Canterbury Astronomical Society

CASMag

Notable events in July

30th June – 12th July - Kid's Fest

July 16th, 23rd & 30th - Group bookings

July 18th & 25th - Public Open nights

** Please consider volunteering on https://cas.ivolunteer.com/

July 15th – CAS May Monthly meeting Rm 225 Level 2 Ernest Rutherford Building, University of Canterbury

July 19th – CAS Mid-winter Bonfire @ West Melton observatory

July 22nd – CAS Members Night at our West Melton observatory

Inside This Issue

Editor's Thoughts for July

Greetings and welcome to your July CASMag. Our Kids Fest kicked off with a blast for the nights of June 29th. June 30th and July 1st – the clouds parted for CAS volunteers to show off the many gems in our dark sky. July 1st was a sold-out event! The weather since then has turned but here's hoping for another break in the weather to give the kids an opportunity to marvel at bright shiny star clusters like the Jewel Box, the Diamond cluster, Omega Centauri, the moon. As always, these events rely heavily on members who volunteer their time to share the joys and wonder that is astronomy. Please consider volunteering, it is a wonderful way to share your passion for astronomy. In this issue…

Our Vice-President Terry Richardson attended the RASNZ Conference in May and has shared some of the conference highlights. Maybe this will spark interest in attending next year's RASNZ conference. In this issue we also have a book review by our long-time sky guru, Rob Glassey, on one of the books in our CAS library – Turn Left at Orion. In August, we may have the opportunity to hear the author himself in Christchurch during his lecture tour in New Zealand. Look out for the announcement at our monthly meeting and forum updates – if you have not subscribed to the CAS forums, then do so now so that you don't miss out. Also available in this issue is Alan Gilmore's July star chart to. Please join me in congratulating Alan Gilmore and Pamela Kilmartin on being made Members of the New Zealand Order of Merit in this year's King's Birthday honours.

Report on RASNZ conference in Whakatane 9 – 11 May 2025

I was lucky enough to be sponsored to this conference by Fireballs Aotearoa as were 3 other "Fireballs" colleagues. Carol and I were the only ones from CAS to attend out of 100 delegates. This was my first attendance at this conference, and I feel privileged to have been able to attend. The featured invited speaker was Professor Anna Scaife from the University of Manchester. Her astronomy workplace is Jodrell Bank radio telescope in UK. Her main involvement is in the square Kilometer Array which spans the world. She spoke (as she did on the BHT lecture tour) on "How Artificial Intelligence is changing the way we do Astronomy". This was a very enlightening talk and covered how big data can be handled for analysis. The main issue is how this enormous amount of data can be stored, and how to use AI to pick out the relevant data points. Her husband gave a talk which was entitled "The secret life of Spider Pulsars" but it was on a different day and a very technical discussion which was beyond most of us.

There were several speakers on Dark skies, mainly orientated around on how to achieve the status. My take home message was that this is very difficult and time consuming.
Wayne Orchiston as usual gave a couple of interesting talks on History.

A particular highlight for me was the series of presentations by SWAPA students (Students with a Passion for Astronomy). These students are mainly senior high school students who were selected on merit for sponsorship to the conference. They each gave a short presentation on their passion, and they were all well-presented, mature, and very inspiring. I was able to persuade Emily from Christchurch to repeat her talk at our monthly meeting, and she was inspired in turn to come to the observatory and become a member. The conference was well run and very collegial so much information was shared. I can strongly recommend this conference for CAS members to attend in the future - *Terry Richardson*

Book review: Turn Left at Orion, Authors**:** Guy Consolmango and Dan Davis

Currently in its 5th edition, Turn Left at Orion is often called a "must have" night sky guide. While other top selling introductory astronomy books give a broad overview of our hobby, this book focuses on actual observing. It focuses on what you can actually see with your telescope, and how to find it. With over 400 objects included, few experienced astronomers will have seen them all, but this book places most emphasis on the best ones, the easy ones, and the most interesting. Each showpiece object has a two-page spread devoted to it, with ratings, finder charts, sketches, background information, and other objects in the area. There is an excellent section on observing the moon at different phases, including photos, and a wealth of practical information about observing the planets, including maps of Mars and Jupiter and dates of oppositions and maximum elongations.

Turn Left at Orion is well suited for Southern Hemisphere observers, being divided into seasonal objects that are visible anywhere, plus separate sections for the northern and southern skies. The southern section alone contains 15 showpiece objects, plus another 10 nearby objects, 15 double stars, and extensive charts of the LMC and SMC, with another 60 objects listed within them. Add to that over 60 seasonal showpieces, and a few hundred more nearby objects, and there's plenty to see!

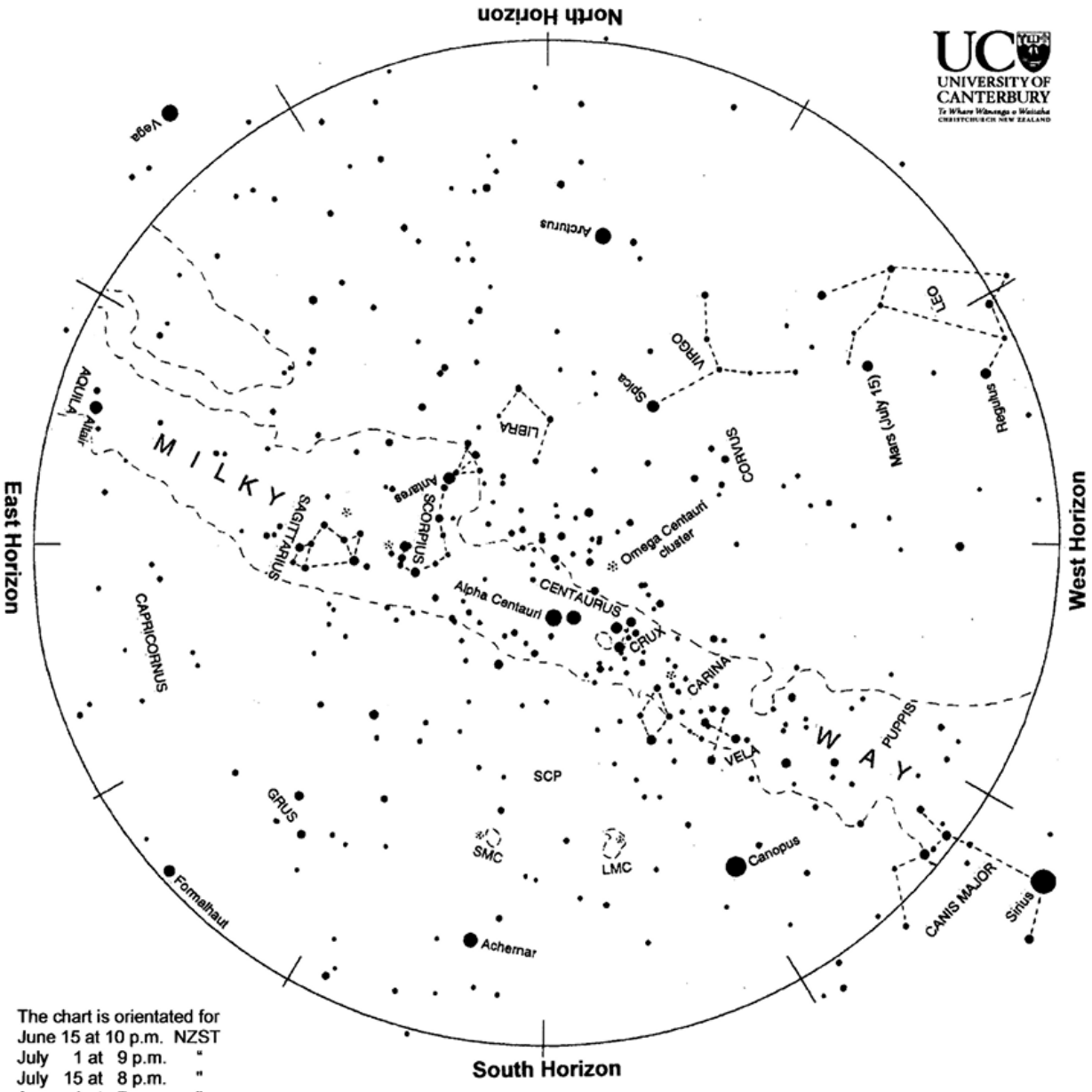
There are some great apps these days, with thousands of objects, detailed descriptions, and "tonight's best" features. But they are not a guide. Turn left at Orion will take you on a journey through the sky and through the seasons, tailored to your dob or small grab-and-go telescope. These are personal recommendations by passionate observers, who have actually looked at these objects using telescopes like yours. They describe it as they actually see it. Many of the southern objects in this book were observed by the authors right here in New Zealand. They encourage you to join them on the journey. They make it easy, with practical advice along the way. In some ways, Turn Left at Orion may be considered as a more beginner friendly version of Stephen O'meara's hefty observing guides.

Turn left at Orion is in our CAS library. It's well worth a thumb through. You may well find inspiration for your next celestial adventure. Enjoy! – *Rob Glassey*

For those interested in what books we have in our CAS library at West Melton, there is an Excel list named “Library list of book May 2025” available on the CAS Website in the Document Library section – Thanks to our CAS librarian Ray Pointon

And they have gone to join the stars…

A little before the crack of dawn on June 20th my alarm rang and I had to think really hard about leaving my nice warm bed for a very early morning rendezvous with a beautiful cluster of stars, the Pleiades and referred to as Matariki in Aotearoa New Zealand. Growing up in light polluted skies in Malaysia, I never had a chance to see many stars let alone such a beautiful and elegant cluster of stars. It was a great challenge to extract myself from the gravity well that was my bed and get sorted to head out to the top of Mt Pleasant Bluff track car park to meet up with Rob Glassey and another friend to look for the cluster as it rose. Rob set up his 8-inch Dob and I had a wonderful retro Astroscan. The Astroscan is a very neat little scope which you can literally set on any tabletop or the hood of a car even and point at the part of the sky you want to look at. It was the perfect scope for getting a look at this cluster. I also set up a spotting scope on a camera tripod which gave great wide field views of the cluster. Rob’s Dob came in handy as high in the morning sky was beautiful bright Saturn – its rings edge on and looking so sharp it was breathtaking. There was a lovely family of mum, dad and their 5-year-old girl who had come up there just to see if they could see Matariki. It was their lucky morning as it was for us, as the sky was clear of clouds and we had great views through our scopes. They marveled at seeing Saturn for the first time and it was a joy to watch their delight. As I watched the sky brighten, I recalled a line from Professor Rangi Matamua’s book “Matariki – The star of the year” where he shares “Taramainuku gathers the spirits of the year from the stern of the canoe and casts them into the heavens to become stars. Many Maori believe that this is where the dead spend eternity, as stars adorning the night sky” (p.64-65, 2019). Having lost two very significant people in my life, as I gazed on the cluster, I thought we forget that most of the elements that make up the human body originally came from dying stars and it is most fitting that they have returned to adorn my night sky - *Preetha*



The chart is orientated for
June 15 at 10 p.m. NZST
July 1 at 9 p.m. "
July 15 at 8 p.m. "
Aug. 1 at 7 p.m. "

Evening sky in July 2025

To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole, SCP on the chart. Stars rise in the east and set in the west, just like the sun. The sky makes a small extra clockwise rotation each night as we orbit the sun.

Mercury is low in the northwest sky in the first half of the month but sets before 8 p.m. so isn't on the chart. Mars is a medium-bright red 'star' low in the northwest, setting before 10 p.m. mid-month. Saturn rises due east before midnight at the beginning of the month and before 10 p.m. at the end (so isn't on the chart, either.) Low in the north is orange Arcturus, often twinkling red and green. The Pointers and Crux, the Southern Cross, are south of the zenith. Sirius, the brightest star, sets in the southwestern twilight, sparkling colourfully. Canopus, the second brightest star, is low in the southwest. It swings down to the southern horizon later. Vega rises on the opposite horizon around 9 pm.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

The Night Sky in July 2025

Mercury makes its best evening sky appearance of the year. At the beginning of the month it appears as a bright star toward the northwest, setting two hours after the Sun. It holds that position till mid-month, slowly fading as more of its sunlit side is turned away from us. It then sinks into the twilight in the third week as it begins to pass between us and the Sun. (Because it sets before 8 p.m. it isn't on the chart.)

Mars is the only other planet in the evening sky. It looks like a medium-bright red star, setting in the west around 9:40. It is 300 million km away, mid-month, so tiny in a telescope. The Moon will be below Mars on the 28th and above it on the 29th.

Saturn is up in the late evening. It rises around 11:50 at the beginning of the month and before 9:50 at the end (so isn't on the chart.) It looks like a medium-bright cream-coloured star, due east, all on its own. By dawn Saturn is mid-way up the sky a bit west (left) of due north. The Moon will be near Saturn on the night of the 16th-17th. Saturn is 1370 million km away mid-month. It is worth a look in any telescope. The ring is nearly edge-on to us, so appears as a thin line. Its shadow makes a dark line across the planet. Saturn's larger moons orbit in the same plane as the ring so their shadows are also crossing Saturn. On the night of the 2nd-3rd the shadow of Titan, the largest moon, will be on Saturn when it rises around 11:40. It looks like a small black spot. The shadow moves off the planet around 1 a.m. This repeats on the 18th when Saturn rises around 10:40 and Titan's shadow moves off just after midnight.

Sirius, the brightest true star, sets in the southwest as twilight ends, twinkling like a diamond. **Canopus**, the second brightest star, is also in the southwest at dusk. It swings down to the southern skyline before midnight where it also twinkles colourfully. It then moves up into the southeast sky in the morning hours. It is a 'circumpolar star'. Seen from Aotearoa it never sets, except in the most northern places. Canopus is a truly bright star: 13 000 times the sun's brightness and 300 light-years* away.

South of the zenith are 'The Pointers', Beta and **Alpha Centauri**. They point to **Crux**, the Southern Cross, on their right. Alpha Centauri is the third brightest star in the sky. It is also the closest of the naked eye stars, 4.3 light-years away. Beta Centauri, like most of the stars in Crux, is a hot blue-giant star hundreds of light-years away. Crux and the Pointers are also circumpolar. They are always somewhere in our southern sky. In summer they are upside down and low in the south.

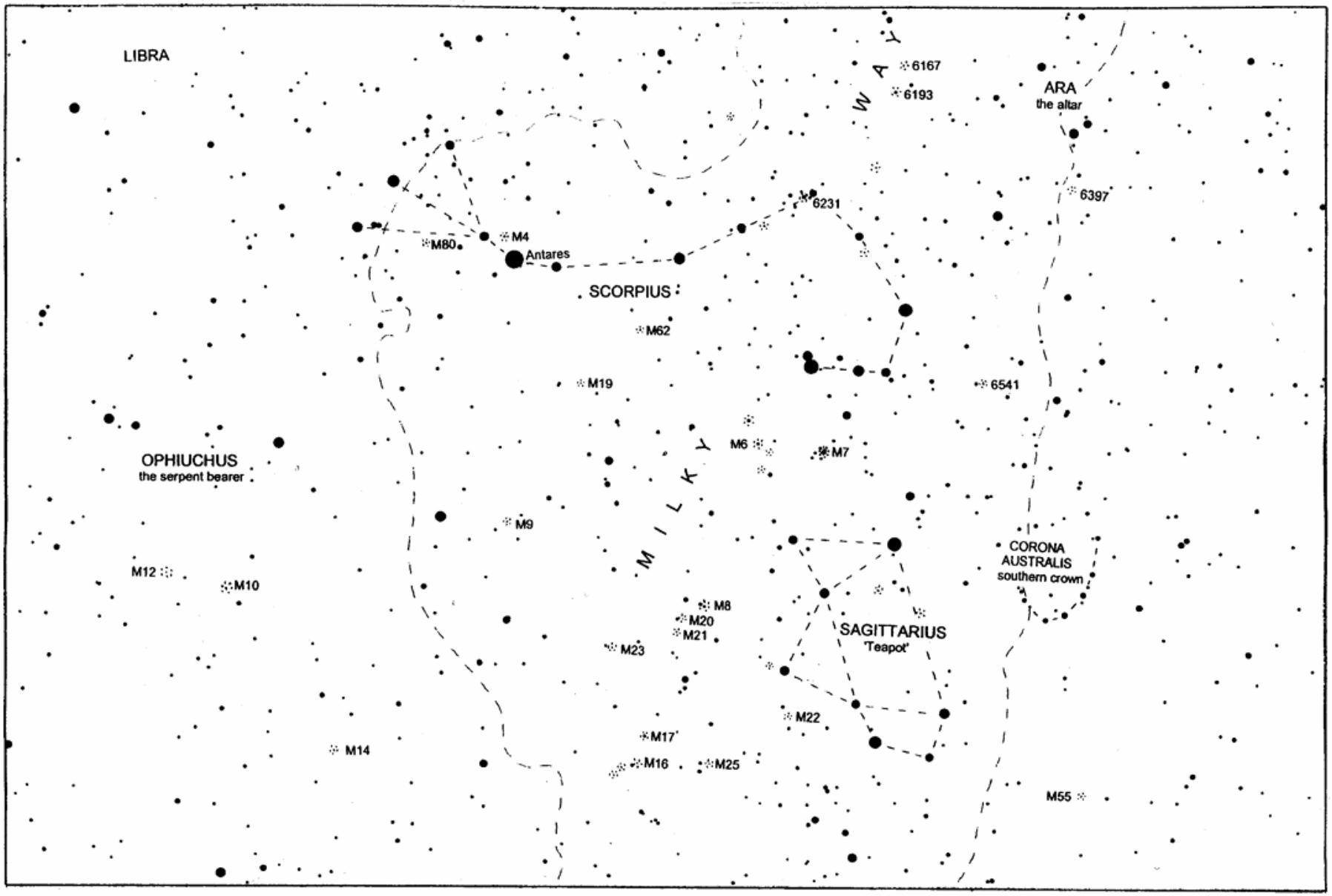
Midway down the north sky is orange **Arcturus**. It sets in the northwest around midnight, twinkling red and green as it goes. It is the fourth brightest star and the brightest in the northern hemisphere sky. It is 120 times the sun's brightness and 37 light-years away. It has an orange colour because it is cooler than the Sun; around 4000°C. Above Arcturus is a lone bright star, **Spica**, the brightest star in Virgo. The Moon will be close to Spica on the 31st. **Vega** rises in the northeast around 9 pm. It is on the opposite side of the sky to Canopus: low in the north when Canopus is low in the south. Vega is the fifth-brightest star in the sky and the second-brightest northern hemisphere star. It is 52 times brighter than the Sun and 25 light-years away.

The **Milky Way** is brightest and broadest in the east toward **Scorpius** and **Sagittarius**. In a dark sky it can be traced up past the Pointers and Crux, fading toward Sirius. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The thick hub of the galaxy, 30 000 light-years away, is in Sagittarius. The actual centre is hidden by dust clouds in space. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds.

Venus rises in the northeast around 4:20 a.m. at the beginning of the month and 5 a.m. at the end, a brilliant object in the dark sky. Golden Jupiter begins a morning sky appearance in July. It rises an hour before the Sun mid-month and at 6 a.m. at the end.

*A **light-year** (**l.y.**) is the distance that light travels in one year: nearly 10 million million km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes sunlight four years to reach the nearest star, Alpha Centauri.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz 250531



Eastern Evening Sky in July

The chart shows the eastern sky at nightfall. The Milky Way is here bright and broad as we look toward the centre of the galaxy. Many star clusters and a few nebulae are seen, some obvious to the naked eye. Those visible in binoculars or small telescopes are indicated with asterisks. They are described on the other side of this page.

Chart produced by Guide 8 software; www.projectpluto.com. Labels added by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

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Other Information

***** IMPORTANT NOTE - UC PARKING ******

There are bollards now installed by the Rehua Building and these will be raised at 6pm daily till 7am. Do not park in the areas by these as you risk getting locked in! Please note its just this one area where the EV chargers are located that has been protected by bollards. All the rest of the campus remains the same. Be wary where you are parking!! The map at this link shows where accessibility parks are >>> https://www.canterbury.ac.nz/about-uc/our-campus-and-environment/maps

CASMag will be published every alternate month and will contain information on CAS activities, articles contributions from CAS members, monthly star charts. I'd like to invite members new and experienced, young and mature to send in your contributions, can be short articles (50 – 100 words) on what your experience has been being a CAS member, what you have learnt, what astronomy projects you're working on etc. Send your contributions to Editor@cas.org.nz by the 3rd week of the month at the latest.