WELLINGTON ASTRONOMICAL SOCIETY

Newsletter for December and January

Photo © Steve Butler

MONTHLY MEETING: Dark Skies
WEDNESDAY 12th DECEMBER 2007
7.30 PM
SCIENCE HOUSE
TURNBULL STREET
THORNDON
WELLINGTON

CONTENTS

The Campaign to Save our Dark Skies by Steve Butler

The RASNZ has made a commitment by signing the Ministry for the Environment's New Zealand Urban Design Protocol. Part of our commitment is to raise awareness of the issue of light pollution. This Power Point presentation will provide a New Zealand light pollution overview suitable for use by members of Wellington Astronomical Society when talking to council, industry and community groups.

Request for Galactic Circle Co-ordinator

After twelve years coordinating Galactic Circle both John Field and Marilyn Head are reluctantly standing down. Both have got new jobs which preclude being able to take this wonderful group of enthusiastic primary school children - future members of WAS - and their fantastically supportive parents. We hope that there are parents and astronomers out there who will take up the challenge and the joy of taking this group once a month- third Wednesday of the month 4.30 -6.00pm at the Carter observatory. John and Marilyn would be delighted to help anyone willing to give it a go and can promise that you will find it very rewarding.

Marilyn Head, Science Writerwww.writerfind.com/mhead.htm
105 Owen Street,Newtown Wellington, Ph: 389 0882 Fax: 64 4 938 8144Mobile: 021 740 423

2007 AGM

At the 2007 AGM held on November the following people were elected to Council
President: John Field
General Secretary: Still vacant
Treasurer/Membership secretary: Lesley Hughes
Newsletter editor: Brenda Johnston
Council Members: Marilyn Head, Vicki Irons, Bill Parkin, Edwin Rodley and Diane Zemanek,

Ross Powell has stood down as president. The Council thanks him for the work done during the last two years and wish him well for the future. Although Murray Forbes has resigned from Council he is still doing the email newsletter. The rest of Council appreciate all the work Murray has done and will continue to do for the society. Council is still looking for a General Secretary.

New Year Getaway

The editor wishes to apologise for the wrong date being placed in the November newsletter. She accidentally copied in last year's details!!! Do you want an opportunity to escape for New Year and do some leisurely astronomy in tandem with all the things offered by the Kapiti Coast? Greater Wellington Regional Council is organising camping at Queen Elizabeth Park from 29th –31st December. This is a totally informal event. You bring your own tent, food,

telescopes, binoculars etc. The camping is free. If you have a solar filter for your telescope do bring it. For more details email bjohnston@astronomy.wellington.net.nz, phone 461-6612 daytime Tuesday to Friday or 478-9008 after 7pm.

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 December 2007 or January 2008.

Thomas King Observatory

Although Carter Observatory is closed Ross Powell will be at the TKO every night suitable for observing between Wednesday and Saturday each week. Contact Ross Powell Ph 389-9765, email rpowell@was.org.nz or Vicki Irons Ph 907-1130 or email virons@was.org.nz for more details.

Stardate North Island. From RASNZ email Newsletter Number 85, 23 September 2007

Stardate will be held at Tukituki, near Havelock North from Thursday January 10 - Monday January 14 2008. For details see http://www.astronomynz.org.nz/stardate/expression-of-interest.html

Stardate South Island 2008. From RASNZ email Newsletter Number 85, 23 September 2007

Stardate South Island will be held at Staveley, inland from Christchurch (a long way inland!), on Feb 8-11, Friday to Sunday. Stavely is a dark-sky site with cabins, kitchen, lecture theatre and camping ground. More details in the next Newsletter

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

Planets

December is a fair month for viewing the planets. Mars, Saturn and Venus are visible all month. Jupiter will be visible in the evening twilight at the start of the month. Mercury will not be seen as it is visually too close to the Sun.

Jupiter will be visible in the early evening twilight in the Western sky for the first few days of December. At the start of the month it sets at 21 56, by December 6 at 21 42 (an hour after Sunset) and by December 22 it sets at Sunset. Jupiter starts the month in the constellation of Ophiuchus, moving into Sagittarius on December 4. Its magnitude is a constant –1.8 during the month.

Mars will be visible for all of the night except for early evening at the start of the December. At the start of the month it rises at 23 03 and by December 16 it rises at 21 48 (an hour after Sunset) and by December 26 it rises as the Sun sets. Mars is in the constellation of Gemini. From the start of the month, it brightens from a magnitude of –1.3 to –1.6 (its brightest for the year) on December 22, then fades to –1.5 by month's end.

Saturn is visible for the last half of the night. It rises at 01 59 at the start of December and at 00 02 by month's end. Saturn is in the constellation of Leo, in which it remains until September 2009. Its magnitude slightly brightens from 0.7 to 0.6 during the month.
Venus will be visible in the Eastern morning twilight sky. At the start of the month it rises at 03 48 and at 03 29 by the end of December. Venus starts the month in the constellation of Virgo, moving into Libra on December 13. Venus slightly fades from –4.2 to –4.1 during December.
Mercury is visually too close to the Sun to be seen. Mercury starts the month in the constellation of Libra, moving into Scorpius on December 4, into Ophiuchus on December 8 and finally into Sagittarius on December 19.

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

Phases of the Moon

Last Quarter – December 2 at 01 44.	New Moon – December 10 at 06 40.	First Quarter – December 17 at 23 18	Full Moon – December 24 at 14 16.	Last Quarter – December 31 at 20 51.

Summer Solstice

The Summer Solstice is at 19 08 on December 22. Then the Sun is at its most southerly point in the sky and therefore reaches its maximum altitude for the year at the middle of the day. Mathematically, the longest day is December 22 and the shortest night is December 22/23, but the days and nights are longest or shortest by only a few seconds and actual Sunrise/set times can vary by 3 or 4 minutes from the calculated times (due to atmospheric conditions). After December 22 the length of the day will slowly shorten, although hardly noticeable for several weeks.

Occultation of Elnath (beta Tauri) by the Moon on December 23

The 1.7 magnitude star, Elnath (El Nath or beta Tauri), will be occulted by the Moon on the evening of December 23. The following table 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 low down and almost full so it will be difficult to see this event.

Location	Disappear (D) h m	Reappear (R) h m
Wellington	22 23	23 22

Comets

No bright **comets** are predicted to be visible during December.

Meteor Showers

Only one significant **meteor shower** is active in December.The Phoenicids shower is active from November 28 to December 09 with a maximum on December 06 when up to 100 meteors an hour, are occasionally recorded (though an hourly rate of 5 is more typical). The mean magnitude of the meteors is 2.8, and the radiant is at R.A. 01h 12m and Dec -53°. The radiant is in the constellation of Phoenix, near to Achernar (Alpha Eridani), which is visible for the whole of the night.

Diary of Astronomical Phenomena: Information provided by Carter Observatory

Dec 2 Saturn 2°N of Moon as they both rise at ~01 55.
7 Moon at apogee (furthest from the Earth) at 06 00 (Distance = 0.0027155 AU = 406,230 km).
10 New Moon at 06 40.
18 Mercury at superior conjunction (on the far side of the Sun) at 04 00.
19 Mars at closest approach to Earth at 13 00. (0.5893487 AU or 88,165,311 km).
21 Saturn stationary against the background stars at 01 00, as its motion changes from an Easterly to a Westerly direction.
22 Summer solstice at 19 08.
22 Moon at perigee (closest to the Earth) at 23 00. (Distance = 0.0024119 AU = 360,820 km).
23 Jupiter in conjunction with the Sun (on the far side of the Sun) at 19 00.
24 Full Moon at 14 16.
25 Mars at opposition (on the opposite side of the Earth to the Sun) at 09 00

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). 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.

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 below.

Date	Rise	Set	Trans	Alt	Az
Dec	H M	H M	H M	°	°
3	05 42	20 39	13 11	71	120
10	05 41	20 46	13 14	72	122
17	05 42	20 51	13 17	72	122
24	05 45	20 55	13 20	72	122
31	05 50	20 57	13 23	72	122

Moonrise/Moonset

The table below 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. (This bears no relation to the Sunrise/set).In the table, we include the Azimuth (Az) of Moonrise/set on the horizon- assuming sea level. Azimuth is measured in degrees from True North (not Magnetic North) either east or west. So for an Azimuth of 90°, the Moon rises exactly in the East and sets exactly west. For Azimuths less than 90°, the Moon rises North of East and sets North of West. Similarly, for Azimuths greater than 90°, the Moon rises South of East and sets South of West.

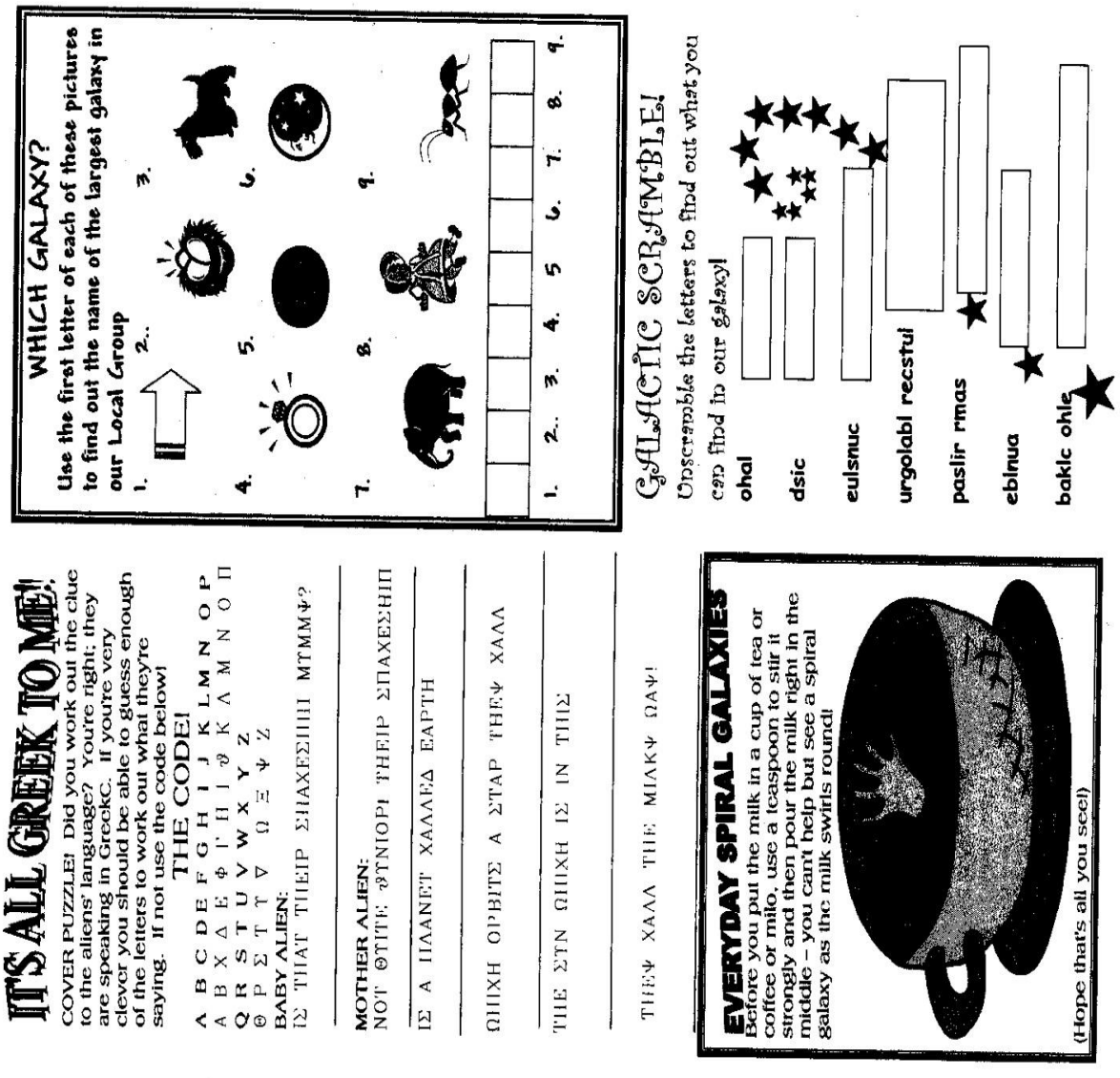
Date	Rise	Az	Set	Date	Rise	Az	Set	Date	Rise	Az	Set
Dec	H M	°	H M	Dec	H M	°	H M	Dec	H M	°	H M
1	01 27	73	12 20	**12**	07 10	127	23 04	**23**	20 24	52	04 03
2	01 50	80	13 24	**13**	08 15	123	23 38	**24**	21 28	53	05 04
3	02 10	88	14 26	**14**	09 22	117	-- --	**25**	22 18	57	06 15
4	02 29	96	15 27	**15**	10 30	110	00 07	**26**	22 57	63	07 32
5	02 48	103	16 28	**16**	11 39	102	00 32	**27**	23 26	70	08 49
6	03 10	110	17 30	**17**	12 48	94	00 55	**28**	23 51	77	10 01
7	03 34	116	18 32	**18**	13 59	85	01 18	**29**	-- --	80	11 09
8	04 02	122	19 35	**19**	15 12	76	01 41	**30**	00 13	85	12 14
9	04 37	126	20 36	**20**	16 29	67	02 06	**31**	00 32	93	13 16
10	05 20	128	21 32	**21**	17 50	60	02 36				
11	06 11	129	22 22	**22**	19 10	54	03 14				

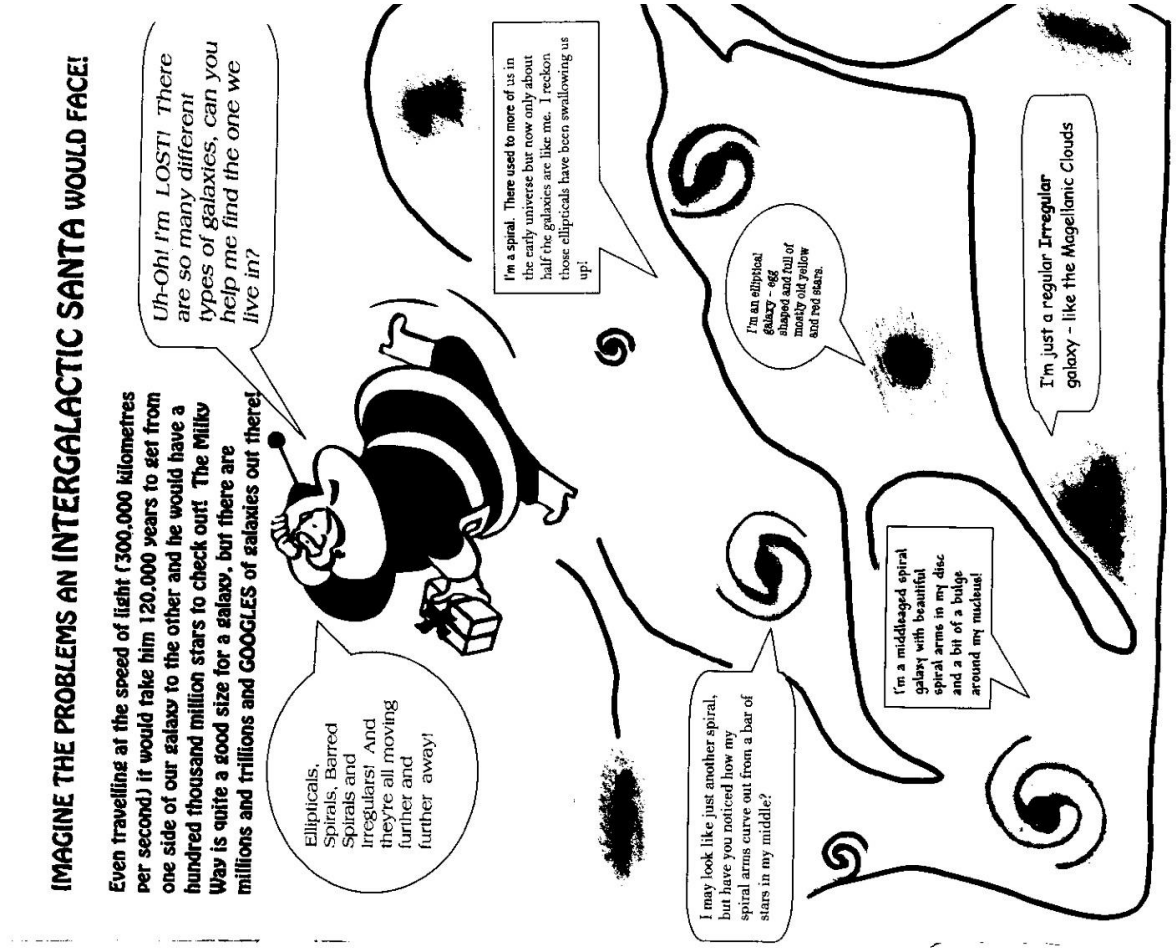
Accurate Sunrise/set and Moonrise/set times for any location, in New Zealand or anywhere in the World, are available from Carter Observatory. Other data, such as the position in the sky of the Sun and Moon (or planets) at a particular time, twilight times, illumination from the Sun or Moon, can also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

Phoenix Society Almanacs for sale

The Phoenix Astronomical society are now in the process of taking orders for *The New Zealand Almanac* 2008. The retail price is $20 + p&p. Bulk prices are available. The almanac is a beautiful calendar with wonderful photographs taken by New Zealand astronomers. Every year the photographs seem to become better and this coming year is no exception. The almanac is also packed with interesting information on astronomical events and information presented in an interesting and easily accessible calendar format. Almanacs make wonderful Christmas presents, so consider giving them as Christmas stocking fillers. Order forms will be available at the October Wellington Astronomical Society meeting otherwise send the details of your order to Almanac P.O. Box 156 Carterton, 5743

Galactic Circle feature by Marilyn Head





Council Contact details

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P.O.Box 3126 Wellington

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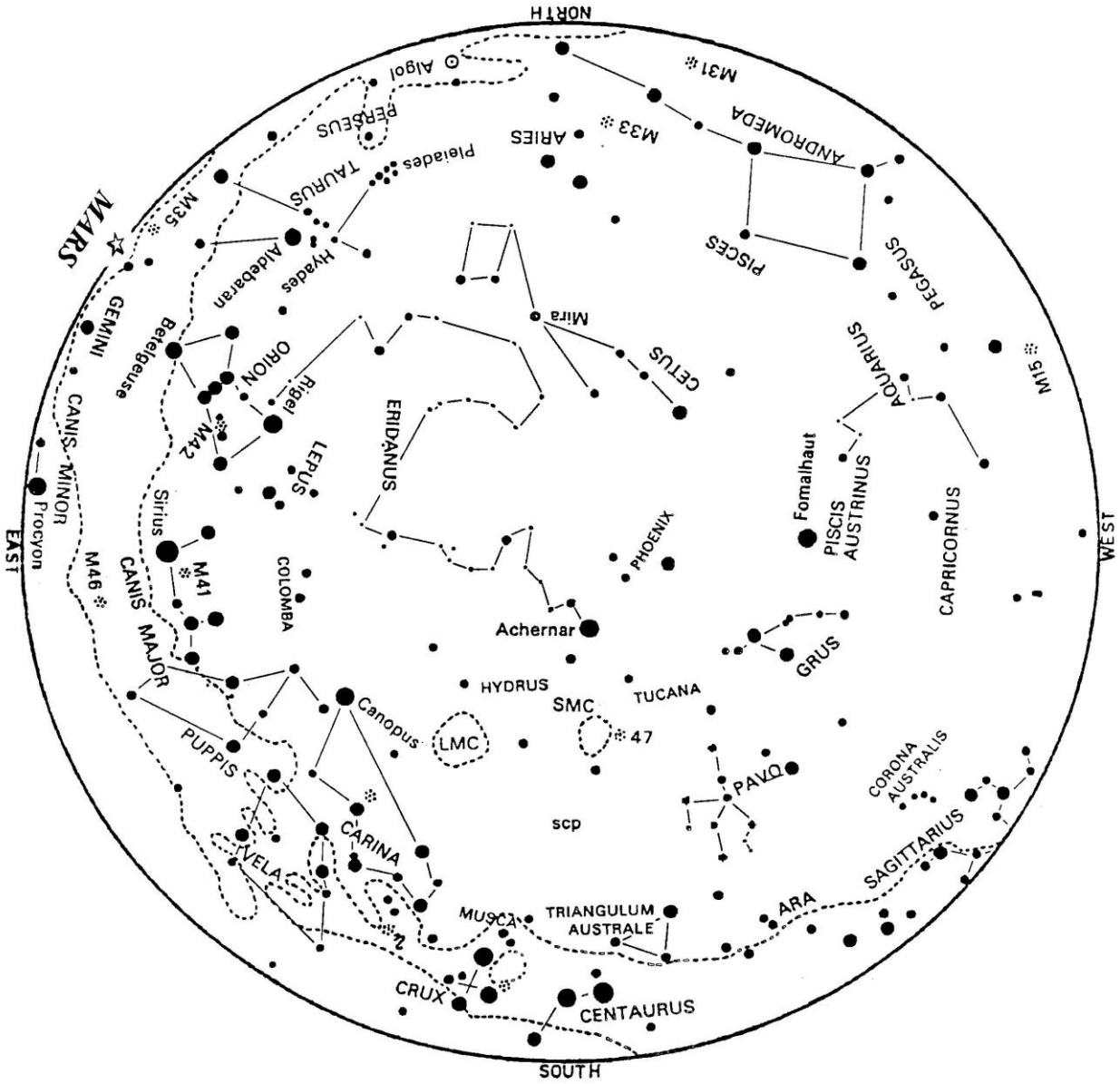
December Sky Map provided by Carter Observatory

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



How To Use the Sky Charts

To use the sky chart hold it up so that the direction you are looking is at the lower edge of the map. E.g. if you are looking west 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 00	02 00	04 00
Use this month's charts:	Jan.	Feb.	Mar.

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.

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WHAT'S IN THE SKY IN JANUARY? Information provided courtesy Carter Observatory

Planets

January is a fair month for viewing the planets. Mars, Saturn and Venus are visible all month. Jupiter will be visible in the morning sky for all but the start of the month. Mercury may just be visible in the evening twilight around the middle of the month.

Mars will be visible for the first three quarters of the night. At the start of the month it sets at 05 00 and at 02 37 by month's end. Mars is in the constellation of Taurus. At the beginning of January its magnitude is –1.5, (its brightest for the year), and fades to –0.6 by the end of the month.
Mercury may just be visible in the evening twilight around the middle of January. By January 14 it sets at 21 54, which is 59 minutes after the Sun. Mercury starts the month in the constellation of Sagittarius, moving into Capricornus on January 9. On January 14 its magnitude is –0.8.
Saturn is visible for the last three quarters of the night. It rises at 23 54 at the start of January and at 21 53 by month's end. Saturn is in the constellation of Leo, in which it remains until September 2009. Its magnitude slightly brightens from 0.6 to 0.4 during the month.
Venus will be visible in the eastern morning twilight sky. At the beginning of January it rises at 03 29 and at 03 49 by month's end. Venus starts the month in the constellation of Libra, moving into Scorpius on January 3, into Ophiuchus on January 7 and finally into Sagittarius on January 22. Venus slightly fades from –4.1 to –4.0 during January.
Jupiter will be visible in the morning twilight for all but the start of January. At the start of the month it rises at 05 23, only 28 minutes before Sunrise and at 03 55 by month's end. Jupiter is in the constellation of Sagittarius, in which it remains until January 2009. Its magnitude slightly brightens from –1.8 to –1.9 during the month.
All times are for Wellington unless otherwise stated. Other centres may vary by a few minutes.

Phases of the Moon

New Moon – January 9 at 00 37.	First Quarter – January 16 at 08 46.	Full Moon – January 23 at 02 35.	Last Quarter – January 30 at 18 03.

Earth at Perihelion on January 3

The Earth is at perihelion (closest to the Sun) at 13 00 on January 3. The distance is 0.9832801 AU, which is 147,096,600 km.

Occultation of Regulus by the Moon on January 25.

The bright star Regulus will be occulted by the Moon on the morning of Friday, January 25. The following table 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 full so it will be difficult to see this event.

Location	Disappear (D) h m	Reappear (R) h m
Wellington	03 56	05 08

Comets

No bright **comets** are predicted to be visible during January.
Let's hope we are again surprised!

Meteor Showers

January is a quiet month for **Meteor showers**.

The alpha Crucids shower is active from January 06 to January 28 and reaches maximum activity on January 19, up to 5 meteors/hour is expected. The mean magnitude of the meteors is 2.9, and the radiant is at R.A. 12h 48m and Dec -63°. The radiant is in the constellation of Crucis, near to Acrux and Becrux (alpha and beta Crucis), the brightest two stars in the Southern Cross, which is visible for the whole of the night.

The alpha Centaurids shower begins on January 28 but does not reach maximum activity until February 07. This is one of those showers characterised by large variations in Zenith Hourly Rate. Sometimes more than 25 meteors an hour are recorded, although generally less than this. The mean magnitude is 2.0, and the radiant is at R.A. 14h 00m and Dec -59° 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.

Diary of Astronomical Phenomena: Information provided courtesy Carter Observatory

Jan 3 Earth at perihelion (closest to the Sun) at 13 00. (Distance = 0.9832801 = 147,096,600 km.
3 Moon at apogee (furthest from the Earth) at 21 00 (Distance = 0.0027095 AU = 405,335 km).
7 Venus close to Antares in the morning twilight.
9 New Moon at 00 37.
19 Moon at perigee (closest to the Earth) at 22 00. (Distance = 0.0024494 AU = 366,425 km).
22 Mercury at greatest Easterly elongation from the Sun (19°) at 18 00.
23 Full Moon at 02 35.
24 Regulus occulted by the Moon at ~04 00 (see above).
25 Saturn close to the Moon as they both rise some time after 2200.
28 Mercury stationary against the background stars at 20 00, as its motion changes from an Easterly to a Westerly direction.
31 Mars stationary against the background stars at 10 00, as its motion changes from a Westerly to an Easterly direction.
31 Moon at apogee (furthest from the Earth) at 17 00 (Distance = 0.0027041 AU = 404,530 km).

Sunrise/Sunset

Alongside 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). 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.

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 below.

Date	Rise	Set	Trans	Alt	Az
Jan	H M	H M	H M	°	°
7	05 56	20 57	13 27	71	121
14	06 04	20 55	13 29	70	119
21	06 12	20 52	13 32	69	117
28	06 20	20 46	13 33	67	115

Moonrise/Moonset

The table below 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.

Date	Rise	Az	Set	Date	Rise	Az	Set	Date	Rise	Az	Set
Jan	H M	°	H M	Jan	H M	°	H M	Jan	H M	°	H M
1	00 52	101	14 18	**12**	09 31	105	23 23	**23**	21 23	66	06 22
2	01 13	108	15 20	**13**	10 41	96	23 45	**24**	21 51	74	07 37
3	01 36	114	16 22	**14**	11 50	87	-- --	**25**	22 14	82	08 49
4	02 03	120	17 25	**15**	13 02	78	00 09	**26**	22 35	90	09 56
5	02 35	125	18 27	**16**	14 15	70	00 36	**27**	22 55	98	11 01
6	03 15	128	19 25	**17**	15 32	62	01 10	**28**	23 15	106	12 04
7	04 03	129	20 17	**18**	16 49	56	01 52	**29**	23 37	112	13 06
8	05 01	128	21 02	**19**	18 05	53	02 46	**30**	-- --	115	14 09
9	06 05	125	21 39	**20**	19 12	52		**31**	00 03	118	15 12
10	07 12	119	22 11	**21**	20 07	54	03 52				
11	08 22	112	23 01	**22**	20 50	59	05 05				

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 or Moon, can also be supplied. There may be a charge for this information.

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 costs of morning and afternoon tea on Saturday, morning tea on Sunday, 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. Options included with 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. However presentations will not be limited to these topics. If you would like to present a paper on any astronomical topic please complete a submission form, available on the RASNZ website. If you have any queries about presenting papers, or other matters relating to the conference, send an email to conference@rasnz.org.nz. Pauline Loader,

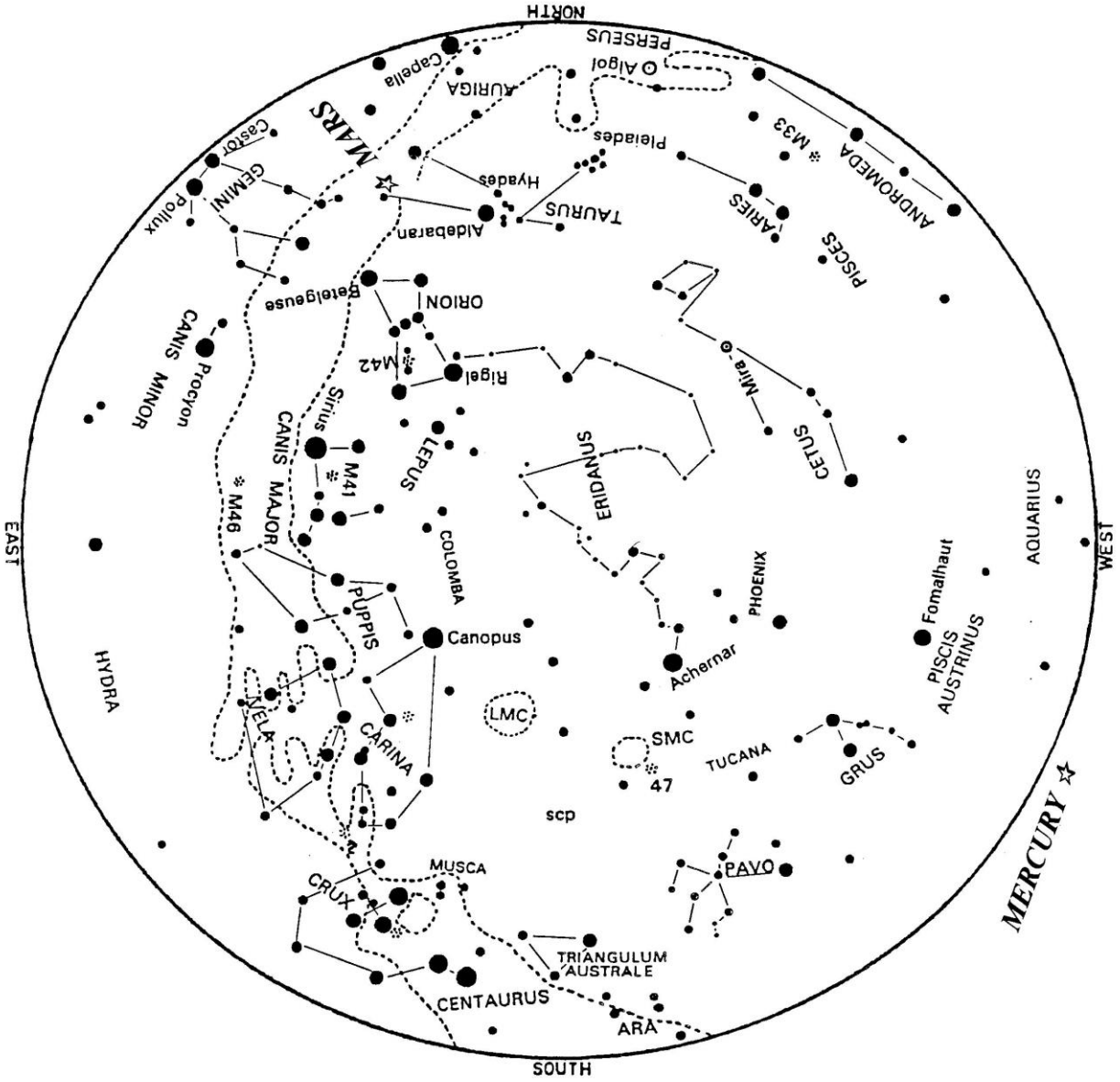
NZ IYA Website - Biographies Still Needed Royal Astronomical Society of New Zealand . Information taken from Email Newsletter Number 87, 25 November 2007

Marilyn Head, RASNZ Publicity officer, is still looking for notes of upcoming events and for local biographies. The NZ International Year of Astronomy (IYA) site is up and running thanks to the sterling efforts of Roland Idaczyk at http://www.astronomy2009.org.nzTo 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 example biography. Marilyn's email address - www.writerfind.com/mhead.htm

JANUARY SKY MAP PROVIDED BY CARTER OBSERVATORY

This chart shows the sky as it appears at about 22 00 for ~January 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 00	02 00	04 00
Use this month's charts:	Feb.	Mar.	Apr.

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.