



CASMAG

The official magazine of the Canterbury Astronomical Society

www.cas.org.nz www.facebook.com/CanterburyAstronomicalSociety

Monthly Meeting: Our Monthly Meetings are held on the 3rd Tuesday night of the month. Our meeting venue is room ER225 in the Ernest Rutherford building at Canterbury University. Level 2 Refreshments from 7.30pm Meeting starts at 8pm

18TH OCTOBER 2022

Members Meeting

Speaker: Euan Mason

Topic: Stellar Evolution.

We always know Euan has a great range of talks
and they are always very informative

2022 CAS CHRISTMAS BBQ EVENT

The committee has confirmed this will be held on Saturday 3rd December, at the Observatory from 5.30pm. Committee will supply Meat and breads, sauces along with snacks and drinks,

We ask you to bring salads or desserts to share with others, If you have any dietary requirements we ask you to bring what you require to cover this.

If you wish to have a tippie you more than are welcome to bring this but be aware there will be children attending and not to drive.

We look forward to seeing you attend

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From Your Editor

This is your Casmag, for YOU our members,
So I welcome any ideas or articles you would like to share with the other members. Please email your Article or favourite photo with details so I can include it in future issues.

Deadline for each issue is 1st of each month

Remember you can have your advert added in the future casmag's,
(email editor using editor@cas.org.nz)

Any questions, Ideas or suggestions please email to editor@cas.org.nz

Dale Kershaw

From 7.2.4.6 on page 15 of Constitution of the Society

"Any member wishing to have an article or paper published in CASMAG or other publications of the society shall in the first instance, forward a copy to the editor who may request the approval of the committee before publication."

DISCLAIMER:

This newsletter is for general information purposes only. The views expressed herein are not necessarily those of the Canterbury Astronomical Society Inc (CAS)

CAS has taken all reasonable measures to ensure that the material contained herein is correct, but gives no warranty for, and accepts no responsibility for its accuracy or completeness.

Readers are advised not to rely solely on this information, and should seek independent advice before making any decision, CAS reserves the right to make changes at any time,

CAS Calendar October 2022-Janurary 2023



OCTOBER 2022

Tuesday 11th	Committee Meeting
Tuesday 18th	Last Quarter
	CAstronauts @ University 6-30-7pm
	Members Meeting @ University from 7.30pm
Saturday 22nd	Members night @ Observatory
Monday 24th	Labour Day Holiday
Tuesday 25th	New Moon

NOVEMBER 2022

Tuesday 1st	First Quarter
Saturday 5th	Hororata highland Games
Tuesday 8th	Committee Meeting
Wednesday 9th	Full Moon
Friday 11th	Canterbury Show Day Holiday
Tuesday 15th	CAstronauts @ University 6-30—7.15pm
	Members Meeting @ University from 7.30pm
Thursday 17th	Last Quarter
Saturday 19th	Members Night @ Observatory
Thursday 24th	New Moon

DECEMBER 2022

Thursday 1st	First Quarter
Saturday 3rd	Christmas BBQ @ Observatory from 5-30pm
Thursday 8th	Full Moon
Tuesday 13th	Committee Meeting
Friday 16th	Last Quarter
Friday 23rd	New Moon
Sunday 25th	Christmas Day
Monday 26th	Boxing Day
Friday 30th	First Quarter

JANUARY 2023

Sunday 1st	New Years Day
Saturday 7th	Full Moon
Sunday 15th	Last Quarter
Sunday 22nd	New Moon
Sunday 29th	First Quarter

2022 Open Night Season

Our Open Night Season for 2022 has finished

The committee extends a **huge thank you** to all of our helpers for all your help over the nights we were able to open,

This last year has been affected by both covid rules and the poor weather resulting in a very small number of nights that were able to proceed.

This also included the Kids Fest events.

Those that did happen were well attended and enjoyed by all.

We look forward to next years season and hope the weather etc is suitable to being open for as many nights as possible

IMPORTANT UPDATE FROM YOUR COMMITTEE

Covid-19 level Operations

Public Open Nights: These have finished for this year

CAS Events At the UC:

We are now back to using our room at the University for our monthly Meetings Room ER225

Training nights and Members nights at the observatory have restarted on our normal Saturday nights, 1st Saturday and the Saturday following the Tuesday members meeting Observatory Use. Do not visit the observatory if unwell.

If you intend to remain outside and not enter the lodge at anytime then there is no requirement to enter the lodge to sign the logbook.

If you wish to wear a mask please do so.

Please maintain your hygiene as per our past suggestions

Wash / sanitise hands using the gear provided.

Do not clean optics as the sanitising chemicals can cause damage to equipment.

Please follow the rules at the observatory if visiting, and please stay safe

SOUTH ISLAND STARDATE 2023

SI Stardate is booked for the weekend of
17th-18th-19th February 2023

Bookings are now open on the Stardate website

<http://www.treesandstars.com/stardate/>

Special Guest: "Amadeo"

REGISTRATION FEES: \$25 per night per adult, \$5 per night for 5-16 year olds, and free per child under 5 years. There is no extra charge for a caravan point.

More information will be updated on the Stardate Facebook page

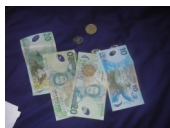
2022 ANNUAL SUBSCRIPTIONS/MEMBERSHIP



Payment for the **2022 Year is now WELL OVERDUE**

and can be paid

via internet banking, PayPal, cash in person,



Please use your name and member number for your reference when making payment, (this means it can be matched to your membership)

Also the committee asks you to PLEASE advise any change to your details: Address, Phone Number, email,

If these details are not updated we will be unable to contact you.

Membership Fees and Banking payment details are included on the back page of every CASMAG

MONTHLY MEETINGS:

Meeting Venue:

Room ER 225 in the Ernest Rutherford Building, University of Canterbury,
(1 building over from the east building we used last year)
Entrance to the building will be via the north side entrance,
Then using the lift or stairs up to level 2

Carol McAlavey is asking you, our members to make suggestions or offer
to give a talk at our monthly meetings.

PLEASE CONTACT CAROL WITH YOUR SUGGESTIONS OR IF YOU CAN GIVE
A TALK via member2@cas.org.nz

Upcoming Members Meeting Dates:

15th November: Euan Mason (Topic to be confirmed)

NO Meetings are held in December or January

2023

21st February:

21st March: CAS AGM

18th April:

16th May:

20th June:

(correct as at 10th October 2022, Subject to change as required)

Many thanks go to Sharlene Wilson and Orlon Petterson from the School of
Physical and Chemical Sciences, University of Canterbury for arranging the
meeting room for CAS this year.

Also Thanks to Associate Professor Karen Pollard for organising the
Lecture theatres for our public talks

**We will update the website if there are any changes and
will host meetings via ZOOM if possible:**

CANTERBURY ASTRONOMICAL SOCIETY 75TH ANNIVERSARY 2023

On 20 July 2023 it will be 75 years since the first meeting of the Canterbury Astronomical Society was held.

This will be a special year for us and it is something to celebrate so I am asking for ideas, thoughts, volunteers, for how we can make this awesome!

There are some people who are going to be doing a few poster papers for the RASNZ Conference in Auckland next year and they are looking for old reports and memories of people who were among the first members of our Society, so please dig through that treasure box and delve into those memories and see what we can produce.

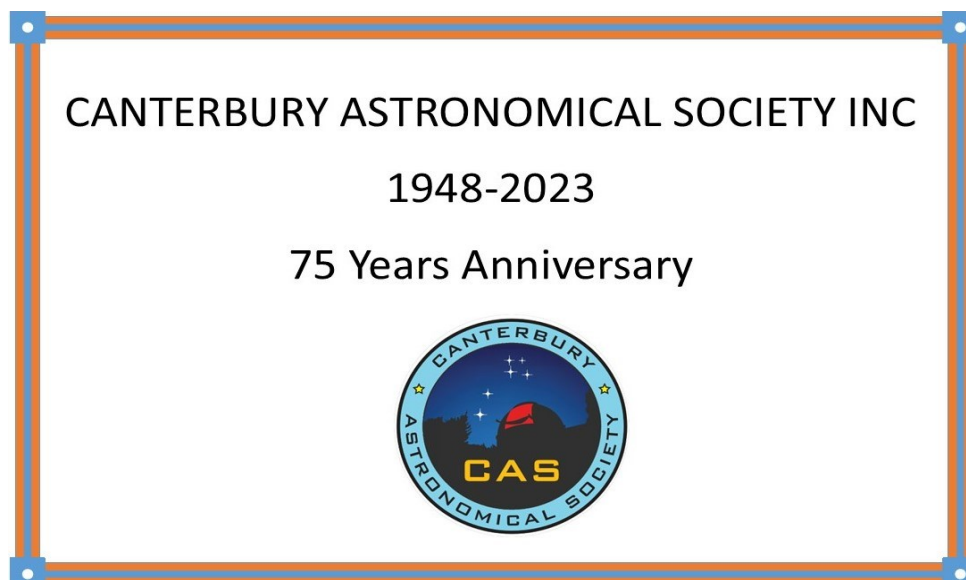
Also, please think about attending the RASNZ Conference next year as I believe that CAS' 75th Anniversary will be acknowledged and it will be fantastic to have a few people to help us celebrate. One of the projects I am looking to do for the Anniversary is to collate the history of the Clive Rowe Memorial dome and the telescopes that have been in there so that future members will have a "cheat sheet" to refer to when asked about its history.

I have become aware that there is not many members around who knew that there were two telescopes that have been in that dome.

I thank you in advance for your assistance.

Carol McAlavey

cstars@xtra.co.nz



CAS MERCHANDISE

Cas branded items for sale

Coffee Mugs are \$15.00 each

NEW STYLE OF CAS PENS NOW AVAILABLE IN 2 STYLES \$2.50



*These are all
black ink and
with a variety
of barrel
colours*



**STAINLESS DRINK BOTTLES
ARE NOW ON ORDER WILL BE AVAILABLE SOON**
"Watch this space"

Waterproof Stickers **New TYPE** with our logo are also available

CAS Beanies: Now in stock.

Wool Blend Beanie with the CAS logo in the front: \$20.00

CAS Sew-On LOGO Badges: Now in stock \$10.00 each

The following we will take orders and then we will order the items, 1-2 weeks delivery from order)

We have samples of each of the following items

Cas Soft Shell Jackets = Sizes S— 8XL \$65.00

Cas Polo Shirts = Sizes S—5XL \$45.00

Cas Zip Front Polar Fleece Jackets = Sizes 2XS -5XL \$47.00

Cas T-Shirts = Sizes 3XS—8/9XL \$22.00

I have the full sizing charts on hand so you can make sure you are ordering the correct size.

Payment can be cash or bank deposit

They are available from Editor (Dale),

contact via editor@cas.org.nz

or 0272426376



Members Interest Section



This section is dedicated to members on what **you** have as an interest under the umbrella of Astronomy.

Do you like: 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 ?

Or

Do you have other interests that you would like to share and see who else would enjoy knowing some more? Form your own interest section.

Here's a couple of ideas that if you would like to know more about Then contact Terry or Simon.

You can also use the CAS forum to discuss other ideas to check out who else would be interested.

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.



Terry Richardson
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



Simon Lewis
Vice.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.

Ray Pointon
rpointon@cyberxpress.co.nz

WELCOME TO OUR NEW MEMBERS:

A warm welcome to our new members, We look forward to meeting you at our meetings and/or events, Please make yourselves known to others. We like to welcome our new members here after the membership is accepted by the committee at the meeting following memberships are received.

Welcome to

Helen Farr
Starland Lindgett



*Apologies if I have mis-spelled your name
Dale -Editor*

OBSERVATORY NEWS IMPORTANT INFORMATION

DOOR CODE & ALARM AT THE OBSERVATORY

The Door code and Alarm code available to members, Ask a committee member for the passwords.

INTERNET WI-FI:

Ask a committee member for the password

LASER POINTERS:

There is a legal requirement when importing them, and information is on our website and at the observatory, CAS has a drafted a set of guidelines which we were presented at our AGM and were voted and added to our By-Laws,

If you need a letter confirming your membership for your application, please contact either membership secretary or secretary, (This letter will state you are a current financial member of our society)

ACCREDITATION

A reminder that unless you have full accreditation on the equipment you are not to use the equipment unless there is an accredited person with you.

Full training is available, Please ask our Observatory Director how you can get your accreditation

There is a full list of accredited person's on the wall above the kitchen sink inside the lodge. contact Kieren (our Observatory directory via his email listed on our website or the inside back page casmag

2023 CAS CALENDAR

Our Cas 2023 Calendar is almost ready to go to the printers.

Simon has been working hard on this,
Our thanks to those who
submitted photos.

All photos included in this have been
taken by our own CAS members

Calendars will be ready for sale in the
next few weeks \$15 (plus postage if required)

Keep an eye on the website, newsletters
And the CAS face book page.

You can pre order your copy by emailing,
Dale editor@cas.org.nz



Table of Southern Meteor Showers

Shower	Dates		Moon	Peak Rate	RA	Dec	Near Star
	Active	Peak	2022				
Centaurids	Jan 28 - Feb 21	Feb 8	1 day before First quarter	5 (-25)	14.1	-59	β Cen
gamma-Normids	Feb 25 - Mar 22	Mar 13	3 days after First quarter	8	16.6	-51	γ Nor
pi-Puppids	Apr 15 - Apr 28	Apr 23	Last quarter	var to 40	7.3	-45	σ Pup
eta-Aquariads	Apr 19 - May 28	May 5	4 days before First quarter	60	22.5	-1	η Aqr
Pisces Austrinids	Jul 15 - Aug 10	Jul 27	2 days before New moon	5	22.7	-30	α PsA
alpha-Capricornids	Jul 3 - Aug 15	Jul 30	1 day after New moon	4	20.5	-10	α Cap
Southern delta-Aquarids	Jul 15 - Aug 25	Jul 27	2 days before New moon	20	22.6	-16	δ Aqr
Southern iota-Aquarids	Jul 25 - Aug 15	Aug 4	1 day before First quarter	2	22.3	-15	ι Aqr
Northern delta-Aquarids	Jul 15 - Aug 25	Aug 13	1 day after Full moon	4	22.3	-5	θ Aqr
Northern iota-Aquarids	Aug 11 - Aug 31	Aug 19	Last quarter	3	21.8	-6	β Aqr
Piscids	Sep 1 - Sep 30	Sep 19	1 day after Last quarter	3	0.3	-1	λ Psc
Orionids	Oct 2 - Nov 7	Oct 21	3 days after Last quarter	20	6.3	+16	γ Gem
Leonids	Nov 14 - Nov 21	Nov 17	Last quarter	100+	10.2	+22	γ Leo
alpha-Monocerotids	Nov 15 - Nov 25	Nov 22	2 days before New moon	var to 5	7.9	+1	δ Mon
Pheonids	Nov 28 - Dec 9	Dec 6	2 days before Full moon	var	1.2	+53	Achernar
Geminids	Dec 7 - Dec 14	Dec 14	2 days before Last quarter	120	7.3	+33	Castor

[RASNZ Register of Observatories in NZ](#) [New Zealand Observatories](#)

A combined Australia and New Zealand Standard **AS/NZ 4282 Control of obtrusive effects of outdoor lighting** contains guidance which will help to protect observatories from outdoor lighting at night.

When your observatory is listed here, local council planners will be able to see your need to limit obtrusive lighting around your observatory.

The standard can be purchased from Standards New Zealand:

<https://www.standards.govt.nz/shop/asnzs-42822019/>

The Standard states that a list of observatories will be held by the Royal Astronomical Society of New Zealand - that's us!

If you wish to have your observatory included in this list please send your contact and location details. Your observatory will be included with the level of information you choose to display.

observatory@rasnz.org.nz

If you wish to limit contact information on this page you may include the previous email link for people to contact us. We will then forward enquiries to you to deal with. Observatories will be grouped into Research, Community and Private or Personal categories.

CAS 2022 FUNDRAISING RAFFLE

We are running a raffle this year for fundraising,
This will be drawn at the Hororata Highland Games on 5th November at 3pm
\$5.00 per ticket. Grab your ticket today from either
Dale — editor@cas.org.nz or
Simon — vice-president@cas.org.nz or
Online via Eventbrite — Canterbury Astronomical Society - Hororata
Highland Games Fundraiser 2022 Registration | Eventbrite

Prizes include

1st Prize: Explore Scientific 127mm Mak-Cassegrain & Tripod

2nd Prize: Explore Scientific 80mm Telescope & Tripod

3rd Prize: Benro Carbon Fiber Tripod & Photo Backpack

Other Prizes also include: 3 x High Grade binoculars, 4 x Galileo telescopes,
2x Sets of Gem stone Planets, Membership packages, plus many more
We are still receiving prizes from our supporters
There are 20 Prizes to be won

If you are able to sell some tickets please contact Dale for these either by
email or ph 0272426376

HORORATA HIGHLAND GAMES EVENT

We are fortunate to have a site at the Games this year and are
looking forward to a wonderful day, We plan to have on display:
Solar scopes, 2 Tv screens with running slide shows, merchandise
for sale, Raffle tickets, Colouring table for the children,
Donation collections and of course to be able to chat to folks
about our great society .

Tickets for the event are available from:

<https://www.hororata.org.nz/highland-games/tickets/>

Note there are NO gate sales this year so you need to buy before
you head out there.

We would like to thank the following
sponsors for their generous donations
to our 2022 Fund Raiser

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<https://www.jacobsdigital.co.nz/>

EXPLORE[®]
S C I E N T I F I C

<https://explorescientificusa.com/>



<https://www.photowarehouse.co.nz/>

The logo for AstronZ features five blue stars of varying sizes arranged in a semi-circle to the left of the word "ASTRONZ". The word "ASTRONZ" is written in a large, bold, blue sans-serif font.

<https://astronz.nz/>

TALKS GIVEN AT THE SEPTEMBER SOAPBOX

At our September members meeting the following gave very interesting talks on the following topics.

Terry Richardson: Moon Orbits

Ray Pointon: Spectroscopy using the new Cas diffraction grating

Cameron McEwing: Double & Triple Star observing

Alan Teague: Time-Lapse Photography

Carol McAlavey: CAS 75th Anniversary, 20th July 2023

Orion setting over Lake Ellesmere.



Shaw-IAU Workshop Registration and Abstract submission live now

Forwarded by Orlon Petterson

Sehr geehrte(r) Frau/Herr ,

*As you may be aware, the topic for this year's Shaw-IAU Workshop on Astronomy for Education is '**Leveraging the potential of astronomy in formal education**' and is scheduled to run 15 to 17 November 2022 as a fully virtual event on Hopin as in previous years.*

*This year's Shaw-IAU Workshop on Astronomy for Education focuses on the role of astronomy in the core regions of formal, primary and secondary, education: How do we teach astronomy as its own subject? What is the role of astronomy in teaching physics or chemistry – or in communicating such a central future topic as climate change? In sessions marked with a * we aim to hear specifically from teachers. We also address the question of how to approach those who set the framework for teaching: How can you get your administration, or at a much higher level: your education ministry, to listen to you? Last but not least we look at how to bridge the divide between the fundamentals that are commonly taught in school and results from cutting-edge research, which tend to be fascinating to students and the general public alike.*

1. Teaching astronomy in primary schools: How, why, and in what context*
2. Teaching astronomy as its own subject in secondary schools*
3. Teaching astronomy as part of physics, chemistry, geography (and others) in secondary schools – astronomy as a “gateway science”*
4. Teaching astronomy as part of non-STEM subjects in secondary schools: art, music, philosophy and beyond*
5. Students in a changing climate: how can astronomy help?*
6. Astronomy education research on the role of astronomy in schools
7. Student interest in astronomy and other subjects: research and practical experience
8. Astronomy in schools: how do you get your administration and your ministry to listen?
9. How to develop an astronomy curriculum
10. Gravitational waves, black hole shadows and exoplanets: Can we make a place for cutting-edge results in schools?

Registration and abstract submission is live. Please check the [website](#)!

Please do not hesitate to contact me if you have any questions.

Kind regards

Gwen

sanderson@astro4edu.org

OBSERVATORY NEWS **IMPORTANT INFORMATION**

New Security System in Lodge

The new security system in the Lodge is up and running well. This takes the form of an intrusion sensor outside, and a Wifi cam inside the lodge in the back corner at the car park end. The intention is to add another camera outside the lodge overlooking the car park area. The advantage of these is that they will trigger on intrusion alert and can be viewed remotely in real time or reviewed within 2 weeks. These are not for the purpose of watching people, but rather to check that entry to the lodge is by legitimate members. Given the assets we have on site, this is necessary for any insurance claims.

Access to these cameras is limited to Webmaster, Vice President and Observatory director only. We already have a surveillance network installed (several years ago) which records to a hard drive but cannot be remotely viewed in real time.

If anybody needs to know more please feel free to email me
observatory.director@cas.org.nz

SECURITY FOR OBSERVATORY KEYS- Accredited Members

Committee have decided that we need improved security for access to the observatory equipment. From now all keys are stored in a lock box in the library.

Any accredited member will be given the combination (just ask me).

This includes the key to the equipment room and for the dobs.

Although the dobs do not require formal accreditation, they are precision instruments that can be damaged if not used correctly.

A member accredited on any of the scopes can open these for you.

Members still have free access to the lodge and its facilities, but any other access will require an accredited person to be present.

Any accredited member can get access to the keys,

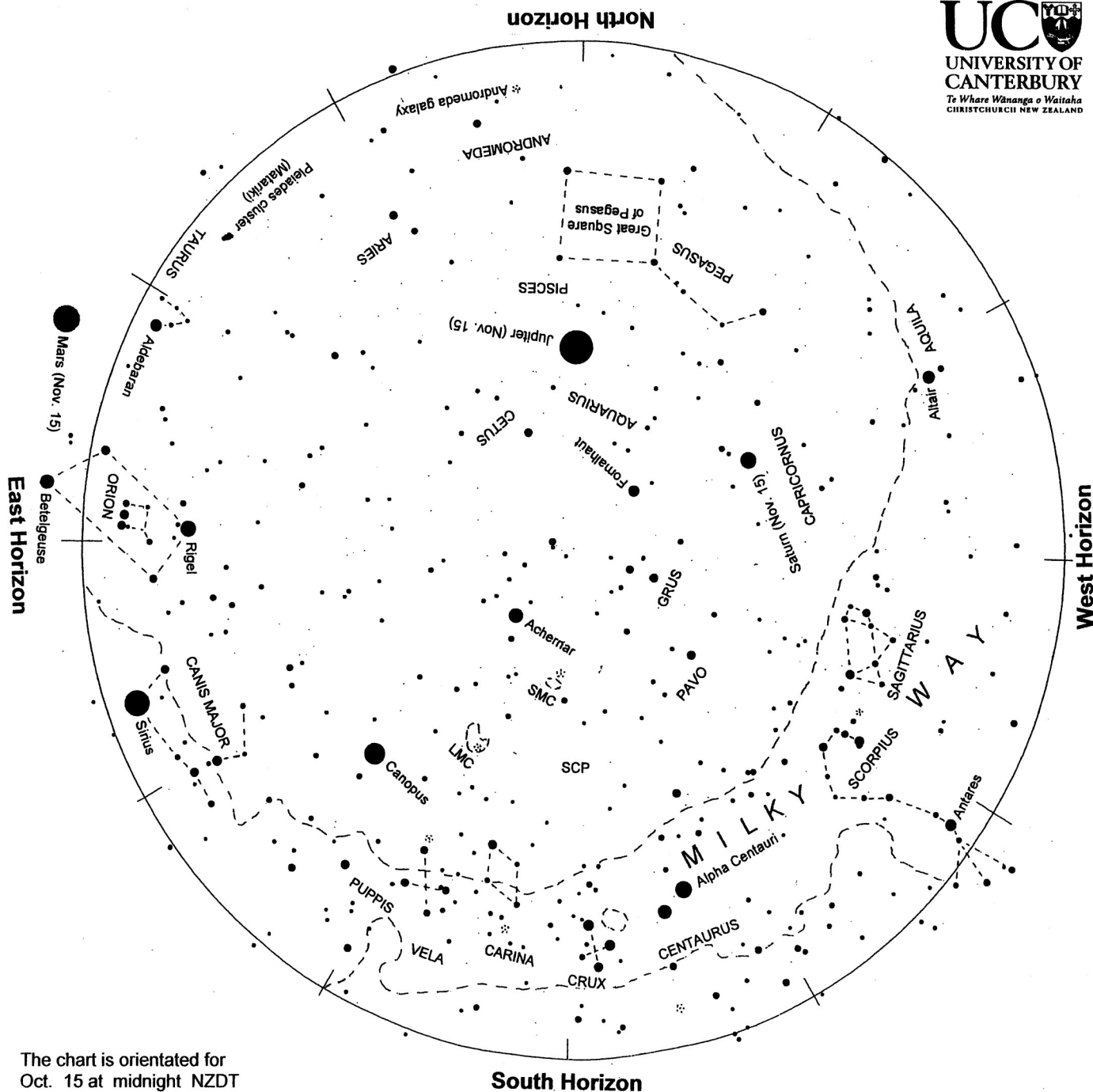
but of course can only use (or supervise) the instrument they are accredited for.

This sounds a bit restrictive, but has become necessary due to recent misuse and possible damage to some instruments.

Any questions please email me
observatory.director@cas.org.nz

Kieren Eden





The chart is orientated for
Oct. 15 at midnight NZDT
Nov. 1 at 11 p.m. "
Nov. 15 at 10 p.m. "

Evening sky in November 2022

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.

Jupiter is the 'evening star', appearing north of overhead soon after sunset. Saturn is northwest of the zenith. Mars appears in the northeast in the late evening. Sirius, the brightest true star, appears in the east. Left of Sirius is Orion containing 'The Pot'. Further left are Taurus and the Pleiades/Matariki star cluster. Canopus, the second-brightest star, is midway up the southeast sky. The Pointers and Crux, the Southern Cross, are low in the south. The Clouds of Magellan, small nearby galaxies, are two misty patches high in the south. The Milky Way is wrapped around the horizon. Low in the north is the Great Square of Pegasus with the Andromeda galaxy below and right of it. There is a total eclipse of the Moon on the 8-9th.

The Evening Sky in November 2022

Jupiter is the 'evening star', appearing north of overhead soon after sunset. As the sky darkens **Saturn** appears northwest of the zenith. **Sirius**, the brightest true star, rises a little south of due east. By the end of the month it is up at sunset. **Canopus**, the second-brightest star, is in the southeast. Both stars twinkle like diamonds as the air disperses their white light.

At the beginning of the month **Mars** rises in the northeast before midnight. It is orange-red and brighter than Sirius. In the late night sky it is the second-brightest 'star' after Jupiter. It rises earlier each night. By the end of November it appears around 9:30 NZDT.

The disk of Jupiter can be seen in binoculars along with one or two of its big moons close by. Any telescope will show all four moons, the ones discovered by Galileo in 1610. The ring of Saturn is also visible in a small telescope along with Saturn's biggest moon Titan, close to the planet. Mars is small in a telescope, appearing the same size as the globe of Saturn. The Moon will be near Saturn on the 2nd; near Jupiter on the 4th and 5th, and near Mars on the night of 11-12th.

Left of Sirius is the constellation of **Orion**, with 'The Pot' at its centre. **Rigel**, a bluish supergiant star, is directly above the line of three stars; **Betelgeuse**, a red-giant star, is straight below. Left again is orange **Aldebaran**. It is at one tip of a triangular group called the Hyades cluster. The Hyades and Aldebaran make the upside down face of **Taurus** the bull. Still further left is the **Pleiades** or **Matariki** star cluster, also called the Seven Sisters, Subaru and many other names. Six stars are visible to most eyes. Dozens are seen in binoculars. The cluster is 440 light years (l.y.)* away and around 100 million years old.

Sirius is the brightest star both because it is relatively close, nine l.y. away. Seen up close it would be 23 times brighter than the sun. By contrast, Canopus is 300 l.y. away and 13 000 times brighter than the sun.

The **Milky Way** is low in the sky, visible around the horizon from the northwest, through south into the eastern sky. The broadest, brightest part is in **Sagittarius**, to the right of the Scorpion's sting. 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 is 27 000 light years away in the direction of Sagittarius.

Low in the south are the Pointers, Beta and **Alpha Centauri**, and **Crux** the Southern Cross. In some Maori star lore the bright southern Milky Way makes the canoe of Maui with Crux being the canoe's anchor hanging off the side. In this picture the Scorpion's tail can be the canoe's prow and the Clouds of Magellan are the sails. Alpha Centauri is the closest naked-eye star; 4.3 light years away.

The Clouds of Magellan, (**LMC** and **SMC**), high in the southern sky, are two small galaxies about 160 000 and 200 000 light years away, respectively. They are easily seen by eye on a dark moonless night. The globular star cluster 47 Tucanae looks like a slightly fuzzy star near the top-right edge of the SMC. It is 'only' 16 000 light years away and merely on the line of sight to the SMC. Globular clusters are spherical clouds of stars many billions of years old.

Very low in the north is the **Andromeda Galaxy**, easily seen in binoculars in a dark sky and faintly visible to the eye. It appears as a spindle of light. It is similar to our galaxy and nearly three million light years away.

A **total eclipse of the Moon** occurs on the night of the 8-9th. The Moon begins to enter the outer part of Earth's shadow, the penumbra, at 9:02 NZDT. It won't show much darkening till it starts to enter the inner shadow, the umbra, at 10:09. By 11:17 the Moon will be completely in the umbra. Just how dark it gets depends on how much sunlight is bent around the Earth by the air. If a lot is, then the Moon will glow red, a 'blood Moon'. If there is much cloud around the Earth's edge, as seen from the Moon, then the Moon will become darker. The Moon will be at its darkest at midnight. It begins to exit the umbra at 12:42 and is fully clear of it by 1:49. It moves out of the penumbra at 2:56 a.m.

*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.

CAS COMMITTEE AND OFFICERS 2022/2023

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Committee Members:	Carol McAlavey	member2@cas.org.nz
	Terry Richardson	member1@cas.
	Preetha Sreedharan	member3@cas.org.nz
	Goran Balvan	member5@cas.org.nz
	Orlon Petterson	member4@cas.org.nz

For more specialized information please see the contact information page on www.cas.org.nz

CAS Contact Information

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

West Melton Observatory: 43° 29' 55.5" S, 172° 20' 59.0" E 218 Bells Road, West Melton

CAS Members Meetings:

The *CAS monthly members* meetings are currently held from 7.30pm onwards every third Tuesday of the month (except December and January) at the University of Canterbury,

Room ER225 Ernest Rutherford Building (2nd floor)

CAStronauts Meeting's are 6.30-7.30, in the same venue on the same night (3rd Tuesday of the month)

Any member of the public who is considering in joining the society are most welcome to attend the meetings.

Members Nights at the Observatory are detailed on our website

Observatory Members Nights:

Cas holds these nights as follows

Members Nights (Training) on the 1st Saturday of the month

Members Nights (General) on the 3rd Saturday of the month after the Tuesday Members meeting at UC, (be aware some months it is the 4th Saturday, depending on the start of the month) check the website for details

CAS on Facebook:

Cas has a Facebook presence, Useful to keep up to date with events, interesting articles, asking for advice, For members please use the website forums for more detailed information etc

CAS Membership:

Subscriptions are due 1st April each year

Fees for current members shown on the membership form included on the back page of your Casmag,

Full details are included on our website.

Contributions to CASMAG:

Member contributions to CASMAG are always most welcome (letters, observing notes, articles, news)

Please submit articles by email to editor@cas.org.nz

The deadline for each issue is the 1st of each month

Small personal advertisements are free to financial members, (less than 8 lines in a column)

Charges for larger items range from \$5 to \$40, email the editor for more details.

The Constitution of The Canterbury Astronomical Society Inc:

This is available on request, Please ask for a copy if required

DISCLAIMER:

This newsletter is for general information purposes only. The views expressed herein are not necessarily those of the Canterbury Astronomical Society Inc (CAS)

CAS has taken all reasonable measures to ensure that the material contained herein is correct, but gives no warranty for, and accepts no responsibility for its accuracy or completeness.

Readers are advised not to rely solely on this information, and should seek independent advice before making any decision, CAS reserves the right to make changes at any time, as deemed necessary.

Canterbury Astronomical Society Inc

APPLICATION FOR MEMBERSHIP

To: Membership Secretary
 Canterbury Astronomical Society Inc.
 PO Box 25137
 Christchurch 8140



Applicants Name in Full _____

Address: (Note a P.O.Box is NOT a legal address) _____

Home Phone: _____ Cell Phone: _____

Email: _____ Date of Birth: (if under 18) _____

Membership Category (*tick, subscription must accompany application*)**Online Banking Details (Please identify your payment):** 03 0802 0098273 00

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

Name:	Date of Birth(if Under 18yrs)	Signature

All CAS members receive CASMAG a monthly newsletter,

Do you have access to a telescope? What type and size? _____

I the undersigned declare that the information given herein is true.

Signature: _____ Date: _____

By signing this application the applicant agrees to comply with the Constitution and By-Laws
 of the Canterbury Astronomical Society Inc.

Date Approved: _____