



CASMAG

The official magazine of the Canterbury Astronomical Society

www.cas.org.nz

www.facebook.com/CanterburyAstronomicalSociety

Monthly Meeting: 17th MARCH 2020

WE NOW HAVE A NEW VENUE FOR OUR MONTHLY MEMBERS MEETINGS:

***OUR MEETINGS WILL BE IN ROOM ER225,
IN THE NEW ERNEST RUTHERFORD BUILDING.
UNIVERSITY OF CANTERBURY***

We will have our flags and banners out to help you find your way, as well there is a map/photos on page 5 & 6 in this Casmag,

MARCH MEETING ANNUAL GENERAL MEETING:

This is your opportunity to hear how the society has functioned this past year and hear the reports Presented, Voting on any motions presented by the committee, Then the Election of the 2020/2021 Office Holders and full Committee, Come along to make your vote count, Refreshments from 7.30pm with meeting to start at 8pm.



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CAS Calendar, MARCH 2020 – MAY 2020

March 2020

Tuesday 10th	Full Moon / Committee meeting
Monday 16th	Last Quarter
Tuesday 17th	CAS AGM
Saturday 21st	Members Night at Observatory
Tuesday 24th	New Moon
Saturday 28th	Earth Hour 8.30-9.30pm

April 2020

Wednesday 1st	First quarter
Friday 3rd	1st public Open Night
Sunday 5th	Daylight Saving Ends 2am
Wednesday 8th	Full Moon
Friday 10th-13th	Easter weekend
Tuesday 14th	Committee meeting
Wednesday 15th	Last Quarter
Friday 17th	Public Open Night
Tuesday 21st	Members Meeting
Thursday 23rd	New Moon
Saturday 25th	Anzac day / Members Night at Observatory
Monday 27th	Anzac Day Observed

May 2020

Friday 1st	First Quarter
Thursday 7th	Full Moon
Tuesday 12th	Committee Meeting
Friday 15th	Last Quarter
Tuesday 19th	Members meeting
Saturday 23rd	New Moon / Members Night at Observatory
Saturday 30th	First Quarter

UPCOMING EVENTS:

2020 Calendar:

17th March 2020: CAS AGM Meeting

21st March 2020: Members Club Night at Observatory

Earth Hour 2020: Saturday 28th March at Observatory

1st April 2020: 2020 CAS Membership Subs Due

Public Open Nights Start April 3rd (Full List below)

Daylight Savings: Ends April 5th

Easter Weekend: 10th-14th April

Public Open Nights:

APRIL: 3rd, 17th, 24th

MAY: 1st, 8th, 15th, 22nd, 29th

JUNE: 5th, 12, 19th, 26th

JULY: 24th, 31st

AUGUST: 7th, 14th, 21st, 28th

SEPTEMBER: 4th, 11th, 18th, 25th

KIDSFEST 2020: This year Kidsfest runs from SATURDAY 4TH- SATURDAY 19TH JULY Excluding 14TH (Committee Meeting Night)

As you can see a very busy winter season for us at CAS and we ask all who are able to help out to advise us by email to:

Rob at vice.president@cas.org.nz or look at the forums

<https://cas.org.nz/forums/forum/canterbury-astronomical-society-forums/outreach-and-public-open-nights>

Remember as a Paid member of Cas you are able to attend any of our events free of charge, BUT we would love you to help out as you are able to, Training is always available to you and this works towards accreditation on the equipment

Notice from Alan Tunncliffe:

The Canterbury Branch of the Royal Society and the NZ Astrobiology Network are hosting talks by Haritina Mogosanu & Sam Leske from Wellington, to be held at the TSB Space, Level 1, Turanga (Library in the Square) at 6pm on Thursday 14th May



MONTHLY MEETINGS:

New 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, As you come out of the lift, straight ahead to the lounge/kitchen area for our Cuppa, if using the stairs turn left to the kitchen lounge area, Our meeting room is round to the left from the kitchen,

We will have our Flags and Banners out to show the way. I have included some photos on the next page to assist with finding the right entrance and area

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 Meetings

17th MARCH. Canterbury Astronomical Society AGM

21st April. AAYUSHI VERMA

“Adventures of an Astronomy Undergraduate Student”

5th May. Professor CHRIS LINTOTT “Surprises in Space” 7pm– 9pm
C2 Lecture Theatre, Free but tickets required via Eventbrite

19th May. Professor WAYNE ORCHISTON

16th June. TBA

21st July. TBA

18th August. TBA

15th September. Members Soap Box

20th October. TBA

17th November. TBA

(correct as at 9th March 2020, 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



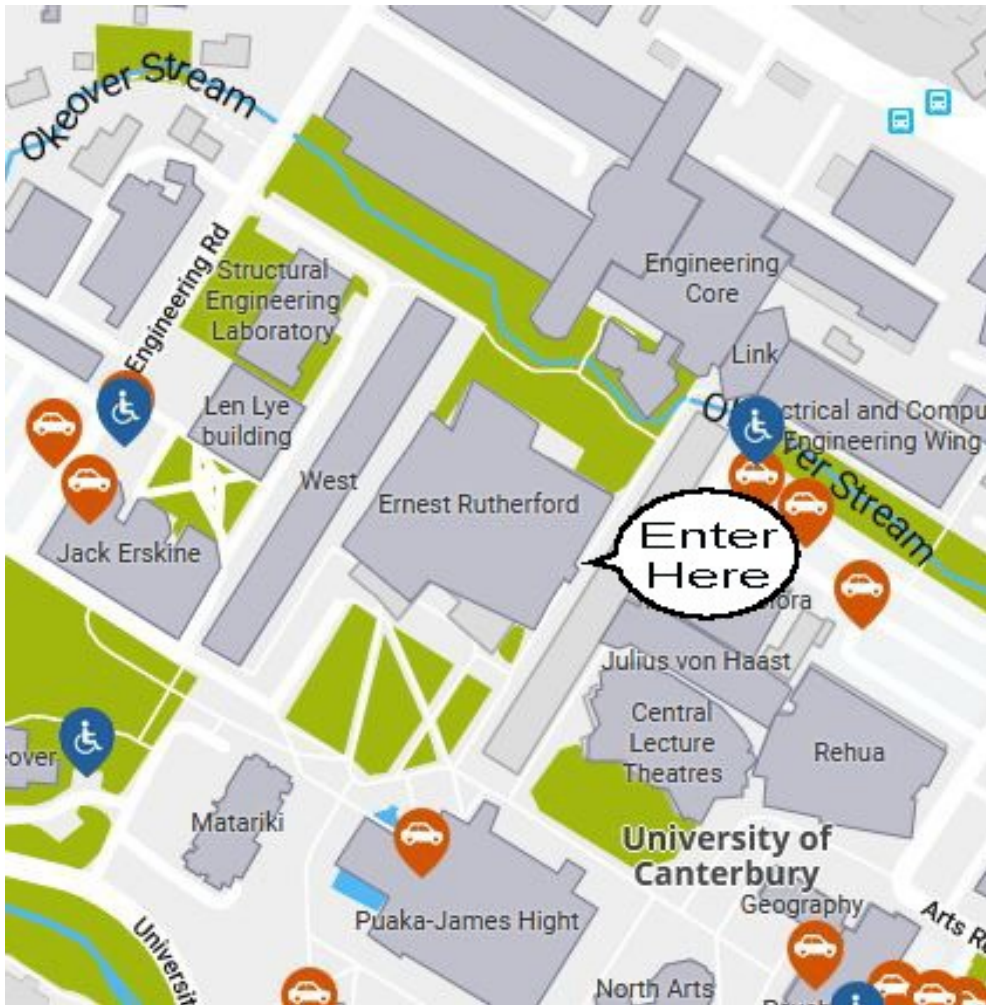
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MEETING VENUE ROOM ER225



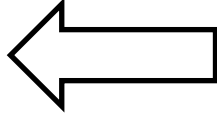
Map of
Parking
and
Building



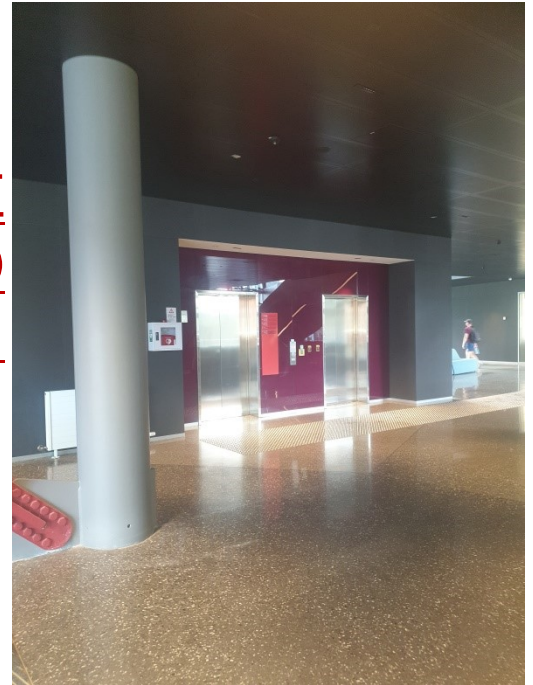
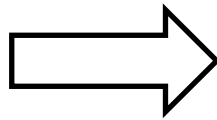
MEETING VENUE ROOM ER225



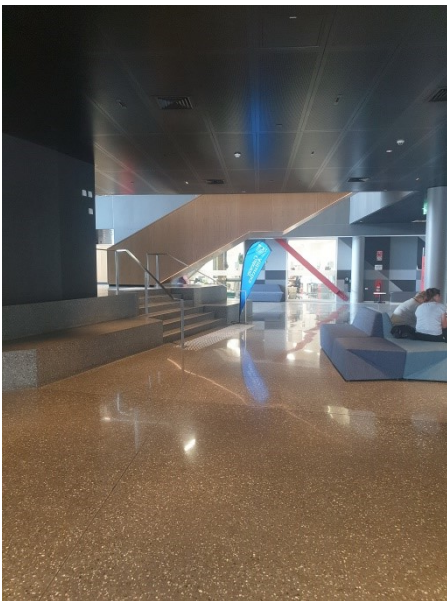
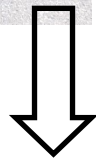
ENTRANCE INTO BUILDING
VIA THESE DOORS



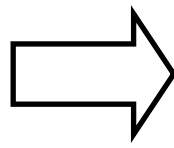
USE THE
LIFTS TO
LEVEL 2



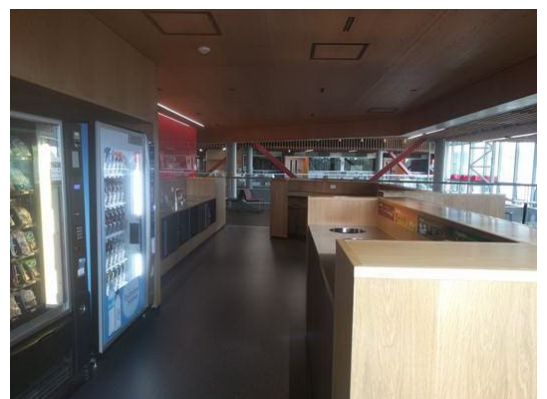
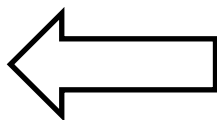
OR THE STAIRS



LOUNGE/
KITCHEN
AREA



MEETING
ROOM



WELCOME TO OUR NEW MEMBERS:

A warm welcome to our new members, We look forward to meeting you at our meetings 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 February meeting:

Mike Marr

Raul Elias-Drago

David William-Jones

Helen Hamilton

Alisha Young-Albert

Jane, Angharad and Kevin Davis-Ball



It is always great to see our new members coming along to our Members Meetings, Members Nights and Events.

OBSERVATORY NEWS

ALARM AT THE OBSERVATORY

The installation of our ALARM at the observatory is now fully operational, Ask a committee member for the password.

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 will present at the AGM to be 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

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.

So please email your Article or favourite photo with details for me to include in future issues.

Remember you can have your advert added in the future casmag's, Contact me for detail's

Please email to editor@cas.org.nz

Dale Kershaw

PRESIDENTS REPORT 2020

2019/20 has been a superb year for CAS, owing to the spirit, dedication and hard work of our great members.

Our speaking programme was again very engaging.
We enjoyed the following:

“A tour of the solar system” – Prof Euan Mason
 “The diffuse universe” – Prof Phillip Richter
 “Dark skies – in the shadow of planet Earth” – Steve Butler
 “Science and adventure on the ice” – Dr Orlon Petterson
 “Adventures of a travelling astronomer in Central and Far East Asia: in the footsteps of Marco Polo and Ulugh Beg” – Prof John Hearnshaw
 “Messier Madness: My quest to observe all the Messier Objects” – Rob Glassey
 “E.E. Barnard, a 19th Century astrophotographer whose photos still 'wow' us” – John Drummond
 “Howling at the Moon” – Simon Lewis

Thanks to **Malcolm Carr** for sorting the supper each night, and also a special thanks to **Carol McAlavey** for organising and presenting such a great programme. In addition we enjoyed mid-summer and mid-winter barbecues.

Many thanks to **Terry Richardson** for another excellent year as observatory director, and also to members who attended working bees. It is good to see the C11 operational in its new dome, and also the new plantings in the corner where we had such fun felling those nasty trees last year.

CAS's accounts are in fine shape, and so thanks to **David Brian** for his dedication as treasurer.

Thanks to **Simon Lewis** for sorting our membership records. We have around 160 members.

CASMAG is a vital medium and so another heartfelt thanks to **Dale Kershaw**. **Dale** also served as committee secretary, which in my view went beyond the call of duty.

Colin Fortune continued sterling service as librarian, despite being under the weather of late. Our records and books are well organised and up to date.

CAS's website has gone from strength to strength, and so many thanks to **Simon Lewis & Marc Bunyan**.

it. This year we hosted Alan Gilmore and Pam Kilmartin as our special guests.

Presidents Report Cont

Stardate at Staveley was exceptionally well attended.

Dale Kershaw and I organised it. This year we hosted Alan Gilmore and Pam Kilmartin as our special guests. The programme of Staveley speakers was exceptional, and we also enjoyed a clear early morning of brilliant observing. Dale Kershaw has taken over as camp mother, and I'll continue to serve as camp child & entertainment coordinator.

Thanks to all members of CAS's committee for their hard work.

Tracey Richards deserves a special mention for her sterling design of our new logo and flags.

Public outreach remains a high profile activity for the society. Thanks to all volunteers, and in particular to **Rob Glassey and Simon Lewis** for coordinating the outreach programme.

This is the end of my third term as president (my other periods in office were 2001-2005 & 2011-2015). 10 years with the same president is the maximum that should be endured.

I was a committee member for several years on prior to serving as president and between the last two terms. I abdicate knowing that our excellent committee will ensure that CAS continues to prosper.

Many, many thanks to all committee members and active society members who have made my times as president and on committee so enjoyable.

Euan Mason

2020 Conference and RASNZ Centenary

RASNZ 100

The 2020 Conference will be held 8-10 May at Wellington with the Wharewaka Function Centre the venue (near the Michael Fowler Centre) in downtown Wellington. The Wellington Astronomical Society is hosting this conference.

2020 marks a significant milestone in the life of the Society as it was founded in November 1920 with 75 members.

The SCC invites ideas from members how the Society might commemorate its centenary at next year's conference.

Please send your suggestions to the SCC at conference@rasnz.org.nz.

Conference registrations and more information at
www.rasnz.org.nz

NOTES FROM YOUR COMMITTEE

SIGNING IN WHEN YOU ARE AT THE OBSERVATORY

Please remember to sign in the book on the table in the Lodge whenever you are out at the observatory, This helps give us an idea of who has been using the equipment etc, even if you are out there to do gardening or the like PLEASE SIGN THE BOOK and add what you have been doing, Also please note and issues that have happened or that need fixing, and its good to follow that up with a email or phone call to Terry or the committee

CAS COFFEE MUGS & PENS

With our new logo we have had Coffee Mugs printed and also Pens which we have for sale to our members,
Coffee Mugs are \$15.00 each
Pens are \$2.50 each
Payment can be cash or bank deposit

They are available from Editor (Dale),
contact via editor @cas.org.nz
or 0272426376



We are still looking at other items like beanies and patches, And will advise when they are available for you to purchase

Canterbury Astronomical Society would like to acknowledge the following

Trees for Canterbury for the donation of tress and shrubs, which were planted along the bank,



AND

Southern Woods

for discounted trees to replace the trees that were cut down over the last summer holidays

CAS Membership Subscriptions for 2020-2021

NEXT YEARS MEMBERSHIP SUBSCRIPTIONS WILL BE DUE FROM 1ST APRIL 2020

Discounted fees until 31st May 2020

Please use your name and member number as a reference when banking, then email membership@cas.org.nz to advise so payments can be matched to you correctly.

PLEASE also include any changes to your contact details (eg: phone, email, address)

It is important your details are kept up to date

Full details are included on the last page of this newsletter.

You are also welcome to pay by cash or cheque at our monthly meetings.

CANTERBURY ASTROMONICAL SOCIETY AGM
17TH MARCH 2020 7.30pm
ER225 University of Canterbury

This will include the presentation of annual reports from our President, Treasurer and other Committee Office holders.

Any notices of Motion and or By-Laws to be voted on by members

The Election of the Nine Officers of The society as follows

President
 Vice-President
 Treasurer
 Secretary
 Membership Secretary
 CSMAG Editor
 Librarian
 Webmaster
 Observatory Director

The Canterbury Astronomical Society Committee consists of Twelve members including:

The Officers of The Society and Committee up to Twelve Members

Any Officer of the Committee other than the President may hold a second office if so elected at the AGM,

No member may hold more that 2 Offices

Other appointment's from within the membership are Trustees, Deputy Director and Publicity officer (appointed by committee)

Appointees are not committee members unless they are actually elected to the committee in their own right

NOTICE OF MOTION

As required by our Constitution section 5,
The Committee is advising that the following will be presented at
the AGM on 17th March 2020

SECTION 10: To Add the following.

10.1

The society's observatory and equipment are intended to further the Society's objects as set out in section 2.

They will not be used for the purposes of generating profits for any person or other organisation.

Then re-number all other clauses in section 10 by adding 0.1 to their labels

BY-LAWS: To ADD the following By-Law

LASER USE

Current members who have legally obtained green lasers may use them at the observatory.

Users of lasers at the observatory must observe the code of practice at all times (Published at the Observatory).

Unsafe use observed by any committee member will result in a warning and advice regarding safe use.

Continued unsafe use will result in a written warning from the committee.

If a person continues to use a laser in an unsafe manner after a written warning, the committee has the right to ban that person from using a laser at the observatory.

CAS does not take any responsibility for members or past members who use lasers.

Laser users are personally responsible for their behaviour.

STARDATE SOUTH ISLAND 2020 BY David Hill

The prospect of an *Armageddon*-style meteor strike on planet Earth in the next 200 years is extremely remote. Despite the efforts of science fiction to predict the Earth's armageddon, speakers at the Canterbury Astronomical Society's annual Stardate South Island 2020 camp at Staveley last month (February 21 to 23), say climate change is a much bigger threat to humanity than a cosmic encounter.

Alan Gilmore, the former superintendent of the University of Canterbury's Mt John Observatory at Tekapo, has been tracking near Earth objects with his wife Pamela Kilmartin since the 1970s and is confident no large asteroid will cause a major extinction event any time soon.

"No, I think humans are doing very well with climate change. We are doing it ourselves by environmental degradation.

"Asteroids are a threat over centuries to millennia. We know from craters on the Earth that the Earth gets hit about three times per million years by a 1km sized asteroid.

Such an impact would cause global effects by throwing up dust into the atmosphere and dimming the sun for several years, causing crop failures and food shortages, as well as devastation at the point of impact.

More than one million near Earth objects, or space rocks inside the orbit of Mars, are known to researchers.

Alan and Pam follow up on objects discovered by research programmes in Arizona and Hawaii so distances and future orbits can be estimated more accurately.

Just one "potentially hazardous asteroid", more than 140 metres across, is likely to pass within twenty times the moon's distance from Earth any time soon.

Asteroid 99942, otherwise known as Apophis, is 370 metres across and is expected to pass within 28,000km of Earth on April 14, 2029, New Zealand time.

"The people who do all the very detailed calculations know that it won't be a problem for at least 200 years," Alan says.

A number solutions are being explored by researchers to combat future risks, but a nuclear strike, used in science fiction such as in the 1998 movie *Armageddon*, is not considered a viable option.

Options include gravity trackers, space mirrors to focus the sun's rays on the asteroid, firing a weighty object into an asteroid to see if it changes its path slightly and painting the asteroid black.

"With these larger objects you wouldn't just get several days notice, but years or even decades," Alan says. "None of these ideas are ready to go, but they're all being discussed and tested."

He says the Earth is a small target in the vastness of space, so it is a matter of ensuring the asteroid arrives in Earth's orbit a minute earlier or later.

Other speakers included medical researcher Associate Professor John Pickering, who spoke about the unexpected dimming of the star Betelgeuse, and Oamaru astronomer Damien McNamara, who spoke about the effects of blue light.

Betelgeuse, a red giant star in the Orion's Belt constellation approaching the end of its life, has caught the attention of astronomers in recent months due to its unexpected dimming to just 38 percent of its normal brightness and leading to speculation it could be about to go supernova.

Mr Pickering says Betelgeuse is a giant star about eight to 10 million years old and will live a very short life compared to the sun.

As a red giant it has blown out to the size of Jupiter's orbit, giving it a radius of 1000 times the size of the sun and a volume equivalent to one million suns.

As to when it is likely to go supernova, Mr Pickering says he is "95 percent confident it will happen sometime during the next six to 2200 years".

But given it is 700 light years away, the supernova is unlikely to have any impact on Earth other than leaving a spectacular light trail in the sky.

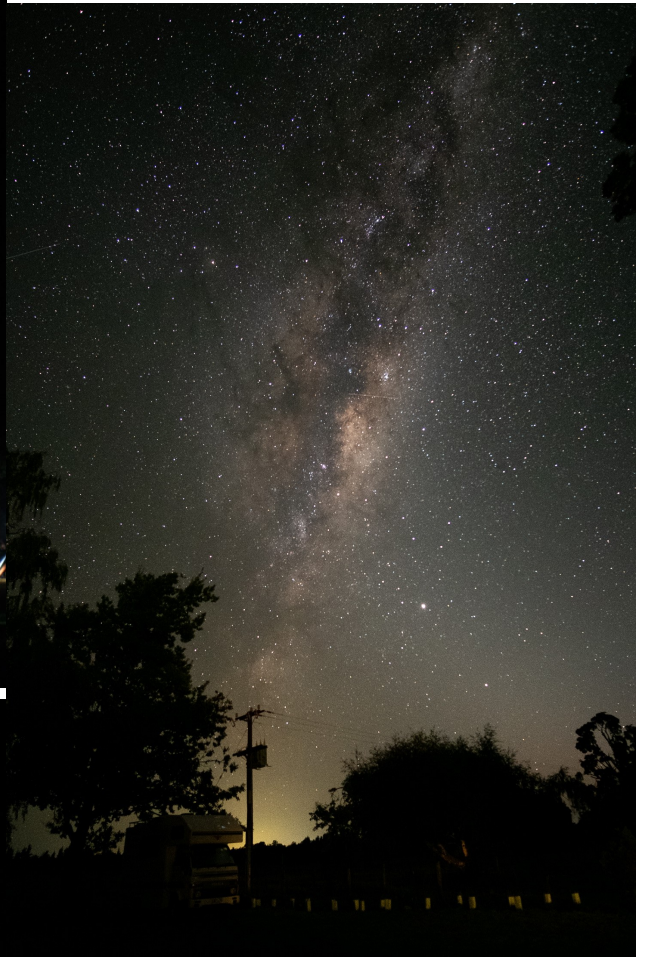
In spite of Mr Pickering's efforts to contact Betelgeuse over Twitter, the star made only a fleeting appearance in the night sky during the camp, before cloud cover and rain hid the stars from astronomers.

With no stars in sight, some of the more than 60 astronomers and camp attendees resorted to snow-gazing, taking photos of the snow on the hills behind the campsite.

STARDATE 2020 PHOTOS

Photos:
From
Jean
Williams

Jean does
light painting
with her
photos



STARDATE 2020 PHOTOS CONT



Left: Stardate's own version of MasterChef Bake Off!!
Below: Solar Viewing on Sunday morning
Photos: James Moffat



Above: Guest Speakers:
Alan Gilmore &
Pam Kilmartin



Above: Saturday Evening Entertainment from Euan Mason



Left: Very helpful kitchen helpers
Below: Waiting on Dinner to be served.
Other photos this page. David Hill



STARDATE 2020 PHOTOS CONT



Social
Time



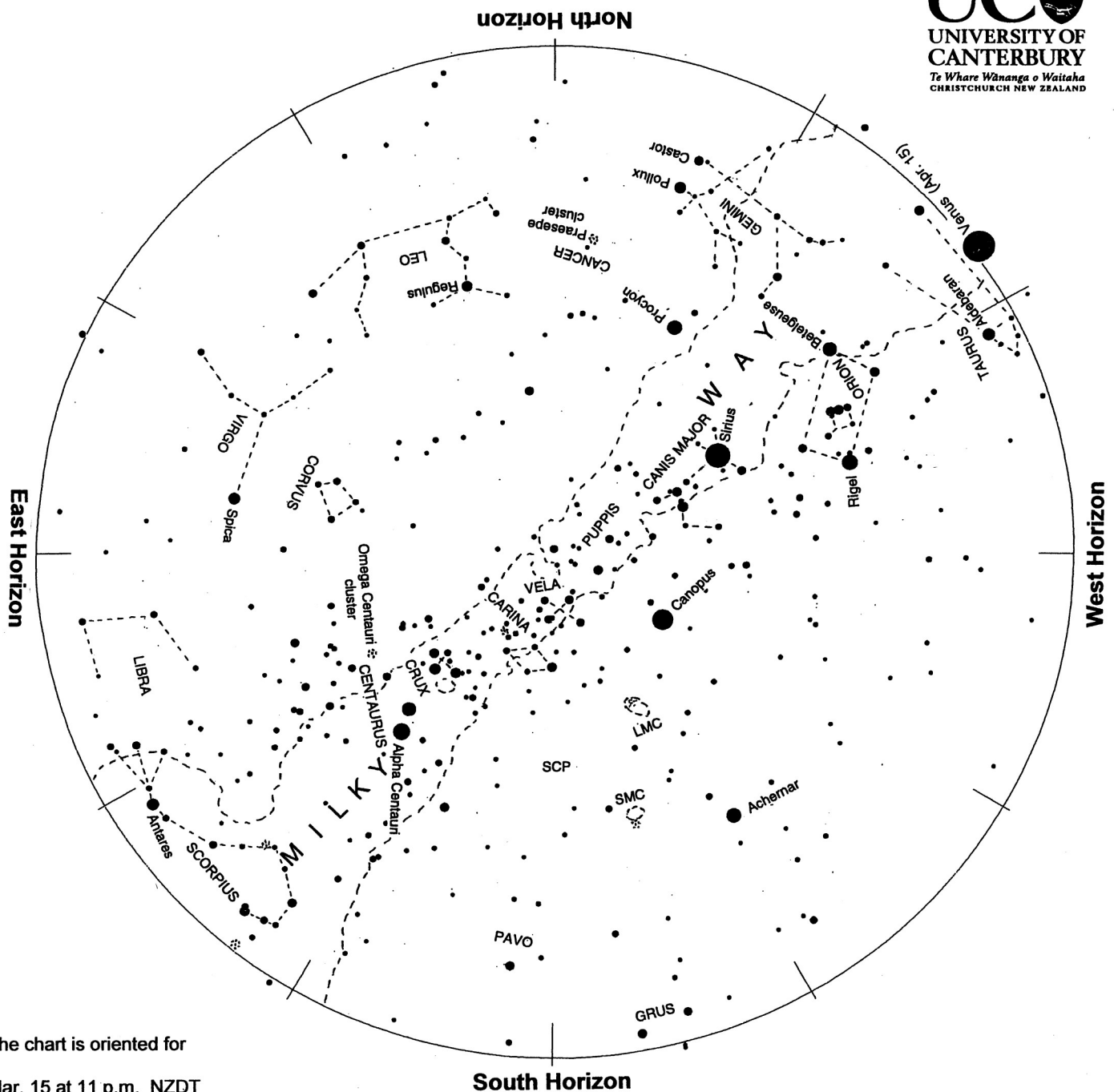
Solar Viewing on Sunday
morning



Snow Gazing on
Saturday evening, Yes
there was snow on the
surrounding hills.

Photos this page:
David Hill

*Your Editor thanks
those who sent in
photos to be
included in the casmag
Issue*



The chart is oriented for

Mar. 15 at 11 p.m. NZDT
April 1 at 10 p.m. "
April 15 at 8 p.m. NZST
May 1 at 7 p.m. "

Evening sky in April 2020

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 westward or clockwise shift each night as we orbit the sun.

Venus is the 'evening star', appearing in the northeast soon after sunset and setting 100 minutes after the Sun. Sirius, the brightest true star, is midway down the western sky. Below it is Orion with bright stars Rigel, blue tinted, and orange Betelgeuse. Canopus, the second brightest star, is southwest of overhead. Crux, the Southern Cross, and The Pointers, Alpha and Beta Centauri, are high in the southeast sky. Jupiter (not shown on the chart) rises after midnight at the beginning of the month. It is the brightest 'star' in the morning sky. It is followed by Saturn and Mars, close together at first. By the end of April Jupiter is rising around 10:30, Saturn at 11 pm and Mars at 12:30 a.m.

The Evening Sky in April 2020

Venus is the brilliant 'evening star' appearing low in the northwest soon after sunset and setting 100 minutes after the Sun. Venus is catching up on Earth. It will be 81 million km away mid-month. As it comes nearer more of its sunlit side is turned away from us. In a telescope it looks like a crescent Moon.

Venus is bright enough to be seen by naked eye in daylight if you can focus on infinity. At 3:30 pm NZST it is due north and about 25° above the horizon, a bit higher from northern NZ, a bit lower in the south. 25° is a bit more than a hand-span at arm's length. On the afternoon of the 26th Venus will be 9° from the thin crescent Moon at an angle of 45°, below and right. On the 27th it will be 7° below and left of the Moon at an angle of 8 o'clock or 30° from horizontal.

Sirius is the first true star to appear at dusk, midway down the northwest sky. It is soon followed by **Canopus**, southwest of the zenith. Below Sirius are **Rigel** and **Betelgeuse**, the brightest stars in **Orion**. Between them is a line of three stars: Orion's belt. To southern hemisphere star watchers, the line of three makes the bottom of 'The Pot', now tipped on its side. In the Pot's handle, or Orion's Sword, is the Orion Nebula, a glowing cloud easily seen in binoculars. Below and right of Sirius is **Procyon** marking the head of Canis Minor one of the two dogs following Orion across the sky. Sirius marks the head of Canis Major, the big dog. The big dog's hindquarters are made by the bright stars above Sirius.

Crux, the Southern Cross, is high in the southeast. Below it, and brighter, are Beta and **Alpha Centauri**, often called 'The Pointers'. Alpha Centauri is the closest naked-eye star, 4.3 light years (l.y)* away. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of l.y. away. **Canopus** is also a very luminous distant star; 13 000 times brighter than the sun and 300 l.y. away.

The **Milky Way** is brightest in the southeast above Crux. The Milky Way can be traced to nearly overhead where it fades. It becomes very faint in the northwest, right of Orion. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one.

The Clouds of Magellan, **LMC** and **SMC** are midway down the southwest sky, easily seen by eye on a dark moonless night. They are two small galaxies about 160 000 and 200 000 light years away.

Low in the north is the **Praesepe cluster**, marking the shell of **Cancer** the Crab. Praesepe is also called the Beehive cluster, the reason obvious when it is viewed in binoculars. Lower and further left are **Pollux** and **Castor**, the heads of **Gemini** the twins, making a vertical pair of stars. Though related in myth, the Twins are quite different from each other. Pollux is an orange star 31 times brighter than the sun and 34 l.y. from us. Castor is a hot white star about 47 times the sun's brightness and 51 l.y. away.

Jupiter is the brightest 'star' in the late night and morning sky. At the beginning of the month it rises in the southeast around 12:30. It looks like a golden star shining with a steady light. There is an unreliable rule that stars twinkle and planets don't. It works for Jupiter. Half an hour after Jupiter, at the beginning of the month, **Saturn** and **Mars** appear. They are just 1° apart, two full-moon widths. Saturn is cream-coloured, Mars is orange-red. Jupiter and Saturn move up the sky night-to-night but Mars stays put. On the 10th the three planets are equally spaced in a line. By the end of April Jupiter is rising around 10:30 and Saturn around 11pm. Mars is up after 12:30. Jupiter and Saturn are fine sights in any telescope. Mars is just a tiny disc. At mid-month Mars is 200 million km away; Jupiter is 760 million km and Saturn 1,500 million km away.

Mercury ends its best morning sky appearance of the year. At the beginning the month it rises due east before 5 a.m., looking like a bright star in an empty region of sky. It sinks lower in the dawn as it moves to the far side of the Sun. At mid-month it is up around 5:30. It disappears in the twilight by the end of the month. On April 1st Mercury is 154 million km away. In a telescope it will look like a tiny last-quarter Moon. On the morning of the 22nd Mercury and the very thin crescent Moon will be close together in the dawn twilight.

*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 four years to reach the nearest star, Alpha Centauri.

CAS COMMITTEE AND OFFICERS 2019/2020

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

CAS Contact Information

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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, Venue for 2020 is still to be confirmed. Any member of the public who is considering in joining the society are most welcome to attend the meetings.

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 who renew before 31st May are at the discounted price 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)

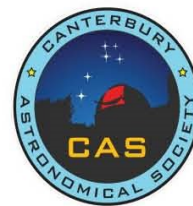
CAS has taken all reasonable measures to ensure that the material contained herein is correct, but gives no warranty for, and accepts no responsibility for its accuracy or completeness.

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.
P.O.Box 25-137
City East
Christchurch 8141



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, subscripton must accompany application)**Discounted if Membership is renewed before 31st May****Online Banking Details (Please identify your payment):** 03 0802 0098273 00

	Discounted	Full
<input type="checkbox"/> Adult (any person 18years of age or over who is not eligile for any other category)	\$70	\$80
<input type="checkbox"/> Family (two or more persons living at the same address)	\$105	\$120
<input type="checkbox"/> Junior (under 18 years of age on 1st April in the current year)	\$35	\$40
<input type="checkbox"/> Senior (over 65 Years)	\$35	\$40
<input type="checkbox"/> Community Services Card Holder	\$35	\$40
<input type="checkbox"/> Student (any person studying full-time at a tertiary instition, must reapply annually)	\$35	\$40
<input type="checkbox"/> Corporate (members have voting rights of one member, but cannot take office)	\$210	\$240

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

All CAS members receive CASMAG a monthly newsletter, Would you prefer to receive this (please tick)

☐ by email as a PDF attatchment ? ☐ or by post as a hard copy?

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: _____