

WELLINGTON ASTRONOMICAL SOCIETY

**MONTHLY MEETING: Sundials of Europe
WEDNESDAY February 13th
7.30 PM
SCIENCE HOUSE
TURNBULL STREET
THORNDON
WELLINGTON**

CONTENTS

Upper Hutt Carnival – Saturday 23rd February

This is a day of fun, food and entertainment. This event is being held in Trentham Memorial Park Upper Hutt To be held on Saturday, February 23, 2007, starting at 10am and finishing at 5pm. For more details contact Brenda Johnston ph 461-6612 daytime or 4789-008 night email bjohnston@was.org.nz or Vicki Irons Ph.3838710 or email virons@was.org.nz We hope to do some solar viewing. Although only telescopes equipped with solar filters will be able to be used we still need members to help with the event. The WAS dobbies will need someone to operate them. It is a great opportunity for members to showcase astronomy.

Report on “Anything Vintage” event at Queen Elizabeth Park

I was able to bring the Galactic Circle dobbie as well as my Zenith star 80mm refractor. I set up camp amongst the people from the Wellington Vintage Machinery club. Later Lesley Hughes and Bill Parkin, who brought the society's C8 and some computer gear joined me. Initially we were located near the Wellington Vintage Machinery club's exhibits but the unexpected arrival of a number of tractors from the Horowhenua made it easier to shift to the station platform. That turned out to be a real bonus as we had a regular stream of visitors and some shade from the hot sun.

The Galactic Circle dobbie and the Zenith Star were used to show people close up views of the nearby vegetation and more distant view of manmade objects like power pylons. It was a good opportunity to demonstrate how telescopes work and the differences between reflectors and refractors. Bill set up the C8 with a solar filter so that people could observe the Sun safely. At times he linked the C8 up to a small television monitor. An amazing feature of the Sun was that for the previous few weeks it had no visible sunspots so the view through the C8 was part of a completely blank white disk. Another bonus was that the station didn't begin to block off the Sun until after 4pm as the event began to wind down for the day. Bill and Lesley went home.

Unfortunately Saturday night suffered from patchy cloud but Graeme Moffatt and I were able to look at Mars. One problem was that neither of us could stay up too late as we had a long day to come. Of course as soon as the gear was packed up and I went off to my tent it cleared.

On Sunday morning Bill and Lesley returned with one of the WAS dobbies. This arrival enabled us to demonstrate how different tube length affects magnification in two otherwise same size telescopes. The forecast for Monday was not good with “rain” being predicted. There had been drizzle overnight and we could see a black cloud looming nearby threatening to dump its load all over us. Bill and Lesley

joined me again and suddenly the black cloud departed elsewhere. There were times when the wind made things decidedly unpleasant. One surprising aspect was that the seeing was the best we had encountered over the weekend. I was able to use a 4.7mm eyepiece in my refractor to both examine pohutukawa flowers on nearby trees and the vegetation up on the hill. In the windy conditions we had a few problems with the stability of the Galactic Circle dobbie, realised it was not correctly weighted and decided it was not safe to use. It is now under maintenance.

A good time was had by visitors and demonstrators alike, while showing the fun of telescopes!

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. There are no star parties at either Gifford or Pauatahanui during February 2008

Stargazing : A beginners guide. By John Field

When you are beginning to learn your way around the night sky many people race off to the local camera shop and come home with a small refractor. The refractor is mounted on a shaky tripod and with an incredibly small finderscope. After an evening trying to find the Moon or Jupiter with little success the telescope is condemned to the cupboard and astronomy is seen as "too hard." If I told you there was a much easier way to observe the Moon, star clusters, nebulae and even galaxies would you believe me?

After the eyeball and a dark sky, the best friend to many astronomers, is a good pair of binoculars. Binoculars provide a better investment for your hard earned dollars. They enable you to observe objects during the day and at night you can explore the local Universe! The image observed is oriented to the real world making use of starcharts and simple star hopping far easier. If you have a pair of binoculars at home, or want to purchase a pair, I will give some hints on what to look for in getting the best from them.

Binoculars come in a variety of types and quality and the final choice may depend on your budget. The two most important features of binoculars are two numbers that tell us the magnification and the objective size. Magnification is how much closer the object will appear and the objective is size of the lens, the part that is "gathering" the light. Normally these numbers are found near the eyepieces and may be 7 x 50 or 10 x 50. Both of these binoculars have 50-millimetre objective lens and one magnifies 7 times, the other 10 times. There may also be information on their field of view (FOV), on my 10 x 50s it states that I have a FOV of 5.7 degrees. Different binoculars will have different FOV's so you can pick and choose your own preferences. One of the big factors you would want to think about is ease of use, 7 & 10 x 50s can be easily held for periods of times. Bigger binos- 15 & 20 x 70's are much heavier and require either a mount or very strong arm muscles! I would recommend 10 x 50's as a happy compromise between magnification and weight.

When it comes purchasing remember to try out the binos before leaving the shop. See how sharp the image is by looking at a distant sign and scan from one side to the other to see if the image is sharp all across the field. If not try another pair to see if the problem is systemic or the pair you have, have been dropped at some stage. Test the ease of focusing and weight, if they are heavy you may want to try another type to see if there is a difference or is it possible to attach them to a camera tripod? The prices can vary greatly on models and manufacturers but you may find 10 x 50's at \$300 perform only slightly better than \$100 binos.

If your eyes can't detect a difference then go for a cheaper model and save the money for a good star chart or other accessories.

When using your binos here are a couple of hints:

1, be comfortable and

2, be **comfortable!** Nothing can ruin an observing session faster than being uncomfortable. Remember to dress warmly. Even on a warm night it can get chilly whilst observing. Protect yourself from small biting insects. Holding binoculars and looking upwards is a real pain-in-the-neck after awhile. To ease the pain and enjoy the view you could mount your bino's on a pole and sit in a reclining chair or, as I do, use a sun lounger with an adjustable back. I orientate the lounger in the direction I wish to view, adjust the angle of the back and lie back with my weight supported by the lounger. On a table beside me I have my Collins Starguide, red light torch, and my little note book and pencil, more than likely the cat will also join by either curling up by my feet or sitting on my tummy (a great hot water bottle substitute!). I then sweep the area I want to observe until I find all the objects I can. I then move on to another part of the sky, if I get the chance!

Not only will you find things that you may never have seen before, you will also learn how to star hop to faint objects making the move from naked eye observing to observing with a telescope much easier.

Good hunting!

What's in the sky in February: Information provided courtesy Carter Observatory

Planets

February is a good month for viewing the planets. Mars, Saturn, Jupiter and Venus are visible all month. Mercury will be seen for the second half of the month in the morning sky.

Mars will be visible for the first half of the night. At the start of the month it sets at 02 33 and at 01 04 by month's end. Mars is in the constellation of Taurus. In February its magnitude fades from -0.6 to 0.2.

Saturn is visible for all but the very start of the night at the beginning of February. At the start of the month it rises at 21 49 and by February 25 it rises as the Sun sets at 20 11. Saturn is in the constellation of Leo, in which it remains until September 2009. Its magnitude slightly brightens from 0.4 to 0.2, its brightest for the year, during the month.

Jupiter will be visible for the last quarter of the night in February. At the start of the month it rises at 03 52 and at 02 28 by month's end. Jupiter is in the constellation of Sagittarius, in which it remains until January 2009. Its magnitude slightly increases from -1.9 to -2.0 during the month.

Venus will be visible in the Eastern morning twilight sky. At the start of the February it rises at 03 51 and at 04 48 by month's end. Venus starts the month in the constellation of Sagittarius, moving into Capricornus on February 19. Venus slightly fades from -4.0 to -3.9 during the month.

Mercury is will be seen in the morning sky for the second half of the month. By February 14 it rises an hour before the Sun at 05 40 and at 04 45 by month's end. Mercury starts the month in the constellation of Capricornus, moving into Aquarius on February 5 and back into Capricornus on February 15. From February 14 its magnitude rapidly brightens from 1.8 to 0.2 by month's end.

All times are for Wellington unless otherwise stated. Other centres may vary by a few minutes.

Phases of the Moon

New Moon – February 7 at 16 44.	First Quarter – February 14 at 16 33	Full Moon – February 21 at 16 30.	Last Quarter – February 29 at 15 18.
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Occultation of Antares by the Moon on February 2.

The bright star Antares will be occulted by the Moon on the morning of Saturday, February 2 for all but the very Northern parts of the country. The Northern limit is defined by a line through the following locations:-

31 km ~SW (Azimuth 218°) of Whangarei.

44 km ~NE (Azimuth 37°) of Auckland.

42 km ~NE (Azimuth 37°) of Tauranga.

24 km ~NE (Azimuth 37°) of Whakatane.

32 km ~NE (Azimuth 36°) of Gisborne.

At this Northern limit a grazing occultation will be seen, where the star will graze along the edge of the Moon. If the observer is in exactly the correct location, the star will disappear and reappear several times as it is obscured by the mountains and peaks on the Moon's surface. For more information about this, please go to the Occultation section of the Royal Astronomical Society of New Zealand (RASNZ). (

<http://occsec.wellington.net.nz/>)

The table alongside gives the time of the disappearance (D) and the time of the reappearance (R), in New Zealand Daylight Time (NZDT). These times are given to the nearest minute. The Moon is just past Last Quarter. The disappearance will be fairly easy to see although it is in the dawn twilight. However, the reappearance will be difficult or impossible to observe, the further South you are, as it happens close to or later than Sunrise.	Location	Disapp ear (D) h m	Reappe ar (R) h m
	Wellingt on	05 40	06 28

Solar Eclipse on February 7

The Annular eclipse of the Sun on Thursday, February 7 will be a partial eclipse for the whole of New Zealand. The following table gives the times for Wellington. We are given the Daylight Time (NZDT) of the start, maximum eclipse, end of the eclipse, and the maximum percentage of the eclipse.

Location	Start h m	Max h m	End h m	Ma x %
Wellington	16 36	17 43	18 44	63

WARNING: Great care must be taken when observing the Sun. Never look directly at the Sun, with or without magnification, as serious eye damage can result. The only safe way to observe the Sun is with a specially designed filter or by projection. You may find that your Astronomical Society will have safe viewing equipment for this event.

If the weather is clear, the Thomas King Observatory (on the rise in front of Carter Observatory) will be open for the duration of the eclipse. We will use a special solar

filter for safe viewing of the eclipse. For more details contact the Observatory on the day.

Comets--No bright comets are predicted to be visible during February.

Meteor Showers

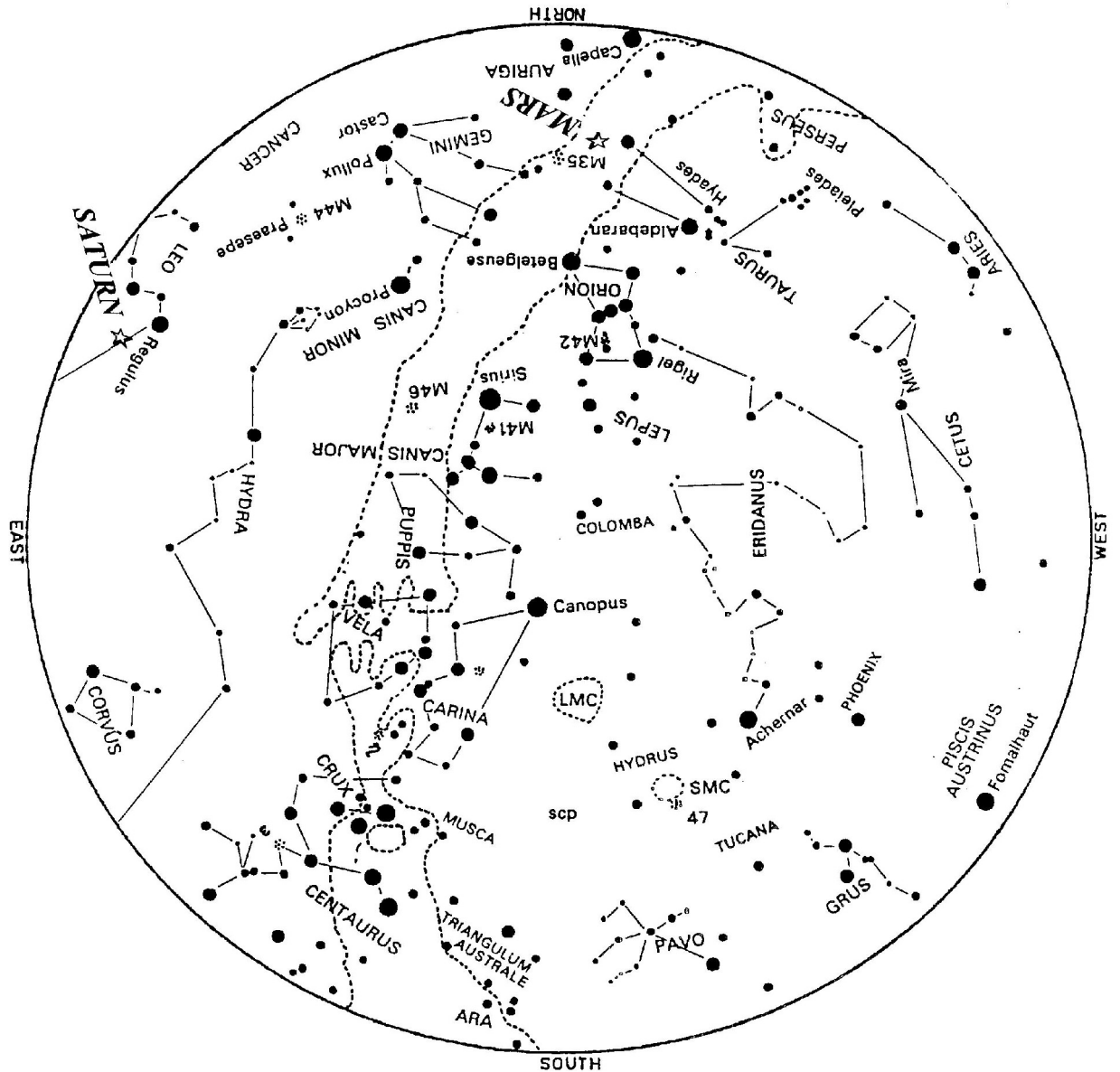
February is a relatively quiet month for **Meteor showers**.

The only notable shower is the alpha Centaurids, which is active from January 28 to February 21. It reaches maximum activity on February 07. This shower is worth watching out for as it has bright meteors (mean magnitude is 2.0), and is one of those which has marked variations in Zenith Hourly Rate. In some years without warning - rates of 25, or even higher, occur. The radiant is at R.A. 14h 00m and Dec -59°. The radiant is in the constellation of Centauri, near to Hadar (beta Centauri), the fainter of the two pointers, which is visible for the whole of the night.

A second, weaker shower in February, the gamma Normids, is active from February 25 to March 22, but only reaches its maximum activity on March 14 when 8 meteors an hour are expected. The mean magnitude of the meteors is 2.4, and the radiant is at R.A. 16h 36m and Dec -51°. The radiant is in the constellation of Normae. There is no convenient bright star at this point. So draw an imaginary line from the Acrux (alpha Crucis), the bottom and brightest star in the Southern Cross to Rigel Kentaurus (alpha Centauri), the brighter star of the two pointers. Continue the line for about the same distance between the two stars to be approximately at the radiant point. This radiant point is visible for the whole of the night although is very low in the southern evening sky.

FEBRUARY SKY MAP PROVIDED BY CARTER OBSERVATORY

This chart shows the sky as it appears at about 22 00 for ~February 15.



How To Use the Sky Charts

To use the sky chart hold it up to the sky so that the direction in which you are looking is at the lower edge of the map. For example, if you are looking at the western horizon then the map should be held so that the "WEST" label is at the lower edge. The altitude and direction of the stars and planets will then be correctly shown. The centre of the chart will be directly overhead. The above chart is for 21:00 NZST, but other month's charts, from previous WAS Newsletters, can be used at other times of the night. The table below indicates which month's chart, from back copies, can be used at other times during this month.

For this time of the night:	00	02	04
	00	00	00

Use this month's charts:	Mar.	Apr.	May.
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Note that although the stars will be correctly positioned, the planets will not be correct as they move against the background stars from month to month.

Diary of Astronomical Phenomena: Information provided by Carter Observatory

- Feb 2 Antares is occulted by the Moon for most of New Zealand at ~07 00.
- 7 Mercury in inferior conjunction (between the Earth and Sun) at 06 00.
- 7 New Moon at 16 44 and Solar eclipse.
- 14 Moon at perigee (closest to the Earth) at 14 00. (Distance = 0.0024748 AU = 370,220 km).
- 16 Mars 1.6°S of Moon at 21 00.
- 19 Mercury stationary against the background stars at 05 00, as its motion changes from a Westerly to an Easterly direction.
- 21 Full Moon at 16 30.
- 22 Saturn 3°N of Moon at 01 00
- 24 Saturn at opposition (on the opposite side of the Earth to the Sun) at 23 00.
- 26/27 Venus close to Mercury in the morning sky.
- 28 Moon at apogee (furthest from the Earth) at 14 00 (Distance = 0.0027035 AU = 404,440 km).

Sunrise/Sunset

Below are Sunrise and Sunset times for each Monday of the month for Wellington,. The table also gives the time of Transit (Trans), the maximum Altitude (Alt) and the Azimuth (Az). ..

<p>The time of transit is when the Sun crosses the local North-South meridian from East to West. At the time of transit, shadows will point South. The transit time is also the time at which the Sun is at its maximum altitude (Alt). Assuming your horizon is at sea level, the Azimuth is the position on the horizon where the Sun rises or sets. The angle is measured from true North (not magnetic North), towards the East for Sunrise and towards the West for Sunset. An azimuth of 90°, for Sunrise, means the Sun rises exactly in the East and for Sunset the Sun sets exactly in the West.</p>	<p>For azimuths less than 90°, the Sun rises to the North of East and sets to the North of West (Winter months). For azimuths greater than 90°, the Sun rises to the South of East and sets to the South of West (Summer months). Other New Zealand centres may differ slightly from Wellington</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Date</th> <th>Rise</th> <th>Set</th> <th>Trans</th> <th>Alt</th> <th>Az</th> </tr> <tr> <th>Feb</th> <th>H M</th> <th>H M</th> <th>H M</th> <th>°</th> <th>°</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>06 29</td> <td>20 39</td> <td>13 34</td> <td>65</td> <td>11 2</td> </tr> <tr> <td>11</td> <td>06 38</td> <td>20 31</td> <td>13 35</td> <td>63</td> <td>10 9</td> </tr> <tr> <td>18</td> <td>06 47</td> <td>20 22</td> <td>13 35</td> <td>61</td> <td>10 6</td> </tr> <tr> <td>25</td> <td>06 56</td> <td>20 12</td> <td>13 34</td> <td>58</td> <td>10 3</td> </tr> </tbody> </table>	Date	Rise	Set	Trans	Alt	Az	Feb	H M	H M	H M	°	°	4	06 29	20 39	13 34	65	11 2	11	06 38	20 31	13 35	63	10 9	18	06 47	20 22	13 35	61	10 6	25	06 56	20 12	13 34	58	10 3
Date	Rise	Set	Trans	Alt	Az																																
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18	06 47	20 22	13 35	61	10 6																																
25	06 56	20 12	13 34	58	10 3																																

Moonrise/Moonset

The table on the next page gives the Moonrise and Moonset times for Wellington for the month. The times for other New Zealand centres may deviate by up to 30 minutes, and this difference will vary during the month. (Unfortunately it is not possible to estimate this difference by consulting the Sunrise and Sunset tables

above as the Sun differences between Auckland, Wellington, Christchurch and Dunedin bear little resemblance to the Moon differences because of the Moon's declination).

In the table, we include the Azimuth (Az) that the Moon rises and sets on the horizon. It assumes your horizon is sea level. Azimuth is measured in degrees from True North (not Magnetic North) either towards East or West depending on whether it is for Moonrise or Moonset. So for an Azimuth of 90°, the Moon will rise exactly in the East and set exactly in the West. For Azimuths less than 90°, the Moon will rise to the North of East and set to the North of West. Similarly, for Azimuths greater than 90°, the Moon will rise to the South of East and set to the South of West.

D ate	Rise	Az	Set	D ate	Rise	Az	Set	D ate	Rise	Az	Set
1	00 33	123	16 14	11	10 52	81	22 14	21	20 15	78	06 28
2	01 09	127	17 14	12	12 06	72	22 40	22	20 37	86	07 37
3	01 54	129	18 10	13	13 22	64	23 11	23	20 58	94	08 44
4	02 48	129	18 57	14	14 38	58	23 50	24	21 18	102	09 48
5	03 50	126	19 37	15	15 53	53	-- --	25	21 39	109	10 51
6	04 57	122	20 11	16	17 02	52	00 39	26	22 04	116	11 55
7	06 07	115	20 39	17	17 59	53	01 39	27	22 31	122	12 58
8	07 18	108	21 04	18	18 45	57	02 48	28	23 05	126	14 02
9	08 29	99	21 27	19	19 21	63	04 02	29	23 46	129	15 02
10	09 40	90	21 50	20	19 51	70	05 16				

Accurate Sunrise/set and Moonrise/set times for any location, in New Zealand or anywhere in the World, are available from Carter Observatory. Other data, such as the position in the sky of the Sun and Moon (or planets) at a particular time, twilight times, illumination from the Sun

2008 RASNZ Conference at Lake Tekapo: Information taken from Royal Astronomical Society of New Zealand . Email Newsletter Number 87, 25 November 2007

Registration forms for next year's RASNZ Conference at Lake Tekapo are now available on the RASNZ website <http://rasnz.org.nz/>. The PDF version of the registration may be downloaded, for printing and mailing with your cheque. Alternatively there is a RTF version which you may use if you prefer to pay your registration fee by bank transfer (bank transfer details are shown on the forms) and email the registration details to the conference organisers. Registration for the Friday CCD Workshop can be made on the same forms. Early registration is encouraged particularly for the number limited workshop. All registrations should be made by April 1, particularly if assistance with arranging transport is required.

The registration fee includes the costs of morning and afternoon tea on Saturday, morning tea on Sunday and lunch on Saturday and the conference CD. Sunday lunch is not included. Registration for the Friday CCD Workshop includes the costs of morning and afternoon teas, lunch and handout materials. Those attending the conference should make separate arrangements for accommodation at Lake Tekapo. Details of available options are included with the registration forms.

If you plan to travel via Christchurch you will need to arrange for transport for the three-hour scenic drive from Christchurch to Tekapo. The Local Organising Committee suggest that people travelling together may like to arrange car hire as listed on the registration forms. If you are travelling alone and require help with transport please **BOOK EARLY** and make sure you indicate on the registration form that you require assistance with travel from Christchurch. The Conference organisers will contact you with details about arranged transport.

RASNZ members will receive a printed copy of the conference registration forms with the December issue of Southern Stars. The dates of the conference are Friday 23 May to Sunday 25 May 2008. The conference organisers plan to arrange a trip to Mt John, most likely on the Sunday afternoon. Information about conference speakers is being placed on the RASNZ website as details become available. The conference will be presenting some aspects of the work at Mt John observatory, past and present. Also, in view of the prospects for a dark sky park centred on Mt John and Lake Tekapo, some emphasis on preserving dark skies.

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. See last month's

Newsletter for an example biography. Marilyn's email address is on www.writerfind.com/mhead.htm

Council Contact details

COUNCIL OF THE WELLINGTON ASTRONOMICAL SOCIETY INC.
P.O.Box 3126 Wellington

Website at <http://astronomy.wellington.net.nz>

President	John Field	Ph 938-4526	john.field@paradise.net.nz
Vice-President	Vicki Irons	Ph 3838710	virons@was.org.nz
Newsletter	Brenda	Ph 478-9008	bjohnston@was.org.nz
Editor	Johnston		
Trsr/mmrship	Lesley Hughes	Ph 472 5086	hpwas@hugpar.gen.nz,
Education/librar	Vicki Irons	Ph. 3838710	virons@was.org.nz
y			
Committee	Bill Parkin	Ph 472 5086	hpwas@hugpar.gen.nz
		027 642-7093(m)	
	Marilyn Head	Ph 389-0882	marilyn@actrix.co.nz
	Edwin Rodley	Ph 463-6992(w)	edwinrod@was.org.nz
		021-124-6513	
	Diane	Ph 237-8191	diane.zemanek@axon.co.nz
	Zemanek		
