



# CAS MAG

The official magazine of the Canterbury Astronomical Society

[www.cas.org.nz](http://www.cas.org.nz), [www.facebook.com/CanterburyAstronomicalSociety](https://www.facebook.com/CanterburyAstronomicalSociety)

## Monthly Meeting: **TUESDAY 16TH OCTOBER**

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: DALE KERSHAW**

Talk Topic is

GRAEME KERSHAW

MY 45 YEARS WORKING AT MOUNT JOHN OBSERVATORY



Graeme standing beside the 1 Mt Telescope with the new mirror cell February 2014

## IN THIS MONTHS ISSUE

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## CAS Calendar, OCTOBER 2018—DECEMBER 2018

### October 2018

Tuesday 2nd	Last Quarter
Tuesday 9th	Committee Meeting 7.30pm New Moon
Friday 12th	RASNZ BHT Lecture
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
Friday 7th	New Moon
Tuesday 11th	Committee Meeting 7.30pm
Sunday 16th	First quarter
Sunday 23rd	Full Moon
Tuesday 25th	Christmas Day
Wednesday 26th	Boxing Day
Saturday 29th	Last Quarter
Monday 31st	New Years Eve

## **UPCOMING EVENTS:**

### **PUBLIC OPEN NIGHTS**

These have finished for this year and will start again in 2019, Daylight saving ends on 7th April 2019, dates for open nights will be announced in the coming months, Many thanks to those who helped with this years open nights with-out your support we would not be able to hold these. This also includes our Kidsfest helpers.



### **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](mailto: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.



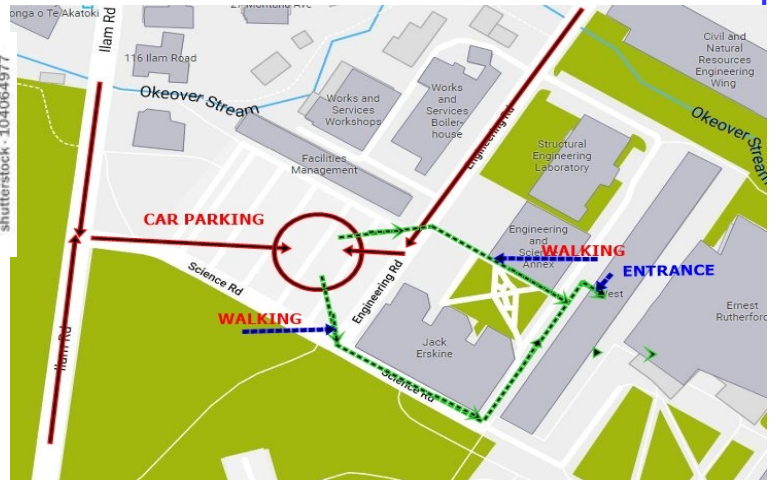


## MONTHLY MEETINGS:

Carol Mc Alavey has again been busy organising speakers for this year, If you have any suggestion for topics please contact Carol via [cstars@xtra.conz](mailto:cstars@xtra.conz)

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



## Upcoming Guest Speakers:

### FRIDAY 12TH OCTOBER

2018 Beatrice 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)

'Tracking Near-Earth Asteroids'

## 2019

### 19th FEBRUARY 2019

TBA

### 19th MARCH 2019

CAS AGM

### 16th APRIL 2019

TBA

(correct as at 10th October 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,



**Table of Southern Meteor Showers**

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



**MAINLAND  
FOUNDATION**  
*Proud to Support Our Community*

**C E R T**

*Your local Gaming Trust  
committed to 100% local funding*

**Pub  
Charity**   
Limited

## **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.

Notes from Terry (Our Observatory director)

We held a Working Bee on the afternoon of our last member's night in September,

The following jobs were completed:

Steps and Railings repaired and repainted

Weed spraying in the parking area

Branches from trees that had been removed for the sewer line were cut and stacked for bonfire

Edges and Lawns cut and tided

Many thanks to those who came along to help with this.

We will be having more working bee's over the summer months and this will be notified via the website.

Terry has also repaired the flush in the Men's toilet and also has installed a Sanitary Disposal unit in the Ladies. We have also added Ladies and Men's door signs.

There is a enthusiastic group of mainly budding astro-photographers who are desperate for accreditation on various scope. Terry intends to run some group sessions (starting in the daylight) and running into the night for them to play. This will allow those individuals to operate the scopes by themselves (but have accredited members on site) to gain the necessary experience



## **UPCOMING SPEAKERS**

Carol McAlavey who is our wonderful organizer for the guest speakers for our monthly meetings is requesting any who are interested in giving a talk or have a suggestion for someone to give a talk to please email her at [cstars@xtra.co.nz](mailto:cstars@xtra.co.nz)

## **International Dark-Sky Association Announces 2018 Award Recipients**

### ***Dark Sky Place of the Year Award***

Each year, a single International Dark Sky Place will be awarded the title of Dark Sky Place (Park, Reserve, Community, or Sanctuary) of the Year. This award is given in recognition of a recent exceptional achievement to an IDSP that has been established for at least 3 years. For example, an IDSP could be recognized for a major reduction in lighting inside or near the IDSP, for IDSP led adoption of stricter lighting codes by communities in the buffer zones or in a major city within 100 km distance, for especially innovative or successful programs or actions within the IDSP, or for major contributions to the IDSP program.

**The Dark Sky Place of the Year Award is presented to**

**Aoraki Mackenzie International Dark Sky Reserve.**

**For more information check out this link**

**<http://darksky.org/international-dark-sky-association-announces-2018-award-recipients/>**





## What does the age of the Universe mean for us? by Alan Teague

This little piece of trivia looks at what the age of the Universe means for us.

About 30 years ago I watched a television series titled Great Little Railway Journeys. One episode featured the rail line built following the gold rush in the Yukon. In it was quoted some doggerel verse written by Robert Service in the first decade of the 20<sup>th</sup> century when he was one of those seeking his fortune.

*I wanted the gold and I sought it  
I scrabbled and mucked like a slave.  
Was it famine or scurvy – I fought it;  
I hurled my youth into a grave.  
You come to get rich (damned good reason);  
You feel like an exile at first;  
You hate it like hell for a season,  
And then you are worse than the worst.*

This inspired me to read more of his poetry. Most I found a load of rubbish, but one caught my eye, titled

*Just think.*

*Just think! Some night the stars will gleam  
Upon a cold grey stone,  
And trace a name with silver beam  
And lo! 'twill be your own.  
That night is speeding on to greet  
Your epitaphic rhyme.  
Your life is but a little beat  
Within the heart of Time  
A little gain, a little pain,  
A laugh, lest you may moan;  
A little blame, a little fame,  
A star-gleam on a stone.*

I wondered, is your life really a little beat within the heart of time? Well, the only time we know is the age of the Universe. When the poem was written no-one had any idea of the age of the Universe, but now we do. Thanks to distance measurements of galaxies using red shifts and type 1a supernovae, and measurements of the expansion rate and the history of the expansion rate of the Universe, the age of the Universe is now known to be  $13.8 \pm 0.1$  billion years.

To see if the poem's line is accurate we need the number of human life-times that would make 13.8 billion years and the number of heart-beats in a human life-time. There is, of course considerable variation in these, so I have taken averages. 60 heart-beats per minute, depending on what video you're watching, and 70 years for a human life-time, provided you don't live in Syria.

This now comes down to arithmetic with very large numbers. To make sure I got the right answer I did the calculation three times. And here are my three different answers. Just kidding! It turns out to be 2.2 billion heart-beats per life-time and 0.2 billion life-times in the age of the Universe. So, it turns out to be wrong and it's not as bad as you might think. Your life is worth more than one beat in the heart of time – it's worth eleven beats.

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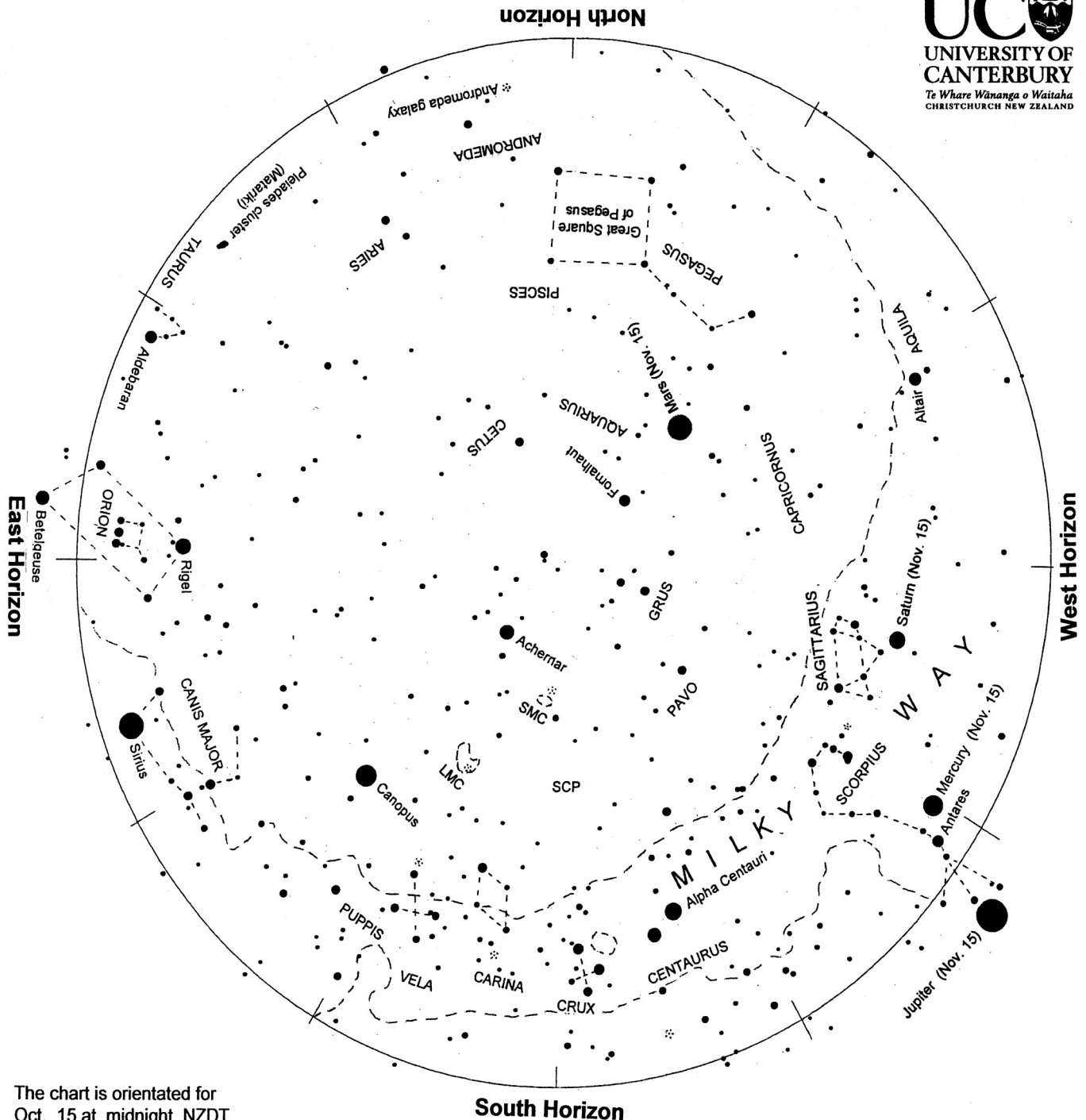
### From Your Editor

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](mailto:editor@cas.org.nz)

Dale Kershaw



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 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.

Mercury and bright golden Jupiter are low in the west at the beginning of the month. Mercury stays most of the month but Jupiter sinks into the twilight. Orange Mars is northwest of the zenith at dusk. Between Mars and Mercury is Saturn in the Milky Way. Canopus is midway up the southeast sky. 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. The Pointers and Crux, the Southern Cross, are low in the south. The Milky Way is wrapped around the horizon. The north sky is empty but for the Great Square of Pegasus with the Andromeda galaxy below and right of it.





## The Evening Sky in November 2018

A mix of bright planets and bright stars light up the evening sky. At the beginning of the month **Jupiter** and **Mercury** will be an unequal pair low in the west at dusk. Golden Jupiter is the brighter of the two. Just above them is orange **Antares**, the brightest star in Scorpius. Jupiter and Mercury set toward the southwest 1½ hours after the sun. Orange **Mars** is north of overhead at dusk. Midway between Mars and Jupiter is **Saturn**, the brightest 'star' in that part of the sky.

Jupiter sets earlier each night as we move to the far side of the sun from it. By mid-month it is lost in the twilight. Mercury holds its position in the west before disappearing late in November when it passes between us and the sun. A thin crescent moon will be near Mercury and Jupiter on the 9th. At the end of the month Saturn and Mars are the only naked-eye planets in the evening sky. The moon will be near Saturn on the 11th and 12th and close to Mars on the 16th.

The brightest true stars are in the eastern sky. Midway up the southeast sky is **Canopus**, the second brightest star. **Sirius**, the brightest star, rises in the later evening at the beginning of the month. By month's end it is in the sky at dusk. Both white stars twinkle like diamonds as the air disperses their light.

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\* away and around 100 million years old.

Sirius is the brightest star both because it is relatively close, nine light years away. Seen up close it would be 23 times brighter than the sun. By contrast, Canopus is 300 light years 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 30 000 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 larger Cloud is about 1/20th the mass of the Milky Way galaxy, the smaller Cloud 1/30th. That's still billions of stars in each. 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 in shape to our galaxy but is a little bigger and nearly three million light years away.

Brilliant Venus rises a little south of east 50 minutes before the sun at the beginning of the month; more than 1½ hours before sunrise at the end. It is a long thin crescent in a telescope and big binoculars.

\*A **light year (l.y.)** is the distance that light travels in one year: nearly 10 million million 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 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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[cstars@xtra.co.nz](mailto:cstars@xtra.co.nz)

For more specialized information see the contact information page on [www.cas.org.nz](http://www.cas.org.nz)

### **CAS Contact Information**

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CanterburyAstronomicalSocietyFacebook Group: [www.facebook.com/groups/CanterburyAstronomicalSociety](https://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](mailto: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](http://www.cas.org.nz/constitution/CAS_constitution.pdf).

Date Approved: \_\_\_\_\_