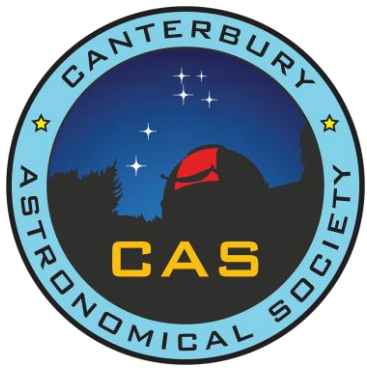




Canterbury Astronomical Society

CASMag

Upcoming Notable events for your calendar:

Sep 2, 16, 23 & 30 – Wednesday Group bookings

Sep 4, 11, 18 & 25 – Friday Public Open Nights

WE NEED YOU!!

**** Please volunteer for at least Wed and/or Friday nights – it really helps share the load & helps CAS outreach efforts – subscribe to Forum on CAS website to keep updated****

Sep 10th – 2027 CAS Calendar submissions – email questions to calendar@cas.org.nz

Sep 15th – CAS Monthly Meeting, Jack Erskine 111 @7:30pm

****New Astronomers session 630 – 730 pm run by Orlon Petterson**

****Meeting Speaker: Paula Jofre – topic is to be advised**

Sep 19th - CAS Members Night at the Observatory 600pm onwards

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Editor's Thoughts

First of all, there is a correction in the August CASMag – For any of you who had camped out in hope of catching the Perseid Meteor shower my apologies – here in Christchurch the radiant of the Perseid meteor shower would be well below the horizon and therefore not visible to us in Christchurch. Thanks to our sky guru Alan Gilmore for setting me straight. Hopefully you managed to see images of the solar eclipse in August which was mostly visible to those in Europe. Hopefully it has given you a taste of what you can look forward to seeing on 22 July 2028 as the southern South Island will be in the path of the eclipse!

Happy spring everyone – I always feel a little torn – Happy that Spring is starting with the bright daffodils out but also a bit sad knowing that from now opportunities to view our lovely universe will be pushed later into the night. September also marks the end of our Open nights, although I hear whispered that weather permitting we may try for a few nights beginning of October. September kicked off with the launch of the Nancy Grace Roman Telescope on August 30th from the US – you can read how our Rob Glassey intrepid as always used his Seestar to catch sight of the Roman telescope as it makes its way out into space. Also note submissions for the CAS 2027 Calendar close on September 10th per Mandy and Dale's email to members. So if you have any images or questions send it on to them at calendar@cas.org.nz. As always Alan Gilmore has provided his sky charts to help you get the best out of our September night sky. Clear skies everyone – *Preetha*

★ Help us light up ★ the 2027 Calendar!



We're on the hunt for YOUR amazing space shots!

Got a jaw-dropping nebula, a stunning galaxy,
or a local night sky that makes people go "WOW"? ★
Your photo could be in the next Cosmic Calendar! 📸



Send your best image to

calendar@cas.org.nz

Images to be submitted by **1 Oct 2026**

Let's make 2027 out of this world! 🚀

With thanks, Mandy and Dale ★





The Roman Space Telescope and the Falcon Heavy upper stage! - by Rob Glassey

The line on the right is where JPL says Roman should be. As the trail developed I noticed the line on the left, so I re-centered and tried again. This is very likely to be the Falcon Heavy (FH) upper stage that pushed Roman on it's way, and Roman has not moved far away from it yet.

When this image was taken Roman was 207,000km away, a bit over half the distance of the moon. It is about magnitude 13.5 at this distance, with the sun shining almost straight onto it from our perspective. It's heading for the Earth-Sun L2 point, about 1,500,000km away, directly opposite the sun from the Earth's perspective. The balance of gravity at that point allows it to orbit that point much the same as the James Webb telescope does.

You might notice the dotted appearance of the lines. This is due to the rotation of the objects and the changes in reflected light. Roman will hopefully be rotating as planned to control temperature etc. The FH will probably just be tumbling in space.

You might also see a slight curve in the lines. This is mostly due to our perspective changing

as the Earth rotates.

To find Roman enter your location and time span in UTC into JPL's Horizons app, and search for "Roman" > <https://ssd.jpl.nasa.gov/horizons/app.html>

It will get fainter fast, and will soon need software like Tycho Tracker to see it. It will reach the moons distance in about 36 hours, when it will be around mag 15. It will be mag 16 in about 4 days. When at L2 it will be around mag 18. Note this image is "south up" (from the southern hemisphere) and the time is UTC+12.

With his permission, the above was copied from Rob's Facebook post on the SeeStar Facebook page – I thought it would be fun to share in this CASMag the adventures he goes on with his SeeStar from our backyard.

Events/Programmes of interest

Sep 3rd 6:30 pm - The Nelson Astronomical Society presents Dr. Craig Lage, a Senior Researcher at UC Davis, CA. Craig will be speaking on his work with CCD detectors for the LSST camera at the Vera C Rubin Observatory in Chile. For more information, this [link](#) will take you to a dedicated event page, where there is a link to further event information about Craig and his involvement in the LSST camera. There you will also find a link to instructions on how to watch Craig's presentation **LIVE via Zoom**.

Nov 6-7th - DarkSky's global conference, Under One Sky 2026, [early bird registration](#) to this virtual event **extended to the end of September**. Spanning 24 hours, Under One Sky brings together people from around the world for stories, conversations, and the sharing of practical resources to inspire our shared work to protect the night. This year's theme, Night in balance, invites us to envision a world where the night is protected and explores what it will take to make this future possible.

CAS Monthly Meeting venues for the rest of 2026 at the University of Canterbury

– It's a bit of a mix so do make sure you make a note of it and head to the right room!

Date	Location	Speaker
15/9/2026	Jack Erskine 111	Paula Jofre – Topic to be advised
20/10/2026	Ernest Rutherford 225	Ryan Ridden – Topic to be advised
17/11/2026	Ernest Rutherford 225	To be advised

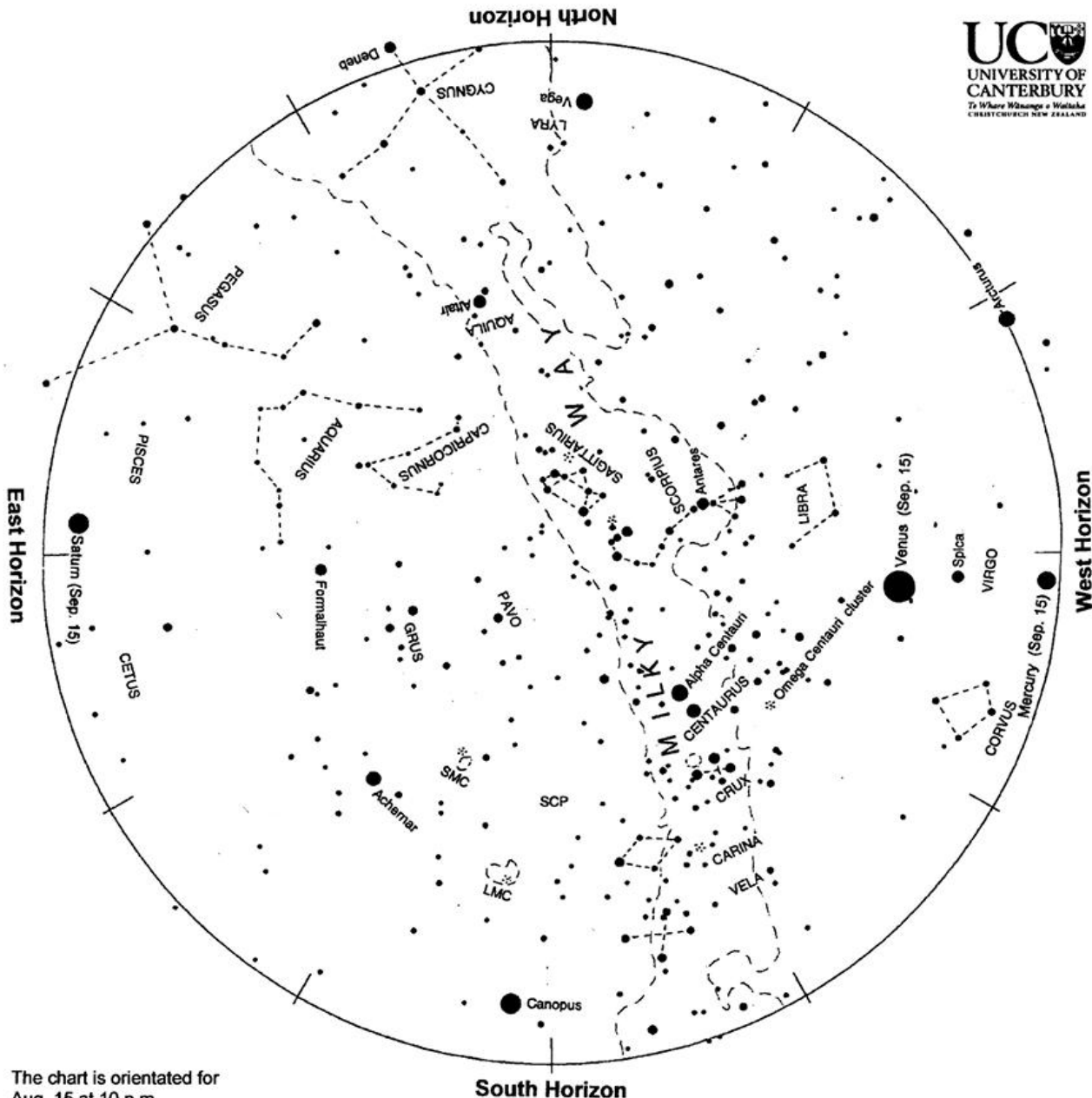
Information about CAS Membership - CAS Membership subscriptions are usually due 1st April

Payment by either, bank deposit or eftpos at a meeting. If by bank deposit, please use your name and membership as a reference so it can be matched to your membership. (if you know your member number please use this). Also advise any of your contact detail changes for your membership (e.g.: address, phone number) to membership@cas.org.nz

Online Banking Details (Please identify your payment):

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		Full
☐	Adult (any person 18 years of age or over who is not eligible for any other category)	\$70
☐	Family (two or more persons living at the same address)	\$105
☐	Junior (under 18 years of age on 1st April in the current year)	\$35
☐	Senior (over 65 Years)	\$35
☐	Community Services Card Holder	\$35
☐	Student (any person studying full-time at a tertiary institution, must reapply annually)	\$35
☐	Corporate (members have voting rights of one member, but cannot take office)	\$210



The chart is orientated for
Aug. 15 at 10 p.m.
Sep. 1 at 9 p.m.
Sep. 15 at 8 p.m.

Evening sky in September 2026

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.

Venus is the brilliant 'evening star' appearing in the west soon after sunset. It is joined by Mercury, much fainter, in the second half of the month. Saturn is a cream-coloured 'star' low in the east. Canopus twinkles like a diamond near the southern horizon. Vega shines on the northern horizon. Orange Arcturus twinkles red and green as it sets in the northwest. The Milky Way spans the sky from north to south. West of overhead is orange Antares marking the Scorpion's body. The Scorpion's tail curls above it like a back-to-front question mark. Crux, the Southern Cross, and the Pointers are in the south-west.

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 Evening Sky in September 2026

Three naked-eye planets are in the evening sky during September, but not all together.

Brilliant **Venus** appears in the west soon after sunset (or before if you know where to look.) It sets four hours after the Sun at the beginning of the month and three hours after the Sun at the end. It will be close to Spica, the brightest star in Virgo, in the first days of September. In a telescope it appears as a tall thin crescent. The Moon will be near Venus on the 14th.

Mercury begins its best evening sky appearance of the year in the second week of the month. It looks like a medium-bright star, due west, straight below Venus. On the 12th it is setting an hour after the Sun along with the thin crescent Moon. It moves higher, night-to-night, setting two hours after the Sun at month's end. Mercury will be near Spica around the 26th and will be the brighter of the two.

Saturn is due east, looking like a medium-bright cream-coloured star. It rises around 8:40 at the beginning of the month and is up at twilight at the end. Saturn will be to the right of the full Moon on the 27th.

Bright stars shine around the skyline. Orange **Arcturus** is in the northwest, often twinkling red and green as it sets. **Canopus**, the brightest true star in the evening sky, skims along the southern skyline, twinkling all colours. **Vega** is low in the north. It is the second-brightest northern star after Arcturus. From northern Aotearoa the star **Deneb** can be seen near the north skyline. It is the brightest star in the cross-shaped constellation of Cygnus the Swan.

Orange **Antares**, northwest of the zenith, marks the body of the Scorpion. The Scorpion's tail hooks toward the zenith like a back-to-front question mark. It is the 'fishhook of Maui' in some Māori star lore. Below or right of the Scorpion's tail is 'the teapot' made by the brightest stars of **Sagittarius**. It is upside down in our southern hemisphere view.

Midway down the southwest sky are 'The Pointers', Beta and **Alpha Centauri**. They point down to **Crux** the Southern Cross. Alpha Centauri is the third brightest star. It is also the closest of the naked-eye stars, 4.3 light-years* away. Beta Centauri, along with most of the stars in Crux, is a super-bright blue-giant star hundreds of light-years away.

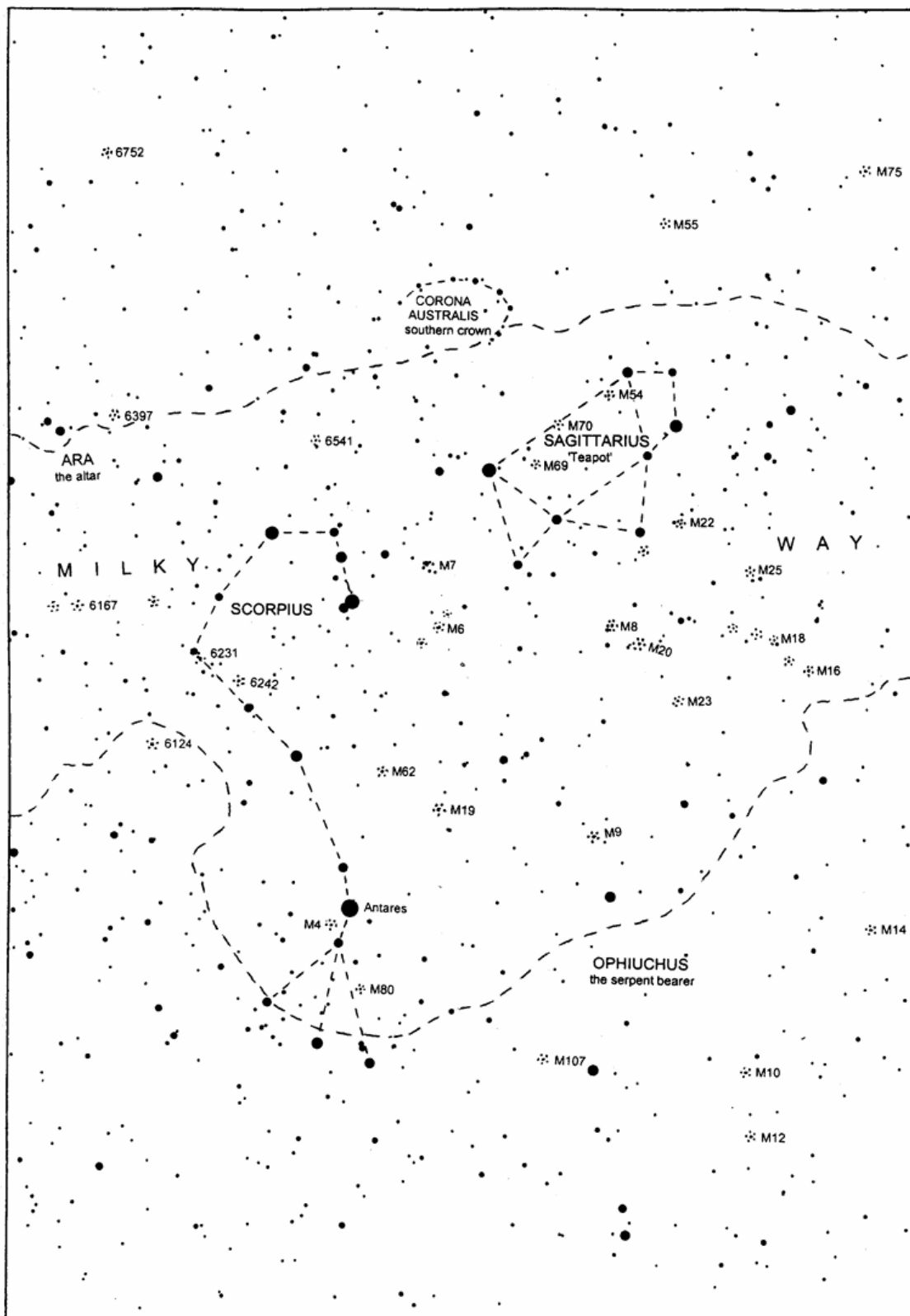
The **Milky Way** spans the sky from north to south. It is brightest and broadest overhead in Scorpius and Sagittarius. In a dark sky it can be traced down past the Pointers and Crux into the southwest. To the northeast it passes **Altair**, meeting the skyline right of **Vega**. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The thick hub of the galaxy, 27 000 light years away, is in Sagittarius. Dust clouds near us appear as gaps and slots in the Milky Way. Binoculars show many clusters of stars and some glowing gas clouds in the Milky Way.

The Large and Small Clouds of Magellan, **LMC** and **SMC**, look like two misty patches of light in the south sky. They are easily seen by eye on a dark moonless night. They are galaxies like our Milky Way but much smaller. The LMC is about 160 000 light years away; the SMC about 200 000 light years away.

On moonless evenings, in a dark sky, the Zodiacal Light is visible in the west. It appears as a faint broad column of light extending up past Mercury and Venus, toward Antares. It is sunlight reflecting off meteoric dust in the plane of the solar system.

Golden Jupiter appears low in the sky toward the northeast around dawn. It rises an hour before the Sun at the beginning of the month and two hours before at the end. Mars rises 2½ hours before the Sun through the month, a medium-bright red 'star', low in the northeast.

*A **light-year (l.y.)** is the distance that light travels in one year: nearly 10 million million km or 10^{13} 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.



The Sky West of Overhead at Evening in September

The chart shows the sky west of the zenith 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

Interesting Objects West of Overhead in September

Antares is the brightest star in the region. It is orange coloured; being a 'red giant' star. (The 'red' of red giants is usually more an orange tint.) It is around 600 light years* away, 19 000 times brighter than the sun, and three times bigger than Earth's orbit. Its mass or weight is about 12 times that of the sun, so most of the star is very thin gas spread around a hot dense core. Red giants are the last stage in the evolution of stars. The dense core of the star has shrunk and heated. The outer regions of the star have expanded to a very spread-out gas. The core is wringing the last of the thermo-nuclear energy out of elements like helium, carbon, oxygen and neon. Relatively soon the core of Antares will run out of energy and collapse, triggering a spectacular supernova explosion. (The sun will become a red-giant in about seven billion years time but it ends up as a white dwarf star, not a supernova.)

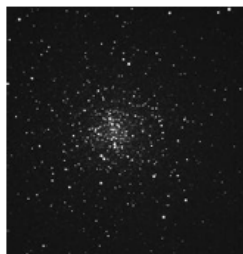


At the right-angle bend in the Scorpion's tail is a large and bright cluster of stars, **NGC 6231**, looking like a small comet. It is around 6000 l.y. away. Its brightest stars are 60 000 times brighter than the sun. The cluster is about 8 light years across, similar in size to the Pleiades/Matariki cluster in our summer sky. Were it as close as the Pleiades/Matariki cluster (440 l.y.) then its brightest stars would be as bright as Sirius.

Below and right of the Scorpion's sting is M7, a cluster obvious to the eye and nicely seen in binoculars. M7 is about 800 l.y. away and around 260 million years old. Below the sting and fainter is M6, the 'butterfly cluster'. M6 is around 1300 l.y. away and is half the age of M7. Other clusters worth a look in binoculars are M21, M23, NGC 6167, and NGC 6193. The 'M' objects were listed by the 18th Century French astronomer Charles Messier. He hunted comets, so made a catalogue of fuzzy objects that could be mistaken for comets. The NGC (New General Catalogue) objects shown are bright enough to have been seen by Messier but are too far south to be seen from Paris.

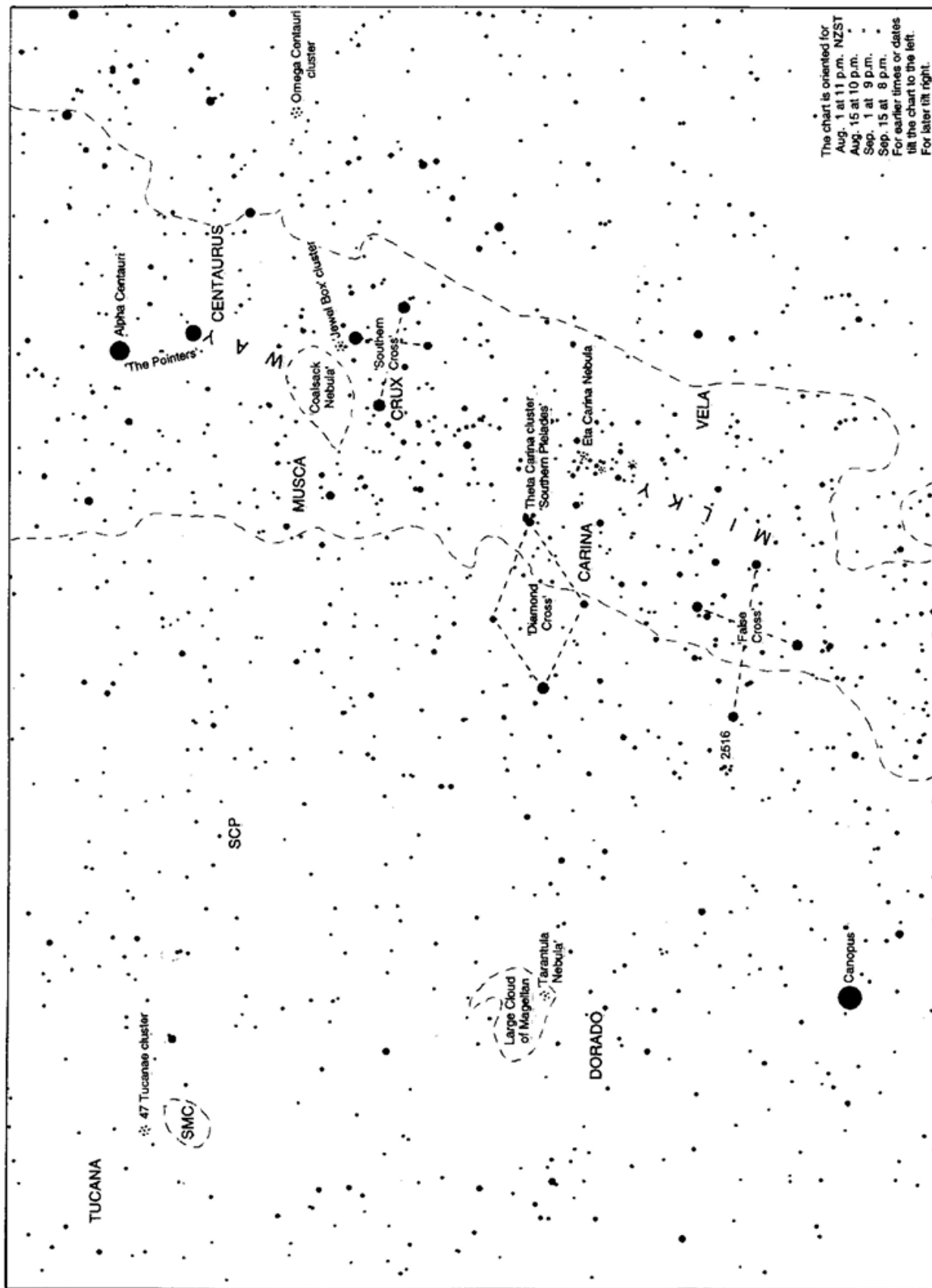


Below and left of the Sagittarius 'Teapot' is the glowing gas cloud **M8**, the '**Lagoon Nebula**'. It is a star-forming region where gas and dust have recently gathered into new stars. ('Recently' = the past million years or so.) Ultraviolet light from one particularly hot star is lighting up the leftover gas, making it glow. On colour photos it appears pink due to hydrogen atoms fluorescing in the UV light. Below M8 is M20, the Trifid Nebula, small glowing patch in binoculars, also a pink hydrogen region in photos. Other nearby nebulae (gas and dust clouds) are M16 and M17.



Globular clusters, spherical clusters of ancient stars, are found throughout the region. The brightest is **M4** by Antares. It is also one of the closest at 10 000 l.y. away. In binoculars and small telescopes 'globes' appear as round fuzzy spots. Others marked on the chart are M9, M10, M12, M14, M19, M22, M55, M54, M62, M80 and NGC 6541. The concentration of globular clusters in this area was an early clue that the centre of the galaxy lay in this direction.

This part of the Milky Way is broad and bright as we are looking to the centre of the galaxy. The actual centre, 27 000 light years away, is hidden from our view by intervening dust clouds. The nearer dust clouds make gaps and slots along the Milky Way. The hub of the galaxy is a great sphere of stars, called the 'central bulge'. Some of the central bulge is glimpsed in gaps between the dust clouds. At the very centre is a black hole four million times the sun's mass but only the size of our solar system. All big galaxies have a massive black hole at their centre.



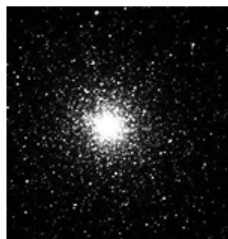
Southern Evening Sky in September

The chart shows the southern and southwest sky. Interesting star clusters and nebulae 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

Interesting Objects in the Southern Sky

Large & Small Clouds of Magellan (LMC & SMC) appear as two luminous patches, easily seen by eye in a dark sky. They are two galaxies like the Milky Way but much smaller. Each is made of billions of stars. The Large Cloud contains many clusters of young luminous stars seen as patches of light in binoculars and telescopes. The LMC is about 160 000 light years away and the SMC 200 000 l.y away, both very close for galaxies. (1 light year is about 10 000 billion km, 10^{13} km.)



47 Tucanae, looks like a faint fuzzy star on the edge of the SMC. It is a globular cluster, a ball of millions of stars. A telescope is needed to see a peppering of stars around the edge of the cluster. Though it appears on the edge of the SMC it is one-tenth the distance, 15 000 light years away, and is has no connection to the Small Cloud. Globular clusters are mostly very old, 10 billion years or more; at least twice the age of the sun. **Omega Centauri**, right of the Pointers, is a similar cluster around 17 000 light years away.



Tarantula nebula is a glowing gas cloud in the LMC. The gas glows in the ultra-violet light from a cluster of very hot stars at centre of the nebula. The cloud is about 800 light years across. It is easily seen in binoculars and can be seen by eye on moonless nights. This nebula is one of the brightest known. If it was as close as the Orion nebula (in The Pot's handle in the summer sky) then it would be as bright as the full moon.

Canopus is the second brightest star. It is 14 000 times brighter than the sun and 300 light years away. Sirius, in the eastern dawn sky, is the brightest star in the sky. The planets Venus and Jupiter are brighter.

Alpha Centauri, the brighter Pointer, is the closest naked-eye star, 4.3 light-years away. Alpha Centauri is a binary star: two stars about the same size as the sun orbiting around each other in 80 years. A telescope that magnifies 50x splits the pair. (A very faint and slightly closer star, Proxima Centauri, orbits a quarter of a light-year, or 15 000 Sun-earth distances, from the Alpha pair.)

Coalsack Nebula is a cloud of dust and gas about 600 light years away, dimming the more distant stars in the Milky Way. Many similar 'dark nebulae' can be seen, appearing as slots and holes in the Milky Way. These clouds of dust and gas eventually coalesce into clusters of stars.

The Jewel Box is a compact cluster of young luminous stars about 7000 light years away. The cluster formed less than 16 million years ago. It is best seen in a telescope. To the eye it looks like a faint star.



Eta Carinae nebula is a glowing gas cloud about 8000 light years away. The golden star in the cloud, visible in binoculars, is Eta Carinae. (Eta is the Greek 'e'.) It is estimated to be to be 80 times heavier than the sun and four million times brighter but is dimmed by dust clouds around it. It is expected to explode as a supernova any time in the next few thousand years. Many star clusters are found in this part of the sky.

The **Southern Pleiades** is a newish name for a cluster of stars at the right-hand point of the 'Diamond Cross'. It is formally the Theta Carinae cluster, after its brightest star but is also known as the 'Five of Diamonds' cluster, the reason obvious when it is seen in a telescope. It is much fainter and smaller than the real Pleiades in Taurus but a nice sight in binoculars. The cluster is about 500 light years away and is around 30 million years old.

NGC 2516, left of the False Cross, looks to the eye like a tailless comet. It is a nice sight in binoculars. The cluster is about 1200 light years away and 110 million years old.

Members Interest Section

This section is for members who have as an interest under the umbrella of Astronomy. Your interests could be around Meteors / Comets / Photometry / Solar observing / Photography / Telescope building / Spectroscopy / Aurora's / Occultation's / Variable Stars / Satellite tracking / Lunar observations/ Jupiter impact monitoring / Radio Astronomy / Eclipses. You are welcome to share your thoughts and see who other like minded people would like to join you. You can form your own interest section. Below are a few members who have started their own interests sections. You can also use the CAS forum to discuss other ideas to check out who else would be interested in starting a new members interest section.

- **Tune into Jupiter or the Sun with Radio Astronomy**

Radio astronomy can be done during the day and even cloudy nights. Terry has built a receiver and with his computer can log activity of the Sun and Jupiter.

For more information contact Terry Richardson, email: president@cas.org.nz Cell: 021 776 458

- **Bounce Signals off the Moon**

Beam a signal at the Moon or at a lunar orbiting satellite

For more information email: president@cas.org.nz

- **Spectroscopy**

CAS has recently purchased a diffraction grating which can be attached to a telescope eyepiece or camera on the telescope. The grating, like a prism, spreads the light from starlight into component colours (distribution of wavelengths). Thus begins the engaging look into the not so private lives of stars, nebulae and galaxies.

For more information contact Ray Pointon, email: rpointon@cyberxpress.co.nz

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 at the very least but if there are sufficient articles of interest submitted, CASMag can be published monthly. CASMag will contain information on CAS activities, articles contributed by CAS members or others with interest in astronomy which members may find interesting, monthly star charts. Members new and experienced, young and mature are invited to send in your contributions and these 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, astronomy or astronomy related images etc. Send your contributions to Editor@cas.org.nz by the 3rd week of the month at the latest.

Application for Membership

If you wish to apply for CAS membership, then please head on over to our website <https://cas.org.nz/register> to register and apply for membership.

Contacts information:

For Public Group Bookings - bookings@cas.org.nz

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