



CASMAG

The official magazine of the Canterbury Astronomical Society

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

Monthly Meeting: TUESDAY 18TH SEPTEMBER

From 7:30p.m, room 701 on the 7th floor of the West building (Old Rutherford) (Physics and Astronomy) at the University of Canterbury
(see page 4 for a detailed map).

Refreshments start at 7.30. Meeting starts at 8pm

SEPTEMBER MEETING: TERRY RICHARDSON

Talk Topic is

Geomagnetometry For Auroral Prediction

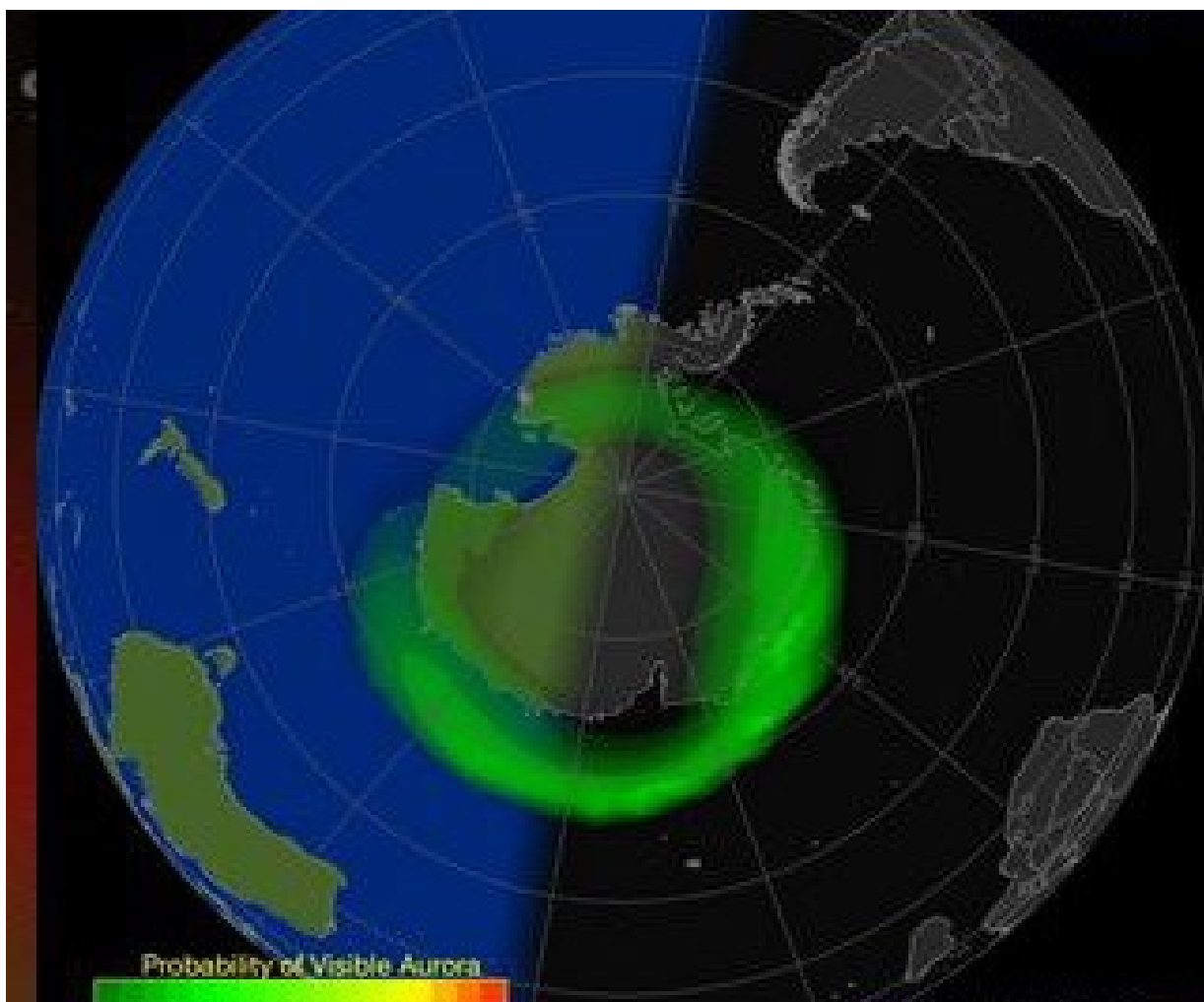


Image is from Google Images

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CAS Calendar, SEPTEMBER 2018—NOVEMBER 2018

September 2018

Monday 3rd	Last Quarter
Monday 10th	New Moon
Tuesday 11th	Committee Meeting 7.30pm
Friday 14th	Public Open Night
Monday 17th	First Quarter
Tuesday 18th	CAS Members Meeting 7.30pm
Saturday 22nd	Members Night at Observatory
Tuesday 25th	New Moon
Wednesday 26th	ASTRONZ Public Talk Emily Lakdawalla 7-8pm (see page 4)
Friday 28th	Public Open Night

October 2018

Tuesday 2nd	Last Quarter
Tuesday 9th	Committee Meeting 7.30pm
	New Moon
Friday 12th	RASNZ BHT Lecture (see page 4)
Tuesday 16th	CAS Members Meeting 7.30
Wednesday 17th	First Quarter
Saturday 20th	Members Night at Observatory
Monday 22nd	Labour Day
Thursday 25th	Full Moon

November 2018

Thursday 1st	Last Quarter
Thursday 8th	New Moon
Tuesday 13th	Committee Meeting 7.30pm
Friday 16th	Canterbury Show Day
	First Quarter
Tuesday 20th	CAS Members Meeting 7.30pm
Friday 23rd	Full Moon
Saturday 24th	Members night at Observatory
Friday 30th	Last Quarter

December

Saturday 1st	Christmas BBQ for members at Observatory
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UPCOMING EVENTS:

PUBLIC OPEN NIGHTS

This years Friday's Public Open Nights are listed below and we always welcome volunteers for these events:

September: 14th, 28th

Volunteers are always required to help run these events, New members are always welcome to come along and help. Information and Notifications will be on our website with contact details



STARDATE SOUTH ISLAND 2019

The date has been set for this,
It is the weekend of Friday 8th–Saturday 9th February 2019

More details to come in future
CASMAGs

Put this date in your calendar.
The website has some details but
shows the 2018 times and dates
<https://www.treesandstars.com/stardate/>



CAS MEMBERS CHRISTMAS PARTY/BBQ

Committee have set the date for this event
Saturday 1st December at the observatory,

Mark it on our calendars
More details to follow



CAS Membership Subscriptions 2018-2019

The Current years subscriptions are NOW OVERDUE

PLEASE pay your current years subscriptions as soon as possible

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



Astronz Speaker's Public talk in Christchurch

26th September

Venue is C1 Lecture Theatre

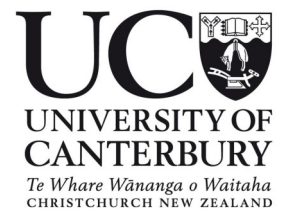
University of Canterbury 7-8pm

Emily Lakdawalla is an internationally admired science communicator and educator, passionate about advancing public understanding of space and sharing the wonder of scientific discovery.

Looking for Life in the Solar System

Emily will tour the solar system to inform the audience about the variety of different science missions actively exploring our solar system right now, with emphasis on the scientific motivations for their exploration (our origins and the search for life), with lots and lots of pretty pictures. She will share some of the the recent scientific discoveries made.

The talk will include some of the latest images from the current missions.



BEATRICE HILL TINSLEY 2018 LECTURE TOUR **12 OCTOBER 2018**

Hosted by Canterbury Astronomical Society.

Venue is C1 Lecture Theatre @ University of Canterbury

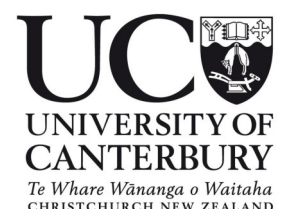
The RASNZ Lecture Trust inc is pleased to announce

that the 2018 Beatrice Hill Tinsley Lecturer is

Dr Paul Groot

(Professor of astronomy at Radboud University) located in Nijmegen, the Netherlands

During the lecture I will give a short overview of The amazing results obtained so far and look ahead to the new possibilities for understanding black holes, neutron stars and the violent Universe.



MONTHLY MEETINGS:

Carol Mc Alavey has again been busy organising speakers for this year, If you have any suggestion for topics please contact Carol via member1@cas.org.nz

The meeting venue has changed and is now held in room 701 on the 7th floor of the West building (Old Rutherford) (Physics and Astronomy) of the University of Canterbury
Car parking is available in the car park with entrances in Science Road or Engineering Road.

Disabled parking is in Engineering Rd



En-

Upcoming Guest Speakers:

18th SEPTEMBER 2018,

Terry Richardson

Wednesday 26th September

Emily Lakdawalla.

AstronZ Speaker's Public talk in Christchurch

C1 Lecture Theatre @ University of Canterbury 7-8pm

FRIDAY 12TH OCTOBER

2018 Breatrice Hill Tinsley Lecture Dr Paul Groot

C1 Lecture Theatre @ University of Canterbury

16th OCTOBER 2018

Graeme Kershaw,

(Dale is going to present this Talk about Graeme's working life)

(Retired Technician Physics & Astronomy University of Canterbury)

"My work at Mount John University Observatory"

20th NOVEMBER 2018

Alan Gilmore, (Former Superintendent Mt John University Observatory)

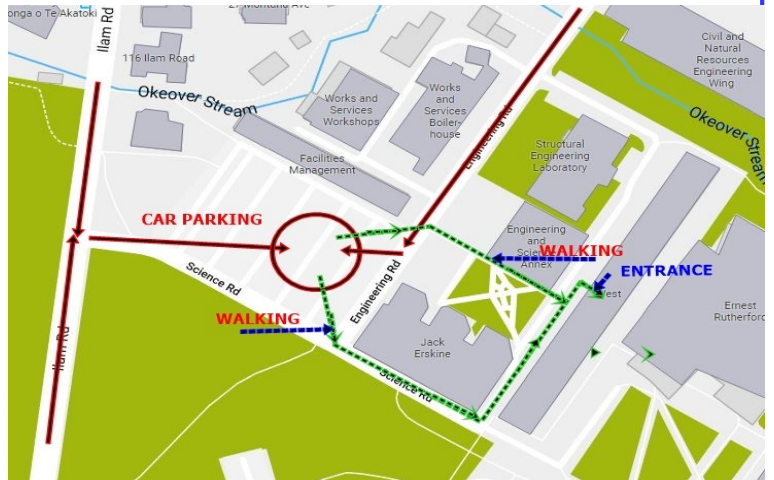
(correct as at 11th September 2018, Subject to change as required)

No Meeting is held in December or January,

1st meeting for 2019 is 19th February 2019

Many thanks go to Orlon Petterson and Rosalie Reilly 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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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.

It has be great to see our new members coming along to our open nights and meetings,

Welcome to the following members who were confirmed at our August committee meeting:

Simon Allen
Katie Boon (Family)
Kerry Cook
Peter Gormley
Brendon Ford
Vanessa Gray
Daniel Gordon
Courtney Yates
David Green
Jeremy Taylor
Vincent Groenewold
Gav Stevenson
Raewyn Johnson
John Shrewsbury
Sandra Martin



Table of Southern Meteor Showers

Shower	Dates		Moon	Peak Rate	RA	Dec	Near Star
	Active	Peak	2018				
Centaurids	Jan 28 - Feb 21	Feb 8	Last quarter	5 (-25)	14.1	-59	β Cen
gamma-Normids	Feb 25 - Mar 22	Mar 13	5 days before New moon	8	16.6	-51	γ Nor
pi-Puppids	Apr 15 - Apr 28	Apr 23	First quarter	var to 40	7.3	-45	σ Pup
eta-Aquariads	Apr 19 - May 28	May 5	3 days before Last quarter	60	22.5	-1	η Aqr
Pisces Austrinids	Jul 15 - Aug 10	Jul 27	1 day before Full moon	5	22.7	-30	α PsA
alpha-Capricornids	Jul 3 - Aug 15	Jul 30	2 days after Full moon	4	20.5	-10	α Cap
Southern delta-Aquariads	Jul 15 - Aug 25	Jul 27	1 day before Full moon	20	22.6	-16	δ Aqr
Southern iota-Aquariads	Jul 25 - Aug 15	Aug 4	1 day before Last quarter	2	22.3	-15	ι Aqr
Northern delta-Aquariads	Jul 15 - Aug 25	Aug 13	2 days after New moon	4	22.3	-5	θ Aqr
Northern iota-Aquariads	Aug 11 - Aug 31	Aug 19	1 day after First quarter	3	21.8	-6	β Aqr
Piscids	Sep 1 - Sep 30	Sep 19	2 days after First quarter	3	0.3	-1	λ Psc
Orionids	Oct 2 - Nov 7	Oct 21	4 days before Full moon	20	6.3	+16	γ Gem
Leonids	Nov 14 - Nov 21	Nov 17	1 day after First quarter	100+	10.2	+22	γ Leo
alpha-Monocerotids	Nov 15 - Nov 25	Nov 27	3 days before Last quarter	var to 5	7.9	+1	δ Mon
Pheonicians	Nov 28 - Dec 9	Dec 6	1 day before New moon	var	1.2	+53	Achernar
Geminids	Dec 7 - Dec 14	Dec 14	1 day before First quarter	120	7.3	+33	Castor

Information from the Royal Astronomical Society New Zealand website. <http://www.rasnz.org.nz>

Canterbury Astronomical Society is supported by grants and funding from organisations and individuals from across Canterbury. Including



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C E R T

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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

CLEANING AT THE LODGE

Many thanks go to Karen W for her ongoing cleaning of the lodge and toilets when required for events and public open nights.



NZTA Approves Sky-Friendly LED Lighting From RASNZ August newsletter

The New Zealand Transport Agency (NZTA) has approved funding for new 2200K LED light fittings that will meet the requirements of the Mackenzie Basin's International Dark Sky Reserves gold status.

The Mackenzie District Council has been working towards replacing the district's light fittings with more energy-efficient, longer-life LED fittings and had applied to NZTA for funding.

"Usually NZTA subsidises the use of 3000K or 4000K fittings. On this occasion we've been able to work together to get special approval for the use of 2200K fittings and still retain a very favourable subsidy," says Mackenzie District Council Group Manager Assets, Bernie Haar.

The 2200K fittings are more orange in colour appearance which is beneficial for viewing the night sky as there is less blue light emission.

"We are delighted that NZTA have recognised the importance of the Mackenzie Basin's gold star status as an international Dark Sky Reserve," Mr Haar said.

Existing street lights in the Mackenzie District will be replaced with the new LED lights over the next year. LED lights last longer, use half the amount of power and require less maintenance.

NZTA provides 85% of the funding for the LED lights, while the balance is from Council funds. The total cost of the replacement programme is \$790,000. Through NZTA's Financial Assistance Rate, councils can apply for funding to upgrade to LED lights.

-- From a Mackenzie District Council press release.

HEATHERS NOTE'S

September 6, my computer said, cloudy tonight, but, I was very happy to see, it was Wrong;- it was a beautifully clear night. I thought I would pop outside and enjoy a look-around with my 20X80 bino which is mounted on a parallelogram,---
 [thank goodness for spell-check] The mount makes for more comfortable viewing without having to contort my neck quite so much. My first object I enjoyed was NGC 3114 in Carina,- which is a lovely open cluster with the stars seeming to be arranged in chains... To me, and perhaps to no-one else, the shape of it reminds me of a cat's paw.. When it comes to viewing, to each their own, and some like to wiz round the night sky and see as much as possible, but, on a clear night, who can blame them,- with so much to choose from. Me, I like to stay with an object until I feel my brain/ eyes are saturated with the object;- the shape, colour of the stars, dust lanes, how many faint stars can I see, any nebulosity etc.... A bino is just the thing for looking at open clusters as you can see the whole FOV [field-of-view] and not just a part of it, though, there may be some scopes where you can get the whole FOV using a low power. Still in Carina, I found a nice 'little' glob, now I am guessing this one, but looking at my Stars and Planets book, it Could be, NGC2808- there is bound to be someone else more in the know who can tell me if I am right.... I then go for a cruise through the LMC and enjoy the wide FOV, but, I also really enjoy seeing that through my 8 inch Dob using a UHC -Ultra High Contrast filter. The nebulosity that shows up is breathtaking. Filters are not cheap, but well worth saving for if you can. I have had a lot of advise when it came to buying eyepieces and with me,-one filter. Then on to the SMC and a stop-off at the beautiful 47 Tuc. I had a look at that through one of the big scopes at the observatory. The power kept being increased and it was a bit like looking at the M set,- fractals. It was like it was 3D and you were going in and in and.....a weird experience. I then had a look at Musca the Fly. Fly??? There is a nice glob to be seen there NGC 4833, that is nice for a scope where you can use more power. Before heading indoors to finish my dinner- [I was too eager to get outside to eat it all in one go,]- I had a look around Scorpius and enjoyed seeing two beautiful cluster in the same FOV- NGC 6231, the smaller cluster with the brightest stars, and the larger, H12 H for Harvard and aka Trumpler 24. The chain of stars that link the two clusters delineates one of the spiral arms of our galaxy...
 To finish I enjoyed looking at M7 open cluster and the lovely M6 the Butterfly cluster. The kids at Kids Fest always enjoy that one, though some always insist it is a Moth! Perhaps they have been watching a lot of the David Attenborough series??...
 That did me a whole lot of good..
 Enjoy the night sky when you can..
 From Heather ...

Many thanks to Heather for her interesting articles each month, Dale, Editor

From Your Editor

Remember you can have your advert added in the future casmag's,
 Contact me for detail's
 As always I look forward to receiving your items to include in future issues and I welcome contributions or suggestions and encourage you to send any articles or ideas you would like to be see included in upcoming issues.
 Please email to editor@cas.org.nz
 Dale Kershaw

The Evening Sky in October 2018

Four naked-eye planets are prominent in the evening sky at the beginning of the month. Brilliant **Venus** and golden **Jupiter** make two 'evening stars' in the west. Orange **Mars** is north of overhead, a little fainter than Jupiter. **Saturn** is between Jupiter and Mars, nearer to Mars and the brightest 'star' in that part of the sky.

By mid-month Venus has sunk lower in the twilight as it begins to pass between us and the Sun. It is joined by **Mercury**, catching up on us from the far side of the Sun. Around the 17th Mercury will be a medium-bright 'star' right of Venus. The pair set in the southwest around 9:40 NZDT. Venus sinks lower in the twilight, disappearing from the evening sky before the end of the month. Mercury moves higher in the twilight, being level with Jupiter by the 27th. Mercury remains in the evening twilight while Jupiter sinks lower and disappears. After passing between us and the Sun, Venus begins appearing low in the eastern dawn twilight in the last days of October.

The thin crescent Moon will be right of Mercury on the 10th, level with Venus on the 11th and right of Jupiter on the 12th. The somewhat fatter Moon will be close to Saturn on the 15th and close to Mars on the 18th.

Orange **Antares**, roughly midway between Jupiter and Saturn, marks the body of the Scorpion. The Scorpion's tail loops up the sky in the evening, making a back-to-front question mark with Antares being the dot. The curved tail is the 'fish-hook of Maui' in Maori star lore. Antares is a red giant star: 600 light years* away and 19 000 times brighter than the sun. Red giants are dying stars, wringing the last of the thermo-nuclear energy from their cores. Massive ones like Antares end in a spectacular supernova explosion. 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.

Canopus is low in the southeast at dusk often twinkling colourfully. It swings up into the eastern sky during the night. Canopus is 13 000 times the sun's brightness and 300 light years* away. On the north skyline is **Vega**, setting in the early evening. It is 50 times brighter than the sun, 25 light years away and the 5th brightest star in the sky.

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**. From northern New Zealand the star **Deneb** can be seen near the north skyline in the Milky Way. It is the brightest star in **Cygnus** the Swan. The Milky Way is our edgewise view of the galaxy, the pancake of billions of stars of which the sun is just one. The thick hub of the galaxy, 30 000 light years away, is in Sagittarius. The actual centre, 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, left of Saturn. The nearer 'interstellar' clouds appear as gaps and slots in the Milky Way. The dust and gas has come from old stars that have thrown much of their material back into space as they faded or blew up. New stars eventually condense from this stuff. A scan along the Milky Way with binoculars shows many clusters of new stars and some glowing clouds of left-over gas. There are many in Scorpius and Sagittarius and in the Carina region.

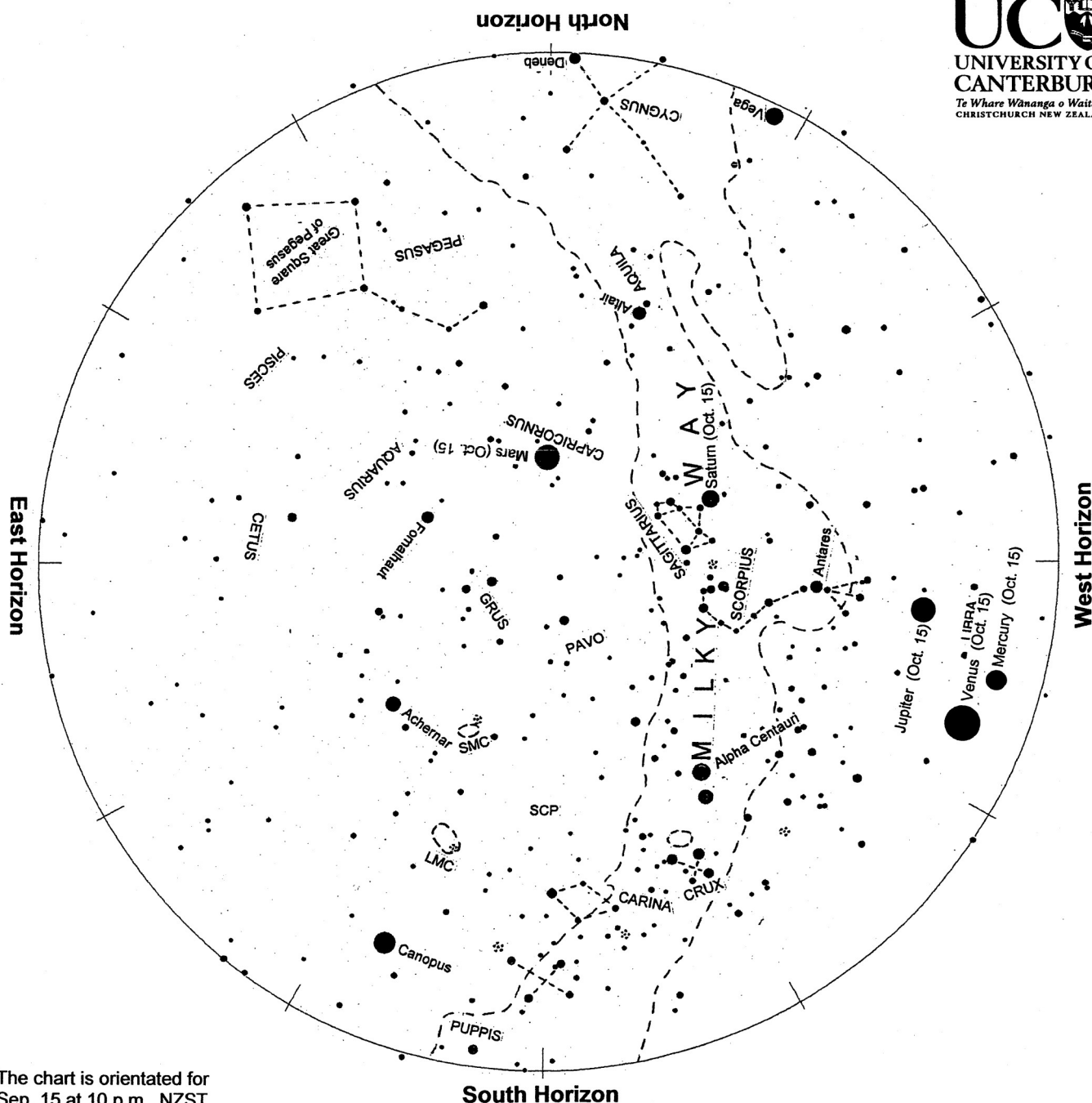
The Large and Small Clouds of Magellan, LMC and SMC, look like two misty patches of light in the southeast sky. They are easily seen by eye on a dark moonless night. They are galaxies like our Milky Way but much smaller. The Large Cloud is about 5% the mass of our Galaxy and the small one 3%. That is still many billions of stars in each. The LMC is around 160 000 light years away; the SMC around 200 000 l.y.

On moonless evenings in a dark rural sky the **Zodiacal Light** is visible in the west. It is a faint broad column of light around the lower planets, fading out at the Milky Way. It is sunlight reflecting off meteoric dust in the plane of the solar system. The dust may have come from a big comet, many centuries ago.

*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.

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

www.canterbury.ac.nz



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

Evening sky in October 2018

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.

Silver Venus and golden Jupiter are 'evening stars' at the beginning of the month, appearing in the west soon after sunset. Orange Mars is also bright and north of overhead. Saturn, less bright, is between Jupiter and Mars. By mid-month Venus has slipped lower and been joined by Mercury. At the end of the month Venus disappears while Jupiter and Mercury make a close pair low in the west. Orange Antares is above Jupiter. Canopus is low in the southeast, twinkling colourfully. Vega sets on the north horizon. Crux, the Southern Cross, and the Pointers are in the south-west. 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.

CAS Committee and Officers 2018/2019

Public Nights and Group Bookings

President	Euan Mason
Vice President	Rob Glassey
Treasurer	David Brian
Secretary	Spencer Lintott
Observatory Director	Terry Richardson
Editor	Dale Kershaw
Membership Secretary	Christina Lewis
Librarian	Colin Fortune
Web Master	Simon Lewis
Committee Members	Graeme Kershaw Carol McAlavey Malcolm Flain

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

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Web: www.cas.org.nz

CanterburyAstronomicalSocietyFacebook 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 meeting is currently held from 7:30pm onwards every third Tuesday of the month (except December and January), in room 701 on the 7th floor of the West building (Old Rutherford) (Physics and Astronomy) of the University of Canterbury

Any member of the public who is considering joining the Society is most welcome to attend the meeting.

CAS on Facebook

CAS has a facebook presence. Useful to keep in touch for when your planning to head out to the observatory, asking other members for advice and or post interesting information. Follow the link listed in the contact information and request to join us.

CAS on Twitter

CAS has a Twitter presence at <https://twitter.com/canterburyastro>

CAS Membership

Subscriptions are due 1st April.

Fees for current members who renew before 31 May, are at the discounted price shown on the membership form included on the back page of this casmag Full details are included on our website

Contributions to CASMAG

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

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

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

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

Charges for larger items range from \$5 to \$40; email the editor for full details

The Constitution of The Canterbury Astronomical Society Inc

This can be found on our website via this link

<https://www.cas.org.nz/files/file/3-the-constitution-of-the-canterbury-astronomical-society-inc/>

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
 Victoria Street
 CHRISTCHURCH 8144



Applicant's name in full (Block letters): _____

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)

Discounted if membership is renewed before 31 May

Online banking details (Please identify your payment): 03 0802 0098273 00

	Discounted	Full
<input type="checkbox"/> Adult (any person 18 years of age or over who is not eligible 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 1 April of 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 institution; must reapply annually)	\$35	\$40
<input type="checkbox"/> Corporate (members have voting rights of one member but cannot take office)	\$210	\$240

§ If family membership, please list the other persons involved.

Name	Date of birth (if under 18)	Signature

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

☐ by email as a .pdf attachment? ☐ 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. A copy of the Constitution may be downloaded from http://www.cas.org.nz/constitution/CAS_constitution.pdf.

Date Approved: _____