

Astronomer

Journal of the Tamworth Regional Astronomy Club Inc

July 2016
Vol 1 No 1



Our amazing Club telescope!

Mars, Jupiter and Saturn Shine Bright!

Dr Stephen Kane to visit Tamworth

Win a telescope!

Latest TRAC news and events

Main photo by Phil Betts

Background photo by Leigh Tschirpig

Cover photo:

Warwick Schofield inspects

TRAC's 36 inch 'Jos Roberts Telescope'



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TRAC observing evening at Victoria Park, Tamworth.
Photo by Warwick Schofield.

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Welcome to *Astronomer*!

Hello, and welcome to the first edition of *Astronomer*, the official journal of the Tamworth Regional Astronomy Club Inc!

It has certainly been an exciting few months for TRAC since our first meetings last year, through to our incorporation in January and our continuing regular meetings, observing nights and social gatherings. From an original group of around ten people, our membership has grown to almost 50, with high levels of interest in the Club, our activities and our aim to promote the science of astronomy in the Tamworth Region.

With our growth, there has been an increasing need for a journal to not only help keep members informed of Club events and supplement our website, Facebook page and e-mail chats, but also to encourage and enable members to share their observations, projects, photographs, stories and articles in a bit more detail in a central location and create a record of our activities. This is *your* journal and we look forward to receiving your contributions!

As mentioned, a great deal has been taking place since the start of 2016 thanks to the dedication and continuing work of our members. The Club originated from an aim to support the ongoing operation of the Lowe Observatory, established by Tamworth amateur astronomer and photographer, Lindsay Lowe, an excellent facility constructed several years ago near Bendemeer. The Lowe Observatory houses a 32 inch, equatorially mounted, computer controlled telescope and has the potential to be a major attraction for amateur and professional astronomers across our region and beyond. We certainly look forward to continuing to work closely with Lindsay, Kevin Lowe and Tracey Lowe on the future operations of this important astronomical facility.

The Club is also very fortunate indeed to have been donated possibly the largest privately owned optical telescope in Australia thanks to the generosity of Warwick and Margie Schofield of Moonbi. The 36 inch 'Jos Roberts Telescope', its several ancillary telescopes and the further generous donation of a 16 inch telescope by Lindsay Lowe, places TRAC as one of the best equipped astronomy clubs in Australia. We certainly owe Warwick,

Margie and Lindsay a great deal of gratitude!

The work of our Publicity Officer, Phil Betts, and our Vice-President and Secretary, Garry Copper, as well as the groundwork undertaken by Dr Ray Hare and Michael McHugh in drafting our constitution and arranging for the Club's incorporation, has enabled TRAC to secure a site at Victoria Park in East Tamworth as a 355 Committee of Tamworth Regional Council for the Club's proposed [Astronomy & Science Education Centre](#). This excellent site will be of enormous benefit, affording wonderful opportunities for education and public outreach in the field of astronomy and related sciences and provide an accessible location for our meetings and events.

I would also particularly like to mention the ongoing work and assistance provided by Stuart Goff and Barry Gilbert in establishing and developing TRAC.

There are of course many other members who have joined since the start of the year who have been working tirelessly for the Club (too many to mention here) and all of your efforts are greatly appreciated! It is certainly a wonderful privilege to be involved with such a dedicated and friendly group of people and, on behalf of the Club's Executive, I extend a warm and sincere thank you to everyone!

The first edition of *Astronomer* provides details about the forthcoming talk by Dr Stephen Kane on Wednesday, 27 July, an update on our Club's telescope raffle and information about some of the fascinating objects that are currently well placed for observation and study in our skies this month. For our cover story, Warwick has provided a wonderful account of how he and Margie came to secure the 'Jos Roberts Telescope' for the Club and Margie has written an excellent story about attempts to observe the Geminids Meteor Shower last December. I hope you find this journal interesting and informative and look forward to receiving your contributions.

Best wishes and clear skies to all! ☆

Leigh Tschirpigg
President
Tamworth Regional Astronomy Club Inc

Astronomer Journal of the Tamworth Regional Astronomy Club Inc

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Astronomer is published by the Tamworth Regional Astronomy Club Inc (TRAC) and distributed to members via e-mail.

If you wish to submit material for publication, please send your text and photographs in jpg format to the above e-mail address.

TRAC conducts its Committee Meetings on the first Monday of each month at the Botanic Gardens Meeting Room, Victoria Park, Piper Street, Tamworth, commencing at 6.30 pm followed by our Regular Meeting at 7.00 pm and observing session or an indoor program in the case of poor weather. Technical meetings are held on the second Saturday following each Regular Meeting. Please check our website for the latest details. For further information contact the Secretary at the above e-mail address.

Wow, what a telescope!

BY WARWICK SCHOFIELD



Warwick Schofield travelled to Mount White last year with Garry Copper and Phil Betts to collect the 36 inch telescope he and Margie had arranged to purchase and donate to TRAC. Here is the story of how our Club came to own possibly the largest privately owned optical telescope in Australia - and the road trip to collect it! Photo by Phil Betts.

ONE WEEK after Phil Betts, Garry Copper, Leigh Tschirpig and I had discussed plans to form an astronomy group in Tamworth, Margie and I went off on our Lightning Ridge Opal Mining Adventure!

Margie and I had just returned to our camp for the day after working underground at our opal mine. It was about 18 August, 2015 and the missed phone call was from my niece, Leah Stephinson, in Sydney. "Uncle Warwick" she said, "I have just seen a good looking telescope passed in at auction and wondered if you would be interested in buying it?"

It turned out that the 36 inch 'Jos Roberts Telescope' was possibly the largest, privately owned optical telescope in Australia! I felt obliged to get involved ... The telescope had to be moved by Monday, 30 August! The story of obtaining, transporting and storing the 'Jos Roberts Telescope' follows:

With two four wheel drive vehicles, two trailers (one hired) Phil, Garry and I left Tamworth early on Friday, 28

August to travel to Mount White (near Woy Woy) to purchase and collect the telescope.

After a few stops for coffee and snacks we turned into the roadhouse on the M1 near Gosford to check our gear and to phone Jos Roberts to say we were arriving soon. Jos met us at "Mount White House" (a spectacular restored homestead, overlooking the Hawkesbury River) and was very generous with his time and energy to explain the workings of the giant telescope. We were immediately impressed with the quality of workmanship and the enthusiasm Jos exhibited. The perfect balance of the fully assembled telescope amazed us as it could be easily oriented by one finger (the Dobsonian mounting system is certainly simple compared to my experiences with equatorial mounts!) Jos then showed us how to dismantle it and helped load the various components into the station wagons and onto the trailers.

The primary mirror (36 inches in diameter and 2 inches thick) was manufactured by Intermountain Optics in the USA and with its mountings and electronics, weighs over half a tonne! A few quick measurements confirmed that it MIGHT just fit on the larger trailer – we were also allowing for an overhang! The next task was to manage the lift of this heaviest component onto the trailer. With blocks, wedges, planks, pushing, crowbars and Garry's winch, we edged the mirror onto the trailer. Jos then cut timbers to install around the base of the load to prevent it from moving. We had only 2 cm on each side of the trailer as free space!

The main body tubes and pipes were fitted to the other trailer with some overhang, but they were not heavy. The balance of the telescope filled the vehicles – the secondary mirror (a very expensive and crucial component) folded Dobsonian body, a ten inch reflecting “finderscope” (larger than many amateur main

scopes!) a five inch reflecting finderscope, a Telrad finderscope, light shields and other boxes of electronics and electrical “stuff”.

With tie down straps, mesh and covers in place we were now ready to move. We had been on the run for over ten hours and were starting to tire!

We then retreated to the “Mount White House” where discussions and further arrangements were finalised. Jos talked about collimating the scope and some of the history of it. He offered to come to Tamworth one day when we are organised and teach us a bit more about the scope and will write some of its history of it for us (perhaps a further article for this journal...)

Having negotiated sections of the paddock where someone had become bogged (please, no...) we departed, with the proposed “Tamworth Astronomy Group” being the new legal owners. YEE HA!

Now to get home...somewhere around the West turn onto the new Hunter Expressway, the huge telescope, the four-

wheel drive vehicle and trailer went the wrong way! It was next seen crossing median strips, through traffic lights...OK it was me!

At Singleton, after several checks along the way, we again stopped for a coffee, snack and recheck. It was around 11 pm by then and we pushed on. At Muswellbrook, the large telescope trailer and vehicle had to pull over to shake off a persistent, following police car - all good!

We then realised that we did not know where we were taking the telescope to! Fearing that the hire trailer would not make it back within the 24 hours, we were able to pay online for a further 24 hours hire.

By the time we got near Tamworth, we arranged for Garry to go straight home (it was after midnight, after all) with a trailer and vehicle load of gear and Phil and I proceeded onto Phil's place at Kootingal with the other trailer and gear. Too exhausted to do much more, we left my vehicle, trailer and main body of the telescope in Phil's driveway

and Phil drove me home in his car and then he finally arrived home at around 2 am! Quite an exhausting and very satisfying day - I'm sure we learned quite a bit about each other...and telescopes...that day and, surprisingly, we still get on very well together (don't we?)

The next morning, Phil drove up to Moonbi, collected me from home and we drove back to his place. There we met up with Garry and were soon joined by Leigh to unload the trailer and my four-wheel drive. “Wow, well done!” Leigh said as we admired our new toy!

Phil had been busy emptying his shed of lawnmowers, bikes, and other gear, only to discover that we could not fit the telescope on the unloading planks under the roller door without digging trenches for the trailer wheels to sit down in! After some digging and the trailer lowered, we carefully winched the telescope into its temporary home.

Phew, job done and MISSION ACCOMPLISHED!! (To be continued...)☆



36 inch mirror with some of the telescope's many bits and pieces.
Photo by Phil Betts.



A video with an excellent segment on Jos Roberts and the 36 inch scope is online [here](#) (starts at 5m 14s)

All set for the long (and very careful!) trip back home. From left to right – Garry Copper, master telescope maker Jos Roberts, Warwick Schofield and Phil Betts.
Photo supplied by Phil Betts.

Dr Stephen Kane to visit Tamworth

The Tamworth Regional Astronomy Club is delighted to be involved with the forthcoming visit of Dr Stephen Kane to Tamworth. Stephen, who is Professor of Astrophysics at San Francisco State University, completed his secondary education at Tamworth High School and is returning to the School on the evening of 27 July to provide an exciting talk

about his world leading discoveries and research of exoplanets. Details of this not to be missed event are provided below and additional information about Stephen and his fascinating work is available at his website: www.physics.sfsu.edu/~skane/ See you there! ☆

You're invited to...

“Finding a New Earth: Exoplanets & Habitability”

A presentation brought to you by
Tamworth High School and
the Tamworth Regional Astronomy Club Inc.

When: Wednesday 27 July, 2016
Time: 7.00pm – 9.00pm
Where: Tamworth High Auditorium

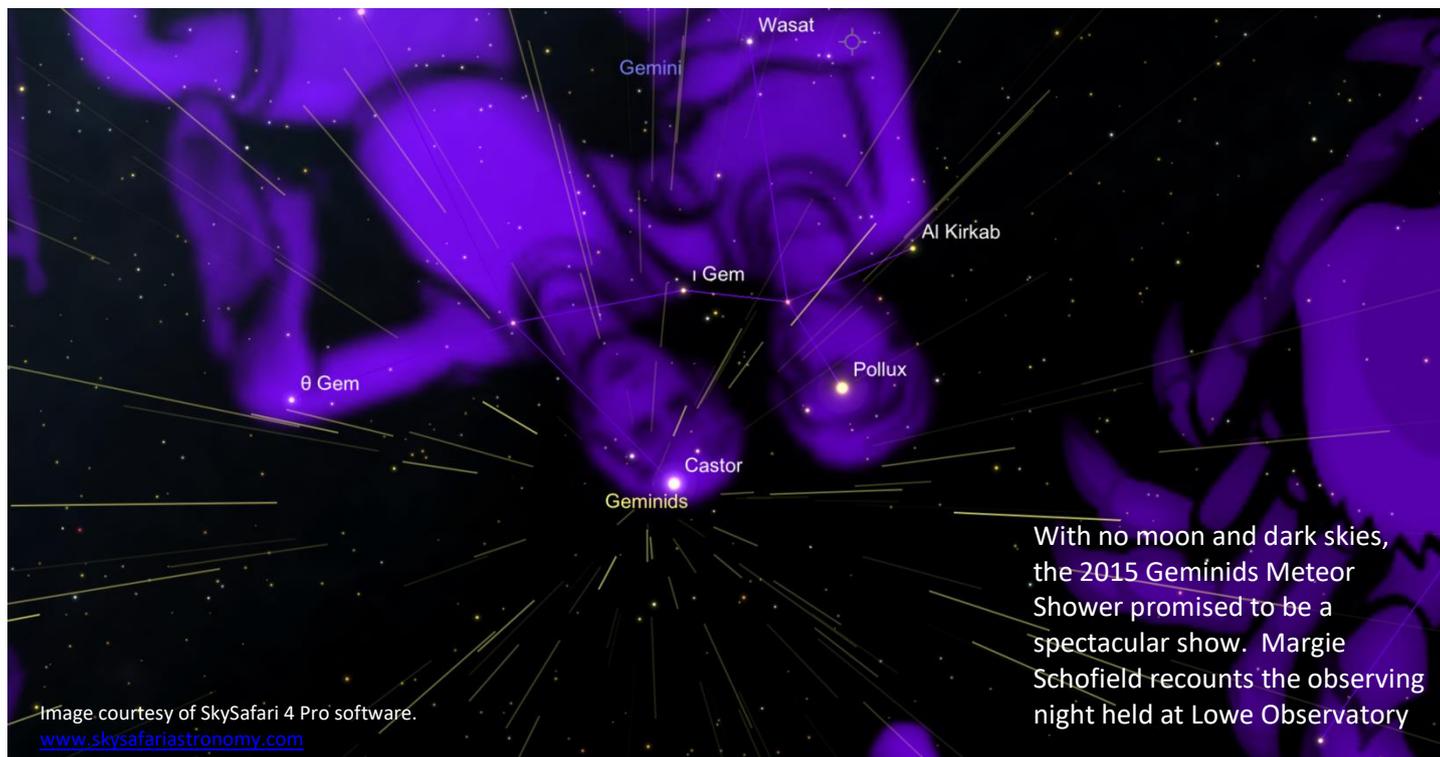
Featuring special guest Stephen Kane,
Professor of Astrophysics at San Francisco
State University.

Stephen Kane has been researching planets around other stars for more than 20 years and has discovered and characterised hundreds of exoplanets, including Kepler-186f which is the smallest planet yet to have been found in the Habitable Zone of a star.



The night of the Geminids

BY MARGIE SCHOFIELD



With no moon and dark skies, the 2015 Geminids Meteor Shower promised to be a spectacular show. Margie Schofield recounts the observing night held at Lowe Observatory

Image courtesy of SkySafari 4 Pro software.
www.skysafariastronomy.com

WE WAITED at home till 10:00 pm and threw a few things in the car - sleeping mats, sleeping bags, coffee, Warwick's yummy peanut bikkies, fruit and a doona and headed up the mountain through gates with chains heavily laden with locks...one left open for us, then up the thin ribbon of road leading precipitously to the little knoll on which sat the large dome of the Lowe Observatory, glowing white in the starlight.

Ooooh, what a beauty!

Our mates were just a few shadowy figures setting up their chairs and saying, "We just saw a few beauties!" Stuart had his camera and tripod set up for his photographic adventure. He is so organised.

So there we sat...and waited..."You'd better go home Margie and Warwick, you have stopped the Geminids!"

By now the wind had picked up and was icy cold. We all went for our rugs, draping them over our heads as none of us had a beanie. I was trying to wrap my pyjamas around my head and Wok had to chase his airborne hat in the dark before it tumbled over the edge of the little knoll.

With necks kinked painfully and our yarns interspersed by...YES!...where?...ahhh!..I'm waiting for one to land on the observatory!...want a coffee?...they seem to have stopped!.....Ooooh, what a beauty! But the hours passed. Not as many glowing specks of dust streaking across the heavens as we had anticipated. Stuart told us they were shed from a recent close encounter with an asteroid.

Phil, draped in his blanket like a desert nomad, got out his gas bottle and stove while I found Wok's bikkies among the chaos in our car. It was about 2:00am. Coffee to warm our chilled bones. But where was Phil's gas hose?

Warwick and I started down the rocky slope, home to get our gas cooker. While we were there we grabbed our warmest coats...every beanie we could find, a feather doona, and a bottle of green ginger wine!

Back again and we found Barry had arrived and was complaining bitterly that his legs were cold...did we bring some long trousers? A beanie on his head did the trick!

But oh no! The bad news was that cloud was creeping from the north, obliterating Aldebaran, Pleiades, Orion and leaving our brightest heavenly objects faint, fuzzy blurs. But Phil's favourite sachet coffee was great!

By now it was about 3:00 am and before our disappointed eyes the cloud shutter closed defiantly across the firmament, leaving us standing under a black sky with the memory of some beautiful, if only a few Geminid fireworks.

It wasn't long before Stuart closed the observatory door with an echoing bang and our little convoy headed down the mountain, with thoughts of the early rising planets, comet Catalina, a sizzling breakfast under a pink dome at sunrise, and Stuart's brilliant photographic record to cherish...in our dreams!

Stuart's last words were echoing in my mind: "I waited a whole year for tonight and now I have to wait two more years. But next year at this time, there will be a super moon!" ☆

Jupiter, Saturn & Mars shine bright

BY LEIGH TSCHIRPIG

BY MID July, our Solar System's largest planet, Jupiter, lies in the western sky, setting at around 9.30 pm. Even though it will soon be lost in the glare of the sun in coming weeks, it is still worth a look through a telescope. Be sure to make this one of your first objects to observe after sunset as the view will become increasingly "shimmery" as Jupiter approaches the horizon due to the effects of our atmosphere. Smaller 'scopes will show Jupiter's parallel equatorial cloud belts and its four brightest satellites, Io, Europa, Ganymede and Callisto. Even a pair of binoculars, preferably steadied on a tripod, will reveal these four moons discovered by Galileo Galilei in 1610. Larger 'scopes will resolve more detail in the cloud belts and the Great Red Spot if it is facing towards the Earth.

By 8.00 pm, high overhead are the planets Mars and Saturn. Mars was at its closest point to Earth on 30 May when it reached an apparent size of 18.6 seconds of arc as viewed through a telescope. By mid-July, the red planet still has an apparent diameter of 14.7 arc seconds, shrinking to 13 arc seconds by the end of the month. Small to medium sized telescopes will reveal dark, "dusky" markings on the surface and a white polar cap. Mars is notorious though for dust storms which can engulf the entire planet. If there is little or no detail visible through the eyepiece, you may be witnessing one of these massive events! You may also notice that Mars doesn't look quite circular and appears slightly gibbous like the Moon does a few days before or after being full. This is due to Mars and the Earth having moved in their orbits since Mars was at opposition and the increasing angle we are now viewing the planet from our vantage point on Earth.

Not far from Mars is Saturn with its glorious ring system. Over the course of its 29.5 year journey around the Sun, from the Earth we see Saturn's rings at changing angles. Every 14.7 years, the rings actually disappear in all but the largest telescopes when they are presented "edge on". At the moment, the rings appear wide open and are an amazing sight, even through smaller

telescopes. If you haven't seen Saturn through a telescope before, your first view of this amazing world will be a moment you will never forget! Telescopes with a lens larger than 60mm (refractor) or a mirror 4.5" and above (reflector) will reveal the dark Cassini Division in the rings and also Saturn's largest moon, Titan. Bigger telescopes will show subtle details in the clouds and rings and several more moons which appear as tiny specs of light near this giant planet. Another feature to look for is Saturn casting a shadow onto the rings which gives the planet an almost 3D effect through the eyepiece. Make sure you take the time to view these amazing planets this month!

Forming an elongated triangle with Mars and Saturn is the reddish star Antares, or Alpha Scorpii, the brightest star in the long, curving line of stars that form the constellation of Scorpius (see Scorpius finder chart below). Antares is a red supergiant, an old star that is reaching the end of its life. It is also a double star with a tiny companion visible in larger telescopes. The red colour is due to its lower temperature of around 3,500 degrees and has swollen to 400 times the size of our sun. If placed in the centre of the Solar System, it would extend to the orbit of Mars! Antares is about 550 light years away, so your view of it tonight is how the star looked in around 1466. The name Antares is Greek for "Rival of Mars" and, being a red giant, it is easy to see how the ancient Greeks made this comparison. Being so close together in the sky at the moment, now is an excellent time to compare the colour of Mars and Antares. Over the coming weeks Mars will move progressively closer to Antares and Saturn until on 24 August Mars will appear directly between them with less than two degrees of separation between Mars and Antares. One can only imagine what portent of conflict ancient civilisations may have feared with Mars (the god of war) and its "rival"



Image courtesy of SkySafari 4 Pro software.
www.skysafariastronomy.com

Antares coming so close together in the sky!

Looking to the South mid evening, the Southern Cross has passed its highest point or "culmination" and leans towards the South West. The two bright "pointer" stars near the Cross, Alpha and Beta Centauri, serve as guideposts to identifying this constellation to newcomers.

Our galaxy, the Milky Way, extends from the

South Western horizon, sprawling across the zenith and reaching down where it touches the horizon again in the North East. Full Moon occurs on 19 July, so waiting until the end of the month is a good time to observe the Milky Way in the evening. From a dark sky location, slowly scanning the entire length of the Milky Way with a pair of binoculars will reveal dozens of star clusters and "fuzzy" objects, particularly overhead in the constellations Sagittarius and Scorpius where we face the centre of our galaxy.

In the North West, between Mars and Jupiter is the star, Spica, the brightest star in Virgo. It is the 15th brightest star in the sky, around 250 light years away and is actually two stars very close together, orbiting each other in only four days!

To the North, the reddish star Arcturus (the "bear watcher") shines brightly in the constellation Bootes (Greek for herdsman or ploughman). Arcturus is the fourth brightest star in the sky and is sometimes known as "Job's Star" due to its Biblical mention. It is 37 light years away and is the closest red giant to the Earth.

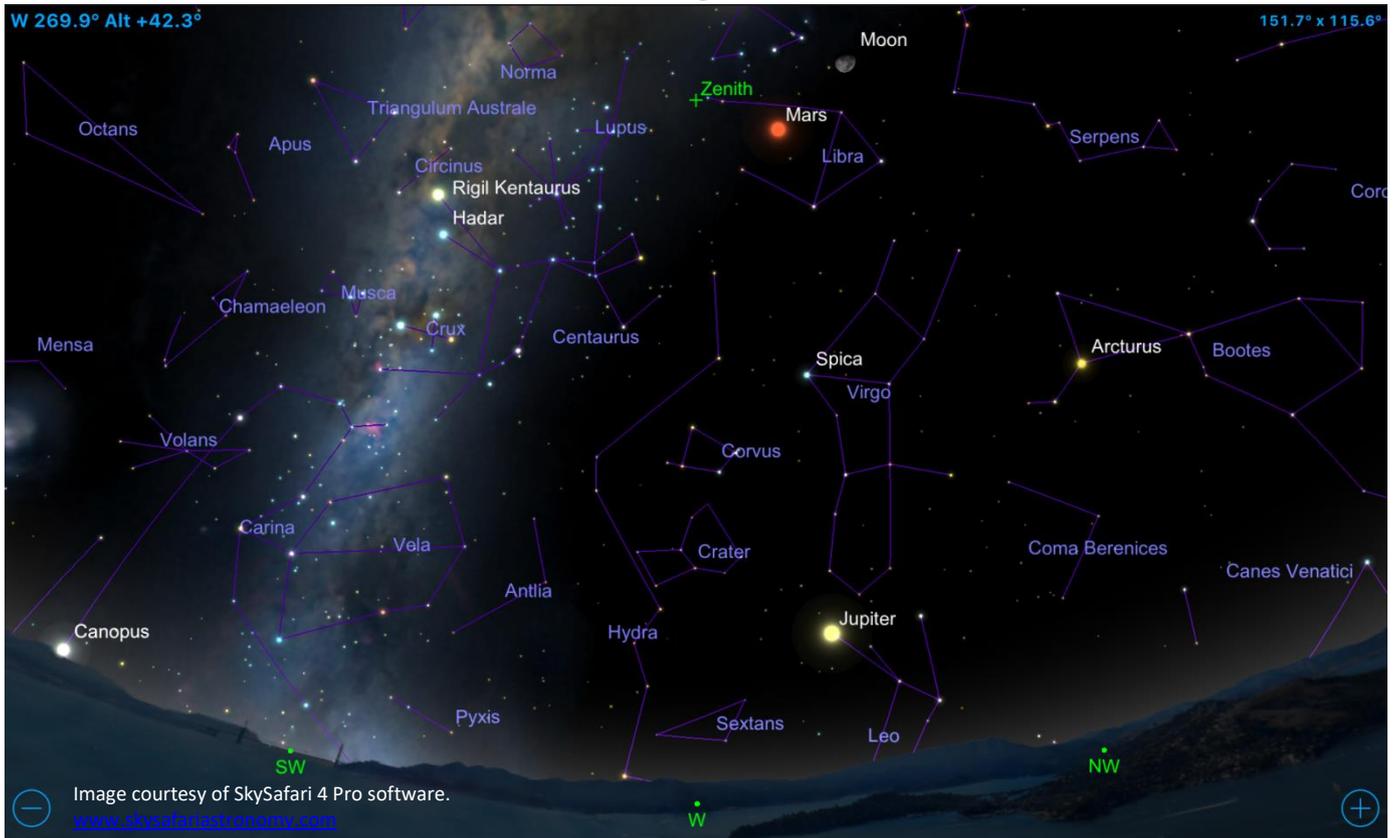
Below and to the East of Arcturus is the constellation Corona Borealis or the "Northern Crown", a sparkling semi-circle of stars. The brightest star in the constellation is Alphecca, shining at [magnitude 2.23](#), also known as Gemma, Latin for jewel.

High above the East, near Sagittarius, is Corona Borealis' southern counterpart, Corona Australis, the Southern Crown. Corona Australis is slightly dimmer than its Northern companion, but is still a beautiful constellation nonetheless. Happy star-gazing! ☆

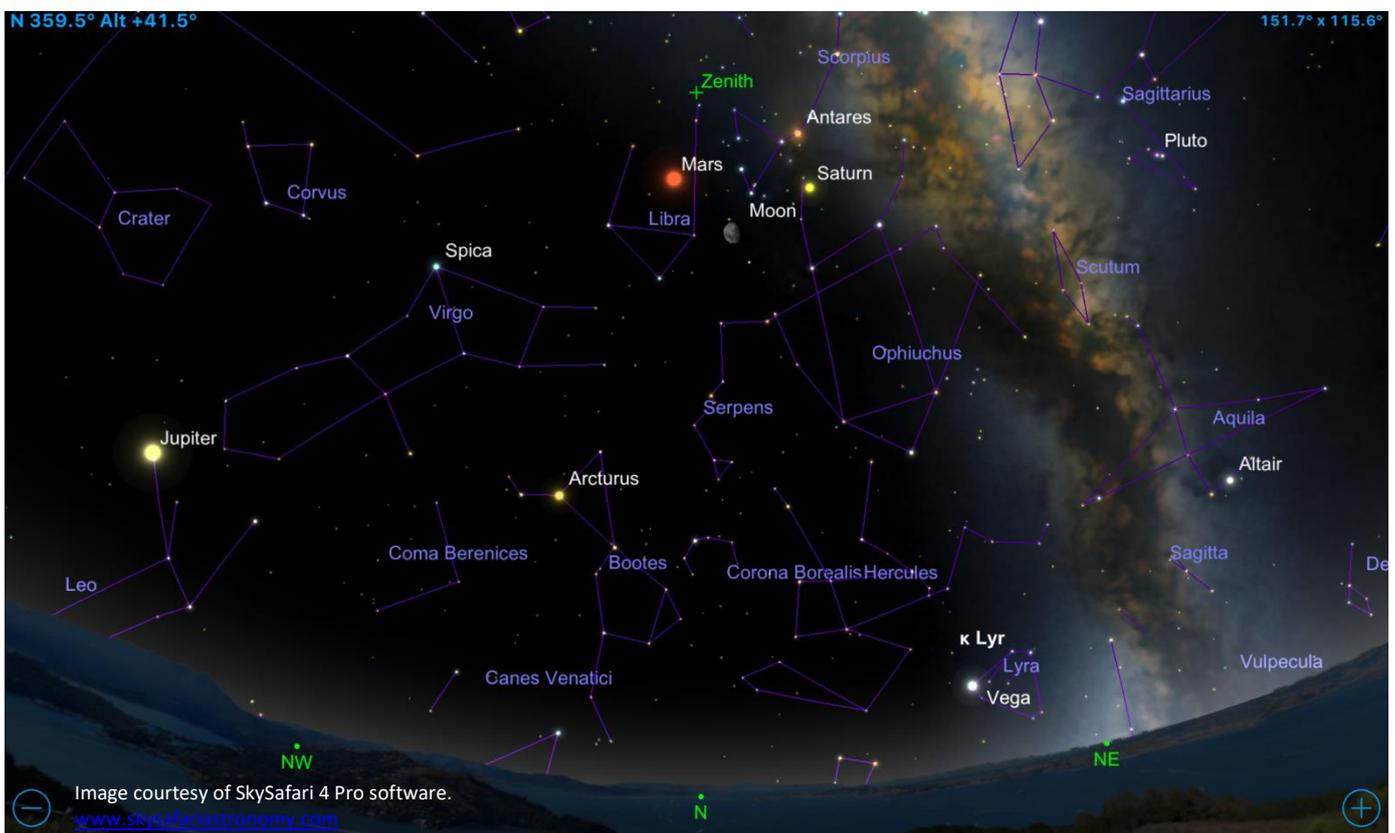
Evening Sky Maps

The following maps show the evening sky at 8.00 pm on 15 July, 2016 from the Tamworth region. As the stars rise four minutes earlier each evening, the stars will be in the same position at around 7.04 pm by 31 July. The following astronomical images have been provided by SkySafari 4 Pro software - www.skysafariastronomy.com An all-sky map for this month, together with a list of astronomical events (free for personal printing), is available online at www.skymaps.com/downloads.html - scroll down to the July 2016: Southern Edition and download the pdf file.

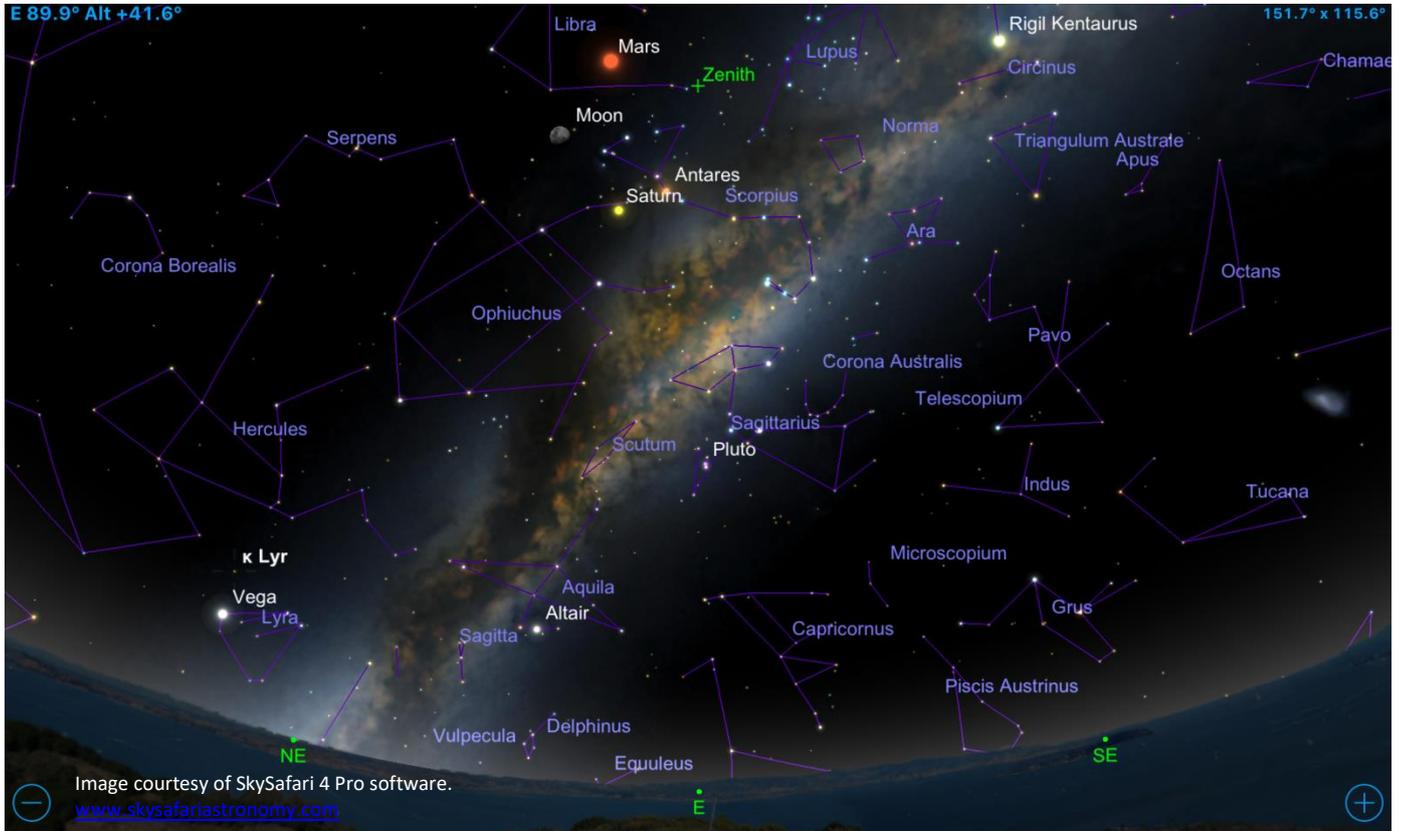
Looking West



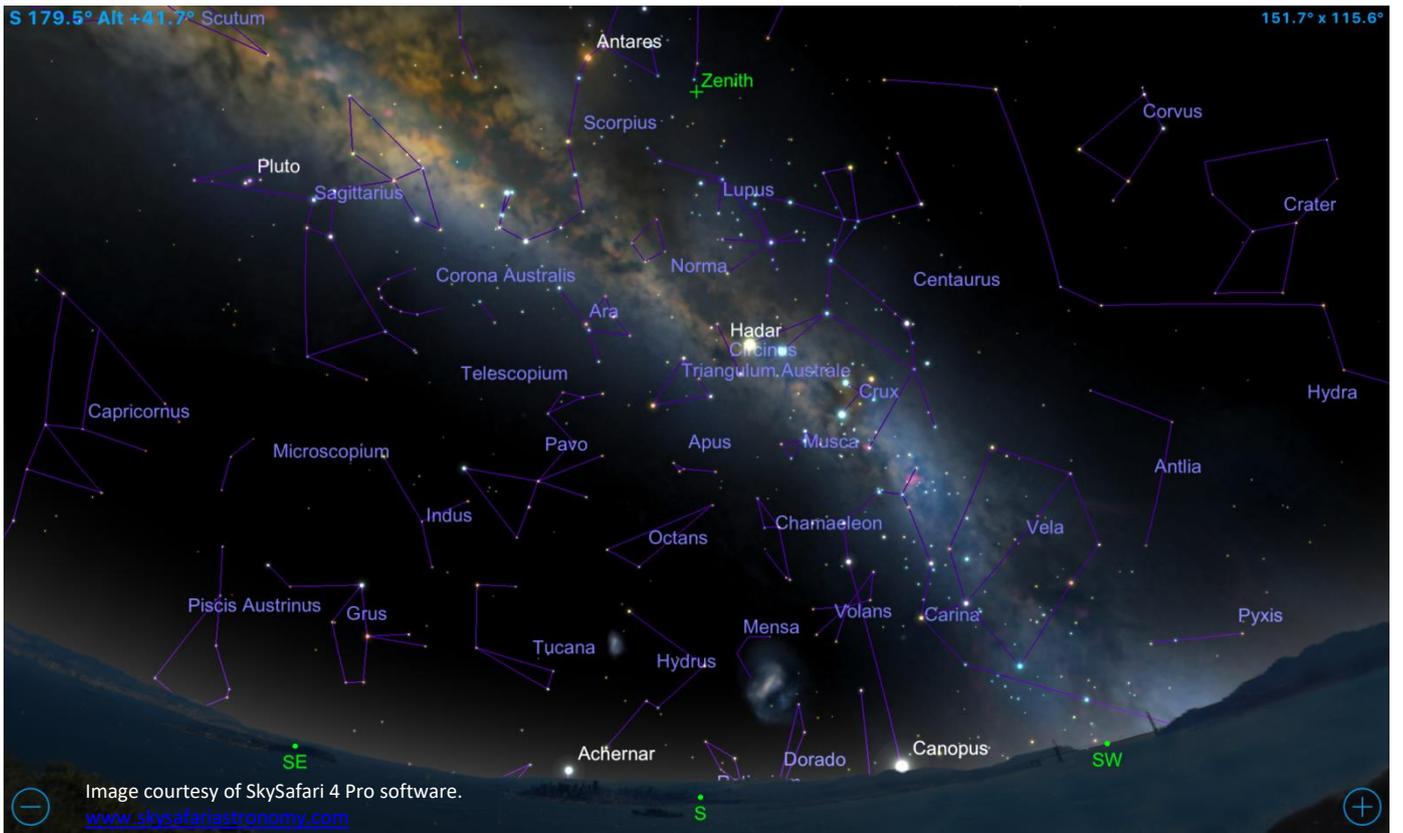
Looking North



Looking East



Looking South



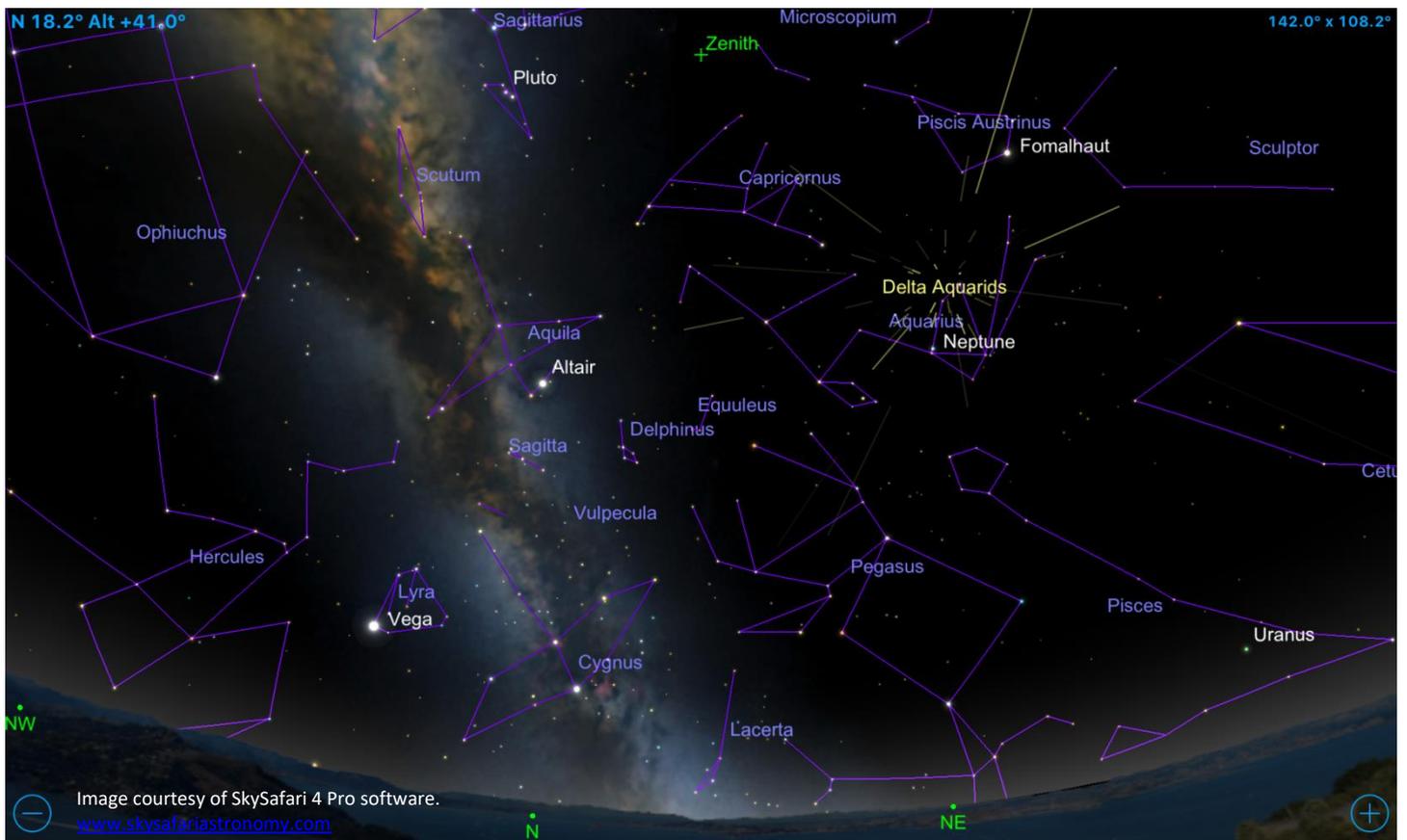
Scorpius Finder Chart – 15 July 2016, 8.00pm



Meteor Shower

THIS MONTH'S major meteor shower is the Southern Delta Aquarids which peaks on the morning of 28 July. As the name suggests, this annual shower, which is active from 14 July to 18 August, favours the Southern Hemisphere and this year the moon will not interfere greatly with the view. The Southern Delta Aquarids are produced by the Earth passing through debris left by Comet 96P/Machholz and at their

peak, produce around 20 meteors per hour. These meteors are generally fainter ones, so a dark sky location will provide the best opportunity to view and photograph the event. The best time to view the meteor shower is generally after midnight and the chart below shows the view, looking towards the North-North East at 12.00 am on the morning of 28 July.



Win a telescope!



Stuart Goff and Barry Gilbert on duty at Tamworth Shopping World. Photo by Garry Copper.

THE TAMWORTH Regional Astronomy Club's raffle has been proceeding well with regular ticket selling days being held at Tamworth Shopping World and Tamworth Square (formerly K-Mart Plaza). A number of members have also been selling tickets from local businesses and to family and friends etc. Thank you to everyone who has assisted with the selling of tickets which has greatly helped to raise much needed funds for the Club during its first months of operation. TRAC would also like to once again extend a sincere thank you to [New England Instrument Company \(NEIC\)](#) for the fantastic deal they provided in supplying the

prizes – an eight-inch Sky Watcher Dobsonian telescope (pictured) and two pairs of binoculars. We also sincerely thank [AM Printing](#) for donating the cost of printing our raffle tickets. A reminder too that NEIC has offered a 10% discount to TRAC members for items purchased at their store. If you haven't purchased a ticket yet, time is running out as the raffle will be drawn by Dr Stephen Kane on 27 July. Please contact the Club's Executive (e-mail and phone details on page 2) if you would like to purchase tickets. Final ticket sales will be at the Dr Stephen Kane event.

Club shirts/jackets now available

TRAC members are now able to order polo shirts, jackets and hoodies with our Club logo from [Monogram It/Hip Pocket](#) at 123 Bridge Street, Tamworth. If you would like to place an order, contact our Executive (see page 2 for contacts) to obtain an authorisation slip, then call in to the store with the signed slip to check your size, place your order and confirm pricing. It usually takes around two weeks for items to be printed. The polo shirts are slightly different to the sample pictured (the collar is blue), and all clothing items are available in male and female styles.

Thank you to Sandy McIntosh at Monogram/Hip Pocket for assisting with the supply of these items. A number of members have ordered theirs already for the Dr Stephen Kane event which will greatly assist in promoting our Club.



Forthcoming meetings and events



TRAC stand at Model Engineer's Day, Victoria Park. Photo by Leigh Tschirpig.

Saturday, 16 July 2016

Technical Meeting of the Tamworth Regional Astronomy Club Inc, commencing at 4.30 pm with a BBQ. Location details and confirmation of the meeting will be e-mailed to TRAC members. In the case of poor weather, the meeting will be held at Victoria Park. For enquiries, please contact Secretary Garry Copper (see page 2 for contact details). Please check our website for any late changes.

Sunday, 17 July 2016

TRAC stand and promotional display at Tamworth Model Engineers day, Victoria Park.

Wednesday, 27 July 2016

Dr Stephen Kane evening at Tamworth High School, commencing at 7.00pm.

Monday, 1 August 2016

Meeting of the Tamworth Regional Astronomy Club Inc at Victoria Park, commencing with an Executive Committee meeting at 6.30 pm and followed by our Regular Meeting at 7.00 pm and observing session (weather permitting). An alternative program will be held in the meeting room in the case of poor weather.



TRAC - BBQ & Tech Night 16-4-16 (Leigh Tschirpig Presentation)

Photo by Garry Copper.



TRAC - BBQ & Tech Night 16-4-16 (Club members trying ideas from the technical discussions)

Photo by Garry Copper.

Astro Trader

DO YOU have any astronomy equipment you would like to sell, or perhaps you are looking for a hard to find astronomy related item?

Why not place an advertisement in our Astro Trader column, a free service for TRAC members!

If you would like to list an item, just send an e-mail to tracbestars@gmail.com with the details and photo of the item, together with your contact information and we'll list it here for you. Please let us know if your item sells or you wish to discontinue your ad.

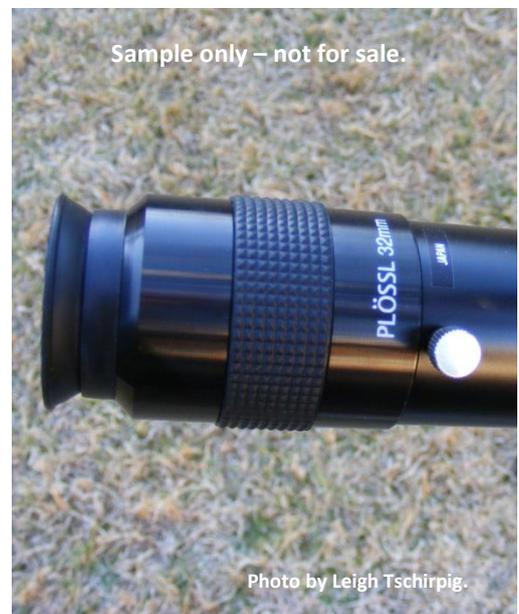


Photo by Leigh Tschirpig.