 Poetic verse (5)

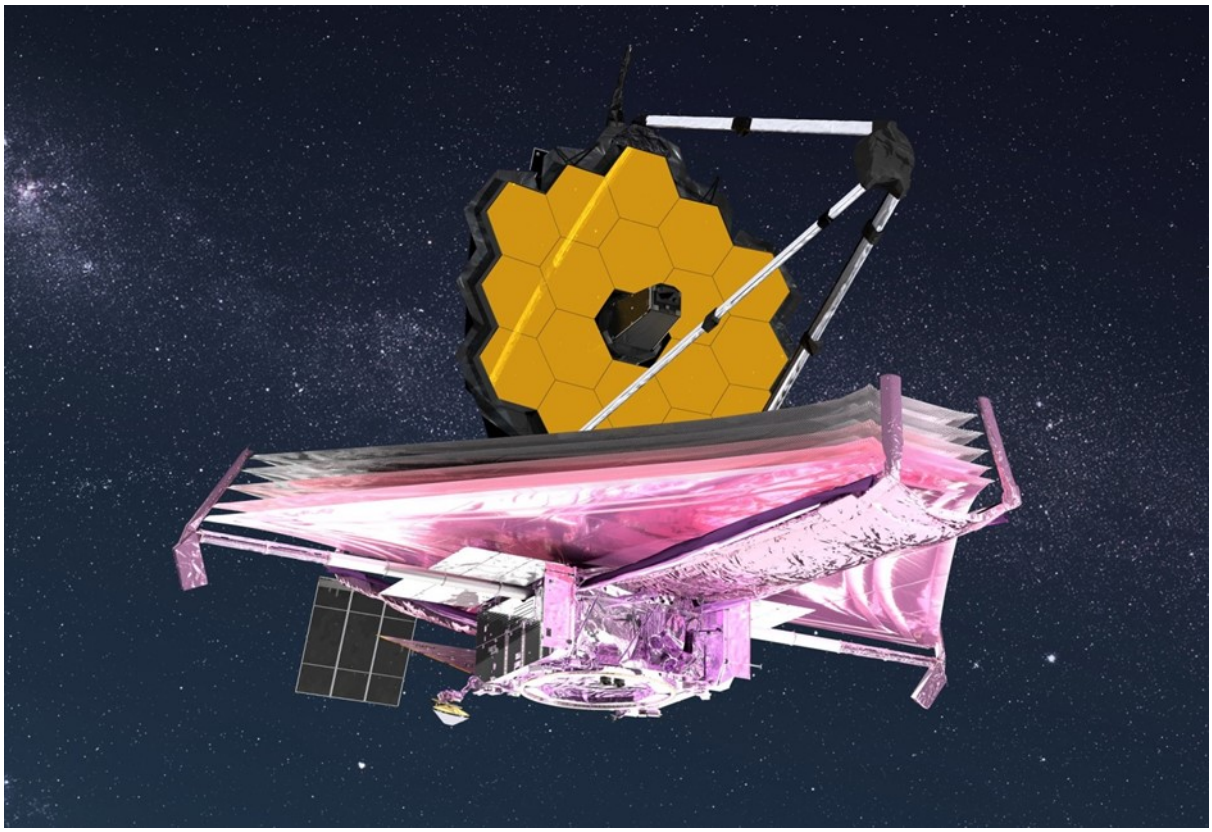
Solution to April Crossword

D	E	T	A	C	H	■	M	O	U	S	S	E
A	■	A	■	O	■	C	■	C	■	I	■	L
M	■	X	■	M	■	O	P	H	E	L	I	A
S	T	I	F	F	E	N	■	O	■	L	■	P
O	■	■	■	O	■	J	■	A	R	I	E	S
N	I	C	E	R	■	U	■	■	■	E	■	E
■	■	O	■	T	O	N	E	D	■	S	■	■
I	■	R	■	■	■	C	■	E	N	T	E	R
M	O	D	E	L	■	T	■	E	■	■	■	O
A	■	E	■	I	■	I	A	P	E	T	U	S
G	A	L	I	L	E	O	■	S	■	U	■	T
E	■	I	■	A	■	N	■	E	■	R	■	E
S	W	A	T	C	H	■	G	A	R	N	E	R

Astro Events from Frank Gross

The James Webb Space Telescope has solved a lot of puzzles, and created a few more

By Rebecca Sohn
published 5/4/2024
The new telescope data could be just the beginning, say scientists.



(Image credit: NASA GSFC/CIL/Adriana Manrique Gutierrez)

In science, it's often said that the data doesn't care what you think. That is especially true when it comes to sophisticated new tools like the James Webb Space Telescope (JWST). So it hasn't been a shock that some of the data from the JWST isn't quite what scientists expected.

In the 2024 Isaac Asimov Memorial Debate, astrophysicist and science communicator Neil DeGrasse Tyson moderated a discussion at the National Museum of Natural History in New York. The conversation was between scientists and surrounded the topic of how data from the telescope may be shifting our fundamental understanding of our universe. From discrepancies in the age of the universe to the unexpected brightness of early galaxies, the James Webb Space Telescope has already prompted scientists to reconsider how the early universe once operated, leading to revelations that could trigger major shifts in our models of the universe during the next decade or more of the JWST's tenure.
The data from the telescope "paints a consistent and consistently new picture" of the early universe, said panelist Mike Boylan-Kolchin, a theoretical astrophysicist at the University of Texas at Austin.

Just because it was impossible to know what the JWST might see, however, doesn't mean scientists didn't try. Still, it was tough. Arguably the most difficult part, the panelists said, was coming up with basic parameters to base their predictions off of. As Tyson put it, the parameters are like "knobs you turn" in computer simulations of the universe meant to project outcomes based on hypotheses. To pose an example, panelist Rachel Somerville, a senior research scientist at Flatiron Institute's Center for Computational Astrophysics in New York City, described a study she had worked on that tried to predict what JWST would see.

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"We turned all the knobs in our models to match the nearby universe," said Somerville. But something wasn't right. "We disagreed with the observations," she said. After looking over the data, Somerville and her team discovered that their predictions would be more accurate if they took into account the increased density of the early universe, which was smaller than our currently more expanded universe, yet contained the same amount of mass.

Other problems were not so easily resolved. For instance, many observations made by the JWST revealed that the early universe was a surprisingly vibrant place, with galaxies far larger and brighter than scientists predicted.

"I don't think anybody's models really predicted how much activity there was then," said Boylan-Kolchin. It seems like "everything is happening faster than we thought in the early universe."

The case of the surprisingly active early universe might be related to another well-known discrepancy in astrophysics — the *age* of the universe.

The Hubble Space Telescope was a huge factor in helping narrow down the scientific consensus on the universe's age — in fact, the telescope's mirrors were specifically made to observe stars called Cepheids that astronomers can use to calculate that age, said panelist Wendy Freedman, a cosmologist at the University of Chicago. The resulting measurement of the universe's age, about 13.7 billion years, has stood ever since.
But, let's not forget there is another way to measure the age of the universe, said Boylan-Kolchin.

"That's with the cosmic microwave background, the light from the earliest phases of the universe," he said. Using this method, scientists came up with a slightly larger number — 13.8 billion years. And while that difference may not seem huge, some estimates using Cepheids are as low as 12.8 billion years, said Boylan-Kolchin. Worse, no one knows where the difference comes from. "It's like, we're digging a tunnel on opposite sides of a mountain, and we missed," said Freedman.

Unfortunately, the surprisingly luminous early galaxies the JWST discovered did nothing to solve this mystery.

In fact, the telescope's results led Rajendra Gupta, an astrophysicist at the University of Ottawa, to publish a paper suggesting that, based on the new data, the universe could be as ancient as 26.8 billion years old, about twice as old as current estimates. While the panelists agreed that Gupta's suggestion is extremely unlikely, the discrepancy of the universe's age in general does suggest the standard cosmological model and our understanding of the impact dark matter and dark energy have on our universe, may need some revamping.
It could be that "something fundamental is missing in our current picture," said Freedman.

On the bright side, it looks like data from JWST can do more than just point out discrepancies — it may be able to help scientists answer some fundamental questions in astronomy that have persisted for decades. The telescope also won't be the only technology helping solve these problems. New tools like artificial intelligence and increasingly powerful supercomputers might help; other telescopes, like the Giant Magellan Telescope, a huge optical telescope under construction in Chile that Freedman has led the development of, will add to the high-quality data at scientists' disposal, too. With so many new tools, the amount and quality of data will be unprecedented, said panelist Priya Natarajan, a theoretical astrophysicist at Yale University.

"We are in the midst of a revolution in terms of data," she said. "Soon it's going to start really tightly constraining the models and hence our theoretical understanding."

Club News

The AGM was held at the July 2023 monthly meeting. Elected officials for 2023- 2024

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

Andrew Wood
Mark Town
John Gould
Ian Scott

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 General Members:
Laurence Wakelin
Frank Gross
Andrew Wood
Mark Town
John Gould
Ian Scott

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 2023-4, 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

Hoping for your continuing membership – the Shoalhaven Observatory is now open and functional!

Kind Regards Andrew Wood Secretary

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

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The deadline for Articles for the Astro Flyer is The First Friday of the Month.

Editor Kaye Johnston