

Newsletter

WELLINGTON ASTRONOMICAL SOCIETY

AUGUST 2009,
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WAS MONTHLY MEETING:
7.30pm
Wednesday
5th August 2009
Science House,
Turnbull Street,
Thorndon
(see map on last page)

In this issue:

PRESIDENT'S REPORT—2;
COUNCIL—2;
RASNZ CONFERENCE
2009 REPORT—3;
ASTRONOMY DAY AT TE
PAPA—3; OCCULTATION
OBSERVING —3;
CALENDAR OF EVENTS
FOR THE NEXT 3
MONTHS—4;
ASTRO-PHOTOGRAPHY
COMPETITION
DETAILS—4;
OBSERVING AT THOMAS
KING —4; OBSERVING
AT PAUATAHANUI —4;
INTERESTING OBJECTS
IN THE EASTERN SKY
IN WINTER - PART 1—5;
“NIGHT WITH THE
STARS”—5;
TELESCOPIC OBJECTS IN
WINTER —5;
THE EVENING SKY IN
AUGUST 2009—7;
SCHOOL HOLIDAY
PROGRAMME —7;
CROSSWORD—8

THIS MONTH'S MEETING FEATURES:

Occultations

Abstract:

Occultation Observing by John Talbot.

A brief overview of observing occultations trying to answer the old questions:

What ? Why ? How ? When ? Where ?

Some interesting results from the last few years will be presented. *(Continued on page 3)*

Stellarium

The Night Sky with Frank Andrews



Wellington
Astronomical
Society





PRESIDENT'S REPORT

Frank Andrews started the meeting off with a Night Sky presentation using Stellarium and this was well received by the members and this will be a feature of future meetings.

Ross Powell was our next presenter and he gave us an excellent presentation entitled the Planets using images from the Net and Ross showed us in depth knowledge of the Planets. Thank you Ross for a great presentation.

July has been another busy and exciting month for WAS with the 40th anniversary of the Lunar landing which was run at the Wellington City Library on Tuesday 21st with the special presentation by Dave McLennan of the NZ Space Flight Association.

During the school holidays John Field has been running Rocket Launching sessions with the Wellington City Library. John along with Ella Martin and Rebecca from WCL have been launching rockets at the various libraries that come under the WCL umbrella.

These sessions have been very successful and a big thank you must go to John for the time and effort he has put into this children- event programme.

Also a thank you to Frank Andrews who presented a talk to the Upper Hutt City Library on June 17 entitled the Planets with special emphasis on Mars. Thank you Frank. Frank had a full house and has been asked to return later in the year with another presentation.

At the society meeting on July 1st Graham Blow spoke to us about a Grazing Occultation that will occur on the evening of July 31st or more accurately August 1st at 12:30 AM when the 75 percent lite moon will slide past a 2.9 mag star. Members who wished to time this event were asked to put their names down. But there were only about 6 members who did this.

At the next meeting there will be a report on the success or non success of this event which is dependant on the weather.

A date has now been confirmed for the Astro-Photography Workshop on Saturday 26th September. This is the first day of the school holidays and the workshop will take place at Tawa College from 10:00 AM to 5:00 PM and maybe into the evening if the weather is clear for us.

Our special guest for this Photographic workshop is NZ's foremost astro-photographer John Drummond of Gisborne. John will also talk to us about his experience at the Solar Eclipse in China on July 22nd. We are planning on this presentation in the evening of the astro-phography workshop.

The Light Pollution weeks is set down for October 5 to 10th and Mr Steve Butler who is the RASNZ Light Pollution expert and representative will be our guest. Stay tuned.

This year the weather has not been very kind to us for observing either at the Thomas King Observatory or the Pauatahanui sessions have had to be cancelled because of bad weather. However we will try again on August 19th ring John Field if in doubt 021 255 1904 or check the web site.

The WAS has re-applied for a Pub charity Grant to upgrade the 12" Meade telescope at the Pauatahanui Observatory with minor alterations made to the application as our previous application was turned down because of a couple of details were not correct.

All events that were to be run at the Porirua City Library have been cancelled owing to a lack of participation. Recently Toa Waaka gave a Matariki presentation to the Porirua City Library and only 6 people showed up. I feel this is not enough attendance to warrant further presentations as the presenter has so much preparation to do for a talk for only a handful of people to attend.

Thank you to Hari for a great looking newsletter. The best so far.

COUNCIL

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Participants at the Royal Astronomical Society Conference 2009 - Wellington

RASNZ Conference 2009 Report

After over a year of hard work it was great to see the 2009 RASNZ Conference begin with an wonderful opening by Helen Anderson (CEO MORST) followed by Tom Richards presentation on the Variable Star Section.

The conference included a symposium prior to the conference on Variable Stars and a Trans-Tasman symposium on occultations after the closure on the main conference on Sunday afternoon.

Keynote speakers were:



Professor Fulvio Melia

Professor Fulvio Melia (University of Arizona) discussing Supermassive Black holes; Fulvio's visit was sponsored by the American Embassy.

Dr. Chris Fluke (Swinburne University) on making 3D astronomical movies, sponsored by the Australian High Commission.

There were a range of local and national speakers on topics such as building a home observatory (Owen Moore) to "Understanding Cluster Dynamics with the next generation telescopes" Dr Melanie Johnston-Hollitt: a smorgasbord of delight for all!

The Saturday night dinner

had come dressed as your favourite astronomer as the theme! We were lucky to be visited by Sir Patrick Moore (Vicki Irons), Sir John Herschel (Marilyn Head), two Frank Andrews which almost led to fisti-cuffs! After



Frank Andrews 2

great meal and fun game we were treated to a presentation by Dr. Ilana Feain (CSIRO) on the Australian Square Kilometre Array.



Deborah as Marilyn and Marilyn

The conference closed on Sunday afternoon at 5pm, that latest closure of a RASNZ conference to date. A lot of information on speakers can be found at [HYPERLINK "http://www.rasnz.org.nz"](http://www.rasnz.org.nz) www.rasnz.org.nz. I would like to thank the Local Organising Committee: Marilyn Head who among other tasks did wonders to secure funding and organise the Saturday night dinner; Warwick Kissling for dealing with the venue and organising

by John Field

Astronomy Day at Te Papa

As part of the RASNZ Conference and International Year of Astronomy the WAS held the first ever Astronomy Day at Te Papa on Sunday the 24th of May. With the Cosmodome showing "Earth's Wild Ride", John Field talking on the night sky, Gordon Hudson, Graeme Jonas, John Talbot, Marilyn Head and others helped many fix, or at least, understand their telescope. In spite of the horrible weather all sessions were well attended with the Cosmodome fully booked out.... poor Ron was a tired chap at the end of the day!

In the Soundings Theatre a dance group entertained over 60 people in the morning. This was followed by a lecture on Dark Matter and Dark Energy by Professor Matt Visser (Victoria University) and Fulvio Melia giving a much simpler presentation on Super Massive Black Holes to over 150 people! Te Papa were very happy with the attendance numbers and would like to do a similar event again in the future.

Thanks to everyone who helped out in organising and attending.

by John Field

Occultation Observing

by John Talbot (continued from the cover)

John has been doing the Minor Planet (asteroid) occultation report gathering from NZ and AUS observers for RASNZ Occsec for the last 3 years. Despite many tries he still has not managed to observe a one himself so keeps practicing on lunar events. He has recently built a 10" telescope so that he has more stars he can see to increase his chances. Oh for some clear skies at the right times!

Congratulations to Marilyn Head

After 8 years of hard work Marilyn has completed her Master's of Science (Astronomy) through Swinburne University of Technology in Melbourne. She is off to Melbourne for her graduation in October. **Well Done!!**



Calendar of events for the next 3 months

2009	Wellington Astronomical Society	Wellington City Libraries
AUGUST 09	August 5th Night Sky (Frank Andrews) Occultations (John Talbot) Report on grazing occultation (Gordon Hudson)	August 12th Comets (Ian Cooper)
SEPTEMBER 09	September 2nd Comets (Ian Cooper) September 26 Workshop on astrophotography	September 9th Cosmology (Matt Visser)
OCTOBER 09	October 7th Light Pollution (Steve Butler)	October 6th Light Pollution (Steve Butler)

Astro- photography



Competition Details

2009 Harry Williams Astrophotography Competition is now open.

Closing Date:

Friday 16th October 2009

The Auckland Astronomical Society is pleased to announce the 2009 Harry Williams Astro-photography Competition is now open for entry to all New Zealand residents. Please pass this message onto your members, family and friends. As part of the International Year of Astronomy 2009, The Auckland Astronomical Society, invites entries for the 2009 Harry Williams Astro-photography Competition.

Competition categories are as follows:

1. **Solar System** - Sun, Moon, planets, comets, asteroids, dwarf planets, auroras, meteors, etc.

2. **Deep Sky** - Nebulae, galaxies, globular and open clusters, deep space objects, etc

3. **Miscellaneous** - Interesting & Artistic subjects with an astronomical theme, including wide field images, artificial satellites, star trails, star parties etc.

An Entry form and Conditions of Entry in MS Word and PDF can be downloaded from: Auckland Astronomical Society website: www.astronomy.org.nz

Royal Astronomical Society of NZ Affiliated Societies website:

<http://www.rasnz.org.nz/AffSocs/index.htm>

Good Luck everyone

Jennie McCormick, Farm Cove Observatory

www.farmcoveobs.co.nz

CROSSWORD JULY ANSWERS

Across 1. PELE—volcano on Io; 3. NASA—space agency; 6. SUN—closest star; 8. RADLANT—meteor showers appear to come from one; 12. PAULI—predicted the neutrino; 13. ULTRAVIOLET—blocked by the ozone layer; 15. EQUATOR—Midway between the North and South poles; 16. COSMOLOGY—The study of the origin and evolution of the universe; 18. HOURANGLE—Measures the position of a star in the sky at a particular time and place; 19. INFRARED—Even redder than red; 22. CHARON—Pluto's moon; 25. HST—an orbiting telescope; 26. ORION—the hunter; 28. SOUTH—An island in the Pacific; 29. TARANTULA—nebula, also a spider; 31. RR LYRAE—type of pulsating variable star; 32. BAR—some spiral galaxies have one; 33. MARLA—once thought to be seas on the Moon; 36. LEO—A lion circling the Earth; 39. IO—One of the Galilean satellites; 40. NEUTRON STAR—our entrants (anagram); 42. ION—an arrested atom; 43. SOHO—satellite observatory studying the Sun; 44. KEPLER—formulated laws of planetary motion; 45. SETI—BEM search; 46. SMC—satellite galaxy to the Milky Way; 49. NORTH—thorn (anagram); 50. HOUR—unit of time;

51. OCCULTATION—coconut tail (anagram); 55. SAGAN—astronomy popularizer; 57. VEGA—alpha Lyr; 58. ICE—frozen liquid; 59. METEOR—shooting star; 60. PULSAR—The first one was discovered by Jocelyn Bell; ; Down; 2. EAST—direction of sun rise; 4. SUPERNOVA—can be used to indicate distance to a galaxy; 5. POLAR—... bear; 7. UFO—flying saucer; 9. AQUILA—The Eagle; 10. HALO—angels and galaxies both have one; 11. STAR—rats (anagram); 14. LEONIDS—November 'fireworks'; 17. EUGENIA—asteroid with its own moon; 20. ALTAIR—Bright star in Aquila; 21. DAY—24 hours; 23. RUTHCRISP—Carter Observatory's public telescope; 24. INFLATION—cosmology and economics have this in common; 27. ODYSSEY—"2001, A Space ..."; 30. NEAP—tide; 33. MARS—God of war; 34. REDSHIFT—used to calculate an object's velocity; 35. TIDE—"... and time wait for no man"; 37. EPHEMERIS—A regular publication with predicted positions of the Sun, Moon etc; 38. ATOM—smallest indivisible piece of a element; 41. ORBIT—path of one object around another; 47. MOON—object of the Cold War space race; 48. NOISE—one is (anagram); 49. NOON—mid-day; 52. COMET—Encke is one; 53. ALGOL—The Demon Star; 54. LGM—acronym for aliens; 56. LMC—could be mistaken for a cloud;

OBSERVING AT THOMAS KING

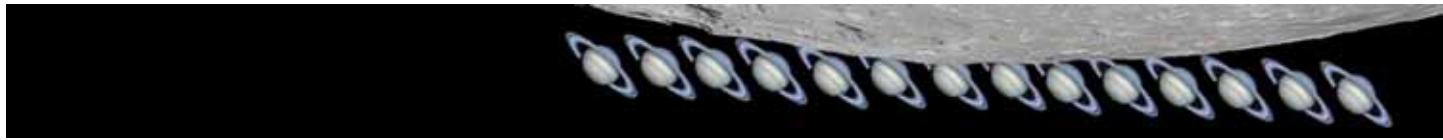
All public observing evenings will be held at the Thomas King Observatory run by our Observatory Director Ross Powell. There are public observing evenings at the Thomas King nearly every Saturday evening starting as soon as it gets dark depending on the weather.

Ring Ross on 389 9765.

OBSERVING AT PAUATAHANUI

The next observing evening at the Pauatahanui observatory will be on August 19th.

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



Interesting Objects in the Eastern Sky in Winter - Part 1

Antares is the brightest star in the region. It is orange coloured; being a 'red giant' star. (The 'red' of red giants is usually more an orange tint.) It is 600 light years* away, 19 000 times brighter than the sun, and big enough to fill Earth's orbit. Its mass or weight is about 20 times that of the sun, so most of the star is very thin gas spread around a hot dense core. Red giants are the last stage in the evolution of stars. The dense core of the star has shrunk and heated. The outer regions of the star have expanded to a very spread-out gas. The core is wringing the last of the thermo-nuclear energy out of elements like helium, carbon, oxygen and neon. In about two million years the core of Antares will run out of energy and collapse, triggering a spectacular supernova explosion. (The sun will become a red-giant in about seven billion years time but it ends up as a white dwarf star, not a supernova.) Antares marks the heart of Scorpius. In the evening at this time of year the Scorpion is on its back with its tail on the right, curving upward then turning down and curling clockwise. The sting is the horizontal line of bright stars pointing toward Antares. In Maori star lore the tail's hook is the 'fish hook of Maui'.

By midnight the scorpion's tail is directly overhead. At the right-angle bend in the tail is a large and bright cluster of stars, NGC 6231, looking like a small comet. It is around 6000 ly. away. Its brightest stars are 60 000 times brighter than the sun. The cluster is about 8 light years across, similar in size to the Pleiades/Matariki cluster in our summer sky. Were it as close at the Pleiades (400 ly.) then its brightest stars would be as bright as Sirius.

*Notes by Alan Gilmore, University of Canterbury's Mt John Observatory
www.canterbury.ac.nz*

"Night with the Stars"

for Houghton Bay School and Hutt International Boys School

On the 25th of Houghton bay School had their biannual astronomy sleepover. Marilyn and John brought their telescopes along to show the 100+ students and adults some of the splendours of the night sky. Unfortunately the weather meant that only brief glimpses of the stars were seen so John gave a presentation on the night sky and we had a question and answer session. As always the school was very grateful for us attending and hope to see us back soon!

On the following night John was at Hutt International Boys School for their star party. Based in Trentham this secondary school is looking at building an observatory on the school grounds for perform astronomical research and education sessions. With a good number of students attending the evening was fun and John did a number of presentations and a brief glimpse of the stars between the clouds allowed a view of Alpha Centauri, Alpha and Beta Crucis, Arcturus and M6 and M7 in Scorpius. The students put on a lovely supper and it was a very enjoyable evening.
by John Field

Wellington City Libraries would like to thank John Field for giving so freely of his time to inspire and introduce Wellington's children to science and astronomy with fun and informative hands-on sessions blasting rockets and making fizzing comets during the recent July school holidays.

All the sessions were well attended and thanks to John's brilliant interaction



John Field at the City Libraries

Telescopic objects in winter

by Ross Powell.

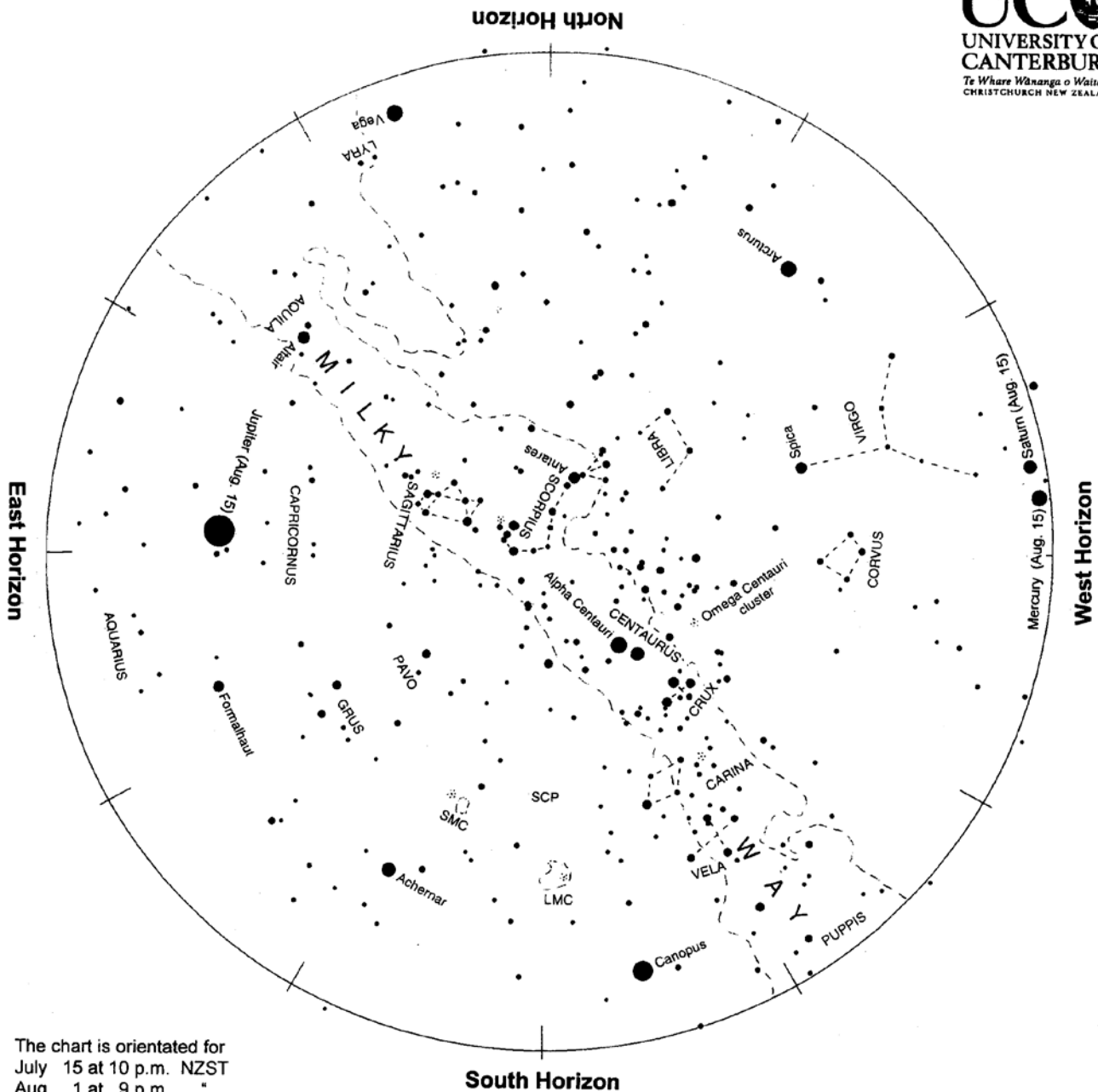
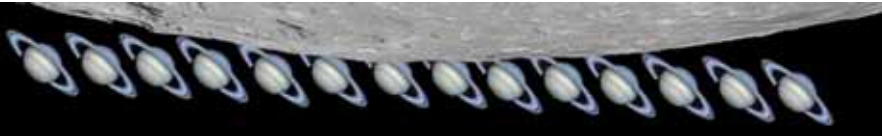
Below the tail of Scorpius is Sagittarius. Most of this constellation looks like a teapot, spout upwards and handle downwards. To the left of the spout, along a line that runs diagonally through the handle, is M8, the Lagoon nebula. This is visible as a fuzzy patch to the naked eye, and the telescope shows an open cluster of stars, with misty nebulosity around them. To fit the cluster within the field of view, low magnification is best. The stars formed from the nebula. Below the lid of the teapot, along a line through the bottom of the handle, is the globular cluster M22, the 3rd brightest in the sky. Larger apertures are needed to resolve the individual stars.

Below Sagittarius is Capricorn. Alpha and Beta Capricorni are the 2 brightest stars, side by side. Alpha, the one on the left, is an optical double, consisting of 2 yellow giant stars some way apart, each of which has a smaller companion forming with it a genuine double, whose members orbit each other. The 2 brightest stars are at different distances from us and only appear double. They can be separated in binoculars.

To the left of Capricorn is Aquila. Altair has 2 stars, one on each side, making this constellation easy to find. Above them a line of stars trails up to the left, curving at the upper end. Here is M11, the Wild Duck cluster in Scutum. This is a fan-shaped open cluster. 180x magnification is sufficient to show all the stars well.

and presentation it wasn't just the kids glowing with the excitement of it all - many parents came up to say thanks for the great learning opportunity, and even a couple of reporters who came along to capture the story were pretty captivated!

Judging by the enthusiastic response there are hopefully some budding young astronomers of the future there! -
Well done John!



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

Evening sky in August 2009

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.

Jupiter, the brightest star-like object in the evening sky, is midway up the eastern sky at dusk. Mercury makes its best evening sky appearance of the year low in the west, moving up past Saturn mid month. Orange Arcturus in the northwest often twinkles red and green. The Pointers and Crux, the Southern Cross, are midway down the southwest sky. Canopus is low in the south. The Milky Way spans the sky from northeast to southwest with its broad centre overhead. The Scorpion's tail curls around the zenith. Vega crosses the northern sky, staying low.

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 AUGUST 2009

Jupiter appears in the eastern sky in the early twilight, shining with a steady golden light. Binoculars will show the disk of Jupiter and perhaps one or two of its bright moons. A small telescope easily shows all four moons and the parallel stripes in Jupiter's clouds. This year we are looking edge-on to the orbits of Jupiter's moons. So the moons frequently hide (occult) each other and their shadows cross over (eclipse) each other. These events last only a few minutes. Some evening events visible from NZ: August 14, satellite 1 **Io** occults and eclipses satellite 2 **Europa** starting at 7:49; August 19, satellite 3 **Ganymede** eclipses 2 at 6:04; August 21, 1 occults 2 at 10:10, then 1 eclipses 2 at 10:37; August 26, 3 occults 2 at 9:16; August 29, 1 occults 2 at 6:41.

Mercury makes its best evening sky appearance of the year in August. At the beginning of the month it is near Regulus, and is the brighter of the two, low in the west. It climbs higher in the sky. By mid month it is passing **Saturn** on the left. Mercury continues its climb up the western sky till the end of August. After that it will slip down into the twilight as it starts to pass between us and the sun on the inside lane.

Canopus, the second brightest star, is near the south skyline at dusk. It swings upward into the southeast sky through the morning hours. Canopus is a truly bright star: 13 000 times the sun's brightness and 300 light years* away. On the opposite horizon is **Vega**, one of the brightest northern stars. It is due north in mid-evening and sets around midnight.

Midway up the southwest sky are "The Pointers", **Beta** and **Alpha Centauri**. They point down to Crux the Southern Cross. 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. And it is a binary star: two sun-like stars orbiting each other in 80 years. A telescope magnifying 50x will easily split the pair. Beta Centauri, like

most of the stars in Crux, is a blue-giant star hundreds of light years away and thousands of times brighter than the sun.

Arcturus, in the northwest at dusk, is the fourth brightest star and the brightest in the northern hemisphere. It is 120 times the sun's brightness and 37 light years away. When low in the sky Arcturus twinkles red and green as the air splits up its orange light. It sets in the northwest around 10 pm.

Just north of overhead the orange star **Antares** marks the heart of the Scorpion. The Scorpion's tail hooks around the zenith like a back-to-front question mark. Antares and the tail make the 'fish-hook of Maui' in Maori star lore. Antares is a red giant star: 600 light years away and 19 000 times brighter than the sun. Red giants are dying stars, wringing the last of the thermo-nuclear energy out of their cores. Big ones like Antares end in massive supernova explosions. Below or right of the Scorpion's tail is 'the teapot' made by the brightest stars of Sagittarius. It is upside down in our southern hemisphere view.

The **Milky Way** is brightest and broadest overhead in Scorpius and Sagittarius. In a dark sky it can be traced down past the Pointers and Crux into the southwest. To the northeast it passes **Altair**, meeting the skyline right of Vega. 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. The nearer dust clouds appear as gaps and slots in the Milky Way. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds, particularly in the **Carina** region below Crux, and in Scorpius and Sagittarius.

The **Large** and **Small Clouds of Magellan**, LMC and SMC, look like two misty patches of light low in the south. They are easily seen by eye on a dark

moonless night. They are galaxies like our Milky Way but much smaller. The LMC is about 160 000 light years away; the SMC about 200 000 light years away.

Brilliant Venus (not shown) rises in the dawn sky after 5 a.m. A fair way above and left of Venus is Mars, much fainter and reddish-coloured. Above Mars are two orange stars of similar brightness. Aldebaran, the eye of Taurus the bull, is on the left. Betelgeuse is on the right below Orion's belt or 'the Pot'.

**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.*

*Notes by Alan Gilmore
University of Canterbury's Mt John Observatory,
P.O. Box 56, Lake Tekapo 7945, New Zealand.
www.canterbury.ac.nz/090628*

Rockets and Comets give a bang and fizz to School Holiday Programme

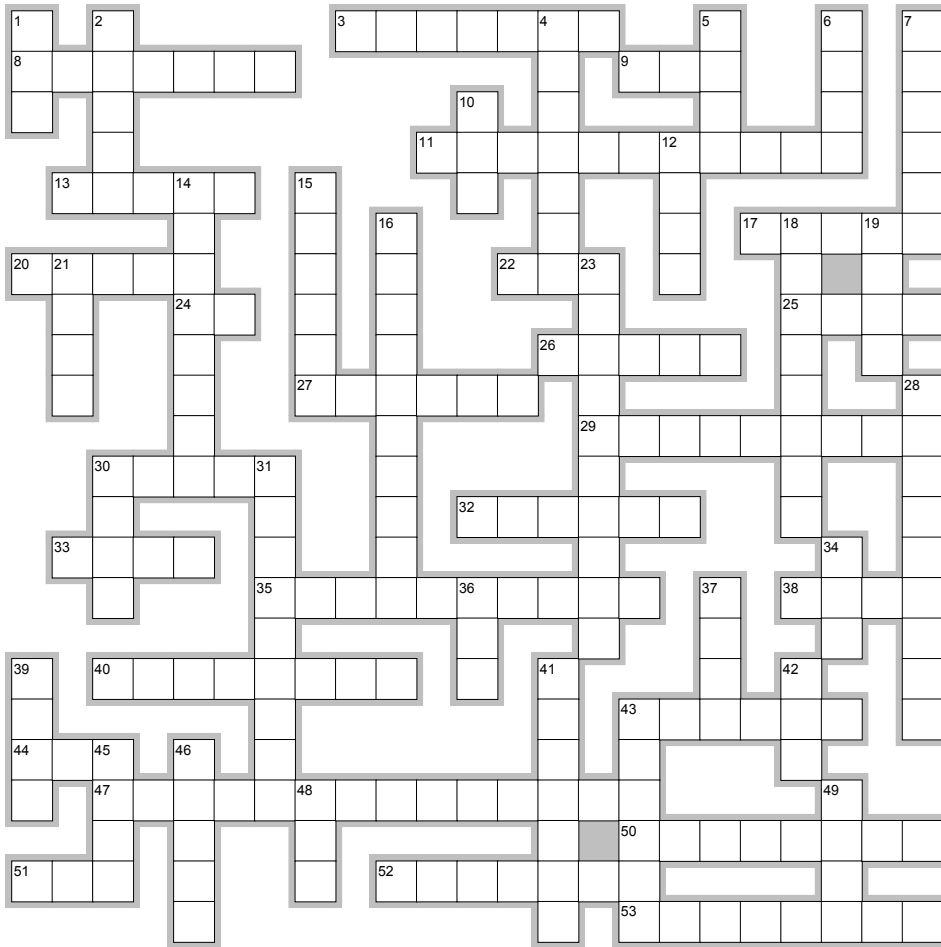
As part of WAS and WCC Library celebrations of the International Year of Astronomy a school holiday programme was held at various Wellington Libraries. The programme ran Tuesday to Thursday and was run by John Field assisted by Rebecca, Ella, Adrienne and the crew from the Libraries.

The first week consisted of a presentation on Rockets followed by children (and the odd adult) building their own rocket. Consisting of a 600ml drink bottle and stabilising fins, cones and rocket body they proved that you don't need to be a "rocket scientist" to get a great looking.

By John Field

CROSSWORD

Here is a crossword for you to enjoy, from Murray Forbes.



EclipseCrossword.com

Across

3. largest planet in the solar system;
 8. horizontal angle around the sky;
 9. an orbiting telescope; 11. The Archer (Constellation); 13. top prize for Scientists; 17. The Ram; 20. The Demon Star; 22. A lion circling the Earth; 24. One of the Galilean satellites; 25. obscures centre of our galaxy; 26. used as a standard reference date; 27. The Crow; 29. The largest axis through an ellipse; 30. opposite to zenith; 32. light particle; 33. object of the Cold War space race; 35. slow change in the axis of a spinning body; 38. satellite observatory studying the Sun; 40. Even redder than red; 43. fully ionised gaseous state of matter; 44. acronym for aliens; 47. star light anti-twinkle technique; 50. southern successor to the Messier Catalogue; 51. solid, liquid or ...; 52. one of Mt John's resident astronomers; 53. constellation with a sting;

The answers will be in the September newsletter.

Down

1. 24 hours; 2. Constellation with Spica;
 4. to block light from another object;
 5. rats (anagram); 6. I weight 6 times less on the Moon, but still have the same ???; 7. centre of the Milky Way is in this constellation; 10. some spiral galaxies have one; 12. smallest indivisible piece of a element; 14. over shadowed; 15. spacer (anagram); 16. an open geometry; 18. also a cult sci-fi TV series; 19. direction of sun rise; 21. volcano on Io; 23. when a planet and the Sun are in disagreement about the Earth; 28. Believed in the steady state universe; 30. mid-day; 31. Mars; 34. an arrested atom; 36. closest star; 37. space agency; 39. volcano on Io; 41. 23rd September; 42. could be mistaken for a cloud; 43. The fish constellation; 45. God of war; 46. predicted the neutrino; 48. frozen liquid; 49. BEM search;

**Wellington
 Astronomical
 Society**

**August 09
 Newsletter**

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Editorial Disclaimer

Views expressed in this newsletter are not necessarily those of the Society as a whole

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**COUNCIL OF THE
 WELLINGTON
 ASTRONOMICAL
 SOCIETY INC.**

**P.O.Box 3126
 Wellington**

**WAS MONTHLY
 MEETING:**

**7.30pm
 Wednesday
 5th August 2009**

**Science House,
 Turnbull Street,
 Thorndon**

