WELLINGTON ASTRONOMICAL SOCIETY

MONTHLY MEETING
WEDNESDAY 11th July 2007
7.30 PM
SCIENCE HOUSE
TURNBULL STREET
THORNDON
WELLINGTON

CONTENTS

Moving around Messier objects by Vicki Irons

In this presentation Vicki Irons will show a variety of fuzzies that Messier catalogued and why this famous catalogue came to be on every astronomers 'must see' list. We will also look at some of the wonders he would have included if he had lived near Wellington and which have been tidied up in the Caldwell Catalogue. The latest background findings and the expected future behaviour of these types of objects are touched on, to aid viewing delight. A list for those with small telescopes and binoculars will be discussed. Suggestions to include on a longer list are welcomed.

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.

The Gifford Observatory star party is on Saturday July 14th. For more details contact Duncan Hall at phone 021-615-905 email duncan.hall@ieee.org
The Pauatahanui Star Party will be held on Saturday July 14th. 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

Editorial Disclaimer

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

Star Party at Pauatahanui on July 14th!

Hi All,
This month on Saturday the 14th of July is the Wellington Astronomical Society's Star Party at Pauatahanui. The target for this evening will be Jupiter and Saturn, along with a number of star clusters and nebulae. The Scorpion and Sagittarius are well placed for observing so bring along your telescope, binoculars; if you want to bring along your camera and tripod we can look at doing some simple astrophotography. Observing will start after sunset, around 7:00. If you want to check on the weather conditions prior to leaving home please call me on 021-255-1904.

The Observatory is located about 1 km from the intersection of Murphy's Road, Judgeford and State Highway 58. Turn into Murphy's Road from State Highway 58 and the Observatory is located on a farm called "Willowbank." Entrance is through a farm gate, please close it after you, and follow the gravel drive up to a large woolshed. Willowbank is a working farm so please wear sturdy footwear and be prepared to stand in the odd sheep deposit! Remember warm clothing, windbreaker, hat and gloves. Children are welcome, remember to dress them appropriately and ensure that they are informed of how sensitive a telescope is! The Observatory houses a Meade 12-inch SCT with Go-To ability and is powered by a heavy dry cell battery. It is hoped that other members will bring along additional scopes for people to observe the comet, and other celestial objects as well as good advice and company.

John Field using the Meade 12-inch SCT at Pauatahanui took this picture of the Great Nebula in Carina. It is a 2-minute exposure at ASA 800 at *f*6.3 with a Canon 300D Digital camera. I look forward to seeing you on Saturday night. John Field, Pauatahanui Observatory Director.

Galactic Circle feature

Hi All,
With the Winter Solstice moving into the past our nights may not appear be getting any shorter! This month will be great for observing Jupiter, the King of the Planets. Jupiter will appear in the sky just below Antares; the brightest star in Scorpius and is the brightest "star" in the East after sun set. It takes Jupiter 12 years to orbit the Sun and on average it moves through one Zodiac constellation per year. It is currently in the constellation of Ophiuchus, the serpent bearer. Jupiter looks like a star in the sky but with binoculars or a telescope you will be able to see a disc as well as the four Galilean moons.

Jupiter is the biggest and heaviest planet in the Solar System. It is actually a huge ball of Hydrogen and Helium gas with no solid surface. When we look at Jupiter through a telescope the strips we can see are cloud bands. Occasionally we can see Jupiter's Great Red Spot (GRS), a storm that varies in size and colour. Sometimes it is a deep red colour, at other times it is almost pink. Galileo first saw the GRS in 1610 when he pointed his telescope at Jupiter, the storm has been seen for almost 400 years! Jupiter is about 12 times wider than the Earth! Jupiter has the shortest day of all the planets- only 10 hours long. Because Jupiter spins so fast and is not solid as it spins it is fatter around the middle than a solid planet like the Earth.

The four moons that we can see in a telescope are the largest and brightest of the 63 moons currently known to orbit Jupiter. The four large moons are called Io, Europa, Ganymede and

Callisto. Each of the moons has its own unique features. Things to find out for this months Galactic Circle:

List some interesting facts about the four large moons.
What might it be like under the clouds of Jupiter?
Could anything live on/in Jupiter or its moons?
What spacecrafts have visited Jupiter?
What was the name of the comet that crashed into Jupiter?

The next Galactic Circle meeting is on the third Wednesday of July the 18th starting at 4:30 at the Kelburn Scout Hall, near to the big gun across from Carter. And we will look at Jupiter and the Scorpion. See you there!

What's in the Sky in July: Information provided by Carter Observatory

Planets

July is an excellent month for viewing the planets. Venus, Mars, Jupiter and Saturn will be visible for all of the month. Mercury will be visible for all but the very start of the month.

Venus will be visible in the Western evening sky. At the start of the month it sets at 20.34 and at 19.40 by month's end. This is the last full month this year that Venus will be in our evening sky. Venus starts the month in the constellation of Leo, moving into Sextans on July 30. Its brilliant magnitude starts and ends the month at –4.4, peaking at –4.5 in the middle of the month.

Saturn will be visible in the early evening in July. At the start of the month it sets at 20 33 and at 18 53 by month's end. Saturn is in the constellation of Leo, in which it remains until September 2009. Its magnitude is a constant 0.6 during the month.

Jupiter will be visible for all but the very end of the night. At the start of the month it sets at 05 54 and at 03 47 by month's end. Jupiter is in the constellation of Ophiuchus, in which it remains until December. Its magnitude slightly fades from –2.5 to –2.4 by the end of July.

Mars will be visible for the last quarter of the night. At the start of July it rises at 02 35 and at 02 24 by month's end. Mars start the month in the constellation of Aries, moving into Taurus on July 29. Its magnitude slightly brightens from 0.7 to 0.5 during the month.

Mercury will be visible in the Eastern morning sky for all but the start of July. At the start of the month it rises at 07 16, at 06 14 by July 19 and at 06 38 by month's end. Mercury starts the month in the constellation of Gemini, moving into Orion on July 3 and finally back into Gemini on July 19. During July it very rapidly brightens from 4.7 to –0.9.
All times are for Wellington unless otherwise stated. Other centres may vary by a few minutes.

Phases of the Moon
Full Moon – July 1 at 01 49.Last Quarter – July 8 at 04 54.New Moon – July 15 at 00 04.
First Quarter – July 22 at 18 29.Full Moon – July 30 at 12 48.

Earth at Aphelion on July 7
The Earth is at aphelion (furthest from the Sun) at 12 00 on July 7. The distance is 1.0167059 AU, which is 152,097,040 km. The corollary of the above is to say that the Sun is at apogee (Sun furthest from the Earth).

Blue Moon in July
July is a Blue Moon month as it has two Full Moons, the first on July 1 at 01 49 and the second on July 30 at 12 48. Blue Moons happen every 2½ to 3 years, hence the phrase *"Once in a Blue Moon".* This phenomenon occurs in New Zealand in July but because of the various time zones, it happened in May and June in other countries.

Comets
No bright **comets** are predicted to be visible during July.

Meteor Showers

July is a rich month for **meteor showers** with four different showers active. Three of them reach maximum activity at the very end of the month.

The alpha Capricornids shower is active between July 03 and August 25, with maximum activity on July 30 when up to 8 meteors an hour are expected. The mean magnitude of the meteors is 2.5, and the radiant is R.A. 20h28m and Dec -10°. The radiant is in the constellation of Capricorni, near to alpha Capricorni (Al Giedi – The Goat), which is visible for the majority of the night.

The short-lived Pegasids shower is active between July 07 and July 11 with maximum activity on July 10, when up to 8 meteors an hour are expected. The mean magnitude of the meteors is 3.0, and the radiant is R.A. 22h40m and Dec +15°. The radiant is in the constellation of Pegasi, near to alpha Pegasi (Markab or Marchab), which is visible for the last two thirds of the night.

The delta Aquarids S[outh] shower is active between July 08 and August 19, with maximum activity on July 29 when up to 20 meteors an hour are expected. The mean magnitude of the meteors is 3.2, and the radiant is R.A. 22h36m and Dec -16°. The radiant is to the North of Fomalhaut (alpha Piscis Austrini) near to delta Aquarii (Skat), which is visible for all but the early evening.

The Piscis Austrinids shower is active between July 09 and August 17, with maximum activity on July 29 when up to 8 meteors an hour are expected. The mean magnitude of the meteors is 3.2, and the radiant is R.A. 22h44m and Dec -30°. The radiant is near to Fomalhaut (alpha Piscis Austrini), which is visible for all but the early evening.

Diary of Astronomical Phenomena: Information provided courtesy Carter Observatory

July

1 Full Moon at 01 49.
2 Venus and Saturn very close in the evening.
7 Earth at aphelion (furthest from Sun) at 12 00. (Distance is 1.0167059 AU or 152,097,040 km).
10 Mars 6°S of Moon at 03 00.
10 Moon at perigee (closest to the Earth) at 10 00. (Distance = 0.0024635 AU = 368,530 km).
10 Mercury stationary against the background stars at 14 00, as its motion changes from a Westerly to an Easterly direction.
15 New Moon at 00 04.
16 Venus close to Regulus in the evening.
17 Venus and Regulus close to the Moon as they all set around 20 00.
21 Mercury at greatest Westerly elongation from the Sun (20°) at 03 00.
22 Moon at apogee (furthest from the Earth) at 21:00 (Distance = 0.0027016 AU = 404,150 km).
26 Venus stationary against the background stars at 01 00, as its motion changes from an Easterly to a Westerly direction.
26 Antares very close to the Moon just before they both set at around 04 30. In the Southern part of South Island, the Moon occults Antares just before Moonset.

Sunrise/Sunset

Alongside are Sunrise and Sunset times for each Monday of the month for Wellington, Christchurch and Dunedin. 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

Wellington				
Rise	Set	Trans	Alt	Az
H M	H M	H M	°	°
07 48	17 02	12 25	26	59
07 46	17 06	12 26	26	60
07 43	17 11	12 27	27	61
07 38	17 17	12 28	29	63
07 32	17 24	12 28	30	65

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
Jul	H M	°	H M	Jul	H M	°	H M	Jul	H M	°	H M
1	17 18	127	08 26	**12**	05 35	53	14 16	**23**	11 27	115	01 15
2	18 28	122	09 08	**13**	06 42	51	15 18	**24**	11 54	121	02 18
3	19 40	115	09 43	**14**	07 38	53	16 29	**25**	12 28	126	03 22
4	20 53	107	10 11	**15**	08 21	58	17 41	**26**	13 09	129	04 26
5	22 05	99	10 36	**16**	08 56	64	18 53	**27**	14 01	129	05 25
6	23 17	89	10 59	**17**	09 23	71	20 02	**28**	15 02	128	06 19
7	-- --	84	11 22	**18**	09 46	78	21 08	**29**	16 11	124	07 04
8	00 31	80	11 46	**19**	10 06	86	22 10	**30**	17 24	118	07 42
9	01 45	71	12 12	**20**	10 25	94	23 12	**31**	18 39	110	08 13
10	03 02	63	12 45	**21**	10 44	101	-- --				
11	04 19	57	13 25	**22**	11 04	109	00 13				

For other parts of New Zealand and overseas more detailed information is available from Carter Observatory. There may be a charge for this information.

How to receive your WAS newsletter by email

At our last AGM, the incoming council was asked to set up a system where WAS members could receive their newsletter over the internet (rather than by post).if you wish to receive your newsletters this way, then please send an email to ;newsletter-subscribe@was.org.nz with your

full name in the body of the email (a subject line is not required).I need your name in the email as it is not clear from some email addresses who the email is actually coming from.

You should then receive an automatic reply, asking you to confirm you want to subscribe (and to check your email address is okay). I (as moderator) will then get a request to subscribe you. After I okay your subscription you should get another message telling you it's been done. When each newsletter becomes available, I will email a short message to all subscribers to that effect and provide a link to the newsletter. In this way you can download the newsletter at your own convenience. The newsletters will be in pdf format, and are typically 1 - 2MB in size.

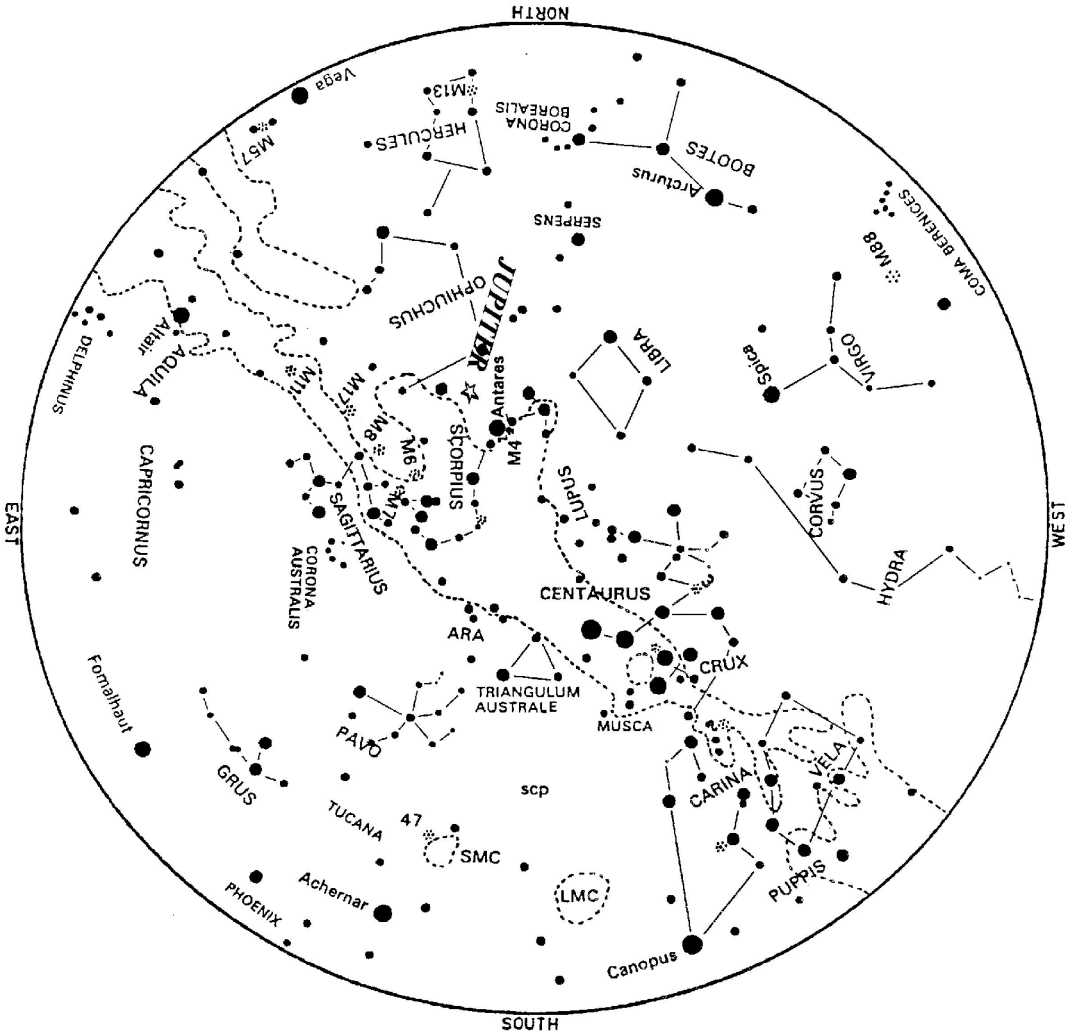
Note that this is only intended for current WAS members, which is why I have to okay each subscription request. The only exceptions will be for companies that advertise in the newsletter or other astronomical societies that swap newsletters with us. Further note that for the first few months you will also continue to receive your newsletter in the post. Once we're confident the system is working well, you will only receive the newsletter via email

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 970-5215 email virons@was.org.nz for more details.

SKY MAP PROVIDED BY CARTER OBSERVATORY

This chart shows the sky as it appears at about 21:00 for ~July 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 n*ewsletters*, 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:	17:00	19:00	23:00	01:00	03:00	05:00	07:00
Use this month’s charts:	May.	Jun.	Aug.	Sep.	Oct.	Nov.	Dec.

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.