

Canterbury Astronomical Society

CASMag

Notable events in this month:

Oct 10th – the last Public Open night of the season

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

Oct 21st – CAS October Monthly meeting Rm 225 Level 2 Ernest Rutherford Building, University of Canterbury

Speaker: David Rolfe on “Whats happening on this side of the Ditch - the ASV, remote observatories, AusSpace, Star-parties, and any other things that might seem relevant”

Oct 25th – CAS Members Night @ West Melton observatory

Nov 18th - Special General Meeting to vote on proposed changes to CAS Constitution

Editor's Thoughts for October

This is a special edition of CASMag solely to present to members the changes to the CAS Constitution to bring in line with new legislation. Simon has been working hard to review the constitution with a fine tooth comb to make sure that the changes made will stand the society in good stead.

Is anyone else amazed that we are in October and spring is in full swing with all its wild weather? We had a chock full of excitement in September with two eclipses, a lunar and a partial solar eclipse, grace our skies. I also attended the Among the Stars Smart Astronomy camp in Herbert. I am happy to report that it was well attended by CAS members along with a few others who travelled from as far as the North Island, Nelson and Cromwell. More on that a little later in this issue.

October also marks the end of our open nights season with a special last public open night being this Friday October 10th with a later start at 8pm. Hopefully the weather will be kind and we will have a chance to give the public one last look at our beautiful night sky. Over the last few open nights we have been rewarded with lovely views of the Milky Way and Saturn with the rings edge on. Also in this edition is a short article on some of our shenanigans to catch the partial solar eclipse on the morning of September 22nd. Hope that it proves good reading. CLEAR SKIES everyone.

Inside this special October 2025 Issue

Pg 2 - 9

Proposed Changes to the CAS Constitution

Pg 10 - 11

Enjoying the Partial Solar Eclipse on Sept 22nd

Pg 12 - 17

The Night Sky in October by Alan Gilmore

Proposed Changes to the CAS Constitution by Simon Lewis, CAS President

If you attended last month's CAS membership meeting at the UC you'll have a good understanding of this article, but for those who didn't attend, this outlines some important information regarding proposed changes to the CAS Constitution, what it means for you as a member and the timing of these changes. Please forgive the extended nature of this document, it is important you understand the changes, what they mean for CAS, your membership and have a clear picture of the changes being proposed and to be voted on at a Special General Meeting.

Notice of Special General Meeting – 18 November 2025

Committee are calling for a Special General Meeting in accordance with Section 6.3 of the CAS Constitution to be held before the main UC meeting on 18 November 2025. The SGM agenda is to consider and vote on the proposals outlined below.

Why Do we Need to Change Our Constitution?

The updated Incorporated Societies Act 2022 replaces the 1908 Act and impacts any New Zealand based societies of 10 or more members. The changes are extensive and have been introduced to ensure Registered Societies meet modern management and accounting practices inline with changes in society and technology. These changes reflect:

- Recent changes in the Companies Act that provide more formal guidance on societies, their officers and accountabilities
- Changes to filing and annual submission requirements
- Modern accounting and auditing practices
- Growth of online services such as electronic banking, online forums and video conferencing
- Desire to promote natural justice in response to complaints
- Changes in society and the ways in which we live with technology
- Some questionable practices from other organisations in recent years – Not ours!

What Do We Need to Do?

Task	Deadline	Status
Confirm intention to continue incorporation at last AGM	March 31, 2025	Completed
Review current constitution against the 2022 Act and highlight changes required	September 30, 2025	Completed
Publicise proposed changes with CAS membership	October 31, 2025	In Progress
Complete a Special General Meeting to confirm the changes	November 18, 2025	To Be Completed
Submit approved Constitution to Companies Office for review and approval	November 31	To Be Completed

Task	Deadline	Status
Final Approval and confirmation of acceptance	January 2026	To Be Completed
Next AGM run against the new Constitution	March 17, 2026	To Be Completed

What Does it Mean for CAS and You?

- Good news first – no significant changes required! Our current constitution is pretty robust, and the changes are relatively minor to comply with the new act.
- Bad News – We cannot opt out – Opting out means we would have to fold CAS and create a non-society-based organisation and would prevent us from maintaining our charitable status as a not-for-profit organisation.
- The changes do not materially change our society, its aims or operations.
- The changes required do not create any disadvantages to you as members, but does place greater accountability on society officers, in line with changes to Companies and Incorporated Societies Acts – this will influence some administrative aspects of our operation.
- Members benefit from clearer governance and financial oversight as Officers are now legally accountable for acting in the society’s best interests.

It’s also important to understand that these changes do not prohibit CAS Committee Officers and members, approving additional changes should we find the wording does not quite fit our needs. But we need to submit these to Companies Office for validation in time to meet a deadline end of March 2026. We would expect validation to be completed around January- February 2026. We would have a further opportunity to tweak any wording at the March 2026 AGM as well!

Breakdown of Proposed Changes

How to read the changes

- Read the changes against the current constitution – you can download this from the CAS resources page on the website.
- BOLD strike text means current text to be deleted: Example deleted text
- Underlined Text means new text to be inserted: Example inserted text
- Any unchanged text remains the same and is not reproduced for brevity
- Any reference to ‘the Act’ – refers to the Incorporated Societies Act 2022
- Constitution changes are a MUST and non-negotiable to comply with the Act
- By Law Amendments are RECOMMENDED to remain inline with the constitution changes.

Proposed Changes: Section 2 – Purposes

The main aim of this change is to protect the society from mismanagement of funds, property or aims, that then create an interest or advantage or a member. By interest it means having a stake, claim or right in a matter that creates a financial, legal standing or a conflict of interest with their role. Sadly, in some societies this has occurred, and the act seeks to address this.

Proposed change to Section 2:

2.2 No Financial Gain and No Rights in Property — The Society must not be carried on for the financial gain of any Member. No Member has any right, title, or interest in any property of the Society. Any income, benefit, or advantage must be used to advance the Society’s purposes, subject to the Incorporated Societies Act 2022.

Proposed Changes: Section 3 – Membership

The changes reflect the acts requirements to gain formal consent from persons aged 16 years and over and in the need for written consent. The area that needs to be considered for CAS is around the Family Membership category to identify individual’s rights.

Proposed changes to membership section:

- Reflect The Act changes around consent:

3.1A Consent — A person becomes a Member only if they have provided their informed consent to membership and the Committee has approved their application, as required by the Act.

- Changes to Family Membership category to reflect individual voting rights:

~~3.5.3.1 A Family Membership consists of two or more persons living at the same address. All may take part in Society activities and all members of the family have voting rights.~~

3.5.3 Family Membership (fee category) — Family Membership is a subscription category only. Each adult who wishes to vote or hold office must individually consent to become a Member and will be recorded on the Register of Members. Youth/associate participants may be linked to a Family subscription but have no vote unless they are individual Members.

- Changes to Membership (Audit and Reporting Requirements:

3.6 Register of Members — The Society will maintain a register recording for each Member: name, last known contact details, the date they became a Member, and the date they ceased to be a Member, and will keep the register up to date in accordance with the Act.

Proposed Changes: Section 5 – Alteration of Constitution

The changes in this section are simple alignment to The Act around the requirement to submit constitutional amendments to Companies House and within the timeframes set out in the legislation.

Changes to registration in line with Act Changes:

5.2 Amendments must comply with sections 30–34 of the Incorporated Societies Act 2022 and take effect when registered by the Registrar. A copy of any amendment and the full amended Constitution will be delivered to the Registrar within the statutory timeframe.

Proposed Changes: Section 6 - Meetings of Members

Changes in this section reflect changes in a more digital, online driven, society and the Act focus on providing for inclusivity by including online technology in the Act.

Committee will assess how we can make this work for our members, for example by using zoom calls on the monthly meetings and opening AGM's to video conferencing.

- Changes to methods of meetings to reflect modern technology:

6.1.0 Methods of Holding Meetings — General meetings may be held by a combination of in-person, audio, or audio-visual communication technologies, provided all participants can effectively take part (Act s 87).

This change is to align with The Act – however our current balance date of 31 December and the current AGM date align with the requirements set out. Similarly, the proposed change aligns to the AGM information requirements under the Act.

- Changes to Annual General Meetings:

6.2.1 AGM Interval — The Society will hold an Annual General Meeting no later than six (6) months after balance date and no more than fifteen (15) months after the previous AGM.

6.2.2 Information Presented — At each AGM the Committee will present: (a) an annual report on the operations and affairs of the Society for the last accounting period; (b) the annual financial statements (and audit/review report if required); and (c) any other information required by the Act (s 86).

As we have grown our online digital services have grown beyond a simple website and in line with the drive to more digital communications, we propose to change the title of Webmaster or a more fitting title of Digital Services Officer. Role function remains the same.

- Change to Officer Titles:

6.2.3 (f) Elect the Officers - President, Vice President, Secretary, Treasurer, Editor, Membership Secretary, Librarian, ~~Webmaster~~ Digital Services Officer and Observatory Director

In line with The Act's drive for inclusivity, it also requires the Society to consider alternative voting and AGM proceeding to accommodate methods, such as postal or remote means, i.e. video conference for an AGM.

- Changes to voting methods to reflect modern technology changes:

6.7.1 Voting Methods — Votes may be cast in person, by proxy, by post, or by electronic means, if permitted by the notice of meeting and any procedures prescribed by the Committee, consistent with section 93 of the Act.

- Changes to voting methods - written resolutions:

6.7.2 Written Resolutions in Lieu — The Society may pass a written resolution in lieu of a general meeting in accordance with section 89 of the Act, following procedures notified to Members.

This proposed change reflects The Act in line with previous comments above about members having an interest. It's required to be included by the Act but currently no committee member would have any interest in society property, funds or operational aspects. We would not expect that to change in the future either.

- Changes to conflicts of interest:

6.7.3 Conflicted Committees — If 50% or more of the Committee are interested in a matter, the matter must be referred to a Special General Meeting of Members under section 64 of the Act.

Proposed Changes: Section 7 – Officers, Committee and Appointees

The proposed change here is formalising the requirements for composition of the committee and change in Webmaster title already highlighted above.

- Changes to Committee composition in line with Act changes:

7.0 Committee Composition — The Committee will comprise at least three (3) persons. Committee members must be Members of the Society as required by section 45 of the Act.

- Changes to Officer Titles:

7.1 The Officers of the Society include President, Vice President, Treasurer, Secretary, Membership Secretary, Editor, Librarian, ~~Webmaster~~ Digital Services Officer and Observatory Director; the Committee consists of up to twelve (12) members including Officers.

7.2.7 ~~Webmaster~~ Digital Services Officer

7.2.7.1 The ~~Webmaster~~ Digital Services Officer will keep the website of the Society up to date, and provide rapid response in cases where the website is used for communication of activity status.

7.2.7.2 The ~~Webmaster~~ Digital Services Officer will liaise with the web host service provider as required to maintain service. The ~~Webmaster~~ Digital Services Officer will maintain registration of the cas.org.nz domain.

The proposed change reflects the Act's requirements for consent for people 16 years and above and additionally outlines the requirements for Committee Officers to not be disqualified as standing. Section 47 definition follows modern practise, including an undischarged bankrupt, barring under the Companies Act from being a director, disqualified under the Charities Act, and various criminal offences and court orders!

Officers now have to certify in writing they are not disqualified and consent to being an officer.

- Changes to Officer Eligibility and Consent in line with Act changes:

7.2 Officer Eligibility and Consent — Each Officer must be at least 16 years old, certify that they are not disqualified under the Act, and provide written consent to act (s 47).

The changes proposed in this sub section again refers to the requirement the Officers of the society act in good faith, with reasonable care and due diligence in the decisions they make and as outlined earlier, must declare any interests.

- Changes to Officers Duties and Conflicts of Interest – In line with corporate responsibility:

7.3 Officer Duties — Officers must act in good faith and in the best interests of the Society, for proper purposes, with reasonable care and diligence, and in compliance with the Act and this Constitution; and must not create a substantial risk of serious loss to creditors or incur obligations the Society cannot perform (ss 54–59).

7.4 Conflicts of Interest — An Officer who is interested in a matter must disclose the interest to the Committee as soon as practicable; the Society will maintain an Interests Register; an interested Officer must not vote on the matter unless permitted by the Act; consequences for non-disclosure apply per the Act (ss 62–67, 73).

Proposed Changes: Section 9 – Finances

The changes in Section 9 align our constitution to modern banking practises as required by the Act. CAS is already in alignment with this practise. XRB refers to the External Reporting Board which is the governments standards board. Indemnity insurance is an interesting topic as the changes in the Act do mean that Committee Officers are liable for much more. This is a topic we will discuss further with our insurers before renewal.

- Changes to Payments and Authorisations to reflect modern banking practises:

9.2 Payments and Authorisation — The Committee will set and document authorisation controls. All payments must be approved in accordance with those controls and be made by approved electronic means, with two authorised signatories or dual electronic authorisation. Cash payments are to be avoided except for petty cash systems authorised by the Committee.

- Changes to financial reporting requirements in line with the Act changes:

9.3 Financial Reporting — The Society will prepare, approve, and file annual financial statements and an annual return in accordance with the Act and applicable XRB standards or minimum reporting requirements. If an audit or review is required by the Act, funders, or Members' resolution, the Committee will arrange it.

- Changes to Indemnities and Insurance:

9.4 Indemnities and Insurance — To the extent permitted by the Act, the Society may indemnify and effect insurance for Officers and employees as authorised by this Constitution (ss 94–98).

Proposed Changes: Section 13 – Registered Office

The proposed change in this section follows the Act in removing the need to identify a registered address in the constitution and allows the committee to manage this, notifying Companies Office in accordance with the Act.

- Changes to registered addresses to provide flexibility of address in line with the Act:

13.1 The Registered Office of the Society will be at a place determined by Committee resolution from time to time. The Committee will notify the Registrar of any change in accordance with the Act (ss 110–111).

Proposed Changes: Section 15 – Contact Persons

The Act requires having formal names and role titles acting as contacts for the Society. This proposed change incorporates the required changes to meet that legislation.

- Changes to Contact Person requirements in line with the Act:

15.1 The Society will have at least one (and up to three) Contact Person(s) at all times. The Committee will appoint the Contact Person(s), record the appointment, and notify the Registrar of any changes (ss 112–116).

Proposed Changes: Section 15 – Dispute Resolution

Changes to the dispute process are some the biggest change in the constitution and the most complex! They are so detailed that for brevity the Act proposes not reproducing the whole section of the Act in constitutions but recommends referencing the relevant sections. In summary, the current CAS constitution handles complaints in a reasonable, pragmatic and fair manner. We are required by the Act to reference Schedule 2 of the Act. A copy

of Schedule 2 is loaded on the CAS Forum under the Resources tab for review if you ever feel a bout of insomnia occurring!

Given the size of the changes here the proposed text amendment is:

16.1 The Society adopts the dispute resolution procedures set out in Schedule 2 of the Incorporated Societies Act 2022. These procedures apply to disputes between Members, between Members and Officers, and between Members/Officers and the Society. Where applicable, arbitration provisions in the Act apply.

The following By-Laws amendments are recommended to align with the Act and the revised Constitution. Our bylaws are more of 'how' we manage daily business with a focus on astronomy versus a more generic legal view of how a society should act.

The following is proposed changes reflect changes in the Act in our main constitution:

Update subscription notices and register handling (By-Laws 3.2–3.3) to reflect Member consent and privacy obligations; confirm that each voting adult is a Member on the register.

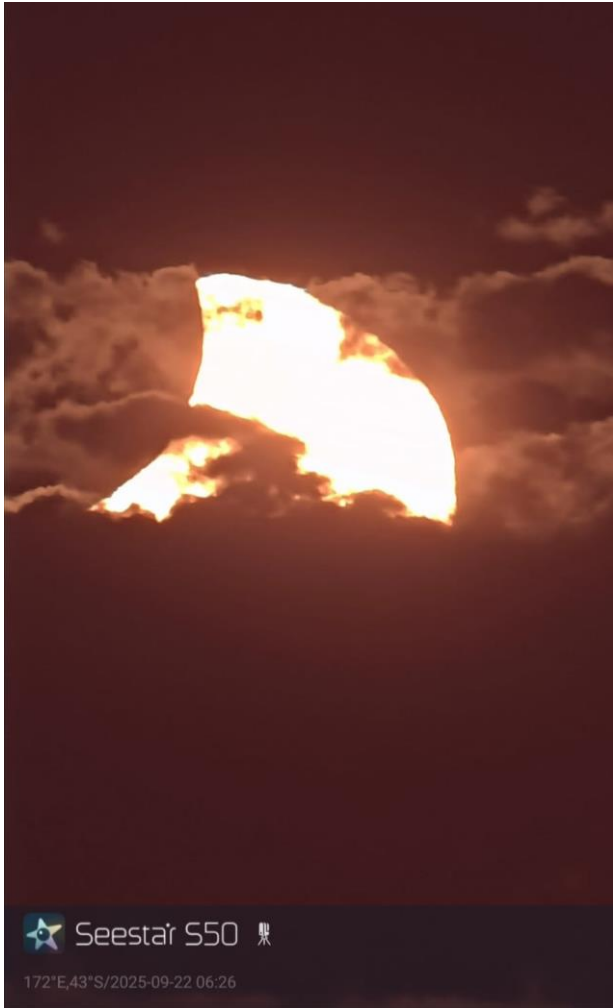
AGM agenda (By-Laws 6.2.3) — include presentation of the annual report and financial statements in the form required by the Act; allow for audio/AV participation and electronic/postal votes where authorised by the notice of meeting.

Treasurer duties (By-Laws 7.2.2) — reference the Act/XRB reporting tiers and audit/review triggers rather than a mandatory audit in all cases.

Editor/notifications — allow meeting notices and documents to be provided electronically in addition to CASMAG, ensuring delivery to the last known contact details in the Register.

If you have any questions regarding the proposed changes then please contact me at President@cas.org.nz or come long to the October UC meeting and I'll be available to do a session if anyone has any questions.

Thanks
Simon



Enjoying the Partial Solar Eclipse on September 22nd by Preetha Sreedharan

Chasing a solar eclipse can be quite a frenzied affair - last minute changes to the best laid plans, a mad dash to get ahead of the clouds, crazy late night making up solar filters for telescopes. The payoff for all the preparation and the heightened fear of missing out is a beautiful and awe inspiring view of our sun rising partially eclipsed by our moon. Here are some photos from Rob Glassey of our little sun chasing escapade at Pleasant Point. Joining us up there that morning along with a few other members of the public was Professor John Pickering, wearing his special “sun” hat. The “sun” hat did a good job of demonstrating how the shadows change during a solar eclipse.

It’s a simple thing to do – getting a colander and letting the light from the partially eclipsed sun fall onto a surface – but how amazing that it’s a crescent shaped spot of light instead of the usual round shape!! John’s “sun” hat (aka his wife’s colander) was quite the multi-purpose piece of kit.

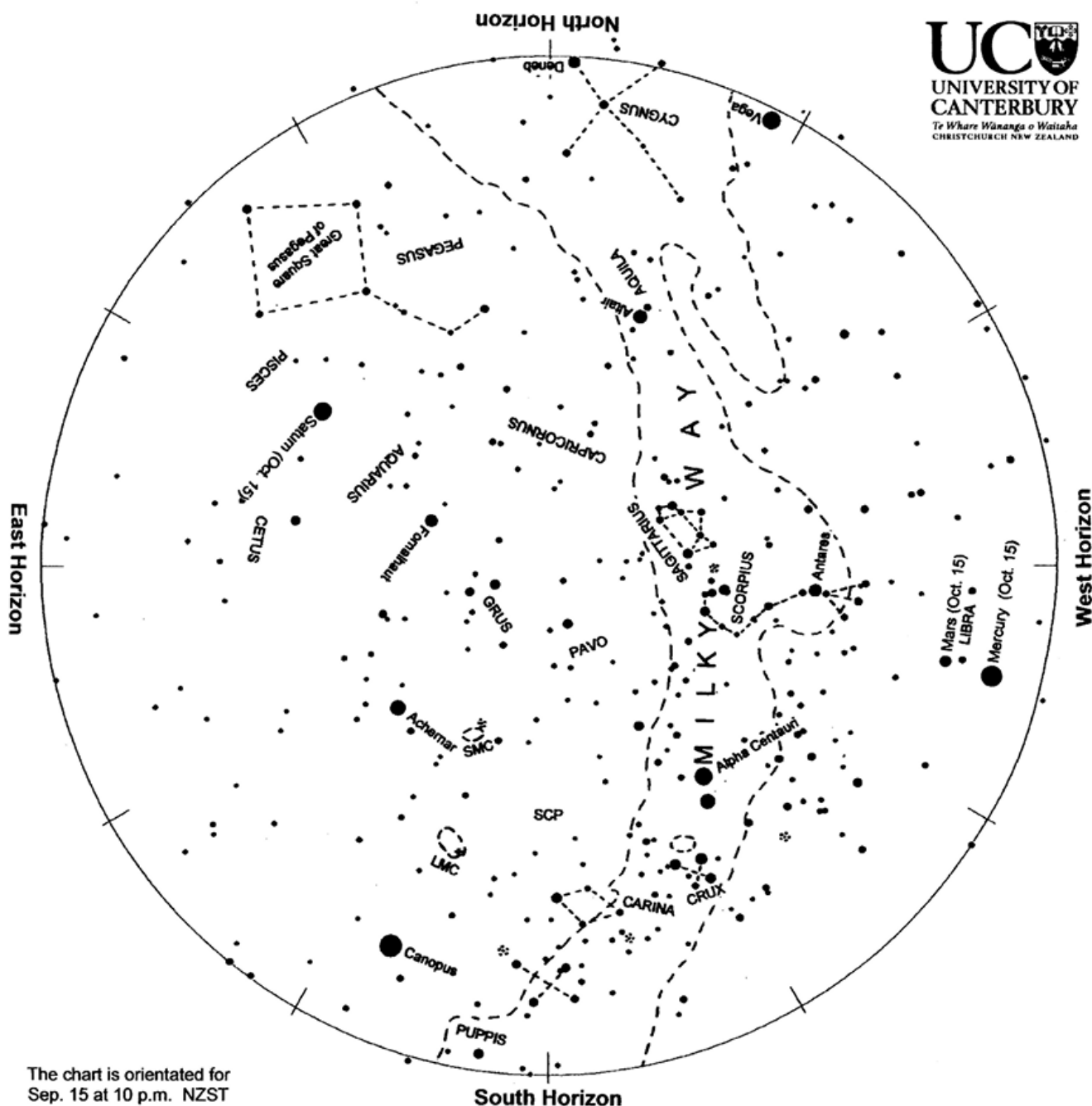




John sporting his “sun” hat, me with my 10” Dobsonian and its slap dash solar filter I made up the night before. John had his Odyssey telescope and my little SeeStar was also setup to take in the view of the eclipsing of the sun. It’s a beautiful view from Pleasant Point and there were other members of the public who made their way up there to catch the eclipse. We shared our eclipse glasses and let them all enjoy the views through the different pieces of “Star” gazing equipment we had. Rob setup his SeeStar a bit off to the side to get an uninterrupted view of the rising sun.



This is a screen shot off the timelapse I took of the eclipse using my little mighty SeeStar. It was quite amazing how the sunspots were unveiled as the moon’s shadow moved off the sun. It was a beautiful day for it. There will be a full solar eclipse in 2028 and parts of the South Island will be in the path of totality. So gear up and start planning!!



The chart is oriented for
Sep. 15 at 10 p.m. NZST
Oct. 1 at 10 p.m. NZDT
Oct. 15 at 9 p.m. NZST

Evening sky in October 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 appears low in the west, below reddish Mars till the 20th. Orange Antares is midway down the western sky, above the two planets. Saturn, cream-coloured, is midway up the northeast sky. Canopus is low in the southeast, twinkling colourfully. Crux, the Southern Cross, and the Pointers, Alpha and Beta Centauri, are in the south-west. Vega sets on the northwest horizon. The Milky Way spans the sky from north through west and into the south. The Magellanic Clouds, nearby galaxies marked as LMC and SMC on the chart, are misty glows above Canopus.

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 October 2025

Mercury moves up the western sky through the month, the brightest 'star' in that region. It will be alongside **Mars** around the 20th. Mars is reddish and much fainter than Mercury. By the end of October, Mercury is setting around 10 p.m. NZDT. Both planets are tiny in a telescope. Mars is on the far side of the Sun from us, 360 million km away. Mercury is swinging around from the far side of the Sun and catching us up. It is 170 million km away mid-month. The Moon appears near them on the 23rd.

Saturn appears midway up the northeast sky in the evening and is due north by midnight. It looks like a lone, medium-bright star with a cream tint. In low-powered telescopes Saturn appears as a ball with a spike through it. The ring is nearly edge-on so appears as a broad line. Larger telescopes show the ring and Saturn's biggest moon, Titan, looking like a star near the planet. Titan and the smaller moons of Saturn appear in line with the edge-on ring. Saturn is 1290 million km away mid-month. The moon will be near Saturn on the 5th and 6th.

The brightest true stars are low in the north and south. **Canopus** is low in the southeast at dusk, often twinkling colourfully. It swings up into the eastern sky during the night. On the north skyline is **Vega**, setting in the early evening. Places in the north of Aotearoa NZ will see **Deneb** near the north skyline in the middle of the Milky Way. Deneb is the brightest star in the cross-shaped constellation of **Cygnus** the swan. It is one of the most distant stars visible to the naked eye, around 2600 light-years* away. Its brightness is uncertain because of the distance uncertainty but it could be 200 000 times the Sun's luminosity.

Orange **Antares** is midway down the western sky. It marks the body of the Scorpion. The Scorpion's tail loops up the sky, making a back-to-front question mark with Antares being the dot. The curved tail is the 'fish-hook of Maui' in some Māori star lore. Above and 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.

In the southwest are 'The Pointers', Beta and **Alpha Centauri**, making a vertical pair. They point down to **Crux** the Southern Cross. Alpha Centauri, the top Pointer, is the closest naked eye star at 4.3 light-years away. Beta Centauri is a blue-giant star, very hot and very luminous, hundreds of light-years away.

The **Milky Way** is brightest and broadest in Scorpius and Sagittarius. In a dark sky it can be traced down to the south. In the north it meets 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. The actual centre, with a black hole four million times the sun's mass, is hidden by dust clouds in space. Its direction is a little outside the Teapot's spout. The dust clouds appear as gaps and slots in the Milky Way. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing clouds of left-over gas. There are many in Scorpius and Sagittarius and in the Carina region below Crux.

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

On moonless evenings in a dark rural sky the Zodiacal Light is visible in the west. It looks like late twilight: a faint broad column of light enclosing Mercury and Mars and reaching up toward Antares, fading out at the Milky Way. It is sunlight reflecting off meteoric dust in the plane of the solar system.

Jupiter is the brightest 'star' in the morning hours. It rises in the northeast around 3:30 a.m. at the beginning of the month and 1:40 at the end. It shines with a steady golden light. The Moon will be near Jupiter on the 14th. From places with a low eastern skyline, brilliant Venus might be seen rising in the dawn twilight around 6 a.m. at the beginning of the month and 5:30 at the end. Venus is on the far side of the Sun from us; 235 million km away mid-month. A very thin crescent Moon will be near Venus on the 20th.

*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.

Interesting Objects in the Western Sky in October 2025

Antares is the brightest star in the region till the second half of October when Mercury appears. Antares 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 (ly) 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.)

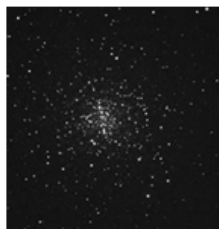


At the right-angle bend in the Scorpion's tail is a large and bright cluster of stars, **NGC 6231**, looking like a small comet. It is around 6000 ly away. Its brightest stars are 60 000 times brighter than the sun. The cluster is about 8 light years across, similar in size to the Pleiades/Matariki cluster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

To the right of the Scorpion's sting is **M7**, a cluster obvious to the eye and nicely seen in binoculars. M7 is about 800 ly away and around 260 million years old. Below M7 and fainter is **M6**, the 'butterfly cluster'. M6 is around 1300 ly 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.



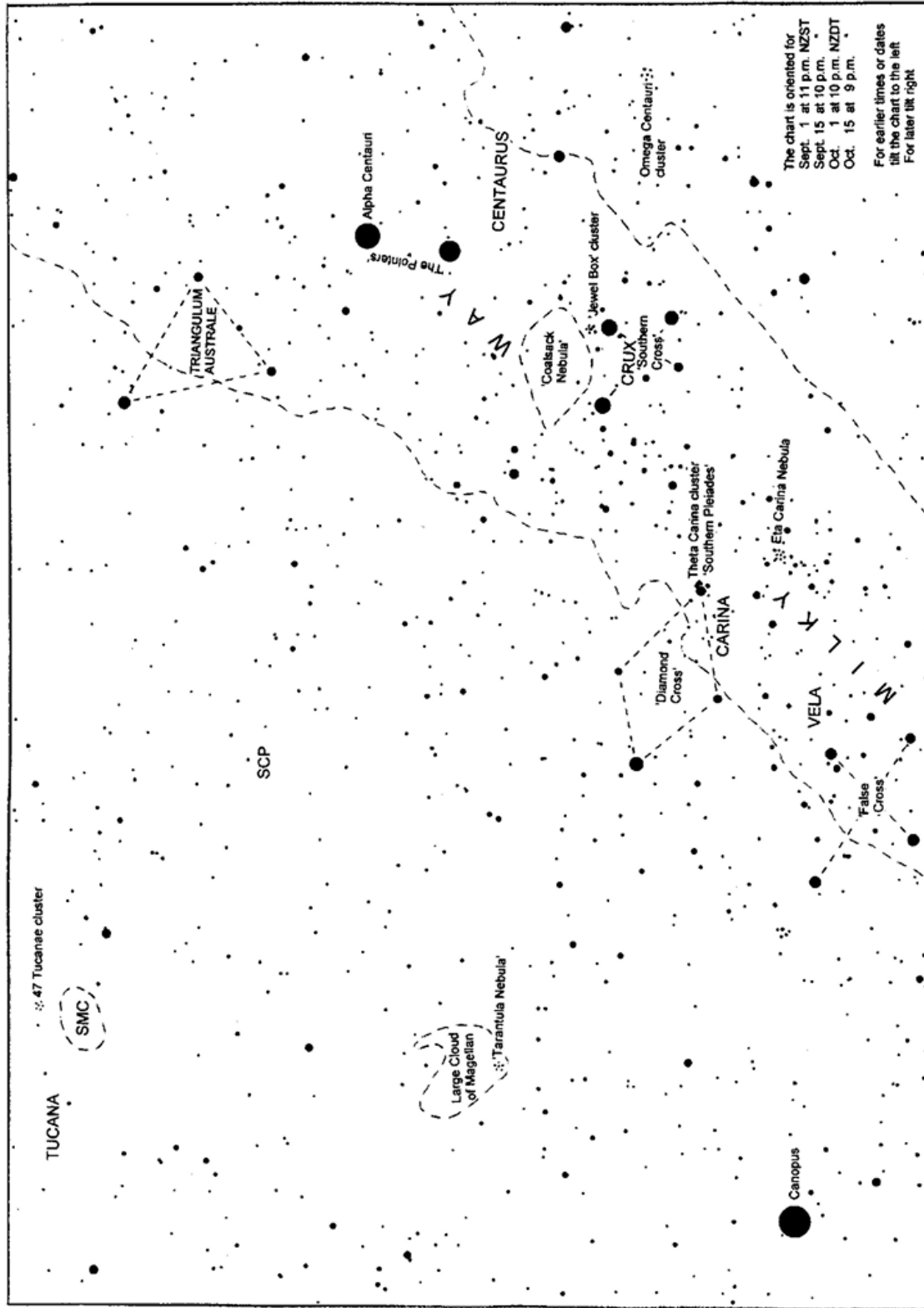
Below the Sagittarius 'Teapot' is the glowing gas cloud **M8, the 'Lagoon Nebula'**. It is a star-forming region where gas and dust have recently gathered into new stars. ('Recently' = the past million years or so.) Ultraviolet (UV) light from one particularly hot star is lighting up the leftover gas, 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 the closest at 7200 ly away. In binoculars and small telescopes globular clusters appear as round fuzzy spots. Others marked on the chart are M9, M10, M12, M14, M19, M22, M54, M55, 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 toward 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.

In the second half of the month **Mercury** moves up the western sky. At the same time the stars are moving down, from night to night. This brings both Mercury and **Mars** onto the chart. Mercury is brighter than Antares. Mars is fainter than Antares. In November Mercury will be just below Antares but fading quickly.

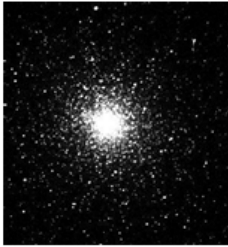


Southern Evening Sky in October
 The chart shows the southern and southwest sky. Interesting star clusters and nebulae are indicated with asterisks. They are described on the other side of this page.

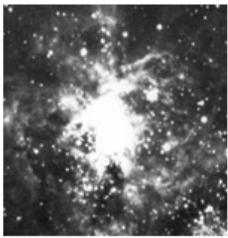
Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

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 ly away, both very close by or 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.



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 around 16 million years ago. 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 **Theta Carina cluster** or **Southern Pleiades** is a cluster on the west end of the 'Diamond Cross'. It is also called the 'Five of Diamonds' cluster, the reason obvious when viewed 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.

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: member1@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 contact Simon Lewis Vice, email: president@cas.org.nz Cell: 022 640 6649

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 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.

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

CAS COMMITTEE AND OFFICERS 2025/2026

President:	Simon Lewis	president@cas.org.nz
Vice President:	Terry Richardson	vice.president@cas.org.nz
Treasurer:	Brent Schroeder	treasurer@cas.org.nz
Secretary:	Mandy Heslop	secretary@cas.org.nz
Observatory Director:	Brent Schroeder	observatory.director@cas.org.nz
Editor:	Preetha Sreedharan	editor@cas.org.nz
Membership Secretary:	Dale Kershaw	membership@cas.org.nz
Librarian:	Ray Pointon	librarian@cas.org.nz
Web Master:	Orlon Petterson	casweb@cas.org.nz
Committee Members:	Gary Steel	member2@cas.org.nz
	Jason Kruger	member1@cas.org.nz

You can also see the contact information page on www.cas.org.nz

CAS Mailing address:

Canterbury Astronomical Society Inc.

PO Box 25-137

Christchurch 8140

Web: www.cas.org.nz

Canterbury Astronomical Society Facebook Group: www.facebook.com/groups/CanterburyAstronomicalSociety