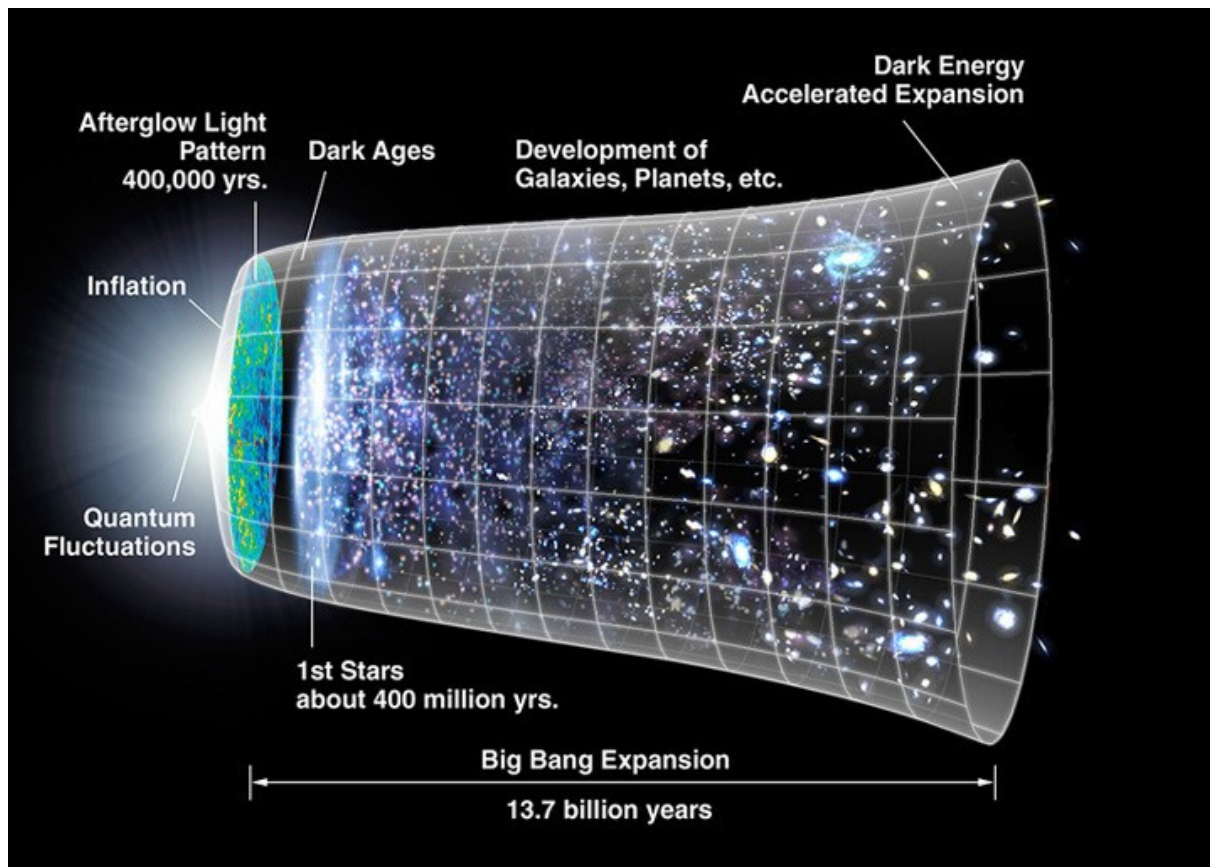


WELLINGTON ASTRONOMICAL SOCIETY



MONTHLY MEETING: Overview of Modern Cosmology by Matt Visser

7.30pm Wednesday 6th May 2009

**Science House,
Turnbull Street,
Thorndon**

May Newsletter

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Overview of Modern Cosmology by Professor Matt Visser

Modern cosmology is an interesting mixture --- some aspects of cosmology are now precision science; other aspects are much more uncertain. I will discuss dark matter, dark energy, and the accelerating expansion of the universe. Professor Matt Visser from Victoria University.

Observing at Pauatahanui

There will be no star party at Pauatahanui in May due to the RASNZ Conference,

Thomas King Observatory

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. The Thomas King Observatory is owned by the Carter Observatory and this building must be looked after as it is an Historic Building. and so is the Grubb telescope of 1882 it houses.

President's Report

April opened with a Childrens Story Time at the Porirua City Library which I attended and this talk was well attended by about 30 children and their parents this also coincided with the WAS talk by Dave MacLennan from the Spaceflight association. This talk was well attended and very well presented by Dave.

On April 2nd another children's time talk was presented by Haritina a friend of mine this was at 4pm and was well attended by about 20 children and their parents. In the evening I presented a talk to the Library called "What is the Right Telescope for You" the attendance was quite small but was very well received.

On April 3rd was the beginning of the 100hrs of astronomy and we started it off with Ross Powell at the Porirua City Library and giving an excellent presentation about the Sun on one of the Libraries display screens both Paul Moss and I were in attendance along with several other public. This was followed with Solar viewing in Porirua at 12 noon outside the newly finished Te Rauparaha centre where a number of people were able to view the Sun through the H-Alpha Filter which is on loan to me from Carter Observatory.

On April 4th the 100hrs of Astronomy started at 10am for us in the Civic Square outside the Wellington City Library where I set up my 6" refractor with the H-Alpha Filter on loan from Carter and it sat on a driven equatorial mount. This enabled us to track the sun all day with only a minor adjustment. Chris Mongatti and I looked after the telescope until 5pm. While we were setting up a

stage was set up to host a variety of bands throughout the day. At 10am the local IWI arrived to present the Karakia for the official opening. Unfortunately the Mayor who was also to be present at the beginning was not able to be present until 12 noon. The Karakia went ahead anyway to a smaller than expected audience. The Sun was in the clear all morning but clouds were gathering and there were no Sun Spots and only a couple of small Flares.

At 12 noon the Mayor arrived and a large number of people had turned up although most of them were there for a couple of other events that were also happening in the square at the same time. Mayor Prendergast spoke of the International cooperation in the 100hrs event and that we in NZ were the first in the World to kick off the event she also mentioned about Carter Observatory that probably would not be opening until December this year and this marked the official opening of the 100hrs of Astronomy. I replied to the Mayors speech and thanked her for the official opening and I mentioned the program for the day and encouraged people to look at our display in the Library. While the show was going on outside inside the Library was a Solar display on a large Plasma screen and this was running views from the Soho Satellite of the active Sun and in the childrens area there was a large projection screen running views of the night sky continuously.

As it was only Chris Mongatti and I that was in attendance with the telescope and mine was the only telescope in operation as it had the H-Alpha filter. Paul Moss who was the 100hrs event organiser was busy organising the different bands that were scheduled to play throughout the day and he had a couple of other telescopes there but they had no filters for them. There was a que at the telescope all day which was clear in the morning but as the afternoon began the clouds started to close in and we were just looking between the breaks in the clouds. However we were able to satisfy most people with a view of the sun. About 1000 people looked through the telescope during the course of the day.

At 5pm I packed up my scope and moved out to Porirua where I was to run the evening event outside the new Te Rauparaha Arena from 7pm to 10pm. Chris set up the telescopes for the evening viewing in Civic Square with assistance from Paul and his Son and even Rebecca from the Library assisted with the telescopes. About another 300 people looked through the telescopes at the evening sky and had good views of the Moon and Saturn. The Civic Square event finished at 11pm and was well attended throughout the day. The Porirua event was much smaller than the Civic Square one and that was probably a good thing as I was getting quite tired by this stage. Diane our treasurer and young Patrick Sharp and Brenda Johnston were assisting at Porirua. Although we had passing cloud we still had some good views of the Moon and Saturn. Only a small number of about 30 people came to look through the telescopes that Diane and Brenda had brought along.

The 100hrs continued on Sunday from 12 noon to 5pm and this was a blustery day with much passing cloud although Rebecca from the Library and me along with Paul Moss managed to show 60 people through the telescope at the Sun. We used a counter. This ended the 100hrs of Astronomy event.

On Wednesday the 15th Ross Powell assisted by Frank Andrews who ran a quiz presented a talk to the Wellington City Library.

OVERVIEW OF ROSS POWELL'S TALK by FRANK ANDREWS

Ross Powell presented an interesting, stimulating and illustrated talk to an enthusiastic audience at the Wellington City Library on the evening of Wednesday 15 April. A near capacity crowd of enthusiastic people numbering about 47 listened as Ross described each planet and it's natural satellites in detail outlining why, while being different from each other, still form a closely related family. These differences are due to two main factors: mass and distance from the Sun. He also explained why the Earth is the only planet to have a significant quantity of Oxygen in it's atmosphere. He discussed theories which may explain the origin of planetary rings around the four largest and most massive planets. At the end of the talk there were a number of interesting questions and Frank Andrews then ran a short quiz of fourteen questions which were designed to get the audience discussing aspects of what they had heard and seen. It was very noticeable that the children present were often the first to answer the questions and and ask questions of their own. This was a very enjoyable evening and a number of people took away WAS membership forms.

A big thankyou to Ross and Frank for their excellent presentations at Wellington City Library.



100 Hours of Astronomy at the Wellington Public Library

100 hours of astronomy in Levin by Michael Stapel

On Saturday 4th of April the Levin Stargazers treated the public to a true star party. It happened at the Levin Adventure Park, the same venue as the successful star party in March, where the by now world famous photo was taken by Paul Moss. Ron Fisher was the motor behind this event, pulling it all together, winning support from local businesses, getting the word out through local media, and ensuring the event's success.

Preparations on site started at 6pm on the day. Ron explained where to set up the telescopes. There was a great turn out from the Levin Stargazers, and John Talbot and Frank Andrews from WAS were there too. A special desk was created for the public to register for the event. By registering one also went into the draw for a new AstroNZ 6" Dobsonian telescope – a great prize! Frank gave a lecture about Mars in the community centre in the same park, it was a full house. It even interested my wife, who is usually not into "all this stargazing"!

All in all there were approximately 15 telescopes set up of many types and sizes. I was running two telescopes set up next to each other. One was a WAS 6" Dobsonian with a 16mm eyepiece trained on Saturn, which I currently rent from WAS (much recommended!). Aside from Saturn and its almost side-on rings, it also revealed the moons Titan, Iapetus, Rhea and a hint of a rather faint Dione. The other telescope was a 70mm Skywatcher refractor with a 25mm eyepiece trained on the Moon. The above eyepieces were selected to keep Saturn and the Moon in view long enough for one or two people to look at it before adjustment was needed, and to allow for enough time to talk. This setup worked fine, it was easy to keep both telescopes going non-stop, which was needed as there were queues for every telescope.

There were 320 registrations on the night, however it is estimated well over 500 people actually attended, which is truly extraordinary! People of all ages were there, and as many women as men. The people flocking to the park were very enthusiastic and keen, and asked many good questions. It blew me away! It was great to meet Ron and the Levin Stargazers, and I congratulate them with this very successful event. It resulted in a whopping 85 new members for the Levin Stargazers – absolutely awesome!

WAS Dobsonian wonders unlock the universe by Michael Stapel

Amongst the many activities and facilities WAS sports several 6" dobsonian telescopes which can be rented by members. In March I took up this opportunity. At the Telescope Workshop event at the Carter Observatory, Brenda Johnston handed over one of the 6" "dobbies" along with valuable guidelines on how to use it and store it.

Over the past years I've concentrated on observing with binoculars and planispheres and star charts, at times using a 70mm Alt-Az refractor to observe the planets. Being reasonably new to astronomy, compared with many members at WAS, the dobsonian is a great way to become more familiar with telescopes. It is a simple mount, easy to operate, and very portable. The 6" dobsonian will fit in even the smallest car and is easy to set up. It offers a remarkable window into the universe, a great way to start a journey into astronomy.

Within a surprisingly short space of time I learned how to use this telescope. For the first time in my life several galaxies were spotted, to begin with the M104 Sombrero galaxy in Virgo! The Eta Carinae nebula and the Orion Nebula look fantastic with both 9mm and 25mm eyepieces, after already having been in awe of them countless times through binoculars. The views are bright and sharp, the focuser works well, and the mount operates smoothly.

On the 4th of April I took the WAS dobsonian to the Levin 100 Hours of Astronomy event. Hundreds of visitors attended. Many people looked at Saturn and its moons through this telescope, and commented that it offered really clear views. I explained it was handmade by members of WAS.

I warmly recommend the newer members like me to consider the possibility to rent a dobsonian telescope from WAS. For enquiries please approach Brenda Johnston, or go to www.was.org.nz and click on "Get involved", where you'll find a section "Borrowing a telescope".

Newsletter

We would like as many people as possible to receive the WAS Newsletter by Email as we are trying so save on printing costs and this will reduce our yearly amount spent on the newsletter considerably

RASNZ Conference & Symposium

The RASNZ conference will be run by the WAS at the Quality Inn on Cuba Street Wellington on May 22 till 26th. The RASNZ conference will run on the Sat & Sun while a Variable Star symposium will run on the Friday and on the Mon & Tues the Minor Planet & Occultation symposium will run. The cost to attend this event is \$80 per day per person. This will be a most interesting conference in this the IYA 2009.

Editorial Disclaimer

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

ACE Astronomy by Vicki Irons

Adult Community Education runs a course in basic Astronomy called "Seeing Stars" at Newlands College on a Monday evening. The course covers where to look for the main constellations and what can be expected in the heavens as each season's stars move through the sky. Star colours, conjunctions, retrograde movements and how to read planetary charts are also included.

This course started last year and classes are getting bigger each time. The last one had 12 students. The summer courses have not been as exciting due to the curse of daylight saving. On the other hand daylight saving has stimulated discussion on where the Sun goes down and where the Moon goes down. During the course, progression of the setting Sun can easily be plotted. Simple experiments like Andy Dodson's Solarcam are used to show how much can be learned just through ongoing, accurate, observation.

Some students were keen and ventured up to the Thomas King Observatory on a fine Saturday night when Ross Powell, with his usual patience and extraordinary knowledge, was able to show Saturn, the Moon, and a rich variety of coloured stars and double stars. For these people it was their first opportunity to look through a refractor telescope. Learning about the difference between reflectors and refractors was an aspect of the course they found fascinating. Everyone is welcome when the weather is fine on a Saturday (and sometimes Friday) night and Ross has a wealth of information he shares willingly. His double star collection is impressive and suitable expressions of appreciation were given.

Also contributing to the richness and variety of the course was Roland Idaczyk who gave an eloquent, illustrated, history of the "wow" planet Saturn. As this is so often a hook for amateur astronomers it worked brilliantly. This was followed by a star magnitude sighting which helped tie up the earlier part of the course. Despite the bright school lights, when counted from the shadows, stars of magnitude 5 were seen. So if you have someone that wants an enjoyable course to set them up for further sky enjoyment direct them to this. The next Seeing Stars Astronomy course starts at Newlands college Monday 4th May with tutor Vicki Irons.

The Evening Sky in May 2009. Information provided courtesy Alan Gilmore

The brightest stars are mostly spread along a strip from the west then south of overhead and on into the southeast sky. **Sirius** is in the west with **Orion** below it. **Canopus** is southwest of the zenith. **Crux**, the Southern Cross, and the Pointers are in the south of overhead. **Saturn** is in the north at dusk, the brightest 'star' in that region. **Regulus**, the brightest star in Leo, is left of Saturn.

Sirius is the first star to appear at dusk. It is the brightest star in the sky because it is relatively close; nine light years* away and 23 times brighter than the sun. Below it are **Rigel** and **Betelgeuse**, the brightest stars in **Orion**. Rigel is a blue-giant star 40 000 times brighter than the sun and much hotter. It is 800 light years away. Betelgeuse is a red-giant star, cooler than the sun but hundreds of times bigger; 9 000 times brighter than the sun and 400 light years from us. 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. **Crux**, the Southern Cross, is south 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. 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 is much closer than the red-giants previously mentioned. It appears to have once belonged to a small galaxy that was absorbed into the Milky Way. Its orbit cuts across the general stream of stars circling the centre of our galaxy.

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 nearly edge on to us this year. They appear as a thick line through the planet. In steady seeing one can see the shadow of the rings as a dark line across Saturn. Some of Saturn's moons cross in front of the planet and disappear behind it. The shadow of Titan, Saturn's biggest moon, might be seen on Saturn in the evenings of May 15 and 31st. Titan disappears into Saturn's shadow on May 7 at 7:23 and May 23 at 6:30.

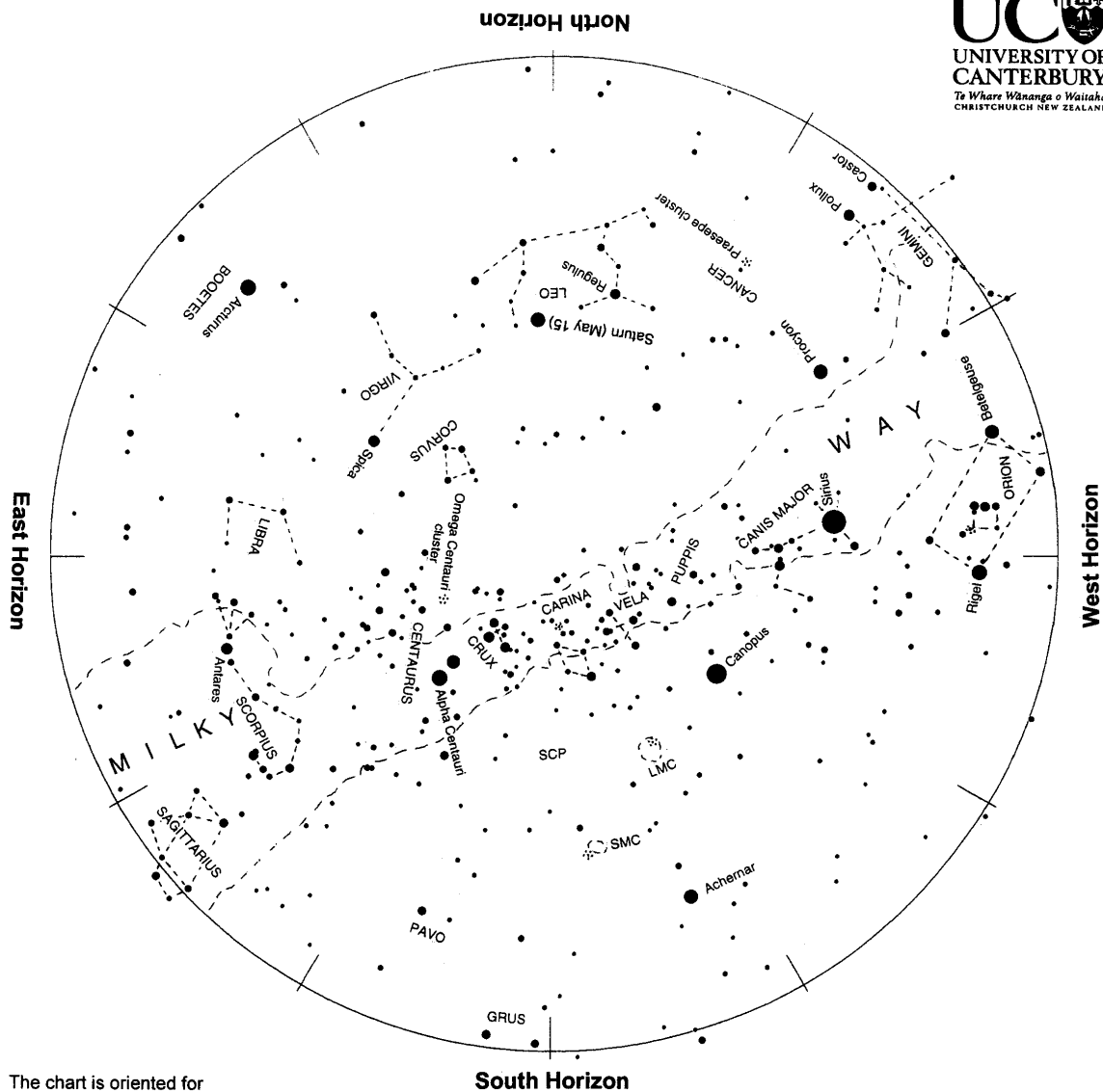
Jupiter, not shown, rises in the southeast about midnight. It looks like a very bright golden star shining with a steady light. Binoculars show the disk of Jupiter. A small telescope shows its four bright moons. Brilliant Venus rises due east after 3 a.m. It is bright enough to cast shadows in dark locations. Mars is the reddish star just below Venus. At the end of May Mercury begins a morning sky appearance well below and right of Mars.

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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 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 westward shift each night as we orbit the sun.

Sirius, the brightest star, is midway down the western sky. Directly below it is Orion with bright stars Rigel and Betelgeuse. Orion's belt and sword, aka 'The Pot', appears between them. Canopus, the second brightest star, is southwest of overhead. Saturn is a medium-brightness 'star' in the north with fainter Regulus to its left. Orange 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 from SE to NW.

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