Vol. 72: No 5 JUNE 2023 Issue Number 810

# CASMAG

The official magazine of the Canterbury Astronomical Society

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

## *75th ANNIVERSARY YEAR 1948-2023*

**Monthly Meeting:** Our Monthly Meetings are held on the 3rd Tuesday night of the month. Refreshments from 7.30pm Meeting starts at 8pm

***PLEASE NOTE:*** **DUE TO EXAMS AT THE UNI OUR MEETING VENUE FOR THIS MONTHS MEETING IS *ROOM 111* IN THE BEATRICE TINSLEY BUILDING (THIS IS RIGHT BESIDE THE NORMAL BUILDING)**

## JUNE MEMBERS MEETING

## SIMON LEWIS *CAS President*

Topic: **An Astro Imagers Pilgrimage: Highlights of a trip to NEAF/NEAIC**

The words NEAF and NEAIC will get most astronomers drooling! They are two of the most well known astronomy conferences and are two huge events in the global astronomy calendar. Simon Lewis gives us a short review of his recent trip to these two amazing conferences and his experiences from the show floors

## 2023 ANNUAL SUBSCRIPTIONS/MEMBERSHIP

**Payment for the 2023 Year is now DUE**

**This 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)**

***PLEASE advise if there are any changes to your details: Address, Phone Number, email,*** Please email any changes to membership@cas.org.nz so the records can be updated. **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**

***If you have not paid your 2022 membership it is NOW VERY OVER DUE PLEASE CONTACT membership@cas.co.nz to discuss this.***

## IN THIS MONTHS ISSUE

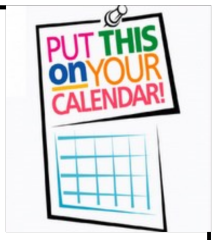


## From Your Editor

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

*Please see page 27 for notes:*

# CAS Calendar JUNE-AUGUST 2023




## JUNE 2023

| | |
|---|---|
| Saturday 3rd | New Members Night @ Observatory |
| Sunday 4th | *Full Moon* |
| Monday 5th | Kings Birthday Holiday |
| Sunday 11th | *Last Quarter* |
| Tuesday 13th | Committee Meeting |
| Sunday 18th | *New Moon* |
| Tuesday 20th | ***See front page for venue change for this months meetings*** |
| | CAStronauts @ University 6.30-7.30pm |
| | Members Meeting @ University from 7.30pm |
| Saturday 24th | Members Night @ Observatory |
| Monday 26th | *First Quarter* |
| Thursday 29th | **Guest Speaker at Observatory**: 7pm |
| | Professor Wayne Orchiston |

## JULY 2023

| | |
|---|---|
| Saturday 1st | Kidsfest Starts until 16th July (**NO Training Night**) |
| Monday 3rd | *Full Moon* |
| Monday 10th | *Last Quarter* |
| Tuesday 11th | Committee Meeting |
| Friday 14th | Matariki Holiday |
| Sunday 16th | Kidsfest Last Night |
| Tuesday 18th | *New Moon* |
| | CAStronauts @ University 6.30-7.30pm |
| | Members Meeting @ University from 7.30pm |
| Saturday 22nd | Members Night @ Observatory |
| Wednesday 26th | *First Quarter* |

## AUGUST 2023

| | |
|---|---|
| Wednesday 2nd | *Full Moon* |
| Saturday 5th | New Members Night @ Observatory |
| Tuesday 8th | *Last Quarter* |
| | Committee Meeting |
| Tuesday 15th | CAStronauts @ University 6.30-7.30pm |
| | Members Meeting @ University from 7.30pm |
| Wednesday 16th | *New Moon* |
| Saturday 1th | Members Night @ Observatory |
| Thursday 24th | *First Quarter* |
| Thursday 31st | *Full Moon* |

# 2023 Open Night Season

Its that's time again! Doesn't it come round quick!!! This years open night programme has started.
For the newcomers to the society, we run open nights every Friday night to the general public and some Tues/Weds nights for private groups.
Of course in July we have Kidsfest … we will confirm the dates closer to that happening .. but that's 15 nights of fun!

**Why are these so important to CAS?**

They give CAS an opportunity to engage with our local communities and build strong relationships with them and key stake holders like Selwyn Council. Provide a perfect opportunity to educate our visitors on the night sky and the hobby of astronomy. They are a great source of new members ! Assist in supporting the society financially.

**So how can you help?**

We need volunteers for our open nights to help run the evenings.
It takes about 6-7 people a night to run these, from helping people check in, our welcome brief, laser tour of the night sky and then running our scopes. We normally assemble at CAS around 6.30pm and run till about 9 -9.30 depending on bookings.
The more volunteers we get the less burden it places on others and helps spread the load but I can say its VERY rewarding and highly engaging activity, the kids love it and its amazing to see and hear them so excited about their time at CAS. If you would like to help you can approach any of the committee or reach out to Rob Glassey or myself if keen. We have a volunteer booking system we use so you can choose a night to volunteer for and the system will also send you reminder emails too!
**Check it out at** cas.ivolunteer.com
Please consider even helping out with a few as every slot filled helps the society.
Thanks
Simon
CAS President

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## MONTHLY MEETINGS:

### *Meeting Venue:*

**Room ER 225 in the Ernest Rutherford Building, University of Canterbury,**
**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:

20th June: Simon Lewis An Astro Imagers Pilgrimage: Highlights of a trip to NEAF/NEAIC

***PLEASE NOTE:*** **DUE TO EXAMS AT THE UNI OUR MEETING VENUE FOR THIS MONTHS MEETING IS *ROOM 111* IN THE BEATRICE TINSLEY BUILDING (THIS IS RIGHT BESIDE THE NORMAL BUILDING)**

18th July: Simon Lewis
15th August: TBC
19th September: TBC
17th October: TBC
21st November: TBC
(correct as at 1st May 2023, 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

# EXTRA GUEST SPEAKER TALK AT OBSERVATORY

On Thursday 29th June at 7pm held at the CAS Observatory West Melton

**Professor Wayne Orchiston,**

Director, RASNZ Historical Section.

University of Science & Technology of China

Centre for Astrophysics, University of Southern Queensland

**Topic:**

*UNDER A WIDE AND STARRY SKY*

*The Remarkable Record of Amateur Astronomy in Aotearoa/New Zealand*

He will discuss the international reputation that Aotearoa/New Zealand acquired through its very active amateur astronomical community in the late nineteenth century and throughout the twentieth century, particularly in areas like cometary, double star and variable star astronomy.
The choice of astronomers and observatories discussed will partly be determined by the location of the lecture.

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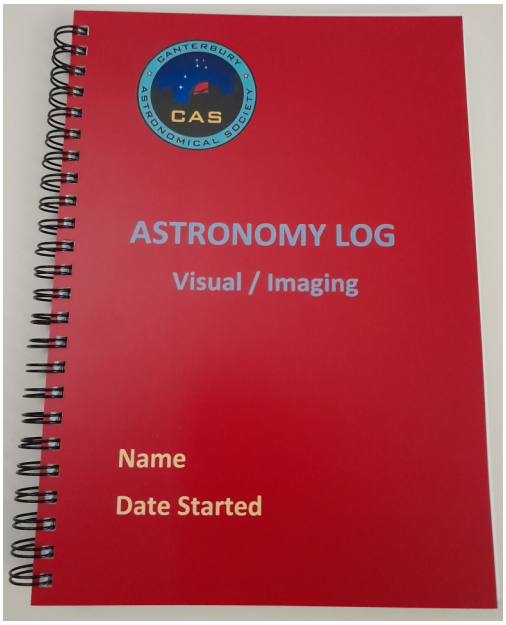
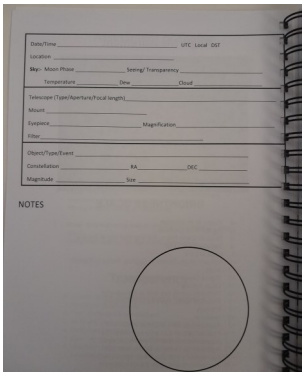
# CAS ASTRONOMAY LOG BOOKS FOR SALE

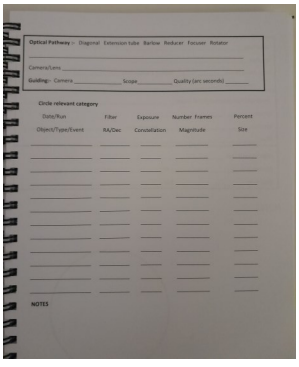
The CAS Committee lead by Terry have designed and produced these for sale.
$15.00 each. Contact Dale for your copy.  Email: editor@cas.org.nz

A5 size 100 pages ring bound.

Inside 1st 2 pages has handy hints for observing
*Assessment if Seeing
*Transparency
*Angle Measurement Guide
*Brightness Scale





## 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.


No New members confirmed at last months committee meeting.

*Welcome to all our New Members*
*I hope you enjoy reading CASMAG and remember to keep an eye on the website for any updates*

*Apologies from the editor for any spelling mistakes in the names*

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## OBSERVATORY IMPORTANT INFORMATION

### DOOR CODE & ALARM AT THE OBSERVATORY

The Door code and Alarm code has been changed with the new lock being installed 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

# COSMIC CONNECTIONS:

## Monthly Updates and Insights from Your President: June 2023

*Simon Lewis – CAS President*

Our winter season is well and truly underway and it's been good to see at least a few Friday and Wednesday open nights running despite the weather trying to play hard ball.
With El Nino starting to grow this has already subtly shifted our weather with a return to what real winter weather should look like for NZ!. As I write this, central Otago has a very chilly morning of -10c! This is more like what we'd like to see and bring us back to some of the cold nights we experienced a few years ago! Fingers crossed!

Our recent visit to the Hororata Night Glow was a fabulous success and we introduced CAS to a large number of the public. The team put on a great stand and we sure did glow! Mandy and Dale lit up the CAS tables with some attractable things to buy!
We also had our slide shows running too on the TV's but sadly the weather decided to "pack a sad" as darkness fell and it clouded over. Of course, by the time we packed up it turned into a fabulously clear night! All was not lost though as we did get a great look at the NASA balloon launched at lunchtime that day as it drifted out to the east of New Zealand with a number of the public taking an opportunity to view it via our telescopes.
What did surprise me from this event was the amount of people that live in Selwyn, along with Christchurch folks that have no idea we exist in West Melton and were delighted to learn they could come along to an open night to view the stars. This is clearly a huge opportunity for us and one we need to exploit more.

Open nights are both entertaining and educational for our visitors but they are a great source of new members and almost every night we run one we get a small number of new applications for membership. Our best years for membership have definitely been those years with plenty of good viewing!
This thought is at the front of my mind when I try to think of ways how to grow our fabulous society. How do we keep running events that draw people to us and advertising our existence?

I took that to heart recently and wrote a two page article in the Selwyn Connect magazine highlighting our achievements. This magazine goes out to 26,000 homes across Selwyn so was a great piece of free coverage for us!

With the weather over the past years denting our open night programmes, the committee has been looking at ways we can be more flexible in ensuring those nights go ahead but also what to do if it turns out cloudy.
We recently trialled postponing what was a cloudy Friday night to a Saturday night, that was forecast to be much clearer, and I have to say this was very successful. Our visitors were very happy to attend, maybe even more than a Friday. Perhaps a relaxing Saturday night out is better than rushing out after work? We managed to create a sell out night (even with a Rugby game on in the city) and the cloud even cleared for a while to give us some stunning milky-way views. We nailed a few new members too so this was definitely a success!

So would we do this more often? Well that depends. We do have our training night and social nights on two nights of the month which does have an impact on observatory use, although we did complete an audit of the observatory log to assess the level of disruption and the impact is very small.

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# COSMIC CONNECTIONS: cont

It's also worth remembering that this is only for a small window on those days, with open nights running from 7.30 to 9pm and many of our members who would be out at the observatory on those nights are already involved in public nights too, but we are conscious of this when planning any postponement.
So. yes. we would likely consider this option in the future but we are also looking at what other options we have for cloudy nights like audio visual presentations, telescope tours and longer term plans like lodge extensions to allow us to run any night clear or cloudy

So why is it so important that we run these nights when we can? As I mentioned above, these provide an excellent source of new members, which is good to keep our numbers up and also spread the word of our existence and provide education support for our local communities.
We should not underestimate the importance of having strong membership numbers.
I am seeing other local societies membership numbers shrink due to continued impacts post COVID. These societies are struggling with lack of funds which then restricts their ability to regrow as they cannot afford to do nice fund raising activities.. We really don't want to be in this position. We did a fabulous job of keeping the society active, engaged and financially sound during COVID, but past events like earthquakes are a strong reminder that we should not be blind to the impact these have on our existence.

There is also another, very important, side to these open nights. They provide a large portion of our society annual income each year. And without that we would be limited in what we can do for our society and its members. Our expenditure is closely monitored and managed but we do incur costs in just existing. From running our observatory facilities, insuring and maintaining it, all the way down to providing tea and biccies at our monthly meetings, these are all funded from both memberships and income from our open night programmes.

An important task related to this is the creation of an Observatory Development and Grants sub committee. The role of this sub committee is to look at the observatory and create a programme of work to ensure our facilitates remain in good shape.
We currently have a number of buildings that are starting to age badly, needing expensive and time consuming annual repairs to simply patch them up and keep them operational. This is not good as each year the weather takes more of a toll on them which also affects equipment located in them.
So to manage this we urgently need a plan to plan, and more importantly, fund, their rebuild and to then kit them out with equipment that will remain functional for the next 20 years.

A good example of this was the renewal of the Meade LX200 with the new Celestron Edge 11", but we have other aging telescopes that will need attention in the next years.
The 16" for example, while optically sound, has electronics that are no longer supported or even have parts available that we can obtain to repair it. An incident like a power surge or lightning strike could leave us with a very expensive replacement issue
To avoid these surprises we need to take the initiative and plan for their replacement now. This needs applications for funding by grants and/or donations to give us the financial footing to proceed. There is no doubt this is a major undertaking. Even replacing a mount capable of carrying the 16" would likely cost in the region of $40K NZD, so we need to start this programme quickly to avoid a major expenditure catching us out unexpectedly.
The 11" shed is also aging and needs maintenance. The work over the past years on the 14" show that if we ignore this they become major pieces of work needing time, money and resources to fix

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# COSMIC CONNECTIONS: cont

We also need to plan early for scope shed/dome replacements. Our buildings are publicly accessible on open nights, so need to have the right certifications. These need the relevant drawings, engineering sign off's and potentially, building consents before proceeding to build. This again needs time, resources and financial commitment to proceed.

But we are already seeing the difficulty of keeping buildings like the 120mm dome water-tight and having substantial water ingress every winter does not bode well for equipment located in it. There is also urgent work that needs to be done to the rails on the 16" shed. Kieren and Terry have done a marvellous job in rebuilding the roof of the 16" but there is a lot more that will be needed to keep it operational over the coming years. The 11" shed is also aging and needs maintenance. The work over the past years on the 14" show that if we ignore this they become major pieces of work needing time, money and resources to fix. So we urgently need a continual maintenance and replacement programme and that is the undertaking of this important task. And it is not just a task for this year or next, but over the next 3-5 years and beyond. The programme and plan should be one that future committees can continue to work to as well.

We will share the plans and proposals for these works as we progress in your CASMAG and I will give you regular updates via our monthly meetings too.

Don't forget we have plenty to keep you engaged this winter so do get out to the observatory and use YOUR facilities. Any member of the committee can advise you on access. Better still come along on a training or social night and get involved. We always look for volunteers on our open nights too and they are great opportunities to get some telescope time in too!

A reminder we have Kidsfest coming in July (1-16th) and our Mid Winter/75th Birthday Party too coming up on 19th August! So stay tuned to the website and CASMAG for updates.
Kind regards
Simon
CAS President

*Selwyn Connect Article*

PAGE 26 SELWYN Connect Times ASTRONOMY

## Star Gazing in Selwyn with the Canterbury Astronomical Society

**Archaeological records show that astronomy is one of the first natural sciences developed by early civilisations all over the globe. Ancient astronomers could perform only limited investigations of the sky, using rudimentary aids to the human eye. Even so, humankind had already begun mapping the movement of the positions of stars and planets, but this was not driven by curiosity alone. Monitoring the motions of celestial objects was the best tool to track time, which was fundamental for the timing of agriculture activities, religious rituals, and played a huge part in guiding our navigation across the vast Southern Ocean.**

In our modern, technology driven world, we tend to overlook these, but at times during our year long trip around the sun we are sometimes quietly reminded of our past. As we approach Matariki, marking the start of the Māori New Year, we are reminded again of our ties to the sky as this event is signified by the reappearance of the Matariki star cluster above the eastern horizon. This marks a time to reflect on the past, celebrate the present, and making plans for the future.

Wintertime is a great time for astronomy as our nights are long and our milky way returns to our view, covering a wide arc over our heads in the winter night sky. There is something wonderful about looking up at this majestic sight on an icy, moonless winters night. It really is some of the best skies in the world for astronomy.

It has been an unusual time over the past years with La Nina and the warm, cloudy winters we have had. But this is on the change, and we are now likely heading to an El Nino phase which usually brings colder, more traditional winter like conditions that have sadly been missing these past years. Here's hoping for some cold icy Friday nights!

Star gazing in Canterbury has a long history and the Canterbury Astronomical Society (CAS) has played an active role in promoting this science since its formation. CAS was originally formed in the late 1800's, the exact details of our early history lost in the mists of time. Our current society was reformed in 1948 and today has over 250 members from all ages and walks of life, from across the region and beyond.

The primary aim of our society is the promotion of astronomy through public education and our open night programmes, as well as providing education and observatory facilities for our own members. We have strong ties to the local community and are very well supported by Selwyn District Council and educational establishments such as the University of Canterbury.

CAS is a not-for-profit organisation meaning we rely heavily on income from memberships, from our open nights and public events and from donations, to maintain our facilities and education programmes. Many of our larger telescopes have been acquired using grants and donations from generous benefactors.

The society owns a well-equipped observatory located in West Melton and is designated a dark sky zone by the Selwyn District Council. This facility is available for our members use and we run regular training and education sessions for newcomers to get to grips with our telescopes.

We have an active junior's programme, affectionately known as 'CAStronauts' and run practical training for them at the observatory a couple times a month. We also have a regular Monthly meeting at the University of Canterbury where we catch up and have a guest speaker present to the meeting.

Of course, there is nothing better than getting together with friends under the stars and we have an active social programme too, with meetings at the observatory, star parties where we camp and enjoy the night sky together and our world famous(!) Star BBQ's running throughout the year. We are very family orientated and welcome astronomers of all ages.

A large part of our winter activity is running our public open nights known as 'outreach'. We open to the public every Friday (weather permitting!) from the end of daylight savings in April until September each year. Over 5000 visitors come to CAS annually and experience a night under the stars, many are repeat visitors, coming back year after year.

Open nights are a fun, and very affordable, evening out for all the family. We start off with a short brief on the night's events, followed by a laser tour of what we can see in the night sky, and some telescope time on one of the many fixed or portable telescopes CAS operates. Our open nights receive great reviews, and our society received a Selwyn Award for Tourism coming highly recommended for families with a budding astronomer in their midst!

You can buy tickets for our open nights on Eventbrite and entry is by prebooked ticket only. You will also find us open during Kidsfest where we run every evening (also weather permitting) with a programme aimed at the younger astronomers. If you are interested in further information on CAS, details of our memberships or open nights then you can find us at cas.org.nz. We look forward to welcoming you at CAS soon and sharing a night under the stars together.

Simon Lewis Canterbury Astronomical Society

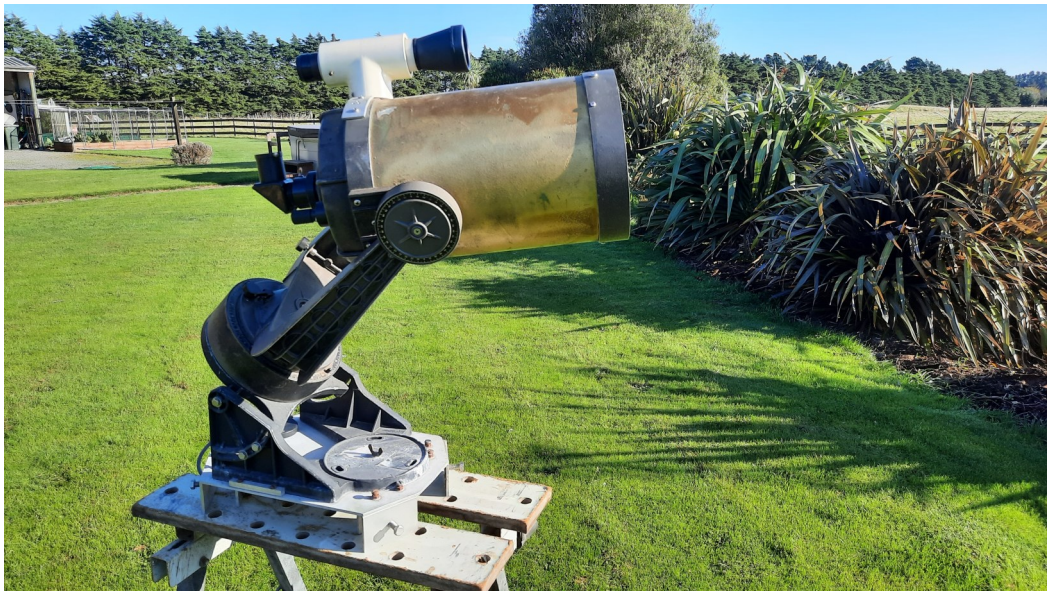
# CELESTRON C8 DONATED SCOPE FOR AUCTION

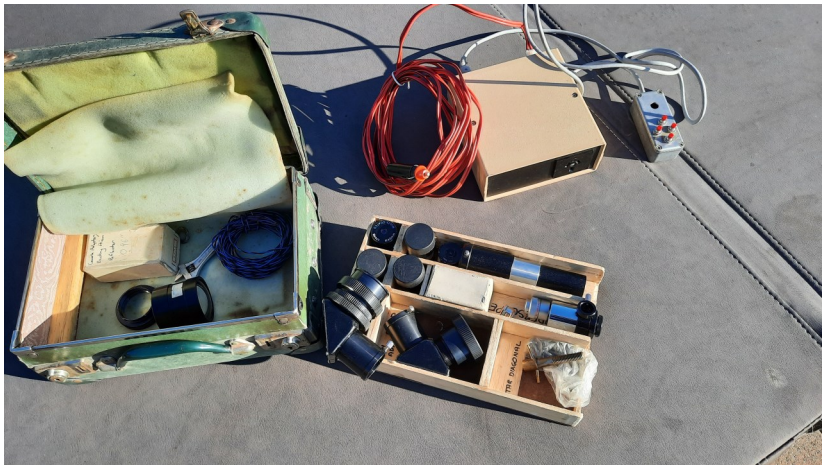
We have been donated a Celestron C8 which we would like to offer to our members.
I have cleaned this scope up, Looks a bit rough but a goodie.
Nice sharp images and collimation is good.
This is a manual fork mounted scope with mains operated synchronous motors for tracking in RA.
There is a box that plugs into 12 volts and drives the motors with push buttons for fast and slow.
Comes with assorted eyepiece, visual back with star diagonal and also a rich field adapter (Focal reducer)
Home made finder but works ok
No Tripod but will clamp onto a level table is quite stable.
Packed with all accessories in an aluminium trunk.

**This will be for auction at the July Members meeting.**

It will be auctioned (cheap) so anyone who wants can have a chance to get it.

Terry Richardson
Cas Vice-President





If you have any questions please email Terry

vice.president@cas.org.nz

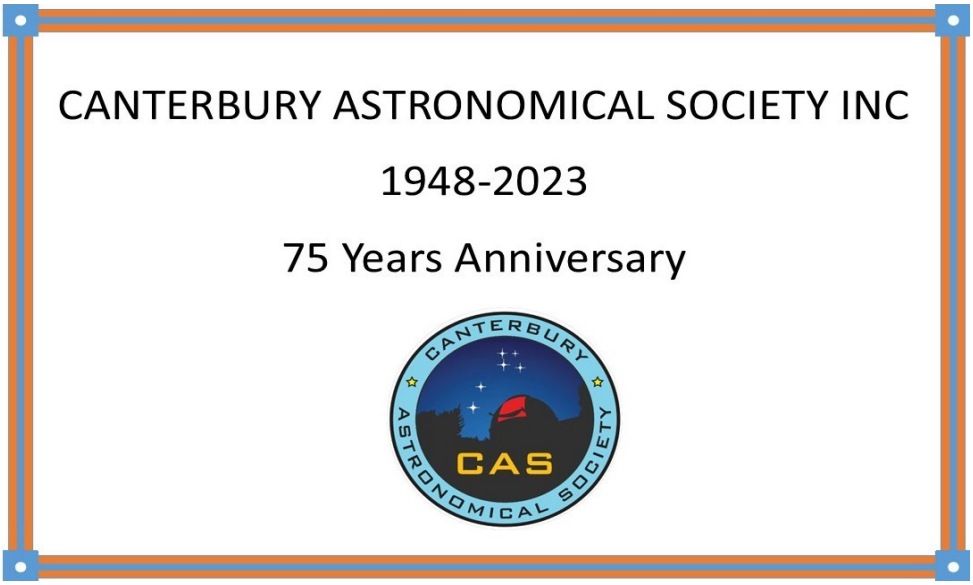
# CANTERBURY ASTRONOMICAL SOCIETY 75TH ANNIVERSARY 2023

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 this 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 this 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 $3.00



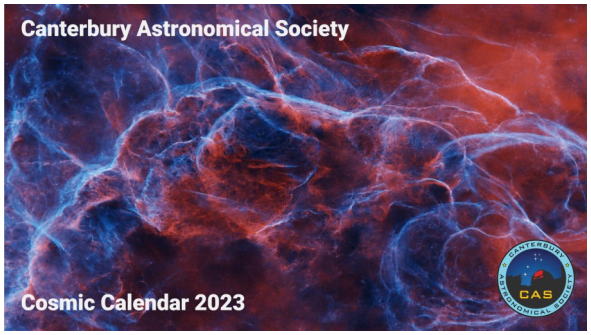
***These are all black ink and with a variety of barrel colours***

## STAINLESS DRINK BOTTLES: $15.00 with flip top 750ml

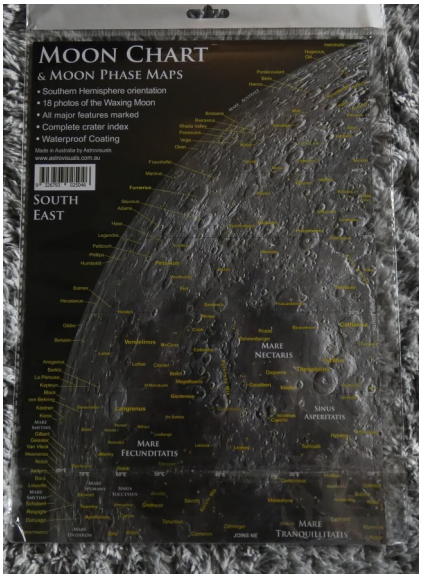

## 2023 CAS COSMIC CALENDAR:

## NOW $8.00 EACH ~~$15.00~~

**All new 12 photos taken by our Own CAS Members**




## MOON CHART




**8 sheets showing Moon phase maps, with waterproof coating.**
**$15.00**


## DOUBLE –SIDED PLANISPHERE FOR SOUTHERN HEMISPHERE

**$20.00**


## SUN-DISK KIT, $25.00

**Make a sundial at home**

## CAS CLOTHING RANGE

**Waterproof Stickers New TYPE** with our logo are also available $2.50 each
**CAS Beanies:** Now in stock. Wool Blend Beanie with the CAS logo $20.00
**CAS Sew-On LOGO Badges:** Now in stock $10.00 each
The following we will take orders and then order the items, 1-2 weeks Delivery from order) We have some 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



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# HORORATA NIGHT GLOW EVENT

Simon and Mandy ready for the gates to open to the public

# HORORATA NIGHT GLOW EVENT

## Photos from our stand at the Night Glow event held 13th May.

Simon, Terry, Kieren, Mandy, Orlon and Dale had a great afternoon/evening showing folks objects via the scopes and selling merchandise and some new memberships.

*Note: Lots of folks still do not know about CAS, this makes these events worth-while to inform them about CAS.*

<<<<<NASA Weather Balloon which was launched that day with Air NZ plane photobombing it, Taken by Orlon Petterson looking through his scope

# HORORATA NIGHT GLOW EVENT cont

The theme was “Make your stand Glow”


*Photos: Mandy Heslop & Dale* Kershaw

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

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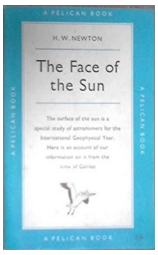
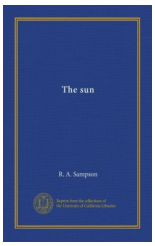
***Remember to mention you are a CAS Member when ordering***

# LIBRARY CORNER

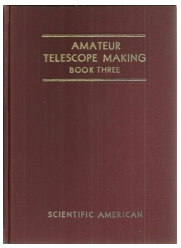
Our CAS Librarian, Sean has been working through our library at the Observatory, sorting the many donated books, filing those returned to the shelves, often finding 2 and sometimes 3 copies of the same book.
Along with a general tidy up. While doing this he has discovered that we have multiples of some copies, and the committee has agreed that we offer these to our members on a no return basis. (when you have finished with it (if ever) pass it onto someone else who will enjoy it).
Books will be listed in future casmags and can be claimed for adoption by emailing Sean at librarian@cas.org.nz.




## This Months Books for Adoption are:

1. The Face of the Sun by H W Newton
2. The Sun by R A Sampson
3. Scientific American Amateur Telescope Making Book 3
4: Sky Watch Star wheel




## New Book added to Library this Month:

Guide to the Planets by Patrick Moore

If you are interested in any of these books please email Sean which book/s you are after and he can organise getting the book/s to you
(1st in gets the book)

***Remember these are not for return to the library***

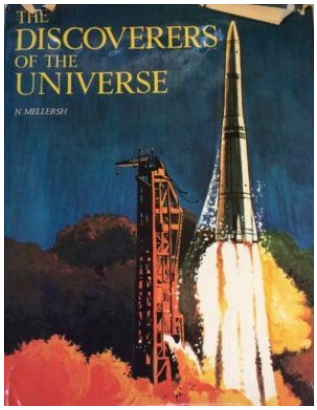
We will publish a new list each month for adoption

As we have had many generous donations of books over the years to avoid double ups and disappointment.

*Please note if you or your family wish to donate books please contact Sean before hand, so he can advise the best plan for this.*
*Email Sean @ librarian @cas.org.nz*

## LIBRARY CORNER cont BOOK/DVD REVIEW
## Welcome to the BOOK/DVD REVIEW Page

Each month I am asking for Book/DVD reviews from our members.
It only needs to be several lines, but mostly about some of its content and your thoughts,
*Please email your review to editor @cas.org.nz*




## The Discoverers of the Universe

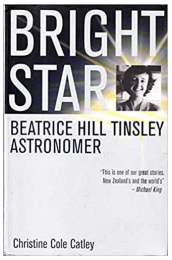
N Mellerish
Catalogue number 520.922 Mel.

*Review By Terry Richardson*

This book looks at all major advances in understanding the universe from the first Babylonian observations and theories, to man walking on the moon.
It is told as a series of biographies of philosophers and astronomers each of whom single handedly made significant advances in understanding of our solar system and the universe from Aristotle to the rocketeers of the 20th century.
This is a small illustrated and rather simple book, more suitable for young people, but is full of interesting stories and facts of general interest. It is old (published in 1970) but well covers the development of our knowledge of the solar system and the universe and how the science has grown from one discovery to the next.
This is a smallish book and easy to read. There is plenty of detail, but presented in a very readable and simple clear text. There are no mathematics but there are some diagrams to explain concepts such as parallax etc.
I can thoroughly recommend this book for readers of all ages.

*So please send in some reviews to be published,*
*We have fantastic library out at the observatory and its there for you the members to make the most of.*

## Welcome to the BOOK/DVD REVIEW Page




2nd Book Review for this month
From Heather

## Bright Star, Beatrice Hill Tinsley

I have just finished reading this book and have marvelled at what a dedicated astronomer/ astrophysicist she was. She was not interested in viewing,-- looking through a telescope, but she got facts together, put them together to come up with answers to some of the great questions that thanks to her, we take for granted today. She did research into the Origins of galaxies and the universe, and how galaxies change.. She was from NZ and did most of her research in the US. She was a teacher who had all the time in the world, [while she was alive] for her students, and was still doing research and had time for her students even when she was on her death-bed dying from cancer.. She treated her students as equals and involved them in discussions with some of the great minds of the time.. She married young and regretted it;- that was what was expected at that time; she also adopted two children but Beatrice was the one who made all the sacrifices for childminding and accommodating for when her then husband was away for long periods of time doing his own research. She felt totally frustrated and 'shackled' about not being able to pursue her own research and always putting her husband and children first. Beatrice made sure children were taken care of with child-minders and schooling. She did not spend a lot of time with them herself but it took a lot of her time to arrange everything for them. She was getting ill with all this and knew it could not go on, so she decided to leave her husband and children on a Christmas day, thinking that they would be happy opening their presents. She later, had much closer relationship with her children especially her daughter. She was also a musician and played violin and chamber music with others. She loved nature, was a feminist, and I think, had to work that much harder as it was not so recognised for women with great minds in the field of astronomy and science. She was also involved in family planning and believed in zero population growth. Beatrice Hill Tinsley died of cancer from a melanoma in 1981 at the age of 40.. She devoted every minute she could to her passion of astronomy… Heather….

*Editor: Nice to have 2nd review on a book from a different perceptive*

# 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
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, nebulas and galaxies.
Ray Pointon
rpointon@cyberxpress.co.nz

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# QUOTES OF THE MONTH

*"I don't know anything with certainty, but seeing the stars makes me dream."*
*— Vincent Van Gogh*

*"The difference between genius and stupidity is that genius has its limits".*
*—Alexandre Dumas.*

*"Sometimes I feel like I'm parked diagonally in a parallel Universe".*
*—The Heinlein Society.*

*"Success is no accident. It is hard work, perseverance, learning, studying and most of all, love of what you are doing or learning to do".*
*—Pelé (Brazilian soccer player)*

*Quotes sourced from RASNZ Newsletter*

# 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

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## 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.

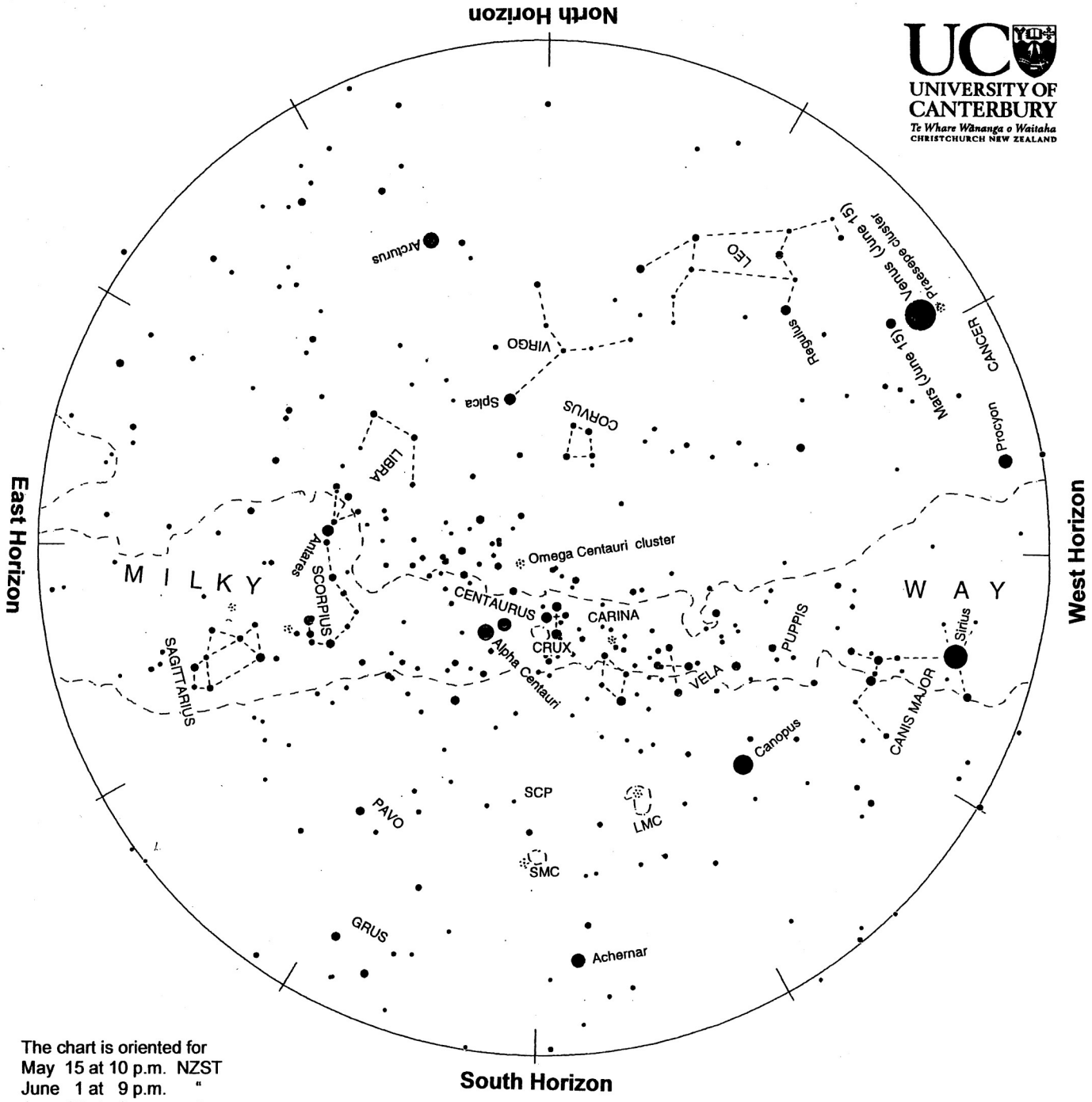
Any accredited member can get access to the keys,

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*

# EVENING SKY IN MAP FOR JUNE 2023




The chart is oriented for
May 15 at 10 p.m. NZST
June 1 at 9 p.m. "
June 15 at 8 p.m. "
July 1 at 7 p.m. "

## Evening sky in June 2023

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 shift each night as we orbit the sun.

Brilliant Venus appears low in the northwest soon after sunset. It sets after 8 pm. Mars looks like a medium-brightness red star just above Venus. Sirius, the brightest true star, twinkles colourfully in the west. It sets in the southwest after 8. Canopus is in the southwest, swinging down to the south skyline later in the night. South of overhead are the Pointers, Alpha and Beta Centauri, with the Southern Cross (Crux) to their right. The Scorpion, on its back, is midway up the east sky with the Sagittarius teapot below it. Orange Arcturus is low in the north, often twinkling red and green. The bright planets Saturn, Jupiter and Mercury are in the late night or dawn sky.

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

## The Evening Sky in June 2023

**Venus** is the brilliant 'evening star' appearing low in the northwest soon after sunset. It sets after 8 pm. It is now at its largest angle from the Sun as it catches up on the Earth. It is bright enough to see by eye in daylight, if you can get your eyes focused on infinity. Around 3:30 pm it is due north and about 30˚ above the horizon. That's about 1½ hand-spans at arm's length. On the 22nd the thin crescent Moon will be 4˚ (8 Moon diameters) below Venus in the afternoon and beside Venus at dusk. Around the 13th-14th Venus will be just below the Praesepe or Beehive star cluster. Venus isn't impressive in a telescope, looking like a tiny featureless crescent Moon.

**Mars** appears as a medium-brightness reddish star above and right of Venus when the sky is dark. Over the month the gap between the two planets gets smaller. On the 2nd and 3rd Mars will be crossing the Praesepe star cluster, nicely seen in binoculars. Venus and Mars appear close in the sky but are at very different distances from us. At mid-month Venus is 93 million km away and Mars is 315 million km away.

**Sirius**, the brightest true star, appears in the west soon after sunset. It sets in the southwest around 9 pm, mid-month, twinkling like a diamond. **Canopus**, the second brightest star, is in the southwest. Canopus is a 'circumpolar' star: it circles the South Celestial Pole (SCP on the chart) clockwise but never sets from Aotearoa NZ.

**Arcturus** is the brightest star in the north sky. Its orange light is often split into red and green when it is low in the sky. Arcturus is relatively close at 37 light-years from the Sun. It appears bright because it is 170 times brighter than the Sun.

**Crux**, the Southern Cross, is south of the zenith. Beside it, and brighter, are Beta and **Alpha Centauri,** often called 'The Pointers' because they point at Crux. Alpha Centauri is the closest naked-eye star, 4.3 light years* away. Beta Centauri and three of the four brightest stars in Crux are hot, extremely bright blue-giant stars hundreds of light years away.

Orange **Antares**, high in the eastern sky, marks the body of Scorpius the scorpion. It is a red giant star: 600 light years away and 19 000 times brighter than the sun. The scorpion's tail, upside down, curves off to the right. Below Scorpius is **Sagittarius**, its brighter stars making 'the teapot'.

The **Milky Way** is brightest and broadest in the southeast toward Scorpius and Sagittarius. It remains bright but narrower through Crux and Carina then fades in the western sky. 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. A scan along the Milky Way with binoculars will find many clusters of stars and some glowing gas clouds. Relatively nearby dark clouds of dust and gas look like holes and slots in the Milky Way. The dust, more like smoke, comes from old red-giant stars like Antares. These clouds eventually coalesce into new stars.

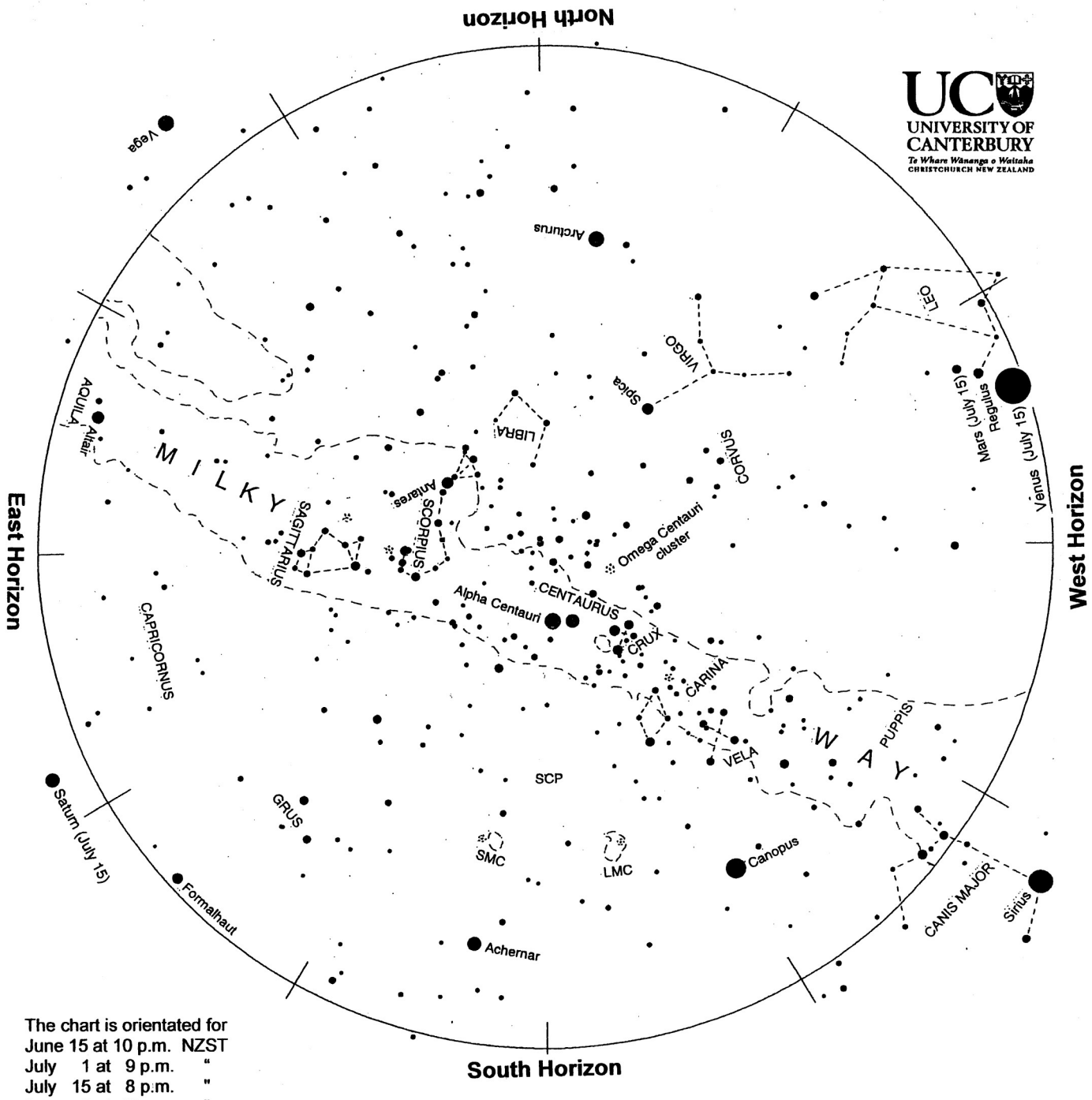
The Clouds of Magellan, **LMC** and **SMC**, in the lower southern sky, are luminous patches easily seen by eye in a dark sky. They are two small galaxies about 160 000 and 200 000 light years away. They are much smaller than our galaxy but still contain billions of stars.

Bright planets are in the late night or morning sky. Saturn rises due east before midnight at the beginning of the month and around 10 pm at the end. It has a cream tint and is the brightest 'star' in an empty region of sky. By dawn it is north or northwest of the zenith. Golden Jupiter rises around 4:30 a.m. at the beginning of June; around 3 a.m. at the end. It is the brightest 'star' in the morning sky. By dawn it is high up the north-east sky. At the beginning of the month Mercury rises around 5:30, below and right of Jupiter. It sinks lower. On the 14th Mercury will be 7˚ (a binocular field width, roughly) to the right of the Matariki/Pleiades star cluster, rising around 6:20.

*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.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz 230503

# EVENING SKY IN MAP FOR JULY 2023




The chart is orientated for
June 15 at 10 p.m. NZST
July 1 at 9 p.m. "
July 15 at 8 p.m. "
Aug. 1 at 7 p.m. "

## Evening sky in July 2023

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.

Venus is the brilliant 'evening star' appearing in the northwest soon after sunset. Reddish Mars, much fainter, is near it. Late in the month Mercury moves up the twilight sky and appears alongside Venus. (Mercury isn't on the chart.) Saturn rises due east after 10 pm at the beginning of the month; around 8 at the end. Low in the north is orange Arcturus, often twinkling red and green. The Pointers and Crux, the Southern Cross, are south of the zenith. Sirius, the brightest true star, sets in the southwestern twilight, sparkling colourfully. Canopus, the second brightest star, is low in the southwest. It swings down to the southern horizon later. Vega rises on the opposite horizon around 9 pm.

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

# The Evening Sky in July 2023

**Venus** is the brilliant evening star, appearing in the northwest soon after sunset. It is beginning to fall lower in the twilight as it moves between us and the Sun. At the beginning of July it sets around 8:40. By the end of the month it is setting an hour earlier. Though bright, Venus isn't of much interest in a telescope, looking like a tall thin white crescent. It is 60 million km away, mid-month.

At the beginning of the month **Mars** appears as a medium-brightness reddish star above and to the right of Venus. At that time the star Regulus will be on the top end of the Venus-Mars line and similar in brightness to Mars. Regulus moves down the sky, night to night, making a close pairing with Mars around the 10th. Mars holds its position as Venus and Regulus set earlier. On the 13th Venus, Regulus and Mars will be in a line. The Moon will be near the two planets and star on the 21st. Mars is 343 million km away mid-month, so is just a tiny disk in a telescope.

**Saturn** is up late in the evening. It rises after 10 pm at the beginning of the month; around 8 at the end. It looks like a medium-bright star, due east, all on its own. The near-full Moon will be above Saturn on the 6th and below it on the 7th. By dawn Saturn is northwest of the zenith. Saturn is 1350 million km away mid-month. It is worth a look in any telescope but might be fuzzy when low in the sky. The ring can be seen at 20x magnification. Saturn's largest moon, Titan, appears as a star four ring-diameters from the planet.

**Mercury** begins its best evening sky appearance of the year in the third week of July. On the 15th it will be well below and left of Venus, setting 50 minutes after the Sun (so it is not on the chart.) On the 29th it will be 5˚ (a binocular field width) right of Venus, making a close pair with Regulus. The crescent Moon will be below Mercury on the 19th.

**Sirius,** the brightest true star, sets in the southwest as twilight ends, twinkling like a diamond. **Canopus**, the second brightest star, is also in the southwest at dusk. It swings down to the southern skyline before midnight then moves into the southeast sky in the morning hours. It is a 'circumpolar star': seen from NZ it never sets. Canopus is a truly bright star: 13 000 times the sun's brightness and 300 light years* away.

South of the zenith are 'The Pointers', Beta and **Alpha Centauri**. They point to **Crux** the Southern Cross on their right. Alpha Centauri is the third brightest star in the sky. It is also the closest of the naked eye stars, 4.3 light years away. Beta Centauri, like most of the stars in Crux, is a hot blue-giant star hundreds of light years away. Crux and the Pointers are also circumpolar.

Midway down the north sky is orange **Arcturus**. It sets in the northwest around midnight, twinkling red and green as it goes. It is the fourth brightest star and the brightest in the northern hemisphere sky. It is 120 times the sun's brightness and 37 light years away. It has an orange colour because it is cooler than the sun; around 4000˚C. **Vega** rises in the northeast around 9 pm. It is on the opposite side of the sky to Canopus: low in the north when Canopus is low in the south.

The **Milky Way** is brightest and broadest in the east toward **Scorpius** and **Sagittarius**. In a dark sky it can be traced up past the Pointers and Crux, fading toward Sirius. 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 is hidden by dust clouds in space. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds.

Jupiter is the brightest 'star' in the morning sky. It rises after 3 a.m. at the beginning of the month and around 1:40 a.m. at the end. By dawn it is midway up the north sky. Jupiter shines with a steady golden light, rarely twinkling. Any telescope will show Jupiter as an oval disc with its four big 'Galilean' moons lined up on either side. The Moon will be near Jupiter on the morning of the 12th.

*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.

Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz 230518

# EASTERN DAWN SKY IN JUNE

MATARIKI/PLEIADES INFORMATION

Eastern Dawn Sky in June 2023

This chart is intended for skywatchers who want to find the Matariki/Pleiades star cluster in the dawn sky.

The Matariki/Pleiades/Subaru cluster is quite faint. So even in a dark sky it has to  Be well above the horizon before it is visible. It is also easily hidden by twilight, bright moonlight and artificial light. The need for some elevation and not too much twilight means the cluster is hard to see till mid-June.

As the Earth moves around the Sun the Sun appears to move against the background stars. We can't see the stars in the daytime so the movement isn't obvious. What we see is the stars being a little further west each night. Because of the tilt of Earth's axis to its orbit the Sun's track is tilted on the sky.
At this time of year the Sun is near its most northern position, our winter solstice.

The Matariki/Pleiades cluster is near the Sun's track so it disappears into the Western evening twilight in March as the Sun approaches it. It remains hidden through April and May as the Sun passes it by.
It reappears in the eastern dawn sky as the Sun moves east of the cluster, or downward and away in our dawn-sky view.
This happens everywhere in the world as the Sun's track is near the cluster.

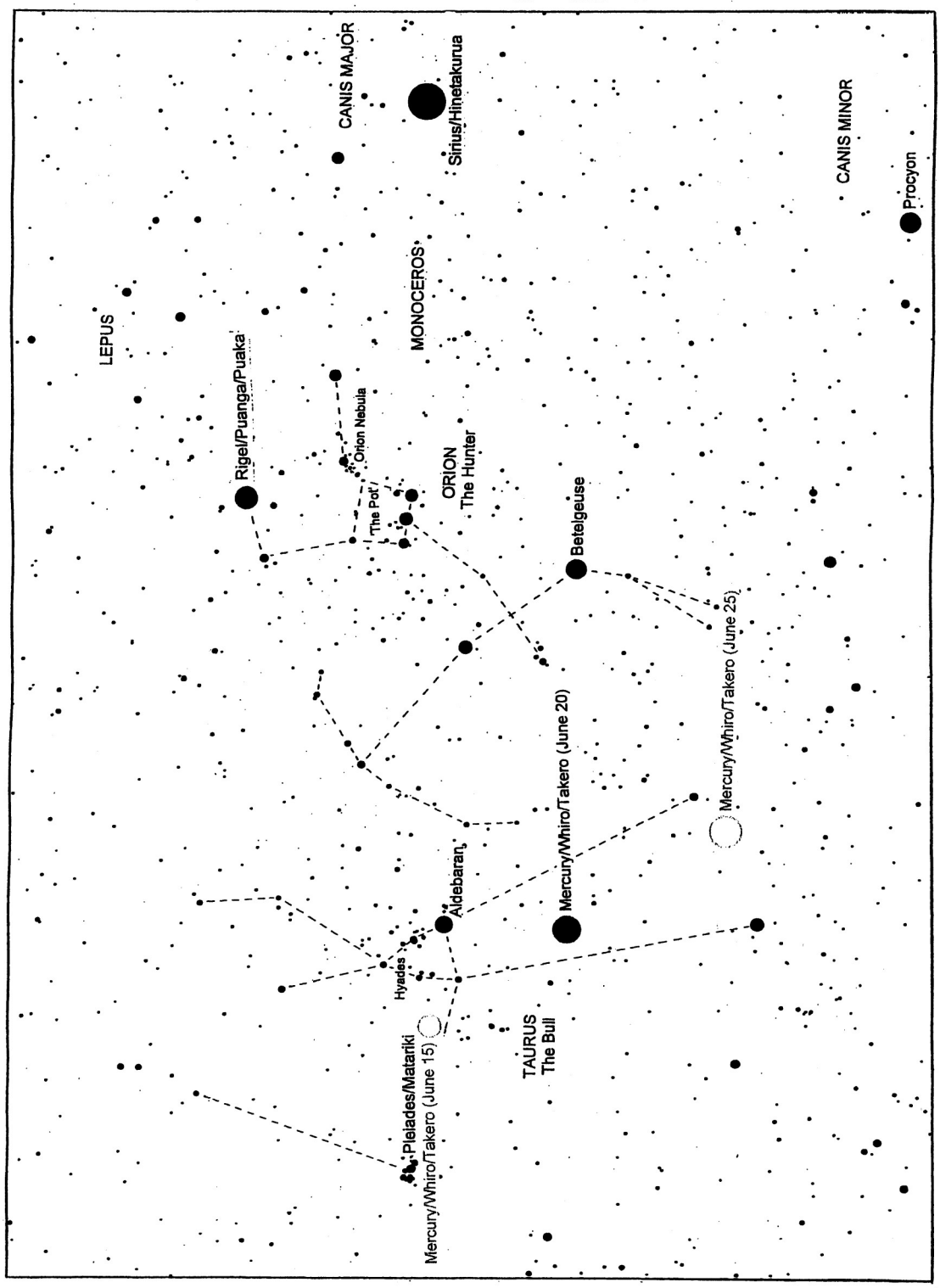
Because the cluster reappears in mid to late June it makes a good marker for the southern winter solstice, our shortest day.

The planet Mercury/Whiro/Takero appears as a bright 'star' to the right of the Matariki cluster on June 15th. Whiro is brighter than all the true stars in the region except Hinetakarua/Sirius. Whiro slips down the sky morning-to-morning and brightens. It disappears in the dawn twilight before the 25th
.
The thin crescent Moon will be just above Matariki on the morning of June 16th .

Alan Gilmore 4 April 2023

Map on next page

# MAP FOR EASTERN DAWN SKY IN JUNE 2023




**Eastern Dawn Sky in June 2023**

The chart shows the eastern sky at dawn in June 2023. Puanga /Puaka/Rigel is first up. It is followed by Hinetakurua/Sirius, Tautoru/ Orion's belt and sword, a.k.a Te Kakau a Māui or The Pot, Taumata-kuku/Aldebaran and Matariki/Pleiades which all rise together. However the Matariki star cluster is faint, so it needs to be well above the horizon before it is visible to the eye. It is not seen by eye before June 14. This year the planet Mercury/Whiro/Takero is to the right of Matariki on the 15th. Mercury is brighter than all the other nearby stars except Hinetakurua/Sirius. Mercury slips lower morning to morning, disappearing in the dawn twilight before the 25th.

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

# CAS COMMITTEE AND OFFICERS 2022/2023

| | | |
|---|---|---|
| Public Group Bookings | | bookings@cas.org.nz |
| President: | Simon Lewis | president@cas.org.nz |
| Vice President: | Terry Richardson | vice.president@cas.org.nz |
| Treasurer: | David Brian | treasurer@cas.org.nz |
| Secretary: | Mandy Heslop | secretary@cas.org.nz |
| Observatory Director: | Kieren Eden | observatory.director@cas.org.nz |
| Editor: | Dale Kershaw | editor@cas.org.nz |
| Membership Secretary: | Dale Kershaw | membership@cas.org.nz |
| Librarian: | Sean Mullis | librarian@cas.org.nz |
| Web Master: | Marc Bunyan | casweb@cas.org.nz |
| Committee Members: | Carol McAlavey | member2@cas.org.nz |
| | Goran Balvan | member5@cas.org.nz |
| | Orlon Petterson | member4@cas.org.nz |
| | Ray Pointon | member3@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, subscripton must accompany application)***

**Online Banking Details (Please identify your payment):** 03 0802 0098273 00

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

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