

Newsletter

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**An Introduction to Digital
Astrophotography**
John Field

Recent development in digital cameras has allowed amateurs to take images that rival those taken by professional astronomers. Modified webcams can be used to take images of the Moon and planets and Digital SLR cameras can take wide field images of celestial objects. This presentation will look at the equipment, software and skills needed to take and process images of celestial objects.

**7:30pm Wednesday
5th of May 2010
Carter Observatory**

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04-2010

**Wellington
Astronomical
Society**





PRESIDENT'S REPORT FOR APRIL

April's talk at the new Carter Observatory was very well presented by Frank Andrews with the DVD he was talking over was created by our Newsletter Editor Hari Mogosanu.

This brilliant DVD will be for Sale and we should have a few copies at the next meeting.

Also for sale will be a Black & White magazine with images from most of the Astrophotographers through NZ and this will be available at the next meeting.

The weather has still not been kind to us when it comes to our society observing at the Pauatahanui Observatory.

However this all changed on April 17th with a clear sky. John Field was not available this time so Chris Mongatti and myself stepped in and ran the Observatory.

Ten people showed up and Chris brought along two of the Tawa College telescopes.

I left Patrick Sharp to run the WAS Meade telescope in the observatory and he did this very successfully even though he hadn't run it before.

Roger Butland showed up with his C8 and set up to monitor the seeing conditions at the site.

Seeing conditions are measured by

the size of the Star image you can record. The smaller the number like 1 arc sec is best the higher the number like 5 or 5 arc sec not so good.

The seeing conditions vary from night to night and so you need to monitor the conditions over a long period of time like a year is ideal. Roger was getting between 2 & 3 arc sec which is not too bad. Well done Roger.



Roger Butland and C8

The ST7 CCD Camera that WAS purchased recently is now at the KPO Observatory where it will be set up for Photometric Observing. Anyone wishing to be involved in learning about Photometric observing at the KPO should contact the President. Before we can do that we will need to invest in some Photometric Filters

We have found that the Pauatahanui Telescope will not be suitable as the ST7 camera when attached to the telescope should be left on the telescope set up. We are unable to do this at Pauatahanui because it is often used for visual observing and for Photography.

At the last committee meeting of WAS it was decided to purchase a set of UBVRI photometric filters. I haven't ordered them as yet but will do so soon.

The first meeting of the society at the New Carter Observatory was very well attended with 50 members turning up and a few new members.

Everyone was impressed with the new Carter and we look forward to a long and term relationship.



Happy observers at Pauatahanui



CARTER VOLUNTEERS



Remember we are now based at the New Carter Observatory and at the first meeting at Carter I called for volunteers to assist in the running of the very famous Thomas Cooke Refractor at Carter on Saturday evenings. Carter will be open to the public every Saturday evening and the Wellington Astronomical Society will be assisting in running this telescope and maybe another as well.

The response for volunteers was very encouraging and we have 15 names down as volunteers. Claire from Carter will be in touch by e-mail with each of you as to how the roster will work.

Remember we are getting the full use of these facilities for our meetings once a month for nothing.

When we were at the Royal Society Rooms we were paying up to \$1000 per year. So any contribution you make will be a huge saving for the society. So think of it as your contribution to help the society to save some money.

NACAA 2010 a brief report

I travelled to Canberra on Saturday of Easter weekend to attend two of the four days of the National Australian Convention of Amateur Astronomers (NACAA).

The first two days were mainly devoted to Variable Stars South and general astronomy but the days I attended were primarily aimed at people like me who are interested in Occultations.

One of the highlights for me was a talk by Dr Daniel Shaddock of the ANU and JPL Caltech about detecting gravity waves. He explained why earth based experiments have not yet had any positive results and how LISA, (Laser Interferometer Space Antenna), will be a gravitational wave observatory of 3 spacecraft in orbit around the sun about 20 degrees behind Earth, that should be sensitive enough to hear signals from practically anywhere in the known universe. Getting into space will eliminate the earth's seismic noise that masks any expected signals and allows very long (5,000,000 km) baselines to be used. Even then they will be looking for very small changes in the order of atomic dimensions.

April Crossword answers

Across;

3. TAURUS, *You don't want this constellation in a China shop*; 7. EQUINOX, *23rd September*; 9. LOKI, *volcano on Io*; 10. RUTHCRISP, *Carter Observatory's public telescope*; 11. DARWIN, *proposed theory of evolution*; 13. HALO, *angels and galaxies both have one*; 16. SOHO, *satellite observatory studying the Sun*; 18. AZIMUTH, *horizontal angle around the sky*; 19. UFO, *flying saucer*; 21. REDPLANET, *Mars*; 23. LATITUDE, *allow some leeway*; 25. HOUR, *unit of time*; 26. ATOM, *smallest indivisible piece of a element*; 28. DINOSAURS, *an asteroid may have done them in*; 29. ICE, *frozen liquid*; 31. PELE, *volcano on Io*; 33. SIDEREAL, *star time*; 34. VEGA, *alpha Lyr*; 36. ZODIAC, *also a small inflated rubber boat*; 40. ECLIPSINGBINARY, *clip singer in bay (anagram)*; 42. SMC, *satellite galaxy to the Milky Way*; 44. KIWI, *New Zealander*; 46. ASTEROID, *road site (anagram)*; 47. CLUSTER, *An open or globular ...*;

Down;

1. NADIR, *opposite to zenith*; 2. EARTH, *Tellus*; 4. LEO, *A lion circling the Earth*; 5. IO, *One of the Galilean satellites*; 6. VIRGO, *Constellation with Spica*; 8. NEAREARTHOBJECT, *NEO (abbrev)*; 12. NOVA, *a new star*; 13. HST, *an orbiting telescope*; 14. LONGITUDE, *Latitude and ?*; 15. GAS, *solid, liquid or ...*; 16. SHEPHERD, *astronaut*; 17. NORTH, *thorn (anagram)*; 20. ANDROMEDA, *Largest galaxy in the Local Group*; 22. FUSION, *process that powers stars*; 23. LMC, *could be mistaken for a cloud*; 24. DENEK, *alpha Cygnus*; 27. MASS, *I weight 6 times less on the Moon, but still have the same ???*; 28. DAY, *24 hours*; 30. CANOPUS, *Antah*; 32. BINARY, *a double star*; 33. SCORPIUS, *constellation with a sting*; 35. ECLIPTIC, *plane of Earth's orbit around the Sun*; 37. VENUS, *a very cloudy planet*; 38. MESSIER, *a catalogue*; 39. SCHMIDT, *type of telescope*; 41. BAR, *some spiral galaxies have one*; 43. NOON, *mid-day*; 45. ION, *an arrested atom*;

On the Sunday evening a large group visited the Mt Stromlo observatory site. It is 100 years since the site started as a solar observatory and was almost totally destroyed by a bush fire storm in 1993. Some part have been rebuilt but the ruins of the large 50 and 75 inch telescopes remain as a reminder. A new big telescope to replace these has been installed at Siding Springs where seeing is better and less cloudy.

On the Monday we held the Fourth Trans Tasman Symposium on Occultations (TTTSO4) this was attended just over 40 people and many of them were new to the area. I presented two papers "Recent Successful Asteroidal Occultations in our Region in the past Two Years" and "Building a Cheap 10 inch f4 Occultoscope".

In total there were 15 papers on Occultation related topics and a general round table discussion at the end. I hope we have recruited some new observers from the Melbourne and Adelaide areas.

By John Talbot

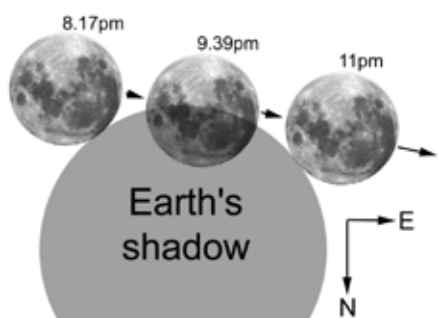
ASTRONOMY EVENTS 2010

June

June 26th 2010 – Partial Lunar eclipse
Visible from all of Australia and NZ.

The Moon will pass through the southern part of the Earth's shadow; at maximum eclipse

(9.39pm AEST) over half the Moon's diameter will be covered.



July

July 2010 – Four planets after sunset

July sees a dance of the planets Mars, Venus and Saturn in the western sky. By the end of the month, they are joined by Mercury. The diagram at left shows them together on the 31st, when Mars is closest to Saturn.

Mercury passes Regulus on the 28th.



August

August 2010 – Triple conjunction with moon The four planets are still visible mid August, and are joined by the Moon on the 13th. Planetary conjunctions:

8 August: Venus closest to Saturn

8 August: Venus closest to Mars.



October

International Space Week

October 4 – 10

Astronomy Day – 16 October –
Astronomy Week 11 – 17

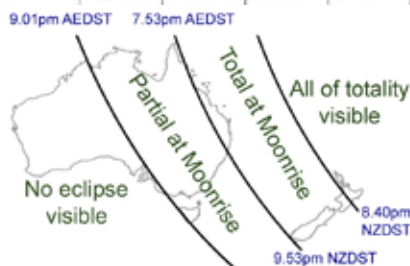
December

December 21st – Total Lunar Eclipse
– much of New Zealand

and the Queensland coast will see the Moon rise totally eclipsed.

Times of events:

Phase	NZDST
Starts	7.32pm
Totality starts	8.40pm
Maximum	9.18pm
Totality ends	9.53pm
Ends	11.01pm



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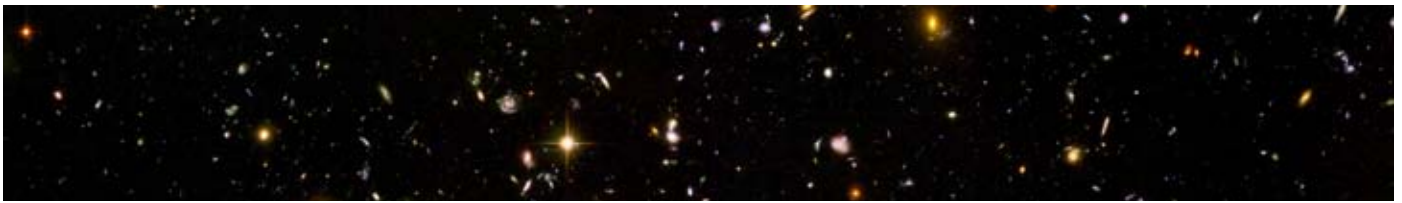
Positions Outside Council

Email newsletter

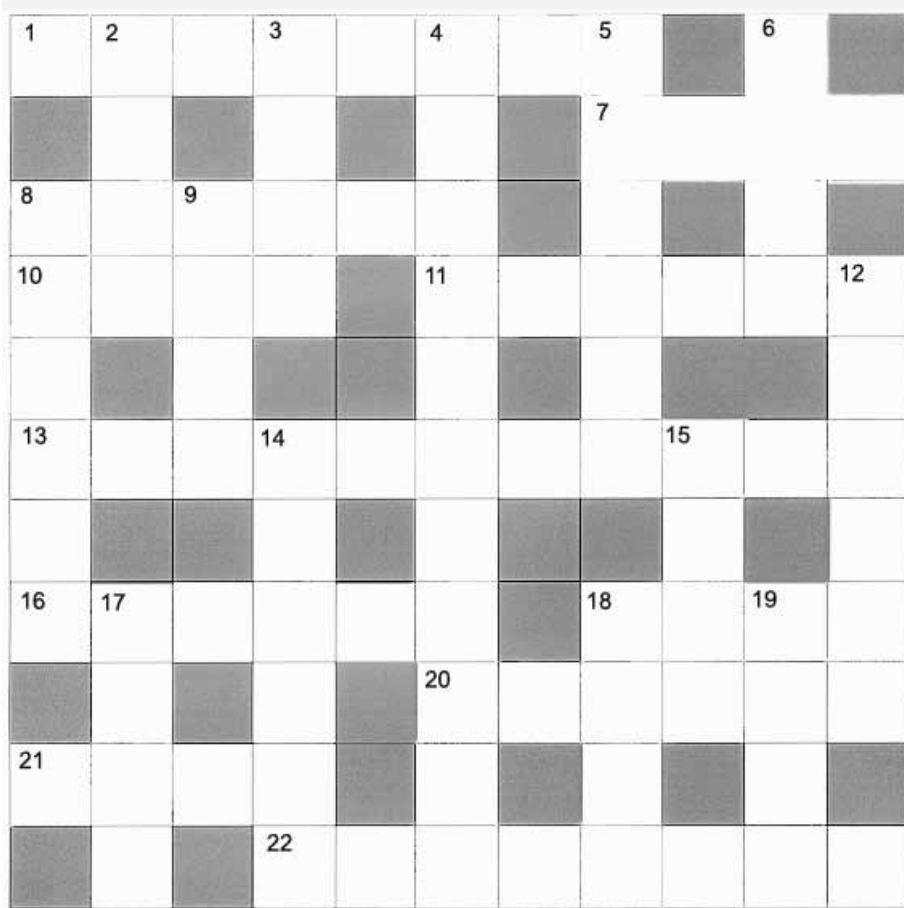
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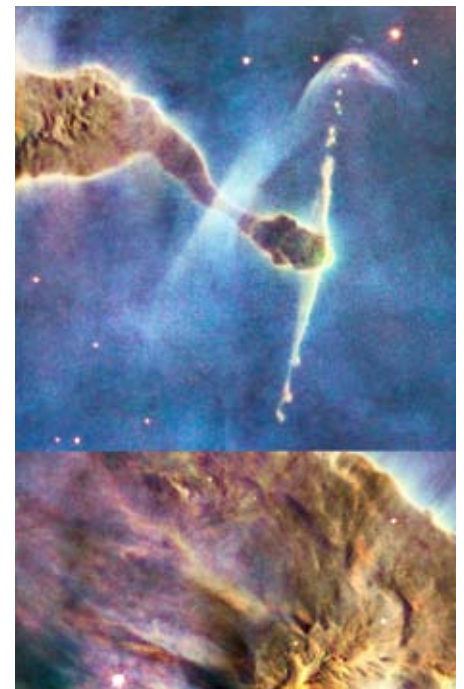


Stellar Cruxword



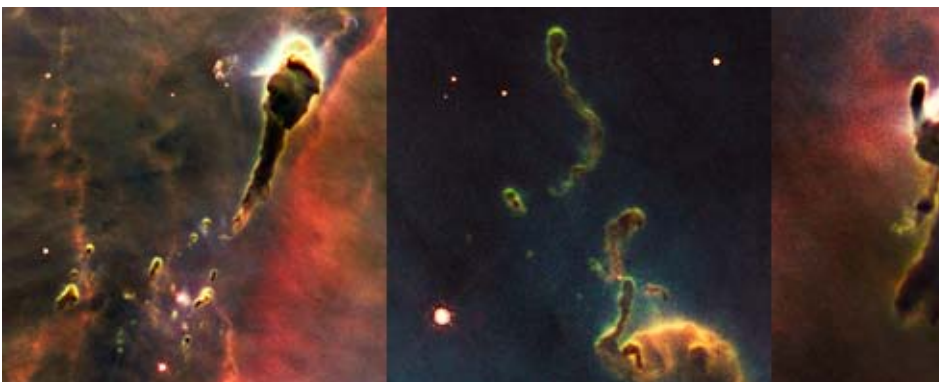
Across

1. Clip ceti to plane of Earth's orbit. (8);
 7. Finished in 1948, it was the largest telescope on Earth for over 40 years and very healthy too. (4);
 8. Stirred air mud made the Curies famous. (6);
 10. Bird of paradise is a short puss near the south celestial pole. (4); 11. Murfak is my alpha when I spree. (6); 13. Currently the brightest star in its constellation but did not get an alpha. So I bet on air. (4, 7); 16. Invented by Ptolemy as the centre of the solar system revolutions and found in little quantums. (6); 18. This financial institution was initially Public Service Investment Society. (4);
 20. Not the down escalator, provided by space rockets on take-off. (6); 21. A great part of Whangarei to live in. Ok ma! (4); 22. Mixed up lone again, the angels did say on Christmas Day. (4, 4)



Down

2. The hundred lap applause was like thunder. (4) 3. The flower in your eye has a diameter of 208 km when it's in the asteroid belt. (4) 4. Rue temper at heat of the moment. Hydrogen fusion depends on it. (11)
 5. Dismissing the cleaner even though half charming half goon. (4, 2) 6. This is all the clue you need here. (4) 8. Wander through the cosmos by Aries and Taurus, by the sound of it. (6) 9. A common component in planet formation produced when Io leaves the mixed up studio. (4) 12. It's sin to be so determined. (6)
 14. A light-coloured plain in the north equatorial region of Mars, also included in the drama zone. (6)
 16. Our favourite incorporated society – part of mana signs. (4) 17. This bike could be part of a four-sided figure that lost its real trail. (4) 18. Creative forward entity found in any upland rover. (4) 19. Conditioned selection of first person objective – part of reversed gem finding. (2, 2)



OBSERVING AT PAUATAHANUI

The next observing at the Pauatahanui will be on Saturday May 15th at 7.30 PM.

If the weather is looking doubtful please contact **John Field** on his mobile **021-255-1904** to see if the session is going ahead.



The Evening Sky in May 2010

Venus is the 'evening star', appearing near the northwest skyline soon after sunset. It sets around 7 pm. As the sky darkens Sirius appears in the west with Orion below it. Canopus is southwest of the zenith. Crux, the Southern Cross, and the Pointers are southeast of overhead. Mars is an orange-red star well down the northwest sky. Near it is Regulus, the brightest star in Leo. Higher in the north sky, and brighter, is Saturn. Low in the northeast is Arcturus, a bright orange star whose colour is often separated into flashes of red and green.

Below Sirius are Rigel and Betelgeuse, the brightest stars in Orion. Between them is a line of three stars: Orion's belt. To southern hemisphere star watchers, the line of three makes the bottom of 'The Pot', now tipped on its side. Sirius, 'the Dog Star', marks the head of Canis Major the big dog. Sirius is the brightest star in the sky though planets Venus, Mars and Jupiter can be brighter.

Crux, the Southern Cross, is southeast of the zenith. Left of it are Beta and Alpha Centauri, often called 'The Pointers'. Alpha Centauri is the closest naked-eye star, 4.3 light years away. It is a binary star: two sun-sized stars orbiting each other in 80 years. 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.

Low in the east is the orange star Antares, marking the heart of the Scorpion. Antares means 'rival to Mars' in Greek. Just now you can see why. It is a red giant like Betelgeuse; 600 light years away and 19 000 times brighter than the sun. Red giants are dying

stars; wringing the last of the thermo-nuclear energy out of their cores. Big ones like Antares and Betelgeuse will end in massive supernova explosions in a few million years.

Arcturus, in the northeast, is the brightest red star in the sky but, at 37 light years, is much closer than the red-giants previously mentioned. It is about 120 times brighter than the sun.

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. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds, particularly in the Carina region, to the right of Crux, 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 about 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.

Saturn's rings are still nearly edge on to us and look like a thick line through the planet. Some of Saturn's moons cross in front of the planet and disappear behind it. Titan, Saturn's biggest moon, disappears behind the planet for four hours on the evenings May 9 and 25. Titan crosses Saturn's disk on May 17. Saturn is 1340 million km

from us mid month. Mars continues to fade as we leave it behind. At mid month it is 210 million km away and shows just a tiny disk in a telescope.

Jupiter, not shown, rises due east around 3 a.m. It looks like a very bright golden star shining with a steady light. Binoculars show the disk of Jupiter. A small telescope shows its four bright moons lined up on each side. Jupiter is 820 million km away mid month. Mercury makes a morning sky appearance in May and June. In mid May it rises a little north of due east around 6 a.m., the brightest 'star' in that area. It passed us in late April and is now swinging around to the far side of the sun. It sinks into the dawn twilight in late June.

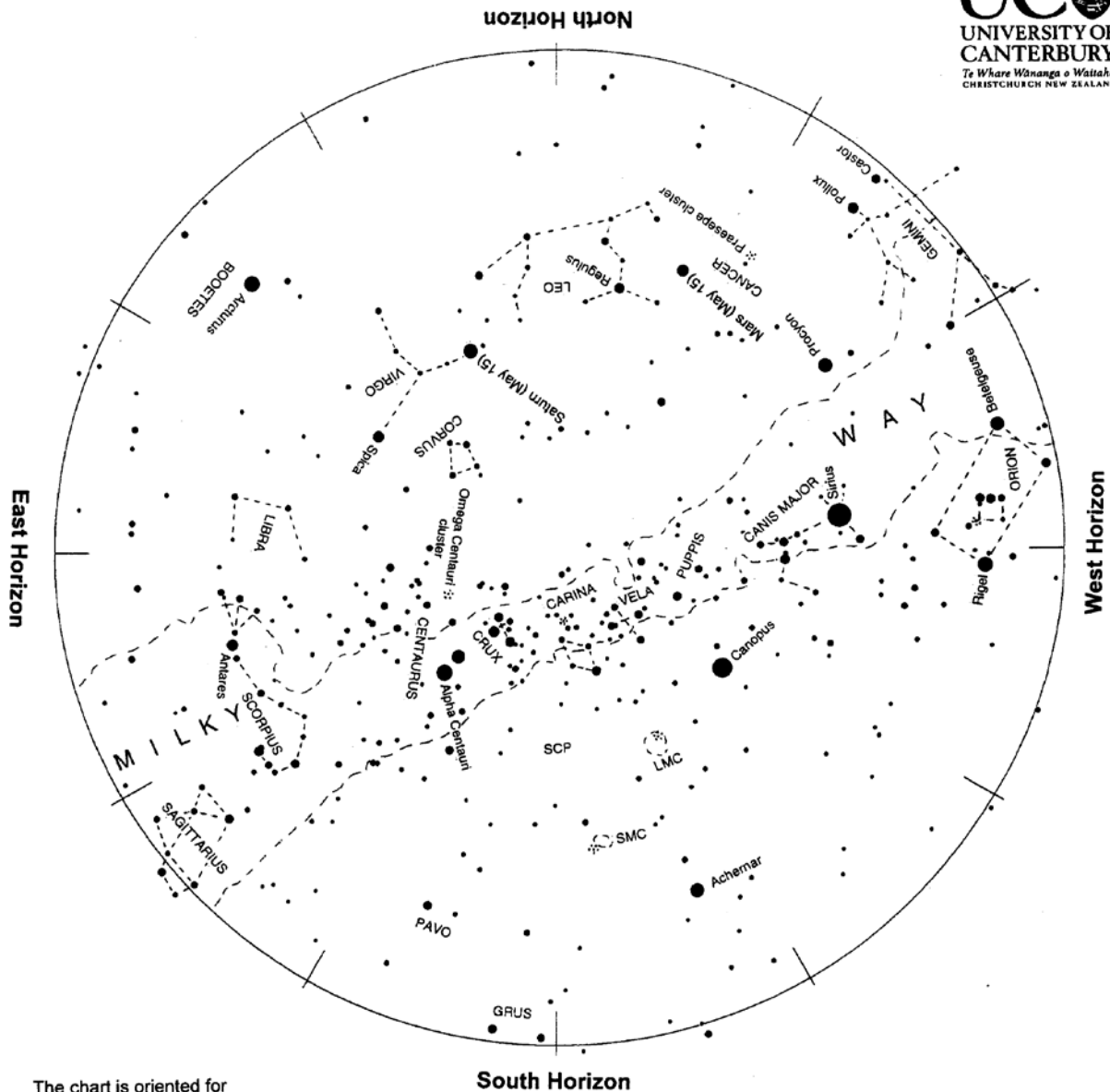
**A light year (ly.) is the distance that light travels in one year: nearly 10 million million km or 10¹³ km. Sunlight takes eight minutes to get here; moonlight about one second. Sunlight reaches Neptune, the outermost major planet, in four hours. It takes four years to reach the nearest star, Alpha Centauri.*

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

www.canterbury.ac.nz

OBSERVING AT THOMAS KING

All public observing evenings will be held at the Thomas King Observatory run by our Observatory Director Ross Powell. from 7:30. There are public observing evenings at the Thomas King every FRIDAY starting as soon as it gets dark depending on the weather. **Ring Ross on 389 9765.**



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 2010

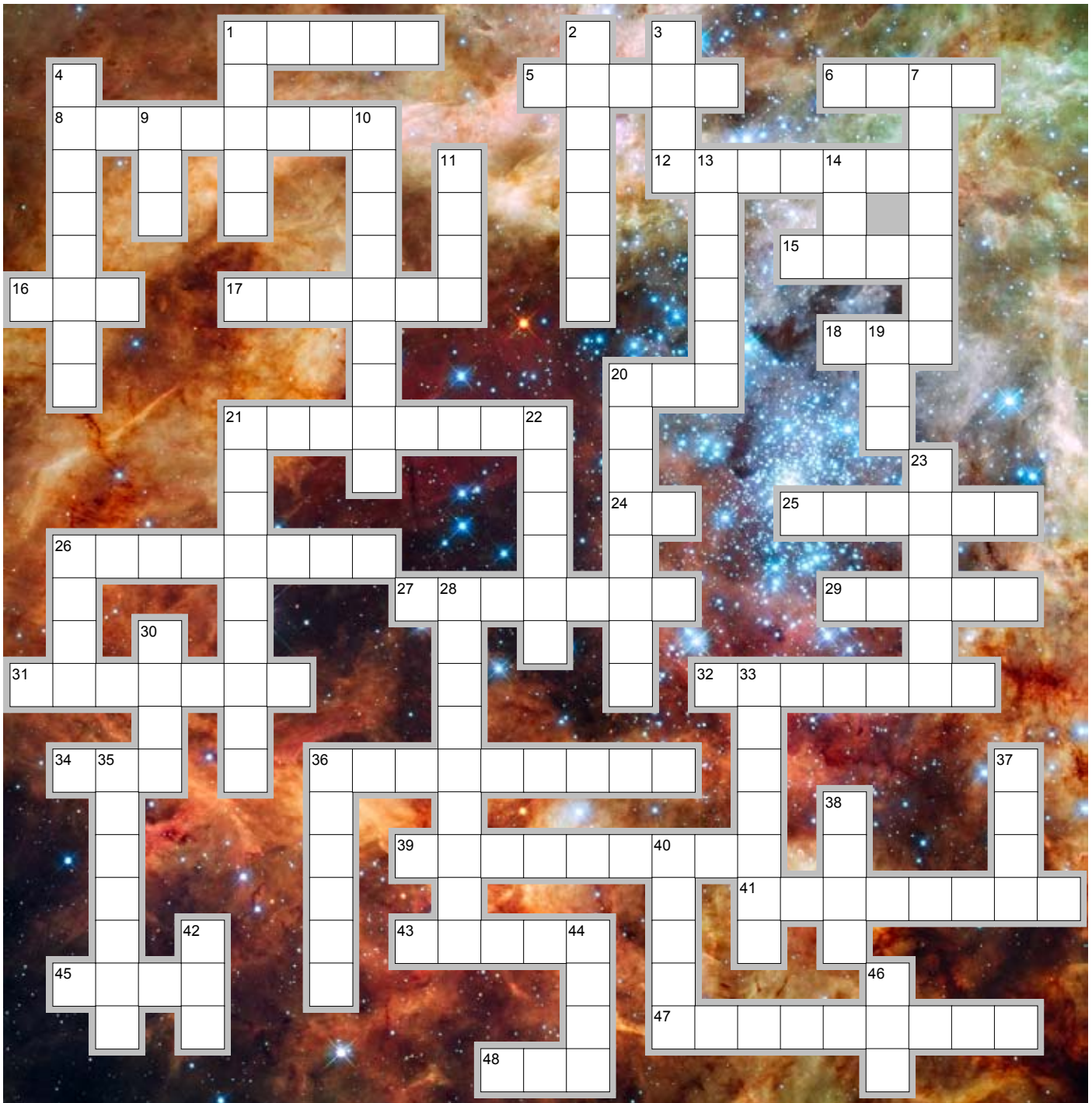
To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole (SCP on the chart). 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.

Venus, the brilliant 'evening star', sets in the northwest around 7. Sirius, the brightest star, is midway down the western sky. Directly below is Orion with bright stars Rigel and Betelgeuse, and 'The Pot'. Canopus, the second brightest star, is southwest of overhead. Saturn is a medium-brightness 'star' in the north. Reddish Mars is lower and fainter in the northwest. Arcturus in the northeast often twinkles red and green. Crux, the Southern Cross, and The Pointers are southeast of the zenith. The Scorpion, on its back, is rising in the southeast. The Milky Way spans the sky.

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



Cross Word with Murray Forbes



EclipseCrossword.com

Across

1. a very cloudy planet; 5. alpha Cygnus; 6. I weight 6 times less on the Moon, but still have the same ???; 8. star time; 12. horizontal angle around the sky; 15. volcano on Io; 16. an arrested atom; 17. second most common element; 18. an orbiting telescope; 20. could be mistaken for a cloud; 21. Main Sequence stars cooler & smaller than the Sun, also the name of a cult sci fi/comedy series; 24. One of the Galileian satellites; 25. a double star; 26. astronaut; 27. Antah; 29. thorn (anagram); 31. The North Star; 32. to block light from another object; 34. A lion circling the Earth; 36. an asteroid may have done them in; 39. Mars; 41. plane of Earth's orbit around the Sun; 43. Tellus; 45. a new star; 47. type of telescope; 48. some spiral galaxies have one;

Down

1. Constellation with Spica; 2. a catalogue; 3. alpha Lyr; 4. road site (anagram); 7. type of telescope; 9. 24 hours; 10. Latitude and ?; 11. smallest indivisible piece of a element; 13. also a small inflated rubber boat; 14. flying saucer; 19. satellite galaxy to the Milky Way; 20. allow some leeway; 21. Carter Observatory's public telescope; 22. process that powers stars; 23. You don't want this constellation in a China shop; 26. satellite observatory studying the Sun; 28. Largest galaxy in the Local Group; 30. angels and galaxies both have one; 33. An open or globular ...; 35. 23rd September; 36. proposed theory of evolution; 37. New Zealander; 38. volcano on Io; 40. opposite to zenith; 42. solid, liquid or ...; 44. unit of time; 46. frozen liquid;