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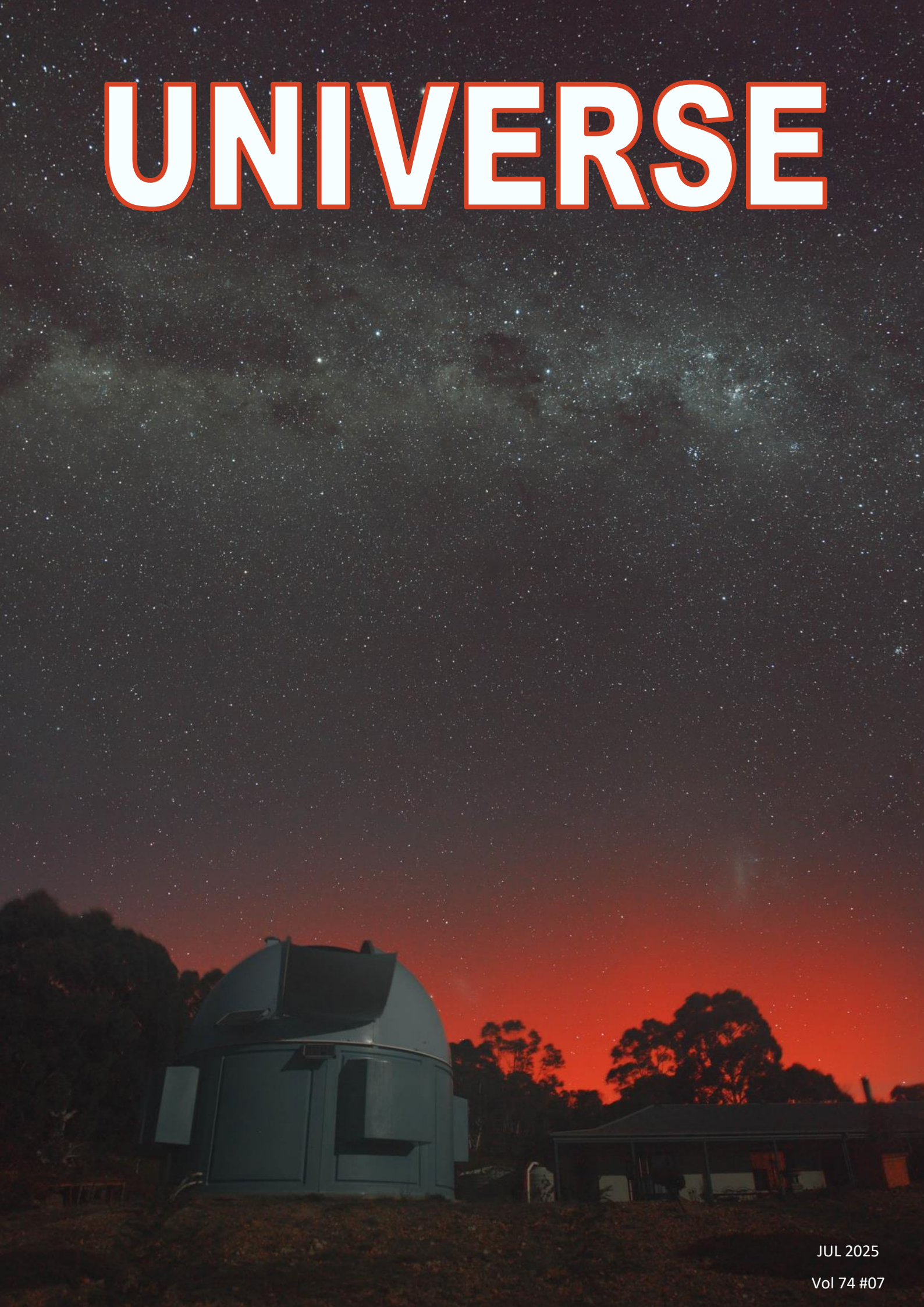

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August 2025 submissions required by 24 July.

UNIVERSE Correspondence and Contributions -

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Front Cover by Naill MacNeil:Aurora Australis and the Milky Way: A 3 panel mosaic was captured on the evening of June 1st 2025 at ~20:30, to show the beautiful red Aurora Australis above the observatory dome and house with the span of the Milky Way overhead. The head of the Aboriginal Constellation seen in the negative space of the Milky Way, the Emu, is looking downwards and marks the lower left quadrant of the Southern Cross. The two pointers, Alpha and Beta Centauri can be seen to its left. From these you can clearly see that I was facing South, which is of course a necessary condition to see the Aurora in the Southern Hemisphere. The Large Magellanic Cloud (LMC) is visible at the edge of the Aurora above the large tree. Equally the Small Magellanic Cloud (SMC) can be seen in the auroral glow just above and right of the dome. A fortunate timing and alignment generating a beautiful vista. Camera: Canon EOS 5D mk II Lens: Canon 35-105mm Captures: 3 vertical panels with 5 x 20 sec for each panel @ ISO 3200.

Rear Cover by Jean-Pierre Dorte: M94, a galaxy in the constellation of Canes Venatici. M94 has been extensively studied by scientists. It is a Seyfert-type galaxy, meaning that its center (very visible in the photo) is extremely bright and powered by a supermassive black hole. The galaxy features a double-ring structure, consisting of the main body of the spiral galaxy, followed by a dark region, and then a second, much larger ring known as the "pseudo-bulge." Possible explanations: Dark ring:This could be a region with a lower density of matter, leading to reduced star formation and thus a darker appearance. It is also possible that the ring is caused by the absorption of light by interstellar dust clouds. Outer ring: M94 has an outer ring that extends well beyond its main disk. This outer disk is active and contains a significant amount of matter, contributing to star formation. It is sometimes interpreted as a resonance ring, where gravitational forces have concentrated matter. Contrast effect: The dark ring may simply be a visual contrast effect between the very bright inner region and the more diffuse outer ring. The current state of M94 might be the result of a merger between two galaxies approximately 5 billion years ago. - (https://arxiv.org/pdf/2306.05080) Contradictory study- (https://arxiv.org/pdf/2304.08436) In the end, we don't really know for sure, but it's a fascinating celestial object! Captured in Lachassagne (France) on May 31, 2025 - 50 x 180 seconds (+DOF), Camera 2600 Mc on Skywatcher 150i - Preprocessing in PixInsight, processing in SIRIL and Photoshop.

July Observer

By Geoff Smith

Planets in July

In July **Mercury**, meandering through Cancer in the western evening sky, is in an ideal position for observation until mid-month. **Venus** dazzles in the predawn sky in Taurus. On the 15th Venus will be within 3° of Aldebaran, which will make a striking sight. After its solar conjunction in June, **Jupiter** in Gemini joins Venus in the morning sky. **Mars** is in the early evening sky as it moves through Leo before entering Virgo at month's end. **Saturn**—rising around 10:30 in the middle of the month—and **Neptune** remain within 1° apart until early August.

Moon Cycles

First Quarter	Full Moon	Third Quarter	New Moon
3 July 5:30am	11 July 6:36am	18 July 10:37am	25 July 5:11am

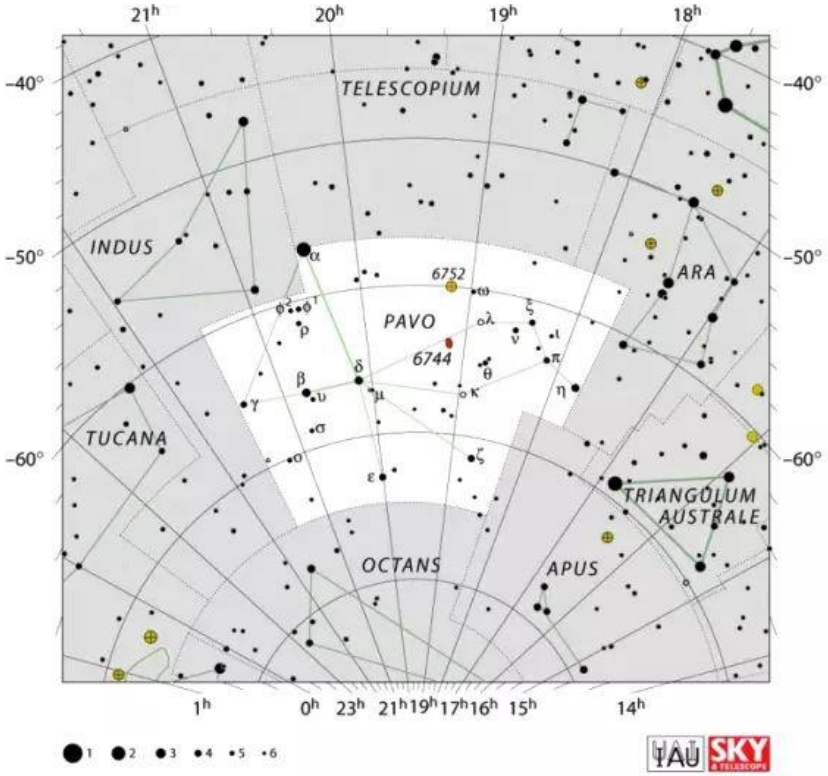
The Sky in July

As darkness falls we find Centaurus transiting high in the southern sky. Still looking south, we see Vela and Carina past transit. Scorpius and Sagittarius are approaching transit and will be pretty much overhead by 9pm. If we switch our gaze to the northern sky we get good views of Coma Berenices, Boötes and Hercules. Higher in the northern sky we can see Virgo just past transit, while Leo is setting in the north-western sky.

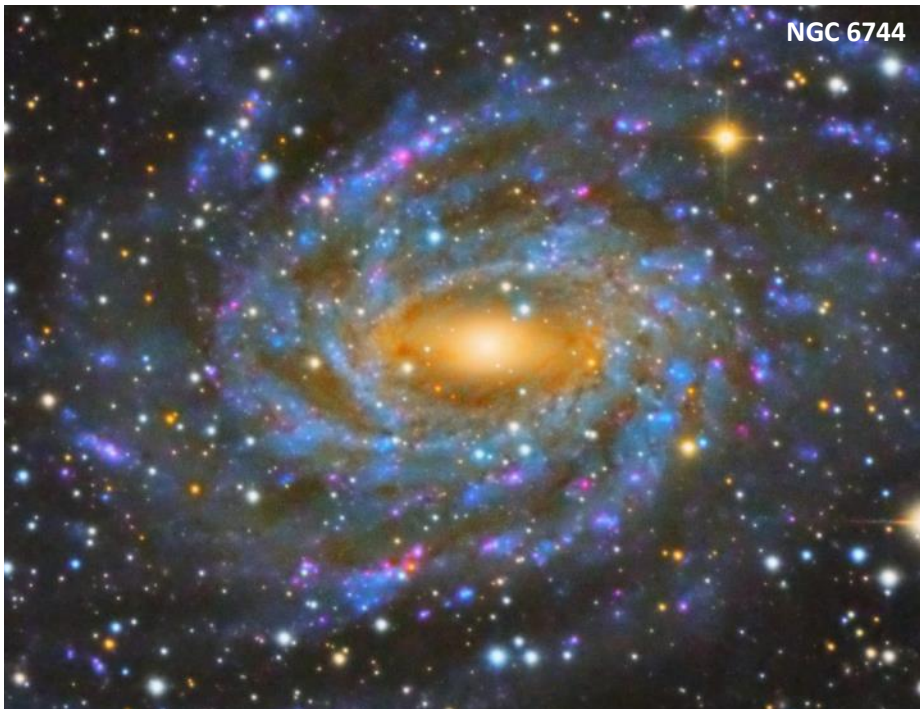
Looking South— Pavo, Apus and Octans

Following last month's observation suggestions, we shall continue exploring the deep southern sky.

Pavo was one of the twelve constellations established by Petrus Plancius from the observations of the southern sky by explorers who had sailed on the first Dutch trading expedition to the East Indies. It first appeared on a 35-cm diameter celestial globe published in 1598 in Amsterdam by Plancius together with Jodocus Hondius. The first depiction of this constellation in a celestial atlas was in Johann Bayer's *Uranometria* of 1603.

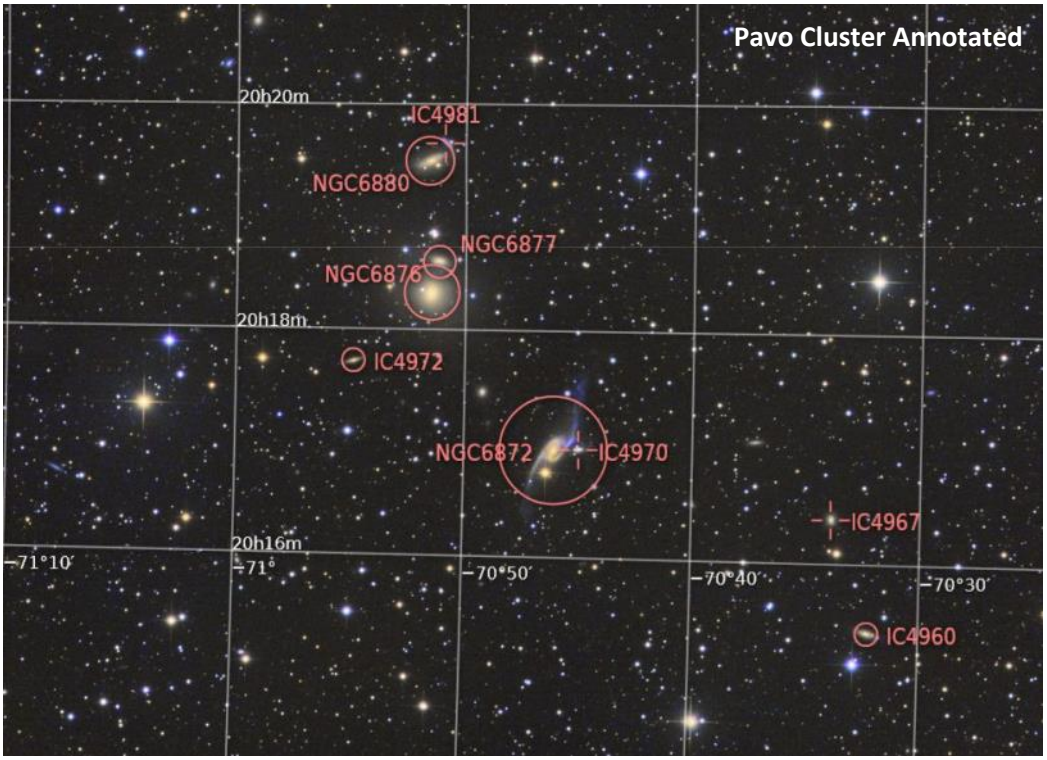


The showcase object in Pavo is undoubtedly the galaxy **NGC 6744**, discovered by James Dunlop from Parramatta in 1826. This dramatic object is one of the largest and nearest spiral galaxies. In apparent size it is about two-thirds of the width of the full Moon. However, it has a low surface brightness, making the galaxy appear visually as a hazy glow with a bright centre. Keen-sighted observers may be able to resolve the spiral arms with a 250mm telescope. Photographically, it makes a fine object.

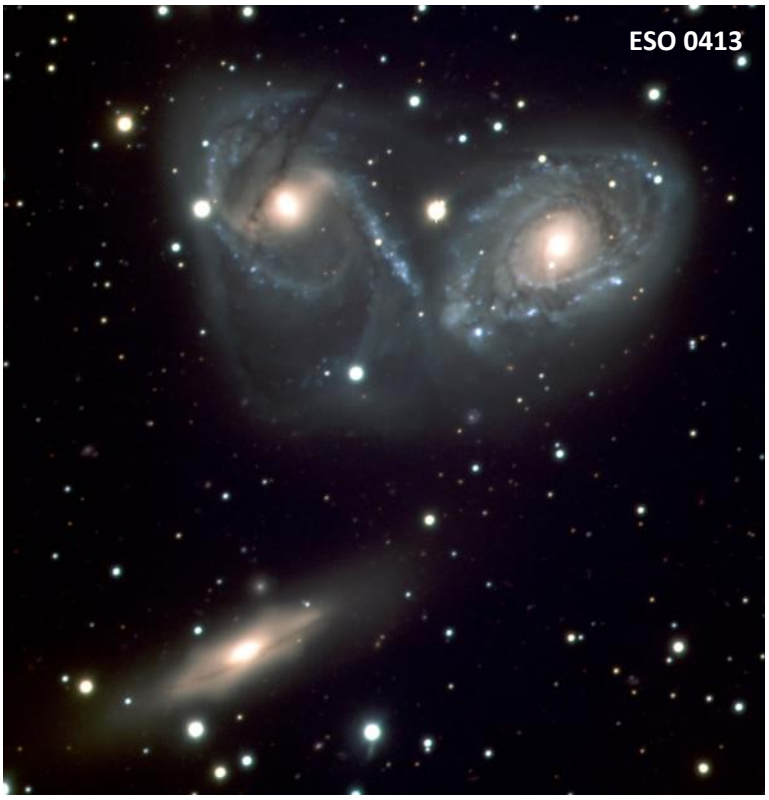


Another spectacular object in Pavo is the globular cluster **NGC 6752**, the fourth-brightest globular cluster in the sky, after 47 Tucanae, M22 and ω Centauri. It was probably first observed by James Dunlop in 1828 from Parramatta. The apparent magnitude of the cluster is 5.4, so it can be seen with the unaided eye under good viewing conditions with a minimum of light pollution. With binoculars it can be seen to cover an area three quarters the size of the full moon. The cluster lies around 13,000 light-years away and is one of the closest globular clusters to us.

The Pavo Galaxy Cluster centred around NGC 6877 and NGC 6876 also makes for a fine photographic field. The main object in the cluster is the photogenic **Condor Galaxy** (**NGC 6872**), which is a large barred spiral galaxy located 212 million light-years from us. The galaxy has an apparent magnitude of 10.69 and is in the process of interacting with its smaller neighbour, the lenticular galaxy IC 4970. The Condor Galaxy stretches over 522,000 light -years across – more than five times the size of the Milky Way – and is one of the largest known spiral galaxies. The galaxy's stellar bar has a radius of about 26,000 light -years, which is around twice the average length found in barred spiral galaxies. The giant galaxy contains anywhere between 500 billion to 2 trillion stars.As a result of its interaction with IC 4970, NGC 6872 has the distinctive shape of the integral sign. The elongated shape was slowly produced after the smaller galaxy made its closest approach around 130 million years ago. Simulations have shown that IC 4970 approached the Condor Galaxy almost along the plane of its spiral disk. The interaction distorted the larger galaxy's shape and stretched out its spiral arms.



A real challenge in Pavo is the group of three galaxies **NGC 6769–71**. The photograph shown here was taken with one of the four 8.2-m Unit Telescopes of ESO's Very Large Telescope. Although small, it should still yield an interesting image for a telescope with a 2 metre (or more) focal length, given good seeing. There are also several comparable sized galaxies to add extra interest in a field of 50' x 50' centred on the main group.



Apus, the Bird of Paradise, is tucked into the starless void between Triangulum Australe and Octans. Never was a constellation so poorly named. Firstly, its name comes from the Greek and means "without feet" because the bird of paradise was once wrongly believed to lack feet. Supposedly, they spent their whole life on the wing. Secondly, given their spectacular colours and appearance, one would expect that a bird of paradise would be represented in one of the richest regions of the sky. Alas, the brightest star in Apus is around magnitude 4 and the constellation is hardly representative of the spectacular bird.

However, it is not fair to say that there is nothing of interest in Apus. One need only look long enough and deep enough into any part of the sky to find something worthy of study. Apus has two nice globular clusters (**NGC 6101** and **IC 4499**), as well as two galaxies (**IC 4633** and **IC 4635**) above 3' in diameter. One of the globular clusters (NGC 6101) has been reported to contain an unexpectedly large number of black holes. There is also a dense dusty region surrounding the spiral galaxy **IC 4633**. In the picture shown here, IC 4633 is the prominent galaxy at top centre, while the small galaxy below and to the left is **IC 4635**. Although the dust is prominent photographically, it is actually very faint and visual observers are unlikely to notice it. If your equipment is able to photograph very wide fields (3° square) you can capture the so-called South Celestial Serpent MW9, which is a vast extension of the dust around IC 4633. The designation MW refers to the Mandel-Wilson Catalogue of Unexplored Nebulae. It consists of 9 objects, but only one of these (MW9) is readily observable from the latitude of Sydney.

The star **κ Apodis** is a nice double-double star. There is a visual double κ^1 and κ^2 about 40 arc minutes apart. They are not associated with each other but both are binaries. Magnitude 5.5 κ^1 has an 11^{th} magnitude secondary separated by 27" at PA 255°, while magnitude 5.7 κ^2 has a 13^{th} magnitude secondary separated by 32" at PA 131°.

Octans was one of 14 constellations created by French astronomer Nicolas Louis de Lacaille during his expedition to the Cape of Good Hope, and was originally named *l'Octans de Reflexion* ("the reflecting octant") in 1752. Lacaille devised fourteen new constellations in uncharted regions of the Southern Celestial Hemisphere not visible from Europe. All but one (Mensa) honoured instruments that symbolised the Age of Enlightenment. Although Octans has two galaxies worth photographing with medium sized telescopes—**NGC 7098** and **NGC 7095**—it is also a very dusty region. Unfortunately, there is not a lot of location information on these dust clouds. Dust aficionados are advised to browse for pictures on the web for inspiration, for example ***https://www.astrobin.com/b8umom/B/*** and ***https://www.astrobin.com/389460/***.


NGC 7098

Octans contains two stars with known planets and has no Messier objects. The brightest star in the constellation is ν Octantis, with an apparent magnitude of 3.76. The one formally named star in Octans is Polaris Australis (σ Octantis). Although it is the closest "bright" star to the south celestial pole, at magnitude 5.4 it is 25 times fainter than the Polaris, making it difficult to use in polar aligning a telescope mount.

The best galaxy in Octans is **NGC 7098**, a doubled barred spiral galaxy about 95 million light-years away. NGC 7098 was discovered by John Herschel. NGC 7098 has a very prominent bar. Surrounding the bar is an inner ring made of four tightly wrapped spiral arms. Located outside of the inner ring, a well-defined outer ring surrounding the inner region appears to have formed due to the wrapping of two spiral arms. It appears that both rings are being affected by new star formation. However, there is no star formation in the core of NGC 7098 as shown by the absence of dust lanes.

The galaxy **NGC 2573**, also known as **Polarissima Australis** is a barred spiral galaxy in Octans. The galaxy was discovered by John Herschel. It is the closest NGC object to the south celestial pole. It is very small—about 1' in diameter—but should show photographic detail in any telescope over 250mm.

Meteor Showers—Southern δ-Aquariids

The **Southern δ-Aquariids** are active from July 12th to August 23rd. They are a strong shower best seen from the southern tropics. These meteors produce good rates for a week centred on the night of maximum. They are usually faint meteors that lack both persistent trains and fireballs. The Southern delta Aquariids will peak on the night of July 30–31, 2025. On this night, the waxing crescent Moon will set around midnight. **Radiant:** 22:42 -16.3° , **ZHR:** 25

Deep Sky Objects for July

In the table below all times are AEST, transit times are for 15 July at Wiruna, the Society's premier dark sky site (longitude 149° 46' 49'' E). MA denotes the altitude of the object at transit time.

Object	Type	Const	RA	Dec	Mag	Size	Transit	MA(°)	Notes
NGC 2573	Gxy	Oct	01h 41m 38s	-89° 20' 04"	13.5	51"	06:05	34	Polarissima Australis, Closest NGC object to SCP
PK 308-12.1	PN	Aps	14h 15m 30s	-72° 12' 46"	13.4	35"	18:40	51	Seldom photographed, aka Hen 2-105
IC 4499	GC	Aps	15h 00m 19s	-82° 12' 50"	10.1	10'	19:25	41	Loose globular cluster
NGC 6101	GC	Aps	16h 25m 48s	-72° 12' 08"	9.2	11'	20:51	51	Typical GC. Nice rich field
IC 4633	Gxy	Aps	17h 13m 47s	-77° 32' 10"	13	1.8'	21:38	45	Dusty overlay
IC 4635	Gxy	Aps	17h 15m 39s	-77° 29' 23"	14	1.7'	21:40	46	In the same dusty area as IC4633
PK 332-16.1	PN	Pav	17h 51m 48s	-60° 23' 22"	17	42"	22:06	62	Very faint, 7.4 mag star close by.
NGC 6438	Gxy	Oct	18h 22m 43s	-85° 24' 15"	11.6	3.2'	22:47	38	Peculiar mish-mash, 2 or 3 colliding galaxies
IC 4710	Gxy	Pav	18h 28m 38s	-66° 58' 56"	11.9	3.4'	22:53	56	Dwarf galaxy, face-on
IC 4721	Gxy	Pav	18h 34m 25s	-58° 29' 48"	11.6	5.6'	22:59	65	Superimposed on a more distant galaxy.
NGC 6744	Gxy	Pav	19h 09m 46s	-63° 51' 27"	8.5	17'	23:34	59	Standout object
NGC 6752	GC	Pav	19h 10m 52s	-59° 59' 04"	5.3	20'	23:35	63	Great Peacock GC. Showcase object
NGC 6769	Gxy	Pav	19h 18m 23s	-60° 30' 03"	11.8	2.6'	23:43	62	Interacting galaxies. Challenge object
NGC 6770	Gxy	Pav	19h 18m 37s	-60° 29' 47"	11.9	2.3'	23:43	63	Interesting and challenging interacting triplet
IC 4901	Gxy	Pav	19h 54m 24s	-58° 42' 49"	11.5	3.9'	00:19	64	Face-on spiral
NGC 6872	Gxy	Pav	20h 16m 56s	-70° 46' 05"	11.8	6'	00:41	52	Condor galaxy. See text.
NGC 6943	Gxy	Pav	20h 44m 34s	-68° 44' 52"	11.4	1.9'	01:09	54	Tilted spiral
IC 5052	Gxy	Pav	20h 52m 02s	-69° 11' 36"	10.5	6.5'	01:16	54	Edge-on galaxy
IC 5096	Gxy	Pav	21h 18m 22s	-63° 45' 38"	12.3	2.3'	01:42	59	Beautiful edge-on spiral.
NGC 7098	Gxy	Oct	21h 44m 16s	-75° 06' 41"	11.3	2.3'	02:08	48	Pretty galaxy. Some IFN present
NGC 7095	Gxy	Oct	21h 52m 27s	-81° 31' 51"	11.5	1.1'	02:16	41	Face-on barred spiral.

References:

1. *Astronomy 2025 by Wallace, Dawes and Northfield*
2. *Double Stars for small telescopes by Sissy Haas*
3. *Annals of the Deep Sky by Jeff Kanipe and Dennis Webb*
4. *The constellation charts are from http://www.iau.org/public/themes/constellations/ and were produced by the IAU in collaboration with Sky & Telescope magazine. Their use here is permitted under the creative commons licence http://creativecommons.org/licenses/by/3.0/*
5. *Hartung's Astronomical Objects for Southern Telescopes by David Malin and David Frew*
6. *Photograph of NGC6769–6771 by ESO, all others by Geoff Smith*

July Comets

By Greg Bryant

We're in the midst of a drought of reasonably bright comets, with none brighter than 13th magnitude visible in July's night skies. The drought will break in late spring (if not sooner if one creeps up on us), and there's a rich flotilla of comets that will be visible through the telescope throughout 2026.

Comet C/2025 K1 (ATLAS): On 24 May, images taken with a 0.5m reflector in Chile as part of the global "Asteroid Terrestrial-Impact Last Alert System" (ATLAS) revealed a new 18th magnitude apparent asteroid moving slowly through Pegasus that was subsequently found to be cometary in nature by other observers. Observations over the next few days revealed that comet ATLAS will reach perihelion on 8 October at a distance of just over 0.3 au from the Sun.

Alas, this is an intrinsically faint comet and will probably succumb to the heat of the Sun as it approaches perihelion. We might (or might not) catch it in September as it potentially brightens to 11th magnitude in the evening sky.

THE ROYAL SOCIETY

We are delighted to announce that the Royal Society Publishing Photography Competition 2025 is now open for entries **until 15 August for a chance to win £1000!** The competition celebrates the power of photography in conveying the wonder of science happening all around us and photographs can be submitted in the categories of: **Astronomy**, Behaviour, Earth Science and Climatology, Ecology and Environmental Science, and Microimaging.

The competition is free to enter and open to anyone studying or working in science at **graduate level or above**. Category winners will receive a one-year membership to the Royal Photographic Society and the overall winner will receive a grand prize of £1,000. Find out more:

https://royalsociety.org/journals/publishing-activities/photo-competition/

Please feel free to distribute this invitation more widely. Here is the Bluesky link:

https://bsky.app/profile/royalsocietypublishing.org/post/3lqmgttwrae2w

Astronomical Society of Australia

As Australian members of the Board of the Giant Magellan Telescope, we are pleased to share with you the news that on June 11, 2025, the U.S. National Science Foundation (NSF) officially approved the Giant Magellan Telescope (GMT) to advance into its Major Facilities Final Design Phase (FDP)—a critical step toward becoming eligible for US federal construction funding.

The GMTO press release can be found at: ***https://giantmagellan.org/2025/06/12/giant-magellan-telescope-advances-to-national-science-foundation-final-design-phase/***

Reaching this milestone reflects decades of commitment from the GMT partners. It is a major milestone on the path to completing one of the most advanced optical telescopes ever built, and one that will continue Australia's position at the forefront of international astronomy.

Key Takeaways from the NSF Decision

With NSF approval, Giant Magellan Telescope is now one step closer to securing more than $1 billion in potential US federal support. Completing FDP and passing the Final Design Review (FDR) are among the final prerequisites for accessing that funding. Selecting GMT at this stage is the next step in securing the US Federal investment that will accelerate construction, ensure timely completion, and significantly amplify GMT's return on investment for Australia.

While this milestone is a cause for celebration, one critical point must be noted: NSF's decision to advance the Giant Magellan Telescope does not include new funding at this time. As stated in the letter, "no additional funds will be provided by NSF in support of Design Stage activities."

Next Steps

This is especially exciting for Australia, as three local science teams are leading critical elements of the Giant Magellan Telescope project, including the laser tomography adaptive optics (LTAO) subsystem, the Giant Magellan Telescope Integral Field Spectrograph (GMTIFS), which will leverage the GMTs adaptive optics (AO) capabilities, and the MANIFEST multi fibre-positioning system.

To date, nearly $1 billion in private funding has been committed by Giant Magellan Telescope's international consortium of 15 universities and research institutes. GMTO founders are now working towards raising the additional partner funds required to get Giant Magellan Telescope through this next hurdle. This will put the Giant Magellan Telescope on the path to a completed facility with facilities in wide-field spectroscopy and ultra-clean extreme AO to complement the capabilities of the European ELT.

Regards

Chris Tinney, Sarah Pearce and Brian Schmidt

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By Alessandro Spina

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The lead up to the May Wiruna weekend was marked by torrential rain along the east coast, and sitting in rainy Sydney the forecast for Wiruna was not looking great. I decided to head up anyway. We arrived at Wiruna Friday afternoon to sunshine and a few clouds, bringing a cautious optimism that the skies might cooperate. A trickle of other members followed throughout the afternoon.

As the sun came down and the temperature dropped, the skies did indeed clear up. Around 5.30pm I headed out to the main observing field to set up the Go-To function of my 10-inch SCT. However, it was apparent immediately the RA drive was not functioning properly. So, with no chance of fixing the issue that night, my observing plan was out the window and it was going to be a night of manual star-hopping.

View from Tara Loop Road

My first target was an open cluster in Centaurus, **NGC 5617**. At 6.3 magnitude, this small, compact cluster is easy to locate 1 degree west-northwest of Rigil Kentaurus (one half of the Pointers). With the telescope pointed at Rigil Kentaurus it is easy to spot it in the viewfinder as a bright knot of stars. Discovered by James Dunlop while observing from an observatory in Parramatta, Sydney in 1826, he described it as "*a cluster of small stars of mixed magnitudes, considerably congregated towards the centre*". I could pick out a distinctive figure-eight pattern of stars amongst the cluster. A fainter companion cluster, Trumpler 22, sits 0.5° south of NGC5617 and is gravitationally bound. Next, I nudged the telescope towards Hadar (Beta Centaurus). Leaving Hadar sitting just on the edge of the field of view,

places **NGC 5316** nicely in the field of view. This 6th magnitude cluster appears much broader and sparser than its neighbour NGC5617, taking up most of the field of view in the 26mm (with ~0.43° AFOV). From Centaurus, I hopped over into Carina, with Eta Carinae making an easy jumping off point. Sitting just 2° degrees north-west is **NGC 3293** sitting 2 degrees North-West of Eta Carinae. This 5th magnitude open cluster is easy to spot in the finder scope as bright cluster of stars. NGC 3293 is a beautiful cluster with bright, compact core of blue-white supergiants, and single orange-red giant sitting amongst the sea of stars. Hence the nickname, "The Gem" cluster given to it by H.C. Russell. Long exposure images of this cluster show the region is rich in emission nebulae. If you ever get sick of the Jewel Box in Crux, I recommend this pretty open cluster nearby which is just as easy to find.

With Scorpius rising in the east, I swung the telescope down to Antares to hunt for globular clusters. With Antares in the viewfinder, it is impossible to miss the globular cluster M4. At 36' and 5.6 magnitude, M4 is easy to pick up as a bright smudge in the viewfinder 1.3° NW of Antares. Antares itself is a red supergiant and a double star, with a 5.5 magnitude companion sitting within 2.6 arcseconds. With a 15mm (167x) we could catch glimpses of a second star protruding from the edge of Antares, at a 2o'clock position, but could not definitively split the pair.

I then followed down the body of Scorpius towards the tail of Scorpius marked by the bright open cluster NGC6231 and Zeta Scorpii. Using this as a starting point I could pick up a triangle of open clusters in the viewfinder; **NGC6242, NGC6268 and H12**. H12 is a large 70', 7th magnitude, sparsely populated cluster that really needs an eyepiece with a larger FOV to capture it all. So I skipped over to NGC 6242. At 6.4 magnitude cluster, 9' wide, this cluster it not as bright as its neighbour NGC6231. It presents as a compact group of 30-40 stars with no discernible patterns to my eye. NGC 6268, at 9.5 magnitude and 9' wide, is even fainter and less defined.

Next stop was Theta Scorpii, which makes up part of the tail of Scorpius. With Theta Scorpii in the viewfinder, I could just pick up the faint smudge of 6.8 magnitude **NGC 6388** 0.5° south of Theta Scorpii. This globular cluster displays a brighter core with a halo of unresolved stars. Although I could not resolve much detail, the globular appears nicely framed by 3 stars creating a triangle to frame the cluster. While looking through the eyepiece, keep in mind there is evidence of an intermediate-mass black hole lurking within this globular

From there I moved to the stinger of Scorpius made up of Lambda, Chi and G Scorpii. Pointing the telescope at 3rd magnitude G Scorpii, I am able to find the 7.2 magnitude globular cluster **NGC 6441** 5' to the west**.** The field of view is dominated by the relatively bright G Scorpii which appears as a bright orange star, with the cluster tucked in beneath it. Again, little structure could be resolved in this globular.

I then jumped into Sagittarius, for my first proper views of this constellation this year. From the tail of Scorpius I could pick out Eta Saggittarii with the naked eye, which lead me down a chain of stars (including Epsilon and Delta Saggittarii). Just 0.8° southeast of Delta Sagittarii sits the globular cluster **NGC 6624**. This 7.6 magnitude cluster shows a brighter core surrounded by diffuse halo of unresolved stars. With averted vision, I could begin to pick out some of the brighter stars in the halo giving it more granular appearance.

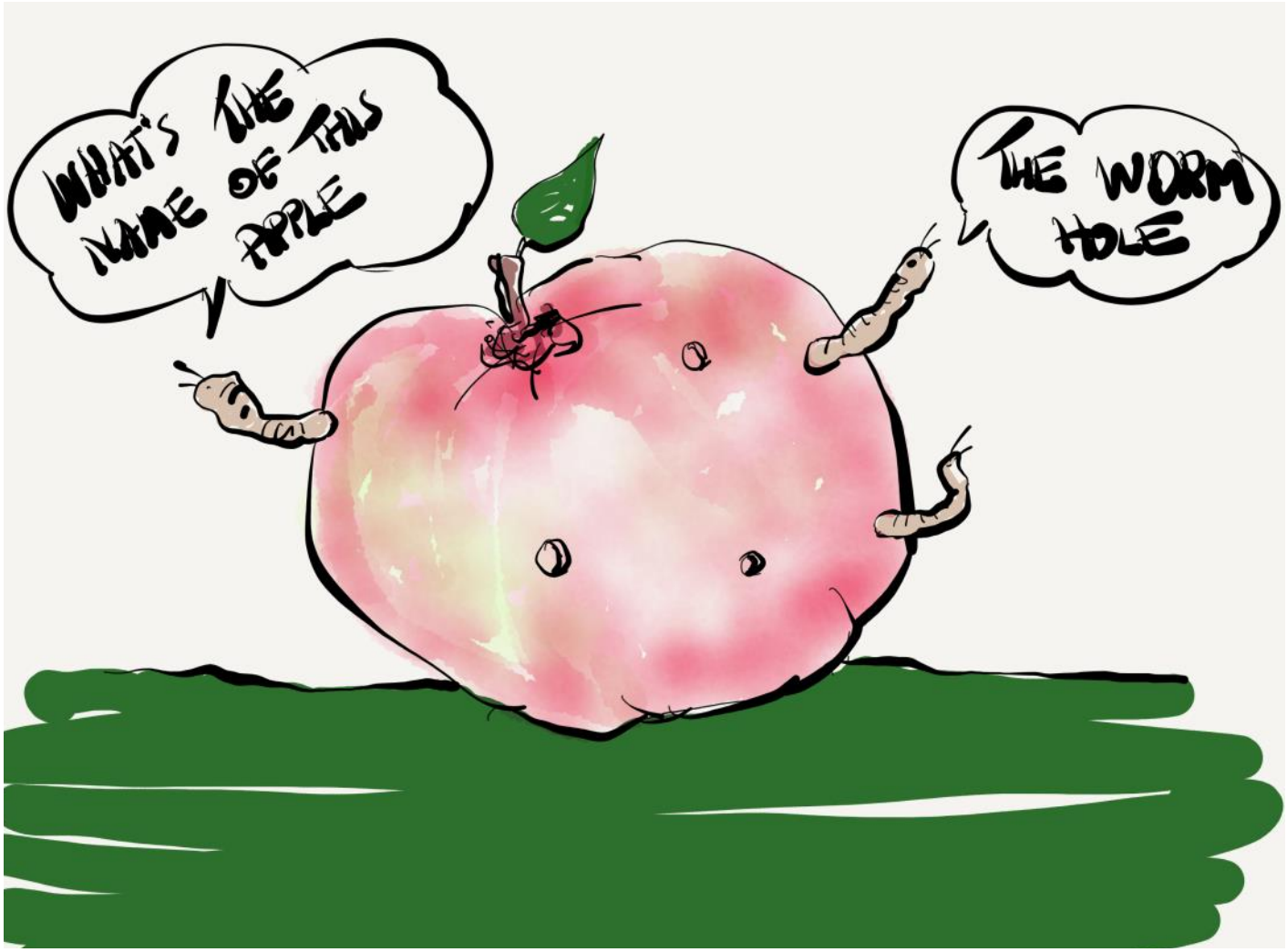
Continuing down this chain of stars I hit Lambda Saggittarii, which marks the top of the "teapot" asterism in the centre of Sagittarius (or a "saucepan" if you use Sigma, Phi, Xi and Tau Saggittarii). With the telescope centred on Lambda Saggittarii, it was easy to pick up **M22** as a bright 5.1 magnitude smudge in the viewfinder. In the eyepiece, this is a lovely globular with the core well resolved into a mass of individual stars. I love the irregular shape of this globular with chains of brighter stars streaming out from the core. Again, starting from Lambda Saggittarii, if you nudge the telescope 2° to the NW, the viewfinder can just pick up the faint smudge of **M28**, a 6.9 magnitude globular cluster. In the eyepiece, this cluster appears smaller than its neighbour M22, with only a few brighter stats resolved. Otherwise, the core remains a diffuse mass of unresolved stars. **NGC 6638** completes the trio of globular clusters surrounding Lambda Saggittarii. Sitting just 40' east of Lamda Saggittarii, this more challenging target appears as a faint diffuse glow. Nearby, the 12th magnitude planetary nebulae, NGC6644 lurks in between this trio of globular clusters.

By 11pm the westerly wind picked up and brought with it a thick cover of low cloud. Within minutes the entire sky was gone. I wandered off to the tent soon after to get some sleep and ponder on how I would get the RA drive working again. Saturday morning was a chilly 3c with the sun poking through the trees. Given the forecast and the need to work on repairing the telescope (again), I decided to head back to Sydney that afternoon. Until next month. Clear skies.

Table of Targets

Name	Type	Magnitude	Size (arcmin)	RA (J2000)	DEC (J2000)
NGC 5617	Open Cluster	6.3	10	14h 29m 48.5s	-60° 43′ 08″
Trumpler 22	Open Cluster	7.2	10	14h 31m 00s	-60° 46′ 00″
NGC 5316	Open Cluster	6.0	15	13h 54m 00s	-61° 51′ 00″
NGC 3293	Open Cluster	4.7	13	10h 35m 46.96s	-58° 13′ 04.19″
M4 (NGC 6121)	Globular Cluster	5.6	36	16h 23m 35s	-26° 31′ 33″
NGC 6231	Open Cluster	2.6	14	16h 54m 10.9s	-41° 49′ 27″
NGC 6242	Open Cluster	6.4	9	16h 55m 33.4s	-39° 27′ 39″
NGC 6268	Open Cluster	9.5	9	17h 02m 00s	-39° 43′ 00″
H12	Open Cluster	7.0	60	16h 55m 30s	-40° 50′ 00″
NGC 6388	Globular Cluster	6.8	6.2	17h 36m 17s	-44° 44′ 06″
NGC 6441	Globular Cluster	7.2	9	17h 50m 13s	-37° 03′ 05″
NGC 6624	Globular Cluster	7.6	8	18h 23m 40s	-30° 21′ 40″
M22 (NGC 6656)	Globular Cluster	5.1	32	18h 36m 24s	-23° 54′ 12″
M28 (NGC 6626)	Globular Cluster	6.9	11	18h 24m 32s	-24° 52′ 11″
NGC 6638	Globular Cluster	9.2	6	18h 30m 56s	-25° 29′ 41″

Comino's Comment



Crux Quiz

The Answers:

1. How fast does the lunar terminator travel across the surface of the moon? ***15.4km/h.***
2. Is declination used to calculate conjunctions? ***No, only RA or ecliptic longitude.***
3. How many days do ISS astronauts wear their shirts for? 2, 5 or 10 days? ***10 days.***
4. What is the name of the optical aberration that fast Newtonian telescopes suffer from? Coma ***(fixed using a coma corrector).***
5. Does the term 'Ritchey-Chrétien' describe an eyepiece design, a telescope or a mount? ***Telescope.***
6. What is the name for a comet that has passed close to the Sun so many times that it has lost its volatile components? ***Extinct comet (They resemble asteroids, excepting their orbits).***
7. Is it possible to see meteors hitting the lunar surface from Earth? ***Yes. It happens quite regularly, especially during meteor showers and is seen as a brief flash.***
8. Who discovered the precession of the equinoxes and compiled the first star catalogue? ***Hipparchus c. 190 – c. 120 BC.***
9. What is the Bepi Colombo mission's object of enquiry? ***Mercury.***
10. Who developed the on-board in-flight software for Apollo 11, later becoming Director of NASA's Software Engineering Division? ***Margaret Hamilton.***

With thanks to Markus Stone, Astronomical Society of Victoria

Questions, comments and corrections can be directed to ***astroquiz@markusstone.com*****.**

July Sky Events

By Kendra Melson

Date	GMT Time	Sydney Date	Sydney Time		Event
1	3:46	1	1:46pm	13:46	Moon at Descending Node
2	19:30	3	5:30am	5:30	FIRST QUARTER MOON
3	21:00	4	7:00am	7:00	**Earth** at Aphelion: 1.01664 AU
3	21:39	4	7:39am	7:39	**Spica** 0.8°N of Moon
4	4:00	4	2:00pm	14:00	Mercury at Greatest Elong: 25.9°E
5	2:29	5	12:29pm	12:29	Moon at Apogee: 404627 km
7	17:37	8	3:37am	3:37	**Antares** 0.4°N of Moon
10	20:37	11	6:37am	6:37	FULL MOON
13	8:32	13	6:32pm	18:32	**Venus** 3.1°N of Aldebaran
14	13:00	14	11:00pm	23:00	**Mercury** at Aphelion
15	10:42	15	8:42pm	20:42	Moon at Ascending Node
16	10:19	16	8:18pm	20:19	**Saturn** 3.8°S of Moon
18	0:38	18	10:38am	10:38	LAST QUARTER MOON
20	10:27	20	8:27pm	20:27	**Pleiades** 0.7°S of Moon
23	4:20	23	2:20pm	14:20	**Jupiter** 4.9°S of Moon
24	19:11	25	5:11am	5:11	NEW MOON
26	19:44	27	5:44am	5:44	**Regulus** 1.4°S of Moon
28	4:00	28	2:00pm	14:00	**Delta-Aquarid** Meteor Shower
28	8:30	28	6:30pm	18:30	Moon at Descending Node
28	19:45	29	5:45am	5:45	**Mars** 1.3°N of Moon
31	5:45	31	3:45pm	15:45	**Spica** 1.0°N of Moon

Adapted from Astropixels.com - 2025 Sky Event Almanac page
http://astropixels.com/almanac/almanac21/almanac2025gmt.html

ASTRONOMICAL SOCIETY OF NEW SOUTH WALES, INC
NOTICE OF 2025 ANNUAL GENERAL MEETING

CALL FOR NOMINATIONS FOR COMMITTEE POSITIONS

Dear Members,

Commencing at 7.30pm on **Friday 8 August 2025**, the Society's Annual General Meeting will be held, at which time the Committee members for the coming year will be elected.

All members who are eligible to vote (Full and Life Members) are encouraged to nominate for election to a committee position. If you would like to be involved in how the society is run, then please give some thought to nominating for a committee position. No experience necessary! Positions are President, two Vice Presidents, Secretary, Treasurer and five Ordinary Committee Members. Information about how the committee operates is available on the website here: ***https://www.asnsw.com/committee***

Please use either the Nomination Form or ensure that your nomination is in the form prescribed by Clause 15 (1) (a), (b) of the Society's Constitution which states:

Clause 15. (1) Nominations of candidates for election to the committee of the association:

(a) shall be made in writing, signed by two (2) members of the association who are eligible to vote and accompanied by the written consent of the candidate (which may be endorsed on the form of nomination); ***or*** *submitted in electronic format by the candidate and supported by emails (or other electronic communication) from two (2) members of the association who are eligible to vote;* ***and***

(b) shall be delivered or emailed to the secretary of the association not less than 28 days before the date of the annual general meeting at which the election is to take place.

Notes:

1. NOMINATIONS WILL ONLY BE ACCEPTED IN THE ABOVE FORMATS AS PRESCRIBED BY THE ASNSW Inc. CONSTITUTION.
2. A member may nominate for more than one committee position but each nomination must be on a separate and properly completed form.
3. A nominee should sign the form and submit it by post, email or in person. Supporters of the nomination may also sign the form or send an email to the secretary, declaring support for the nomination. Supporters must be full members who are eligible to vote.
4. NOMINATIONS MUST BE RECEIVED AT THE SOCIETY'S POSTAL ADDRESS, BY EMAIL, or IN PERSON TO: **The SECRETARY, PO BOX 870, EPPING, NSW, 1710** OR **secretary@asnsw.com**
5. The order in which contested Committee Positions will be dealt with at the election will be by way of random selection (drawing out of a hat).

CLOSE OF NOMINATIONS FOR COMMITTEE POSITIONS IS 4pm FRIDAY 11 JULY 2025

A nomination form is included with the July issue of Universe and is also available for download from the Society's website. Home page: **https://www.asnsw.com**

Any inquiries should be directed to the Public Officer:
Donna Burton: phone 0428 288 244 **donna@donnatheastronomer.com.au**

ASTRONOMICAL SOCIETY OF NEW SOUTH WALES INC.
PO BOX 870 EPPING NSW 1710
secretary@asnsw.com
COMMITTEE ELECTION FRIDAY 8 AUGUST, 2025
NOMINATION FORM FOR COMMITTEE POSITION

I, _____

Print Name of Nominee

of _____

Print Address of Nominee

NOMINATE FOR THE POSITION OF _____

I am a FULL/LIFE member of the Astronomical Society of New South Wales Inc.

Signature of Nominee ..... Date .....

MEMBERS WHO SUPPORT THIS NOMINATION:

Print Member's Name	Print Member's Name
Print Address	Print Address
..... Member's Signature	..... Member's Signature

Notes:

1. A nominee must be a Full financial or Life member of the ASNSW Inc. (i.e. one who is eligible to vote).
2. Nominations will only be accepted in the format prescribed b the ASNSW Inc. CONSTITUTION.
3. A member may nominate for more than one committee position, but each nomination must be on a separate and properly completed NOMINATION form.
4. A nominee should sign the form and submit it by post, email* or in person. Supporters of the Nomination may also sign the form OR send an email to the Secretary, declaring support for the Nomination. Supporters must be Full financial or Life members of the ASNSW Inc. (i.e. members who are eligible to Vote).
5. Nominations must be received at the Society's postal address, by email OR in person to: **The SECRETARY, PO BOX 870, EPPING, NSW, 1710** OR ***secretary@asnsw.com***.
6. **Close of Nominations for Committee Positions is 28 days before the AGM, i.e. 4.00pm FRIDAY 11 JULY, 2024**

** To submit your nomination by email, simply complete and sign this form, scan it or photograph it and send it as a FILE attachment to **secretary@asnsw.com** with "Committee Nomination" in the subject line*
Supporters of your nomination may:
** fill in and sign the form before you scan it, OR*
** be ccd on the email so that they can express support to the secretary by email, OR*
you can leave those spaces blank if you anticipate that the current committee members will support your nomination.

Inquiries should be directed to the Public Officer, Donna Burton: phone 0428 288 244 or email **donna@donnatheastronomer.com.au**

Meetings & Dates

ASNSW Events

Recordings from Ordinary Meetings link: ***https://www.asnsw.com/ordinary***

Astroimaging ZOOM Meetings: 9 Jul, 6 Aug, 10 Sep, 8 Oct, 5 Nov, 3 Dec

Ordinary Meetings—Epping: 11 Jul, 29 Aug, 10 Oct, 14 Nov

Committee Meetings: 16 Jul, 13 Aug, 17 Sep, 15 Oct, 12 Nov

Wiruna Weekends: 25-26 Jul, 22-23 Aug, 19-20 Sep, 17-18 Oct, 21-22 Nov, 19-20 Dec

For Wiruna bookings and enquiries contact Joe Cauchi on m. 0428 363 878 or e. ***vp_wiruna@asnsw.com***

Mudgee Caravan Hire has opened on the corner of Sofala Road and Castlereagh Highway, just 8 kms from Wiruna. Joe Cauchi (Wiruna Vice President) has spoken to the owner and he offers small, medium and large caravans at $50 / $75 / $100 per night respectively. He can tow a caravan to and from Wiruna on request giving you the convenience of staying onsite in a private caravan, without needing to own a caravan or managing the logistics.

If this appeals to you, please contact Warren Cramond m: 0417029047 e: ***hot_spud2006@yahoo.com.au*** for more information. Note this is an independent business and the ASNSW will not be involved in your commercial arrangement with this business. The normal Wiruna camping fees would remain payable to the ASNSW. As this is a new business and no one has utilised them so far, we're keen for any feedback from anyone who utilises this service.

Annual General Meeting: 8 Aug

Free Observing Night—Macquarie University Observatory: 22 July commencing at 7pm. Bookings are essential and numbers are limited. ASNSW members may bring family members, but please book a ticket for each family member. There is no age limit. Log in to the website and book online here: ***View Event Details*** The event is weather-dependent and registered participants will be notified if cancelled.

Wiruna Happenings

No EV Charging at Wiruna

As previously advised, Wiruna does not have the capacity to charge electric vehicles (EVs). One member who owns an EV offered the following advice:

I stop for a coffee break and recharge my vehicle at the Workers Club in Lithgow on the way to Wiruna. This routine makes me a safer driver, the trip doesn't make me tired, and I can image on the first night there. On my way back home, I pitstop as well. This additional 20-30 minutes makes a huge difference in my alertness and safe return home.

There are EV charging facilities at Lithgow, Mudgee and Bathurst. Your cooperation is very much appreciated.

ASNSW Member News

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By Lesa Moore and Greg Priestley

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Since last issue, two new members have joined the ASNSW. The society welcomes Mal Larden and Andrew Hennell.

These members, listed to the right, celebrate the following significant anniversaries this month (5, 10, 15, 20+ yrs):

Congratulations to these members, and a special congratulations to Joe Cauchi on his 50th membership anniversary!

Current membership stands at 399 members, including 383 paid-up members, 5 honorary members and 11 life members.

Joe	Cauchi	50
Warren	Taylor	33
George	Zajko	31
Mick	Laws	30
Geoff	Smith	26
Anthony	Oesterheld	22
Karen	Kable	10
Rodney	Kable	10
Ian	Kemp	5

Macquarie University Observatory – Free Observing Nights for ASNSW

MACQUARIE University
SYDNEY·AUSTRALIA

Members

Through our liaison with Macquarie University, we have been scheduling free observing nights for our members. Unfortunately, some have been cancelled because of unfavourable weather, the bane of all astronomers. However, when you received the notices that these nights are happening, do please book and take advantage of this great opportunity to do some observing without driving all the way to Wiruna. As these nights are only available to our members (and their families), you must log in to the website to book. Log in and check the website "Events Schedule and Bookings" page for the next available evening. Bookings essential as numbers are limited to 40 people per session.

Macquarie University Astronomy Open Night

The date for this year's Astronomy Open Night will be **Saturday 27th September.** Please spread the word to any fellow astronomers whom you think might be interested in participating.

Telescopes

For those interested in being a part of the telescope park component of the night (as a telescope operator or assistant), please complete the ***Expression of interest*** form.

The Telescope Volunteer registration deadline is **COB Wednesday 20 August 2025.**

ASNSW Information Table

The ASNSW will have an information table in the exhibitors' hall, as usual. If you could spare an hour or two to relieve the regulars, or are happy with a longer shift, this would be much appreciated. You do not need to be a long-standing member to do this! The perspective of a new member is always appreciated and I'll happily give you on-the-job training (i.e., I'll show you how to set up the banner without ripping a hole in it). We hand out free magazines, including copies of Universe, and answer questions about the ASNSW – much information is on our website for reference. The bonus is that you get free entry to the event, a snack provided by MQ, and some free time to browse the rest of the exhibits, events and telescopes.

Please email ***treasurer@asnsw.com*** if you would like to help out on the information table.

Committee Communiqué - 16 April & 7 May 2025

1. Correspondence received from North Sydney Astronomical Society and Newcastle Astronomical Society wishing to explore collaboration opportunities. Trevor Oates and Greg Priestley to meet with NSAS in the first instance.

2. Updates relating to the Wiruna working bee in April with thanks to all those who contributed.

3. The new SDM telescope has been paid for. Suggested that this be called "Mellish Lord Sidius" telecope which will be housed in a future "Crago Observatory" sited at Wiruna in order to recognise key contributors.

4. Review of existing observatories and usage at Wiruna to be undertaken.

5. Discussions regarding the maintenance of trees at Wiruna and the affirmation of the current policy that tree trimming will continue to occur on the existing five year schedule.

6. Joe Cauchi outlined his discussions with a business in Ilford that hires out caravans and who is prepared to tow the caravan to Wiruna. This is a potential option for members who wish to visit Wiruna but do not wish to camp or stay in the house.

7. Designated Observatory status for Wiruna to be renewed.

8. Two new observatory sites on the main field have been pegged out.

9. The batteries from Crago Observatory have been connected in a storage box attached to the storage shed. This will be completed in the upcoming months with the installation of a solar panel, solar controller, 240v AC inverter and lights in the storage shed.

10. Crago Observatory: Alex Comino holds out little hope for a new lease and was thanked for his efforts. Donna Burton will invite interested members to form a working group to explore alternative approaches with the LALC.

11. Discussions relating to the meeting dates and the survey to members and other feedback received.

12. Planning relating upcoming outreach events at Rhode Science Fair, Eastwood Public School and Macquarie University Open Night.

13. Update on Macquarie University Open nights that have required rescheduling due to weather.

14. Discussions relating to administrative issues being experienced with the ATO and whether relinquishing the existing ABN and/or TFN would overcome the bureaucratic hurdles being encountered.