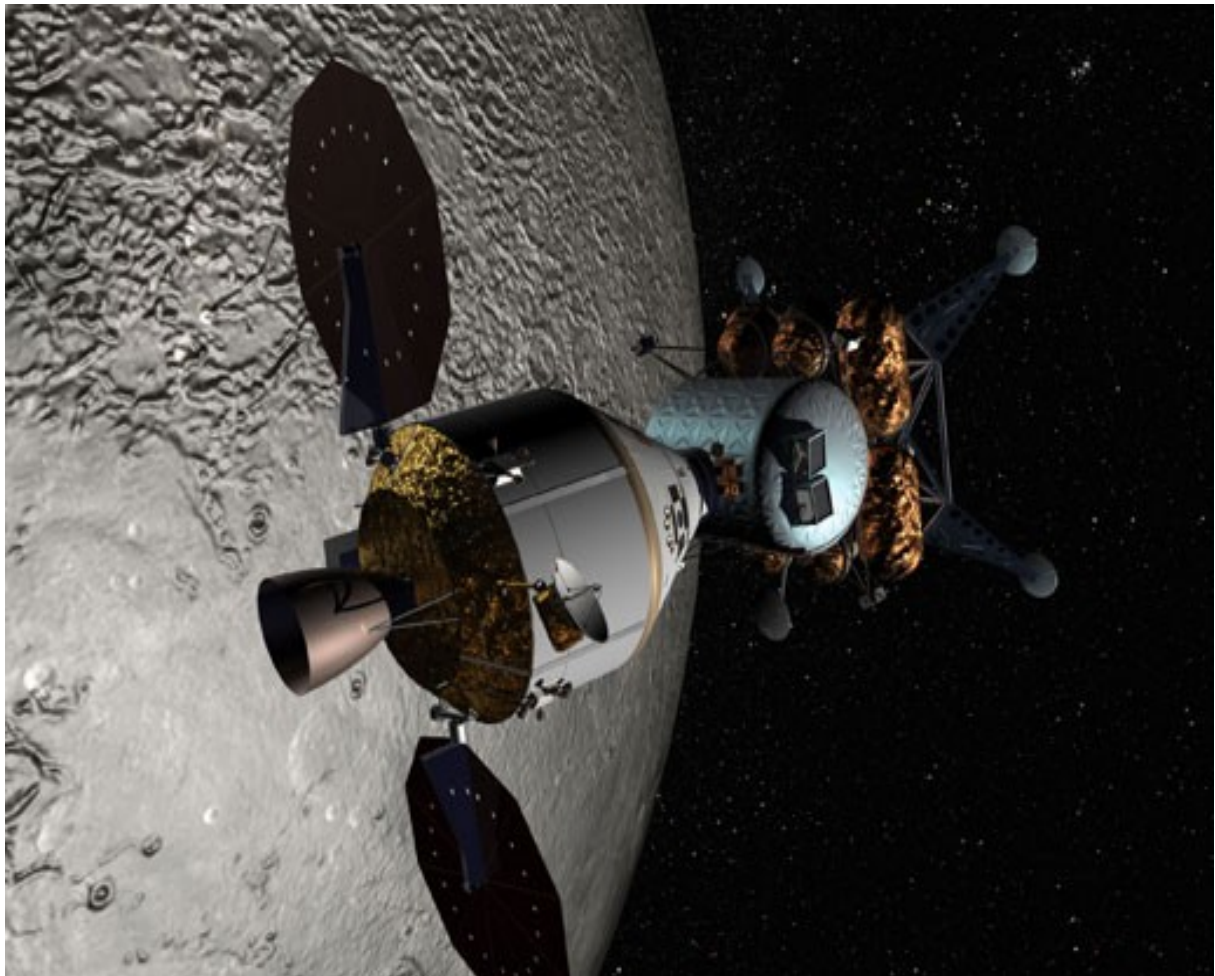


WELLINGTON ASTRONOMICAL SOCIETY



Orion Lunar Orbiter Photo © NASA

**MONTHLY MEETING: An update on NASA's Project Constellation
by Dave MacLennan**

7.30pm Wednesday 1st April 2009

**Science House,
Turnbull Street,
Thorndon**

April Newsletter

CONTENTS

	Page		Page
Abstract for Monthly talk- Dave MacLennan	2	Editorial disclaimer	5
Observing at Pauatahanui	2	Mare Nectaris and surrounds by John Field	5
Observing at Thomas King	2	Comet Lulin passes by Saturn	6
President's Report	2-5	What's in the Sky in April	6-7
Newsletter	5	Council Contact details	7
RASNZ Conference and symposium	5	April star chart	8

An Update on NASA's Project Constellation by Dave MacLennan

Topic will be an update on NASA's Project Constellation, which is developing the Orion and Altair spacecraft and the Ares family of launchers, to return the US to the Moon by 2020. A lot of progress has been made in the past year or so, and the first test launch of the Ares 1 rocket will take place later this year.

Observing at Pauatahanui

The next observing evening at the Pauatahanui observatory will be on April 25th and in the expert hands of John Field. If you haven't been along to look through the Meade 12" now is your chance to have a look at our Night Sky in a reasonably dark sky.

Thomas King Observatory

Ross Powell opens the Thomas King Observatory, usually after dark, on fine Saturdays. Contact Ross Powell Ph 389-9765

President's Report

This month has been very busy and I would like to thank those members who have helped. The Website looks great - easy to read and up to date. Thanks John.

Back in February a group of us attended the Island Bay Festival which was held on the Water Front at Te Raekaihou Point. The weather was calm and clear and a good night's viewing was well received.

The WAS library has been removed from the Royal Society Rooms at their request and is now in the Gun Bunker with the WAS telescopes. Ron Fisher who is a new WAS member has taken over the Carter Observatory Cosmo Dome with the intention of visiting school in the Lower North Island. The 6" F15 Refractor from the 1930s, New Zealand's oldest NZ made refractor which still works well, is on display at the Wellington City Library to celebrate this IYA International Year of Astronomy.

On March 7th WAS had a very successful Telescope Roadshow Workshop held at Carter Observatory. 26 members attended and the talks by Roland Idacyek, Graeme Jonas, Warwick Kissling, Frank Andrews, John Field, Ross Powell & Stewart Mawson were absolutely brilliant. Thanks also to Diane, Bill & Leslie for organising the food. We have already been asked if we would do another workshop. I would like to thank Paul Moss and Ross Powell who helped me to remove the padded chairs from the Gun bunker and installed them in Carter Observatory for the workshop.

On March 5th I visited the Foxton Beach Astronomical Society and presented a talk to them and this was well attended, with 15 people turning up. We had to cancel the observing evening at Pauatahanui observatory as the weather was not very good.

On Tuesday 17th March Paul Moss and I set up a display in the Porirua City Library to celebrate IYA and we have used a 1900 4.5" F15 Cooke Refractor on loan from Mr Colin Millar of Tawa, which is the centre piece of the display. Photo of the Porirua Library display is on the next page.



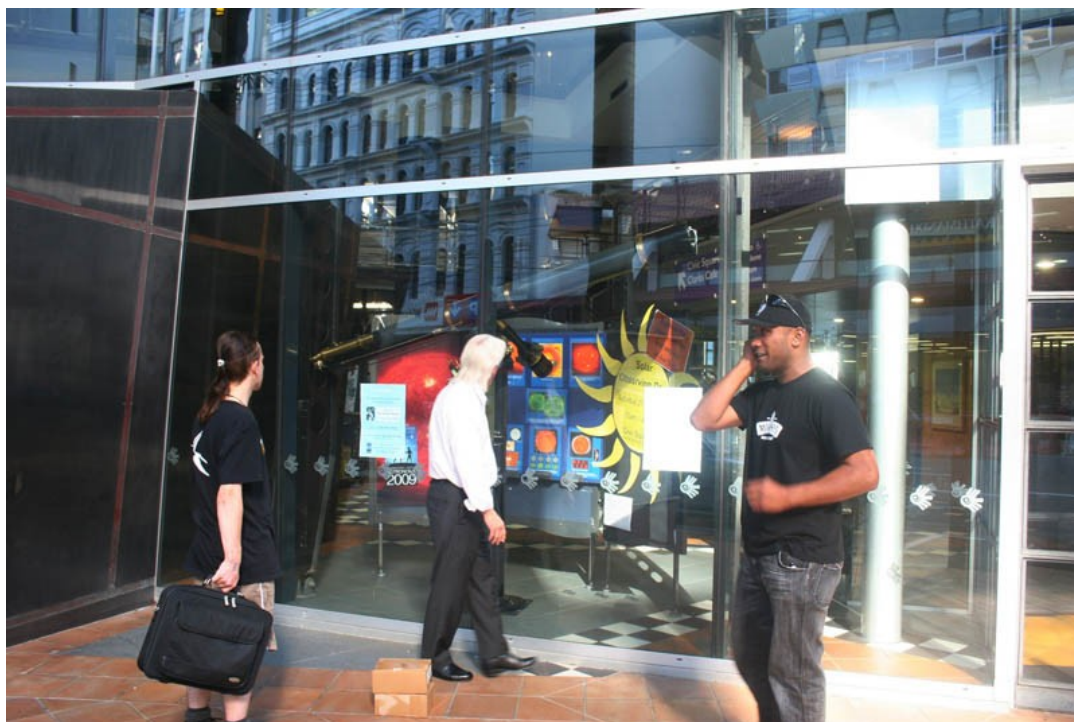
DISPLAY AT THE PORIRUA LIBRARY

On Friday the 20th March Paul Moss and I set up the display in Wellington City Library and this will run for several weeks. Centre of the display will be the NZ made 6" Refractor along with the WAS Dolland Telescope which had been refurbished. Also on display will be Old Cameras used in the past for Astro Photography. There are 16 display boards on loan from Carter Observatory along with several posters



DISPLAY AT WELLINGTON CITY LIBRARY UPSTAIRS

On Saturday 21st March we are running an all day Solar Observing event at the Civic Square outside the library and this is also part of the IYA. I have on loan from Carter Observatory their H-Alpha Filter which I have fitted to my 6" Refractor which will be used at the Solar Observing and at several other Solar Observing activities we have planned. Also running at the same time as the Solar viewing will be Ross Powell presenting Solar talks with downloads from the Soho Satellite onto a Plasma Screen, and this will take place inside the library so if the weather is not kind to us we can still perform inside the library.



DISPLAY AT THE WELLINGTON CITY LIBRARY from outside

On Saturday 28th March WAS will be running a Public Observing evening at the Thomas King Observatory and outside the Dominion Observatory with Ross Powell in charge. This will coincide with Earth Hour at 8.30 to 9.30pm and this will give us an opportunity to see if any lights are switched off.

On Saturday 4th April we will be starting the 100 hours of Astronomy at Civic Square and this will begin at 12 noon and run until we drop. It would be good if as many of our members as possible could turn up to these events.

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.

Mare Nectaris and surrounds by John Field



This image shows the Rupes Altai (Altai Scarp) that starts near the crater Piccolomini 90km in diameter, upper right, and ends near the 100km crater Catharina. The scarp is the outer impact ring of the Mare Nectaris (Sea of Nectar) which is the left of this image. The scarp marks a 3-4 km drop into the basin the rim the scarp disappears in the lower middle of the image and the drop down is less pronounced past Picclomini. The Mare Nectaris basin is 860km in diameter, only the central region was flooded with dark mare lava.

The three large craters in the lower left are, from left to right, Theophilus, Cyrillus and Catharina. All are about 100 km in diameter and Theophilus is the youngest of the three as it shows the least degradation and spills over Cyrillus.

The inner ring of the basin is marked by the mare itself and

shows how the upwelling of lava-filled craters that happened after the formation of the basin and prior to the flooding. This is most obvious in the middle left where the crater Fracastorius (124 km) forms a "bay" along the sea's edge. Close inspection through a telescope will reveal more of these features. Image taken at prime focus of Meade 8-SCT with a Canon 300D at ISO 200 and 1/250th of a second exposure, processed in Adobe Photoshop.

Comet Lulin passes by Saturn by John Field



Comet Lulin passed close by Saturn on the 25th of February 2009. The comet was easily seen in binoculars but I could not see it with the unaided eye. The comet was moving quickly across the sky and was at its brightest. This image is a portion of a guided 3-minute exposure taken using Canon 1000D and Sigma zoom lens at 86mm, f4 and ISO 400 piggy backed on a Meade 8-SCT at Stokes Valley.

What's In the Sky in April: Information Provided by Alan Gilmore

The brightest stars are mostly spread along a strip from the northwest, overhead and into the southeast evening sky. **Sirius** and the bright stars of **Orion** light up the northwest sky. **Canopus** is a little southwest of the zenith. **Crux**, the Southern Cross, and the Pointers are in the southeast. On the southeast horizon the Scorpion is rising, upside down. **Saturn** is bright in the northeast with **Regulus**, the head star of **Leo** the lion, to its left.

Sirius is the first star to appear at dusk, northwest of overhead. Below it **Rigel** and **Betelgeuse** become visible. They are the brightest stars in **Orion**. Rigel is bluish-white in colour. It is a supergiant star, 40 000 times brighter than the sun and much hotter: 800 light years* away. Orange Betelgeuse is a red-giant star, cooler than the sun. It makes up for its duller surface by its size: hundreds of times the diameter of the sun. It is 9 000 times brighter than the sun and 400 light years from us. Between Rigel and Betelgeuse is a nearly vertical line of three stars, Orion's belt. To southern hemisphere star watchers, the line of three makes the bottom of 'The Pot'. A fainter line of stars above and left of the belt is Orion's sword, or the handle of The Pot. In the middle of Orion's sword is a glowing gas cloud, the Orion Nebula. It is a place where stars are forming.. Orion's belt points down to the orange star **Aldebaran**, one of the eyes of Taurus the bull.

Sirius, 'the Dog Star', marks the head of **Canis Major** the big dog. A group of stars above it make the dog's hindquarters and tail. Sirius is the brightest star in the sky both because it is relatively close, nine light years* away, and 23 times brighter than the sun. **Procyon**, below and right of Sirius, marks the other dog following Orion the hunter across the sky. Below and right of Procyon are **Castor** and **Pollux**, the head stars of **Gemini** the twins. **Crux**, the Southern Cross, is in the southeast. Below it are Beta and **Alpha Centauri**, often called 'The Pointers'. Alpha Centauri is the closest naked-eye

star, 4.3 light years away. A telescope shows it is a binary star: two suns orbiting each other in 80 years. Beta Centauri and many of the stars in Crux, Centaurus and Scorpius are blue-giants hundreds of light years away. So is **Canopus**: 13 000 times the sun's brightness and 313 light years away..

The **Milky Way** is brightest in the southeast toward **Scorpius**. It can be traced up the southeast sky, fading overhead and becoming faint right of Orion. 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, below Scorpius in the late night sky. The nearby outer edge is the faint part by Orion. A scan along the Milky Way with binoculars will find many clusters of stars and some glowing gas clouds. Dark clouds of dust and gas make holes and slots in the Milky Way.

The Clouds of Magellan, **LMC** and **SMC**, are midway down the southern sky, below Canopus; easily seen by eye on a moonless night in a rural sky. They are two small galaxies about 160 000 and 200 000 light years away. The LMC is about 5% the mass of the Milky Way galaxy; the SMC around 3%; but that's still billions of stars in each galaxy.

Saturn is in the northeast with fainter **Regulus** to its left. The rings of Saturn are nearly edge on in 2009. In a telescope they look like a skewer through the planet with Saturn's moons strung along the same line. Only Titan, the biggest moon in the solar system is visible in small telescopes. Jupiter, not shown, rises in the southeast around 1 a.m.; a very bright golden 'star'. Binoculars show it as a small disk. A telescope will reveal its four big moons strung out on either side of the planet. Venus is the brilliant 'morning star', rising in the dawn twilight at the beginning of April but around 4 a.m. by the end of the month. Reddish Mars will be to the right of Venus around the 23rd.

*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 four years to reach the nearest star, Alpha Centauri.

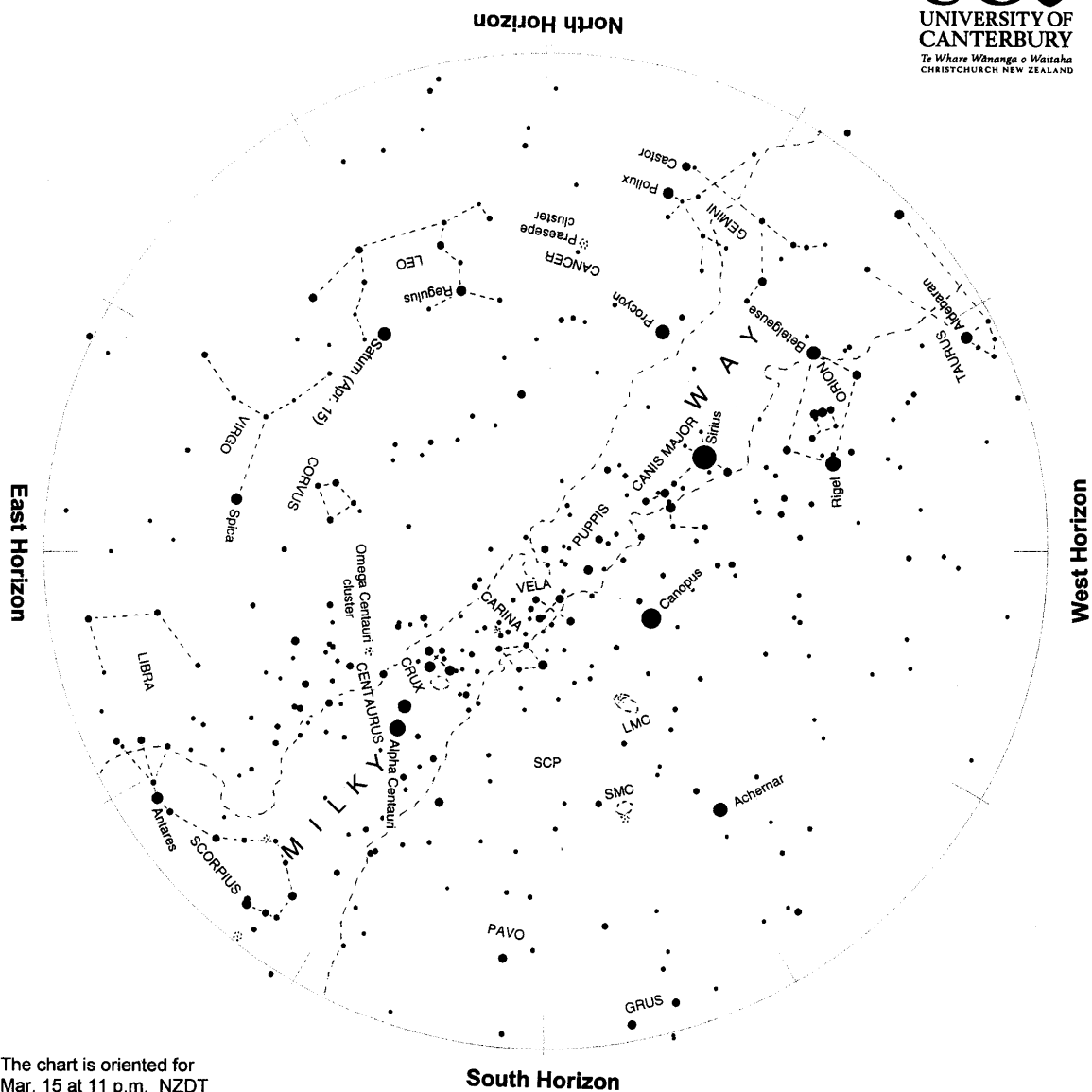
Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.
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The chart is oriented for
 Mar. 15 at 11 p.m. NZDT
 April 1 at 10 p.m. "
 April 15 at 8 p.m. NZST
 May 1 at 7 p.m. "

Evening sky in April 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 or clockwise 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 northeast with fainter Regulus to its left. Crux, the Southern Cross, and The Pointers are high in the southeast sky. 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