Wellington Astronomical Society May 2015 Volume 45 Issue 4
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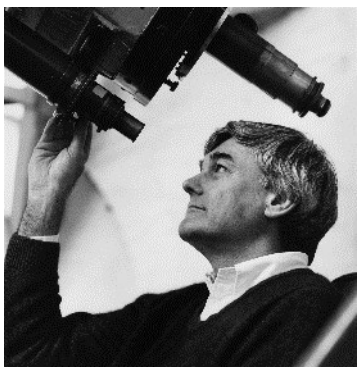
The next WAS meeting will be held on Monday 4th May 2015 at 7:30 pm at Carter Observatory, Upland Rd, Kelburn, Wellington

"VARIABLE STARS AND THEIR STORIES" STELLA KAFKA

Variable stars have always been the most intriguing (and fun) targets for observers, professional and amateur alike. Stellar variability, both intrinsic and extrinsic, provide unique insights in critical stages of stellar evolution, help determine distances to nearby galaxies and add to our understanding of explosion physics and chemical enrichment of the Milky Way. I will introduce some of the most common aspects of stellar variability and their significance in astrophysics. I will also discuss their common light curve identifiers, and present work by AAVSO observers that has lead to cutting-edge scientific discoveries throughout the years.

Stella Kafka has a BS in Physics and PhD in Astrophysics. She has held post-doctoral fellowships and appointments at the Cerro Tololo Inter-American Observatory in Chile, at NASA's Spitzer Science Center (Caltech), and the Carnegie Institution of Washington. She also worked at the American Institute of Physics's publishing group, before joining the AAVSO in February 2015, as its new Director.

RASNZ BEATRICE TINSLEY LECTURE AT TE WHARE APARANGI, ROYAL SOCIETY OF NEW ZEALAND, 11 TURNBULL STREET, THORNDON, WELLINGTON MAY 15TH AT 6:00 PM. FREE ADMISSION



The RASNZ Lecture Trust Inc. is pleased to advise that this year's Beatrice Hill Tinsley Lecturer is Professor Gerry Gilmore. He is Professor of Experimental Philosophy at the Institute of Astronomy, Cambridge University, UK. Additionally, he is Scientific Coordinator of Opticon: the European Union Co-ordination Network for Optical Infrared Astronomy, and UK Principal Investigator of the Gaia data processing consortium. He gained his PhD at the University of Canterbury, NZ. For more information check out the following link:

http://rasnz.org.nz/rasnz/beatrice-hill-tinsley-lectures

Gaia: mapping the Milky Way from space

Gaia is the European Space Agency mission which is currently creating the first ever 3-D census of the Milky Way. Gaia's giga-pixel camera is mapping over one billion stars to a precision comparable to resolving a button on the moon. Gerry Gilmore who is UK Principal Investigator for Gaia, and leads the team processing Gaia's imaging data, will explain what Gaia is, how it is delivering a 12-Dimensional map of the Milky Way, and give some personal views on life inside a billion-euro project. http://gaia.ac.uk/

Inside this issue:

PRESIDENTS REPORT MAY 2015: GORDON HUDSON

The month of April has been a busy time for Astronomy being the Global Astronomy Month with events happening at various times. (See another page in the newsletter).

Matt Visser's talk on Cosmology has been postponed until October so we have not missed out on his presentation.

Next month's talk will be by Stella Kafka who is the Director of the AAVSO (American Association of Variable Star Observers). She will be talking to us about variable stars and their stories. For those of us interested in variable stars this is a talk not to be missed.

Stella has a BSc in Physics and a PhD in Astrophysics. She has held post-doctorate fellowships and appointments at the Cerro Tololo Inter-American Observatory in Chile and at NASA's Spitzer Science Center at Caltech University.

The WAS observing evening, which coincided with the Global Star Party on April 25th was reasonably well attended. The clouds cleared by 6pm and remained clear until about 10pm. I was unable to attend as Roland was at my place and we were trying to sort out the problem with my CCD Camera.

The membership cards were distributed to those attending members at the April meeting and these should be worn at all WAS meetings. Those of you who have not picked up your card would you do so at the next meeting.

On May 15th we have the Beatrice Hill Tinsley Lecturer, Professor Gerry Gilmore and he will be speaking to us at the Royal society Rooms at 6pm on Friday 15th May. There is no charge for this but we would like society members to wear their membership badge. Visit the RASNZ web site www.rasnz.org.nz as this is a RASNZ talk for the WAS society and is being organised by the Royal Society of NZ

Later in the year we will have Professor Chris Lintott visiting us and this will be a memorable occasion. Details for this lecture are still be confirmed so watch this space.

The WAS dome which has been stored at my place for the last 2 years is about to go to Tawa College. Work has begun on ground preparation for the piles and pier.

The Syd Cretney Bequest letter has been sent to the Lawyers and we are waiting their reply. If we are successful in our bid the Gifford Observatory will be our preferred place to house an automated Observatory. We are also in the planning stages with the Thomas King Observatory. However a request has come through asking for a budget for the Gifford Observatory setup and how we would spend the money. This may take some time to put together and therefore another delay is likely.

We are starting to acquire a rather a lot of items and as we are no longer able to store equipment, books, newsletters and other material at Carter it leaves us with a problem where to store stuff until we have a home of our own. Having acquired the Gun Bunker the WAS storage material is now stored in the bunker along with the RASNZ Archive. This is only for about 12 months though.

The volunteering at Carter is going well but it is mainly through the efforts of a couple of our members. We need more volunteers. We were unable to supply a volunteer for Saturday 25th April as we had our own observing evening at Tawa. Have you helped yet?

We assist on Tuesdays and Saturday evenings so put your hand up at the next meeting.

Finally the WAS observing evening once a month at Tawa College is struggling with lack of observers. Where are you all? The next observing evening at Tawa College is on Saturday 16th May starting at 6.30pm, a backup day is the following Saturday 23rd May.

WAS COUNCIL MEMBERS AND CONTACTS

Council Members

The following members were elected to Council at the Nov 2014 AGM

President: Gordon Hudson

gordon@kpo.org.nz ph 04 - 2365125

Vice President: JohnTalbot john.talbot@xtra.co.nz ph 04 293 4620

Secretary: Chris Monigatti

chrismon@xtra.co.nz mob 021 890 222

Treasurer: Lesley Hughes

Councilors:

Aline Homes

John Homes + Webmaster

Roger Butland

Frank Andrews

Murray Forbes

Antony Gomez

Duncan Hall

Newsletter Editor: editor@was.org.nz

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THE EASTER ECLIPSE: MURRAY FORBES

During the Saturday night/
Sunday morning of Easter weekend (4-5 April) a lunar eclipse took place. I've never actually seen a lunar eclipse before, as every other attempt to observe one has been frustrated by the weather. On Saturday afternoon, it looked like the weather gods were going to pick on me again as it was completely overcast and raining. However by 9pm I could see some gaps in the fast moving clouds with the moon occasionally peeking through. So I decided I'd give it a go. and started to set up my gear.

This gear was simply an ordinary 'point-n-shoot' camera peering through an eye-piece at the back of a Meade 8" telescope, with the camera held in place with an Orion SteadyPix.

I choose the widest-angle eyepiece that I had and was able to see the entire moon. Here is the first photograph that I took at 11:04pm NZDST, before the eclipse got started. I made-use of the camera's 10 second delay function to allow the shaking caused by pressing the camera button to die down before the photograph was actually taken.

It then clouded over again (groan!) so I went inside for a bit. About 45 minutes later I could see the moon again, with the eclipse well underway - see photo 2 I stayed outside snapping away with my camera every couple of minutes (when the cloud allowed) for couple of hours, until totality. I stopped at about 1am as I was starting to get a bit dizzy from lack of sleep.

My photos taken near/during totality didn't come out too well (see photo 3), showing the limitations of a 'point-n-shoot' camera that doesn't allow you manual control over focus or exposure duration. The view through the telescope using my mark-I eyeball was much better, as I could clearly see the features across the dark face of the moon with a faint red tint. I guess I need to start saving for a better (SLR) camera.

BLOOD MOON: EDWARD WILCOCK

The Blood Moon: Taken at 12:54 on the morning of the 5th of April by Edward Wilcock, a year 13 student at St Bernard's College, Lower Hutt

It was taken through my 12" GSO Dobsonian with a Canon 600D with an F-stop of f/4.6, ISO speed of ISO 6400 and an exposure of 1/6.

It was then processed in Adobe Lightroom to remove some of the noise created by the high ISO.

OCCULTATION NEWS

Occultation Observing from John Talbot

There were 2 positive events for March.

15 events were reported with clearly observed misses, several with 2 separate observers. Now that we are past equinox I hope the longer nights result in a few more reports.

Reports have been posted to:

http://www.occultations.org.nz/planet/2015/plnres15.htm

When sending Reports to me, please add a CC:

Director Occ Sec < Director@occultations.org.nz >

Jupiter Mutual Events

The Jupiter Mutual events season is now past its peak, and is down to a few events per week.

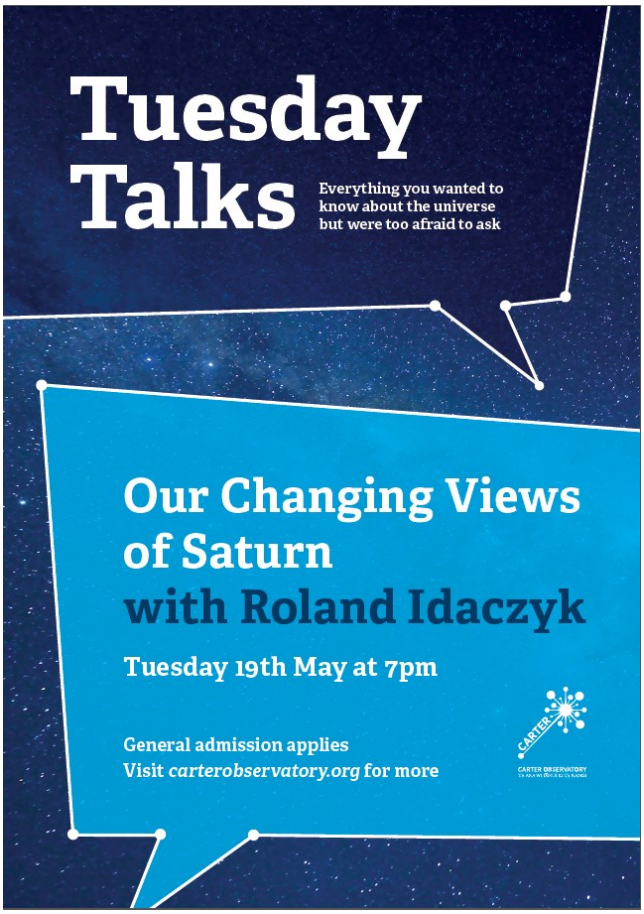
Check Occult Watcher or use Occult 4 for predictions. The Occult May predictions are shown below with the best event highlighted. This is a nice early evening event over in just about 5 mins so possible to observe visually!

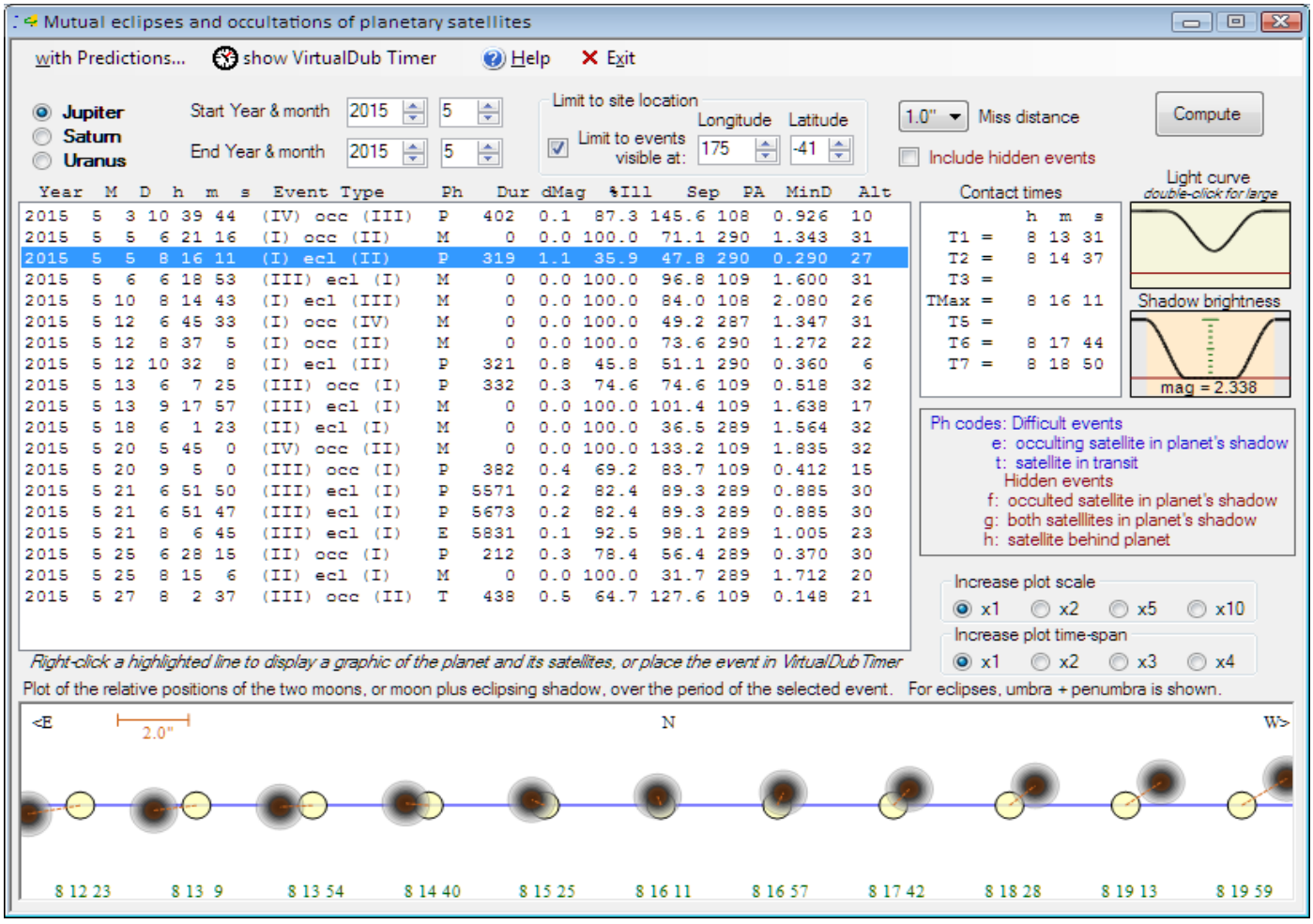
Steve Kerr, Director Occultation Section

RASNZ council has announced that Steve Kerr is the new Director of RASNZ Occultation Section.

An intro been posted to http://www.occultations.org.nz/aboutus.htm

When sending Reports to me, please add a CC: to Director Occ Sec < Director@occultations.org.nz >





MAY NIGHT SKY 2015

Three bright planets and the brightest stars share the evening sky this May. Soon after sunset brilliant silver Venus appears low in the northwest and golden Jupiter in the north. As the sky darkens Sirius, the brightest star, appears northwest of the zenith. Canopus, second brightest, is southwest of overhead. Midway up the southeast sky are 'The Pointers', Beta and Alpha Centauri.

By 8 pm, the time for this chart, Venus is near setting and Jupiter is in the northwest. Arcturus is rising in the northeast, often twinkling red and green as the air breaks up its orange light. Saturn, similar in brightness to Arcturus, is due east. To its right is orange Antares.

Below Sirius are bluish Rigel and reddish Betelgeuse, the brightest stars in Orion. Between them is a line of three stars: Orion's belt. To southern hemisphere star watchers, the line of three makes the bottom of 'The Pot', now tipped on its side. Sirius, 'the Dog Star', marks the head of Canis Major the big dog, now head down tail up in the west.

Crux, the Southern Cross, is southeast of the zenith, to the right of 'The Pointers'. Alpha Centauri, the brighter Pointer, is the closest naked-eye star, 4.3 light years* away. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light years away. Canopus is also very luminous and distant: 13 000 times brighter than the sun and 300 light years away.

Orange Antares, right of Saturn, marks the body of Scorpius, the Scorpion. Antares means 'rival to Mars' in Greek for the planet and star are often similar in colour and brightness. Antares is a red-giant like Betelgeuse; 600 light years away and 19 000 times brighter than the sun.

Arcturus, in the northeast, is the brightest red star in the sky but, at 37 light years, is much closer than Antares. It is about 120 times brighter than the sun. Arcturus is a fast-moving star. In 800 years it shifts a full-moon's diameter against background stars. That is because is moving across the common stream of stars like the sun orbiting in the Milky Way. It has this track probably because it originated in a galaxy that collided and merged with the Milky Way.

The Milky Way is brightest in the southeast toward Scorpius and Sagittarius. In a dark sky it can be traced up the sky 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 nearby outer edge is by Orion where the Milky Way is faintest. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds, particularly in the Carina region and in Scorpius.

The Clouds of Magellan, LMC and SMC, are midway down the southern sky, easily seen by eye on a dark moonless night. They are small galaxies. The Large Magellanic Cloud is 160 000 light years away and is about 5% the mass of our Milky Way galaxy. The Small Cloud is around 200 000 light years away and 3% the mass of our galaxy. That's still many billions of stars in each.

At the beginning of May Jupiter sets around midnight, reducing to around 10 pm by month's end. Jupiter is 810 million km away. It is always worth a look in a telescope. Its four big moons look like faint stars near the planet. One or two can be seen in binoculars if you can hold them steadily enough. All four are easily seen in any telescope magnifying 20x or more. The Moon will be near Jupiter on the 24th. Saturn is a great sight in any telescope with its rings now near maximum tilt. It is closest to us this month, 1340 million km away. Titan, its biggest moon, orbits four ring diameters from the planet. Three or four smaller moons can be seen in larger telescopes closer to Saturn.

Venus is 130 million km away. It is catching us up from the far side of the sun. In a telescope it looks like a featureless gibbous moon, half the size of Jupiter.

*A light year (l.y.)is the distance that light travels in one year: nearly 10 million million km or 1013 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.

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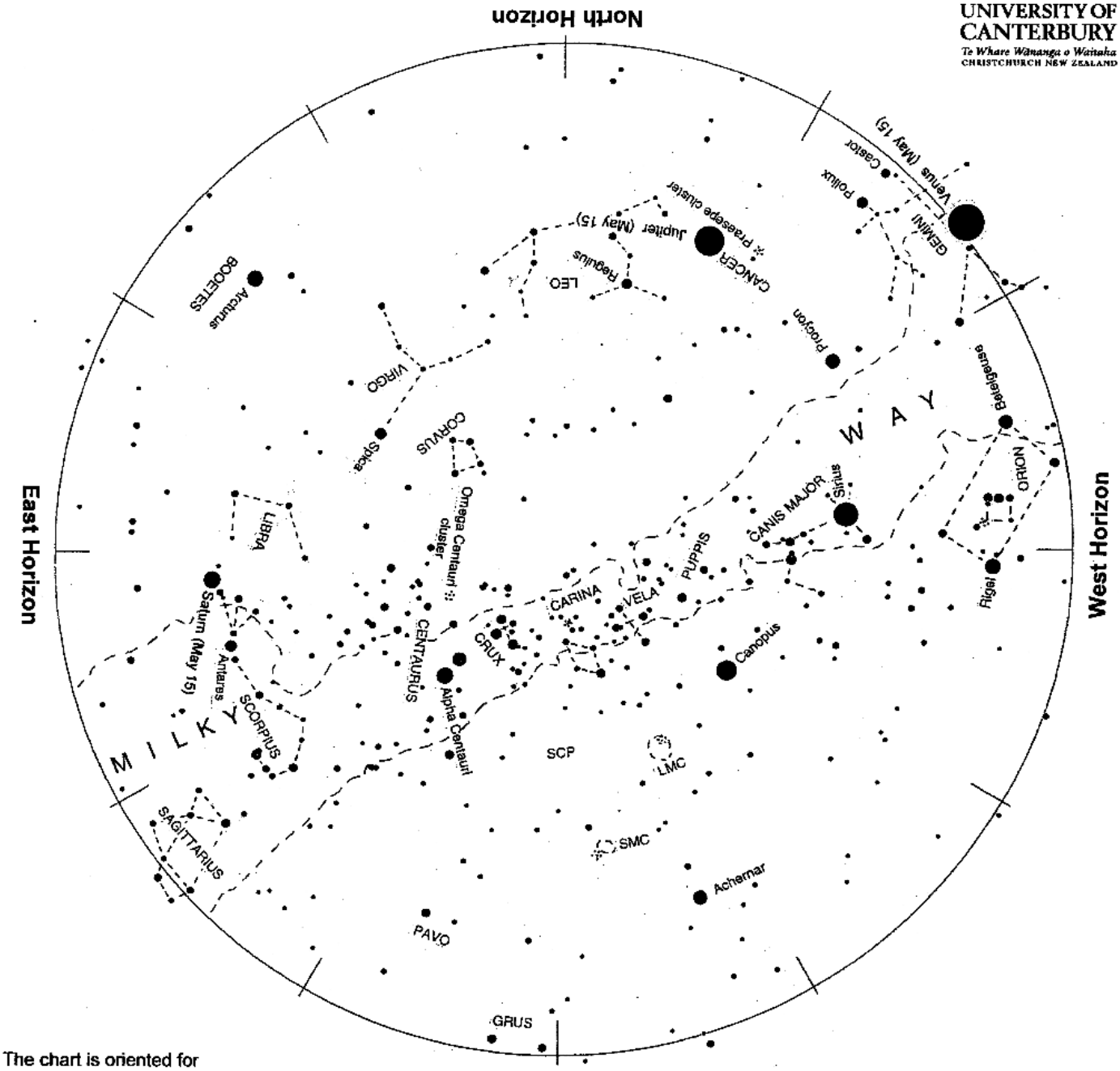
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND



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

Evening sky in May 2015

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.

Three bright planets are in the evening sky. Silver Venus is the 'evening star', seen in the northwest soon after sunset. Golden Jupiter appears in the north soon after. Saturn is bright in the east with orange Antares to its right. Sirius, the brightest true star, is midway down the western sky. Directly below it is Orion with bright stars Rigel and Betelgeuse, and 'The Pot'. Canopus is southwest of overhead. Low in the northeast is Arcturus, twinkling red and green. Crux, the Southern Cross, and the Pointers, Alpha and Beta Centauri, are southeast of the zenith.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore,
Mt John Observatory of the University of Canterbury. www.canterbury.ac.nz