

# WELLINGTON ASTRONOMICAL SOCIETY



Image of M51 Courtesy of NOAO/AURA/NS

## ***NOTE CHANGE OF DAY AND VENUE***

**MONTHLY MEETING: M51, Silvered Glass  
and the Internet  
THURSDAY 3rd APRIL 2008 7.30 PM**

**Alliance Francais  
Level 3  
Dominion Building  
78 Victoria Street,  
Wellington**

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### Change of Venue details

Wellington Astronomical society is going to be hosted on Thursday April 3rd by Alliance Francaise and members are welcome to come from 7.30pm for a wine and cheese / patés reception, and the presentation could start from 8:30 pm. Alliance Francais meets in level 3 of the former Dominion building, 78 Victoria Street, Wellington which is opposite the Library.

### M51, Silvered Glass and the Internet by William Tobin

M51, the Whirlpool, is the nebula in which spiral structure was first discovered, in 1845, by the Third Earl of Rosse using his 'Leviathan' reflecting telescope with giant, 6-foot bronze mirrors. A recently unearthed drawing of M51 made in 1862 with Léon Foucault's newly-completed 80-cm silvered-glass reflector in Paris is better than all other 19th-century drawings of the nebula. However the superiority of metallised glass or ceramic mirrors over bronze ones comes as much from their greater rigidity and the faster focal ratios achievable via the sensitive optical testing techniques initiated by Foucault. As for the Internet, the burgeoning numbers of 19th-century texts available on-line with full-text search capability makes it possible to investigate questions such as how M51 acquired its 'whirlpool' epithet. Surprisingly, the astronomical appropriation of 'whirlpool' predates the discovery of spiral structure.

William Tobin lectured in the University of Canterbury's Department of Physics & Astronomy from 1987 until his retirement to France in 2006. He is author of the definitive biography of the French scientist Léon Foucault, who as 'physicist' at the Paris Observatory in the 1850s devised the reflecting telescope in essentially its modern form. Canterbury's Erskine Fund has brought William back to New Zealand as a Visiting Fellow and is a sponsor of this talk, which will be plentifully illustrated. No knowledge of French needed!

### Obituary for Gunter Van Dijk Royal Astronomical Society of New Zealand. Material from Email Newsletter Number 90, 22 March 2008

The passing of Gunter van Dijk, who died peacefully at Tauranga Hospital on 13 March, will sadden many readers of the Newsletter. A funeral service celebrating his life was held in Tauranga on 17 March.

Gunter had a life-long passion for astronomy. He was a keen founder member of the Wellington Astronomical Society and the Wellington Planetarium Society, and his house in Lower Hutt was a venue for early meetings of the Planetarium Society. He was a very active supporter of the Planetarium, initially as a volunteer operator, and subsequently as its third Director. Gunter was extensively involved in the Planetarium's relocation from the Wellington civic centre to Carter Observatory in 1992. He took a great pride in his work for the Planetarium at both sites, especially when nurturing the interests of young people in astronomy. He will be remembered by his many friends in the astronomical community as a cheerful, energetic, enthusiastic, and always obliging fellow enthusiast.

His wife Patricia, three children, and seven grandchildren survive Gunter. . A message of sympathy has been extended to his wife Patricia, who may be contacted c/- PO Box 8139, Tauranga

## Special General Meeting in May: Changes to the WAS Constitution. Information supplied by John Field, President WAS

To continue to receive the tax-free status of the Society, our current constitution requires changes. These require the inclusion of how the Society benefits the community (**highlighted**). Clauses 5 & 6 have been altered to expressly include our commitment to community involvement, which we are actually already doing. Clause 23 has also been altered to bring the constitution in line with current laws on the disposal of the Society's assets if the Society was to wind up. An addition to clause 18 is needed to prevent us changing the nature of the Society. These changes are shown below, and **highlighted** in bold typeface. If you wish to view the current constitution it can be downloaded from WAS website: [www.was.org.nz](http://www.was.org.nz)

These changes need to be approved at a Special General Meeting after which the updated constitution will be submitted to the Registrar of Incorporated Societies and IRD for their acceptance. As all societies around New Zealand have been asked to make similar changes I hope these will be accepted at the upcoming meeting in May.

### Altered clauses:

#### **1. OBJECTS OF THE SOCIETY**

(5) **To benefit the community** by encouraging astronomical research, skills and **knowledge by activities including displays at schools and public events.**

(6) **To benefit the community** by promoting and holding lectures, meetings and discussions either between members of, or with, other clubs, societies or associations of a similar nature and, if the Society should decide, to hold competitions or examinations and give prizes, awards, certificates or medals, and public events.

#### **23. DISPOSAL OF ASSETS**

In the event of the Society being put in liquidation the appointed liquidator shall hold the assets of the Society on trust. After payment of any costs incurred by the liquidator and payment by the liquidator of all debts and liabilities of the Society, any surplus funds and remaining assets of the Society shall be distributed to **an approved charitable trust**, organisation or organisations **in New Zealand** with similar objects to the Society. Preference shall be given to such organisation or organisations as may be determined by resolution of a General Meeting of members of the Society.

### New clause:

#### **18. ALTERATION OF THE CONSTITUTION**

(4) No addition to or alteration or recession of the rules shall be approved if it affects the objects, personal benefit clause or the winding up clause. The provisions and effect of this clause shall not be removed from this document and shall be included and implied into any document replacing this document.

John Field, President, Wellington Astronomical Society

Lesley Hughes, Treasurer, Wellington Astronomical Society

## Upcoming Star Parties

We often post up-to-date information about upcoming star parties on the society's announcements' email group. If you'd like to join, send a blank email to: [announce-subscribe@was.org.nz](mailto:announce-subscribe@was.org.nz).

The Gifford star party will be held on Saturday April 5<sup>th</sup>. The contact person is Marilyn Head, Ph 389-0882 or email [marilyn@actrix.co.nz](mailto:marilyn@actrix.co.nz)

The Pauatahanui star party will be held on Saturday April 5<sup>th</sup>. Observing will commence after dark. The Phone number at Pauatahanui is 021-102-6056

**Please note that mobile charges** may apply when you phone some of these numbers

## What's in the Sky in April. Information supplied by Alan Gilmore, University of Canterbury, Mt John Observatory.

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. **Mars** makes a triangle with **Castor** and **Pollux**, the head stars of **Gemini** the twins, low in the sky a little west of due north. **Saturn** makes an eye-catching pair with Regulus, the head star of **Leo** the lion, midway up the north sky. **Sirius** is the first star to appear at dusk, northwest of overhead. Below and west (left) of it **Rigel** and **Betelgeuse** become visible. They are the brightest stars in **Orion**. Rigel is bluish-white and Betelgeuse orange. 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'. 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. **Rigel** is a supergiant star, 40 000 times brighter than the sun and much hotter. It is 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.

**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 Cen and many of the stars in Crux are blue-giants hundreds of light years away. **Canopus** is also very luminous and distant.

The **Milky Way** is brightest in the southeast toward **Scorpius**. It can be traced up the sky, fading overhead and becoming very 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, easily seen by eye on a dark moonless night. 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's** rings and its largest moon, Titan, are visible in small telescopes. The rings are 'closing ' now and will be edge-on in 2009. Saturn is around 1300 million km away. Mars is very tiny in a telescope being half the diameter of Earth and 220 million km from us.

Jupiter, not shown, rises in the southeast around 11 p.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. Mercury, much fainter, is below and right of Venus at the beginning of April but soon falls lower into the twilight.

\*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.

#### Phases of the Moon

New Moon - 6 <sup>th</sup> April - 16.00	First Quarter Moon 13 <sup>th</sup> April - 07.00	Full Moon 20th April - 22.00	Last Quarter 29 <sup>th</sup> April - 02.00
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## Diary of Solar System Events in April 2008 for New Zealand. Information taken from the RASNZ website

Date  
(NZDT)

- April 4      2.5% lit crescent Moon 4.5° from [Venus](#) in the morning sky.
- April 6      NZDT ends at 3 am NZDT = 2 am NZST.
- April 6      New Moon at 3:55 pm NZST (03:55 UT).
- April 8      Moon at perigee, its closest to the Earth for the Lunar month, 361085 km.
- April 12     45% lit Moon 2° from [Mars](#), magnitude 1.0, evening sky.
- April 13     Moon at first quarter 6:32 am NZST (Apr 12, 18:32 UT).
- April 15     77% lit Moon 3° from star Regulus at 7 pm, 1.25° at midnight, occultation south and west of Australia. Moon also 5.2° from Saturn (magnitude 0.5) at 7 pm, 3.6° at midnight.
- April 16     [Mercury](#) at superior conjunction on far side of Sun.
- April 19/20    99% lit Moon 6° from star Spica, magnitude 1.1, evening sky, 3° low to west an hour before sunrise morning of 20th.
- April 20     Full Moon at 10:25 am NZST (10:25 UT).
- April 23     Moon at apogee, its greatest distance from the Earth for the Lunar month, 405946 km.
- April 24     91% lit Moon occults the star Antares in morning sky. Disappearance at lit limb, reappearance at unlit.
- April 27     [Mars](#) 4.8° above Pollux in evening sky. Both with magnitude 1.2.
- April 28     59% lit Moon 6° from [Jupiter](#) in morning sky.
- April 29     Moon at last quarter 2:12 am NZST (Apr 28, 14:12 UT).
- April 30     38% lit Moon less than 0.5° from [Neptune](#), magnitude 7.9, in morning sky. Occultation of Neptune visible from northern half of Australia.

### Sunrise/Sunset

The table gives the time of Sun rise and Sun set for Wellington. These can be used from year to year as the times will not vary by more than a minute or two on the same date from year to year. Times are for a horizon level with the observer and do not allow for hills or mountains obscuring the horizon. New Zealand Standard time (NZST) is used in the winter months and is 12 hours ahead of Universal Time (UT) which is virtually the same as Greenwich Mean Time (GMT). New Zealand Daylight Time (NZDT) is used in summer and is 13 hours ahead of UT. NZDT starts from the last Sunday in September from 2007 onwards and finishes on first Sunday in April from 2008 onwards. Previously NZDT had been between the first Sunday in October and the third in March respectively.

Date	Rise NZDT	Set NZDT
Apr 1	07:45	19:21
Apr 11	06:46	17:57
Apr 21	06:57	17:42

**Moonrise and moonset tables for Wellington during April.**

The times listed are in New Zealand standard time (NZST). Add one hour when New Zealand Daylight Time (NZDT) is in force until April 6th.

Date	Day	Rise	Set	Date	Day	Rise	Set	Date	Day	Rise	Set
1	Tue	0027	1537	11	Fri	1228	2130	21	Mon	1735	0734
2	Wed	0136	1604	12	Sat	1342	2241	22	Tue	1805	0837
3	Thur	0246	1629	13	Sun	1424	2355	23	Wed	1840	0940
4	Fri	0357	1653	14	Mon	1457	-----	24	Thu	1923	1039
5	Sat	0510	1716	15	Tue	1524	0106	25	Fri	2014	1133
6	Sun	0626	1742	16	Wed	1546	0215	26	Sat	2111	1221
7	Mon	0745	1811	17	Thu	1607	0321	27	Sun	2214	1302
8	Tue	0905	1846	18	Fri	1627	0425	28	Mon	2320	1335
9	Wed	1025	1930	19	Sat	1648	0528	29	Tue	-----	1404
10	Thu	1142	2024	20	Sun	1710	0630	30	Wed	0027	1429

## Council Contact details

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## Editorial Disclaimer

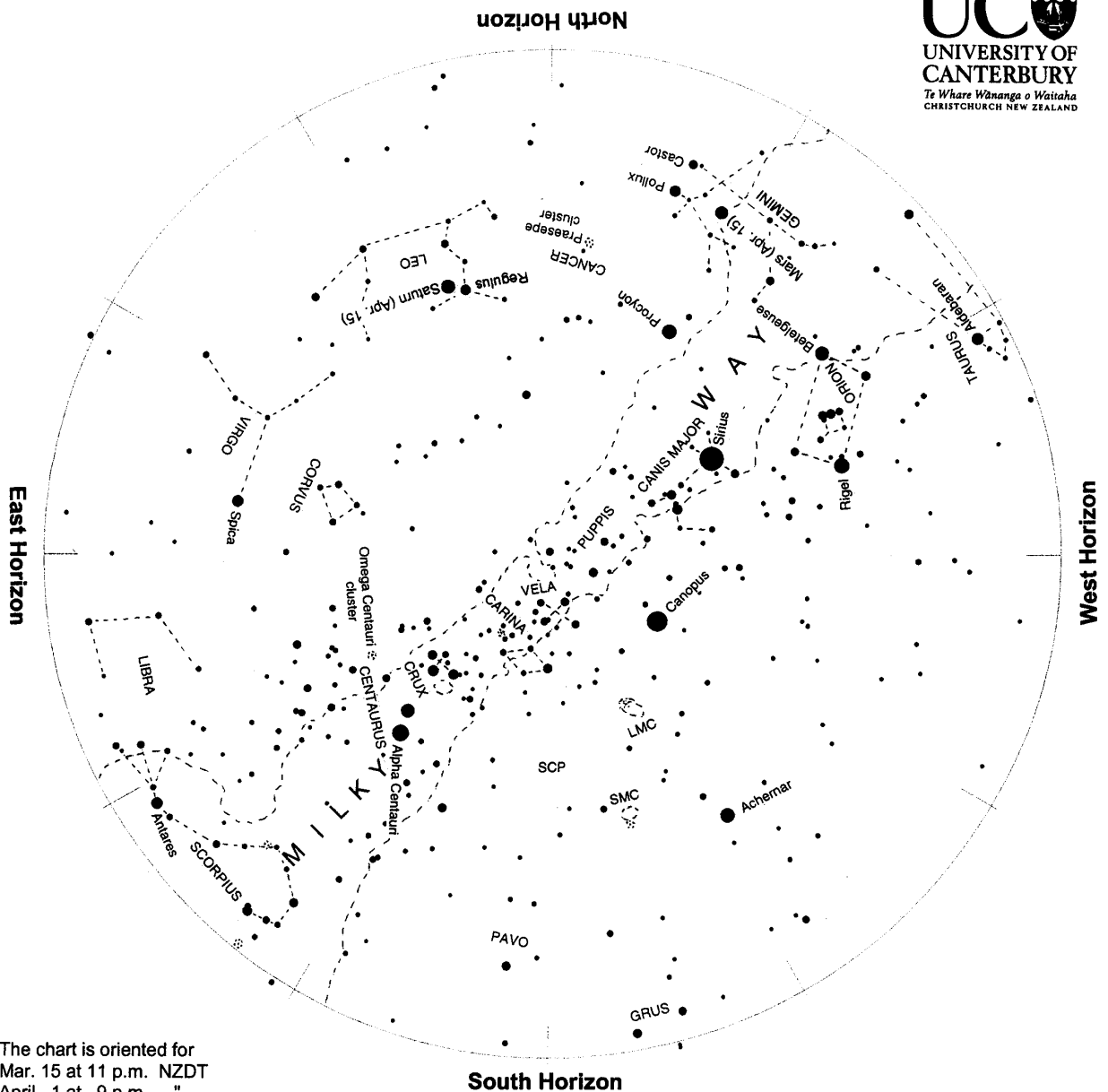
Views expressed in this newsletter are not necessarily those of the Society as a whole

## NZ IYA Website - Biographies Still Needed. Information taken from RASNZ email Newsletter Number 87, 25 November 2007

Marilyn Head, RASNZ Publicity officer, is still looking for notes of upcoming events and for local biographies.

She writes "The NZ International Year of Astronomy (IYA) site is up and running thanks to the sterling efforts of Roland Idacsyk at <http://www.astronomy2009.org.nz> To make it as useful as possible we'd like it to be comprehensive so please let me know if you want any events - and that includes any from now until the end of 2009 - to be posted. A critical part is the section that deals with NZ astronomers - past, present and overseas. We would like to include as many active astronomers as we can - it should end up being the Who's Who of NZ astronomy. So we would like all individuals and societies to send me (not Roland) names and very short profiles with any relevant links to be posted."

Marilyn's email address is on [www.writerfind.com/mhead.htm](http://www.writerfind.com/mhead.htm)



The chart is oriented for  
 Mar. 15 at 11 p.m. NZDT  
 April 1 at 9 p.m. "  
 April 15 at 8 p.m. NZST  
 May 1 at 7 p.m. "

**Evening sky in April 2008**

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, appears northwest of overhead. Directly below it is Orion with 'the Pot', steeply tilted, at its centre. Canopus, the second brightest star, is southwest of overhead. Saturn makes an eye-catching pair with Regulus in Leo, midway up the northern sky. Mars, orange and fading, moves toward Gemini's Castor and Pollux, low in the northwest. Crux, the Southern Cross, and The Pointers are midway up the southeast sky. The Milky Way spans the sky from southeast to northwest.

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

## **GALEX Looks Back in Time. Article © NASA**

GALEX (short for Galaxy Evolution Explorer) is a space telescope that was launched into orbit around Earth in 2003. GALEX sees ultraviolet light, a kind of light not visible to humans.

To see ultraviolet light, GALEX must be in space, because very little of this kind of light can shine through Earth's atmosphere. GALEX is particularly good at seeing areas of galaxies where stars are forming, because young stars glow more brightly in ultraviolet light than do older stars. GALEX is now looking at tens of millions of galaxies. The GALEX idea of great spiral galaxy M81 has very, very old stars in the centre (yellow) and stars that look blue in the spiral arms which have formed much more recently.

GALEX sees starlight that has been travelling for just a few years from stars that are "only" a few trillion kilometres away. But it also sees really old, red-shifted starlight. Light from the farthest of these has been travelling for most of the 13.7 billion years that the universe has existed! So GALEX is seeing galaxies as they were billions of years ago, as well as how the nearby galaxies looked just a few hundred thousand years ago.

For example, astronomers know that galaxy M81 is 10 million light years away because of how red-shifted the light is coming from M81. Just as you look younger in a picture of you from several years ago, GALEX sees galaxies as they looked when they were much younger than they are now, because that is when the light we see now was emitted. By comparing these "far" pictures with the "near" pictures, they can see how galaxies and their stars are born, age, and die over time. They can learn how galaxies evolve.

## **Get Your Gummy Greenhouse Gases! Material supplied by Nancy J Leon, Education and Public Outreach Lead NASA New Millennium Program/Space**

Making science edible--and sweet--is a reliable way to attracts kids' interest. The new "Gummy Greenhouse Gases" activity on The Space Place web site makes it fun and easy to learn a bit of chemistry and to find out why too many of these kinds of molecules in the air are likely to cause Earth to get warmer. At <http://spaceplace.nasa.gov/en/kids/tes/gumdrops>, kids use gumdrops and toothpicks to make simple molecules of ozone, nitrous oxide, carbon dioxide, water vapour, and methane. The curious can go on to <http://spaceplace.nasa.gov/en/kids/tes/gases> to learn more about the greenhouse effect and about the "good and bad" roles of ozone. A short video shows how new space technology can literally paint a 3-D picture of these gases all around the globe. Afterwards, the ghastly gases can be consumed (mind the toothpicks!), thus helping the environment