

WELLINGTON ASTRONOMICAL SOCIETY

**Beginner's Guide
To
Tides**

LYTTELTON
LAT 43°30' S LONG 172°45' E
Times and Heights of High and Low Waters Year 2004

JANUARY		FEBRUARY		MARCH		APRIL	
Time	Height	Time	Height	Time	Height	Time	Height
1 05:48 H	1.6	1 08:21 H	1.6	1 09:27 H	1.6	1 09:21 H	1.6
7 13:28 L	0.1	7 15:02 L	0.1	7 15:02 L	0.1	7 15:02 L	0.1
2 08:01 H	1.7	2 09:12 H	1.7	2 09:12 H	1.7	2 09:12 H	1.7
14:01 L	0.1	14:01 L	0.1	14:01 L	0.1	14:01 L	0.1
3 07:12 H	1.9	3 07:12 H	1.9	3 07:12 H	1.9	3 07:12 H	1.9
13:02 L	0.1	13:02 L	0.1	13:02 L	0.1	13:02 L	0.1
4 06:52 H	2.0	4 06:52 H	2.0	4 06:52 H	2.0	4 06:52 H	2.0
12:02 L	0.1	12:02 L	0.1	12:02 L	0.1	12:02 L	0.1
5 06:52 H	2.0	5 06:52 H	2.0	5 06:52 H	2.0	5 06:52 H	2.0
11:02 L	0.1	11:02 L	0.1	11:02 L	0.1	11:02 L	0.1
6 06:52 H	2.0	6 06:52 H	2.0	6 06:52 H	2.0	6 06:52 H	2.0
10:02 L	0.1	10:02 L	0.1	10:02 L	0.1	10:02 L	0.1
7 06:52 H	2.0	7 06:52 H	2.0	7 06:52 H	2.0	7 06:52 H	2.0
9:02 L	0.1	9:02 L	0.1	9:02 L	0.1	9:02 L	0.1
8 06:52 H	2.0	8 06:52 H	2.0	8 06:52 H	2.0	8 06:52 H	2.0
8:02 L	0.1	8:02 L	0.1	8:02 L	0.1	8:02 L	0.1
9 06:52 H	2.0	9 06:52 H	2.0	9 06:52 H	2.0	9 06:52 H	2.0
7:02 L	0.1	7:02 L	0.1	7:02 L	0.1	7:02 L	0.1
10 06:52 H	2.0	10 06:52 H	2.0	10 06:52 H	2.0	10 06:52 H	2.0
6:02 L	0.1	6:02 L	0.1	6:02 L	0.1	6:02 L	0.1
11 06:52 H	2.0	11 06:52 H	2.0	11 06:52 H	2.0	11 06:52 H	2.0
5:02 L	0.1	5:02 L	0.1	5:02 L	0.1	5:02 L	0.1
12 06:52 H	2.0	12 06:52 H	2.0	12 06:52 H	2.0	12 06:52 H	2.0
4:02 L	0.1	4:02 L	0.1	4:02 L	0.1	4:02 L	0.1
1 06:52 H	2.0	1 06:52 H	2.0	1 06:52 H	2.0	1 06:52 H	2.0
3:02 L	0.1	3:02 L	0.1	3:02 L	0.1	3:02 L	0.1
2 06:52 H	2.0	2 06:52 H	2.0	2 06:52 H	2.0	2 06:52 H	2.0
2:02 L	0.1	2:02 L	0.1	2:02 L	0.1	2:02 L	0.1

MONTHLY MEETING:
A Beginner's Guide to Tides by Glen Rowe,
 7.30pm, Wednesday 8th October 2008
 Science House,
 Turnbull Street,
 Thorndon

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A Beginner's Guide to Tides by Glen Rowe

Abstract: The cause and nature of tides will be explained and the tidal regime around New Zealand will be described. Sea level measurements, analysis and tide predictions will also be covered.

Dick Cijffers Short Talk about a Couple of Forthcoming Eclipses

The 2009 China Eclipse will be followed by a tidal bore at the same site, which is highly unusual. The tour also visits Tibet. The other eclipse is in 2010 to Easter Island that includes a pre-eclipse tour to South America.

Pauatahanui Observing sessions

Observing sessions at Pauatahanui will be held on the first Saturday of the month, weather permitting. The observatory is located on "Willow Bank Farm" off Murphy's Road, Judgeford; on the left hand side of the road, about 1km from the intersection of State Highway 58 and Murphy's Road. The observatory holds a 12-inch Meade SCT on an equatorial wedge. The site has a number of flat areas at which members can place their own scope to observe. There is a toilet located in the shearing shed and car parking is in front of the shed. As the locale is a working farm it pays to wear sturdy footwear and dress warmly, bring along torch (hopefully with a red filter to protect your dark adaptation). Children are welcome but remember it will be cold, dark and mushy under foot!

This month's session will commence at 8:00pm on Saturday, October 6th. If the weather is looking doubtful please contact John Field on his mobile 021-255-1904 to see if the session is going ahead.

Gifford Star Party Saturday October 11th

The Gifford star party will be held on Saturday October 11th from 8pm onwards. The contact person is Duncan Hall, Phone 474 5350. This number connects to his mobile phone and may be subject to charges.

Editorial Disclaimer

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

From The Top by John Field

Another year is almost over with only 3 meetings to the end of the year. As always the November meeting is the Annual General Meeting where you get the chance to help choose the next council. This is your opportunity to stand for one of the council positions or through bribery, cajolery or blackmail get another member to be nominated. This year's council has continued to keep the society moving and progressing, and with your support the Society will continue to prosper.

Tawa Library and Hutt International Boys School Star Partys

At the end of August two star parties were held at Tawa Library and Hutt International Boys School (HIBS). Both were well attended with approximately 200 at Tawa and 60 at HIBS, unfortunately the weather did not allow observing at Tawa but brief views of Jupiter and Alpha Centauri were caught at HIBS. John Field, Ed Budding gave talks at Tawa and special guest speaker was a very lucky man who had recently attended Space Camp USA. John Field gave three separate talks at HIBS on "The Night Sky", "Cassini at Saturn" and "Observing the Moon." On both nights some members came along to show and tell about Telescopes and WAS. Many thanks to Brenda Johnston, Bill Parkin, Lesley Hughes, Marilyn Head, Gordon Hudson, Chris Monegatti and another members who helped out.

Pauatahanui Star Party

A good turn out was had at Pauatahanui Observatory in August with clear, but cool, skies. During the evening a number of objects were observed until around 10:30 when the corrector plate on the 12-inch

Schmidt-Cassegrain froze over! I should have packed a hairdryer. The upcoming Pauatahanui Star party will be on the first Saturday in October and will commence around 8:00pm. For more information contact John Field.

Notice of AGM

The November meeting is our Annual General Meeting (AGM) at which the Finances of the Society for the previous financial year are presented, a new council is elected, any resolutions that have been submitted are voted on, an auditor appointed and any other business that is applicable is transacted. The positions in Council for election are: President, Vice-President, General Secretary, Treasurer, Editor, Membership Secretary, Convenor of Meetings, Activities Co-ordinator, Astronomical Programs Officer, and Observatory Director. Any financial member can stand for any position on the Council and if more than one member wishes to stand for the same position a vote will be held on the night. For more information on the roles of the various council positions they are available on the WAS website at:

<http://www.was.org.nz/01documents.html>

The November newsletter will include a report from the President as well as the financial report, list of nominees for election and any other items to be discussed. If you wish to stand, or know of anyone who is willing to stand, for council please fill the following form (names in blanks and in print except for nominees acceptance signature) and post or e-mail to Lesley Hughes email hpwas@hugpar or P. O. Box 3126 Wellington no less than 14 days prior to the November meeting.

To the General Secretary, Wellington Astronomical Society PO Box 3126, Wellington.

I wish to nominate

for the position of

Proposed by:

Seconded by:

The nominee accepts this nomination:

Date:

Council Contact details

COUNCIL OF THE WELLINGTON ASTRONOMICAL SOCIETY INC.

P.O.Box 3126 Wellington

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

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What's in the Sky in October Information provided by Alan Gilmore Mt John Observatory

Jupiter is northwest of overhead at dusk, shining with a steady golden light. Binoculars show the disk of Jupiter. A small telescope easily shows all four big moons and the parallel stripes in Jupiter's clouds. Jupiter is 11 times wider than the earth and 320 times heavier. It is 830 million km from us just now.

Venus, brilliant and silvery, appears in the west soon after sunset and sets in the southwest after 11 pm. It is bright enough to cast shadows in dark locations. In a telescope it is a small white disk. It swings further out from the sun and sets later as it catches up on Earth. Venus is the same size as Earth but covered in dense cloud. It is 210 million km away at mid-month. **Mars** is a lone reddish star well below and left of Venus, setting at dusk. Mars is on the far side of its orbit, 380 million km away.

Above Venus at the beginning of the month is the orange star **Antares**, marking the heart of the Scorpion. During October Venus moves higher in the sky while Antares slips lower. In the last days of October Venus passes to the right of Antares. The Scorpion's tail loops up the sky in the evening. The curved tail makes the 'fish-hook of Maui' in Maori star lore. Antares is a red giant star: 600 light years* away and 19 000 times brighter than the sun. Red giants are dying stars; wringing the last of the thermo-nuclear energy from their cores. Massive ones like Antares end in a spectacular supernova explosion. (Antares is about 20 times heavier than the sun.) Above and right of Scorpius, below and left of Jupiter, is 'the teapot' made by the brightest stars of Sagittarius. It is upside down in our Southern hemisphere view.

In the southwest are 'The Pointers', Beta and **Alpha Centauri**, making a vertical pair. They point down to **Crux** the Southern Cross. Alpha Centauri, the top Pointer and the brightest star in that area, is the closest naked eye star. It is 4.3 light years away. And it is a binary star: two sun-like stars orbiting each other in 80 years. A telescope magnifying 50x will split the pair. Beta Centauri, like most of the stars in Crux, is a blue-giant star, very hot and very luminous, hundreds of light years away.

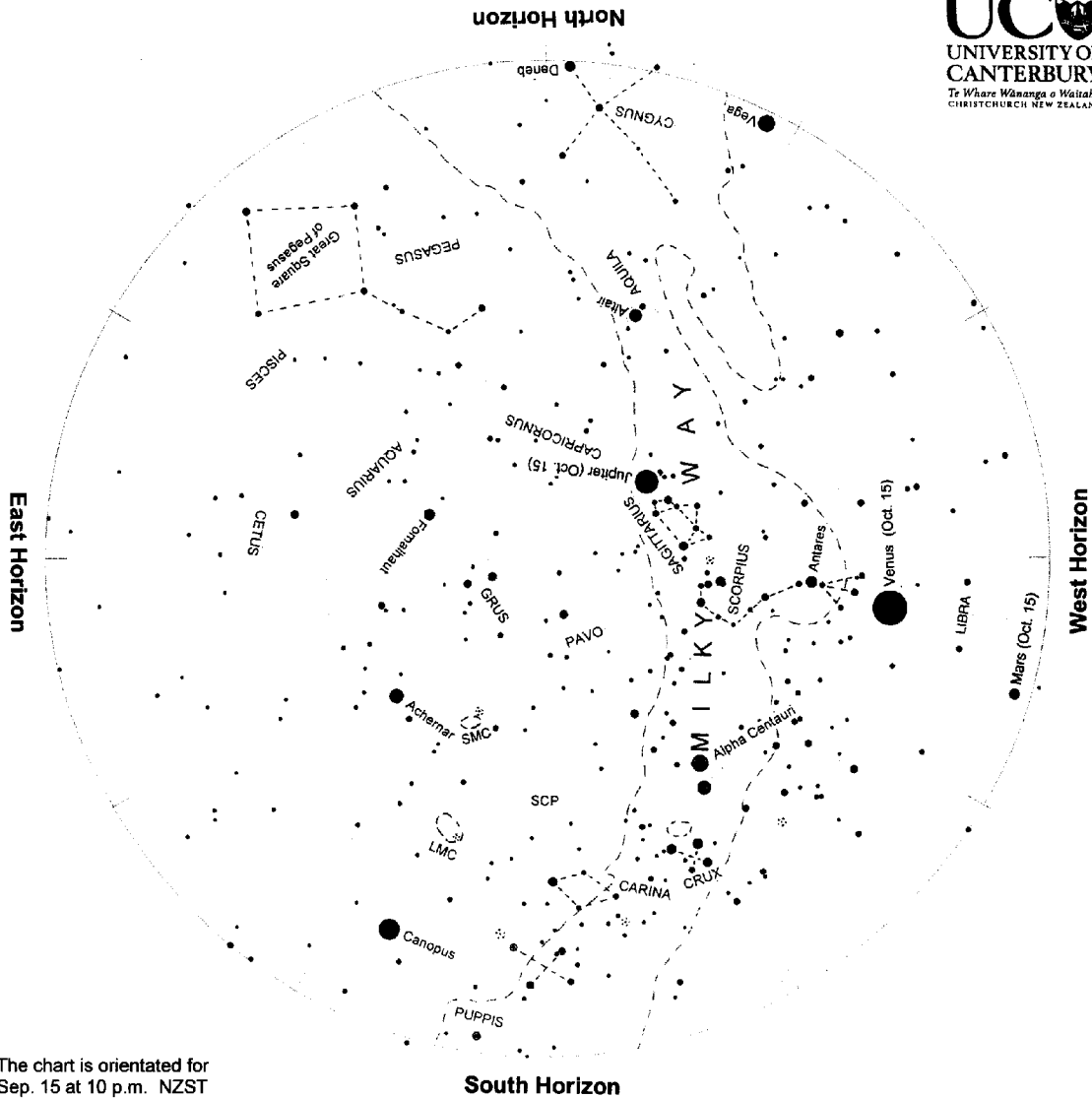
Canopus, the second brightest star, is in the south at dusk. It swings up into the southeast sky during the night. Canopus is a truly bright star: 13 000 times the sun's brightness and 300 light years away. On the opposite skyline is **Vega**, one of the brightest northern stars, setting in the late evening.

The **Milky Way** is brightest and broadest in **Scorpius** and **Sagittarius**. In a dark sky it can be traced down past the Pointers and Crux into the south. In the other direction, past Sagittarius, it tracks down the north sky. 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. The actual centre, with a black hole three or four million times the sun's mass, is hidden by dust clouds in space. The nearer clouds appear as gaps and slots in the Milky Way. A scan along the Milky Way with binoculars shows many clusters of stars and some glowing gas clouds, particularly in the **Carina** region below Crux, and in Scorpius and Sagittarius.

The Large and Small Clouds of Magellan, **LMC** and **SMC**, look like two misty patches of light in the southeast sky. They are easily seen by eye on a dark moonless night. They are galaxies like our Milky Way but much smaller. The Large Cloud is about 5% the mass of our Galaxy and the small one 3%. That is still many billions of stars in each. The LMC is around 160 000 light years away; the SMC around 200 000 l.y. away. They are thought to be satellite galaxies of the Milky Way, orbiting in two billions of years.

On moonless evenings in a dark rural sky the Zodiacal Light is visible in the west. At first glance it looks like late twilight. On closer inspection one sees a faint broad column of light surrounding Mars and Venus and passing through Libra. It is sunlight reflecting off meteoric dust in the plane of the solar system. The dust may be the remains of a big comet that disintegrated thousands of years ago.

*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.



The chart is orientated for
 Sep. 15 at 10 p.m. NZST
 Oct. 1 at 10 p.m. NZDT
 Oct. 15 at 9 p.m. "

Evening sky in October 2008

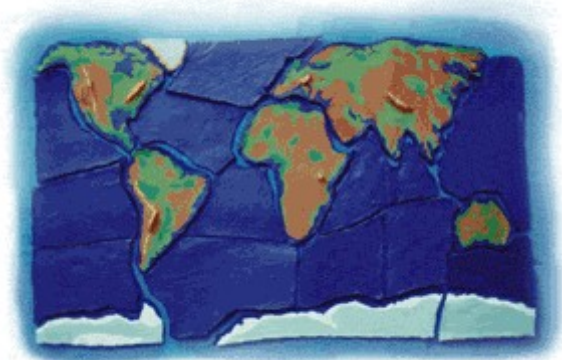
To use the chart, hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge. As the earth turns the sky appears to rotate clockwise around the south celestial pole (SCP on the chart). Stars rise in the east and set in the west, just like the sun. The sky makes a small extra clockwise rotation each night as we orbit the sun.

The bright planets Venus and Jupiter dominate the evening sky. Brilliant Venus appears in the west soon after sunset. It is quickly followed by golden Jupiter northwest of overhead. Above Venus, for most of the month, is orange Antares at the heart of Scorpius. The Scorpion's tail, a.k.a. the fish-hook of Maui, curls up the sky. Crux, the Southern Cross, and the Pointers are in the south-west. Canopus in the southeast moves up into the eastern sky. Vega sets on the opposite horizon. The Milky Way spans the sky from north through west and into the south. The Magellanic Clouds, nearby galaxies marked as LMC and SMC on the chart, are misty glows in the southeast.

Chart produced by Guide 8 software; www.projectpluto.com. Labels and text added by Alan Gilmore, Mt John Observatory of the University of Canterbury, P.O. Box 56, Lake Tekapo 7945, New Zealand. www.canterbury.ac.nz

Make a Relief Map Jigsaw Puzzle taken from the NASA Space Place website and © to Colleen Barboza.

DISCLAIMER: *all personal and professional opinions presented herein are my own and does not, in any way, represent the opinion or policy of JPL/NASA.*



Wouldn't it be fun to make your own miniature world, complete with mountains, valleys, rivers, lakes, and volcanoes?

Now what does map-making have to do with space? Excellent question!

Well, where would you have to go for the real world to look like a map? More on that later. Meanwhile . . .

Cut the continents and oceans out of clay or dough, then add the details. Here's how.

Suggestion:

Find a grown-up to share this activity with you

What you need:

[Pattern for your map](#)

This is a 2-page Adobe Acrobat file, which you can print out and tape together to form an 11x17-inch pattern. If you don't have Acrobat Reader, you can get it now.

Scissors

Clay, self-hardening or oven-fired

OR

Stiff modeling dough, oven-hardening

Whichever you choose, you will need about 3 cups-worth

Waxed paper (for surface on which to roll out clay)

Rolling pin

Dull, thin knife

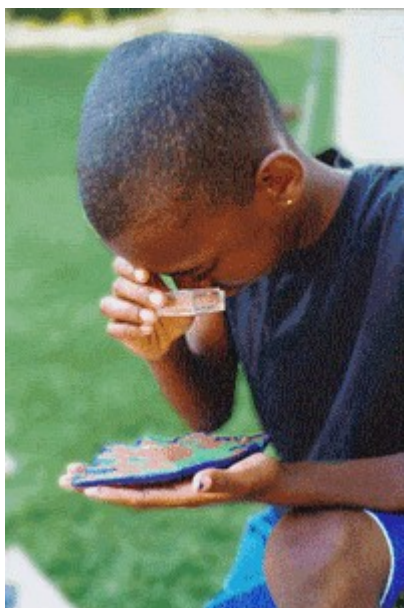
Cookie sheet or pizza pan

Acrylic paints in "earth tones"

Like dirt brown, forest green, mountain purple, ocean blue, snow white, dry grass yellow--or whatever colors you want.

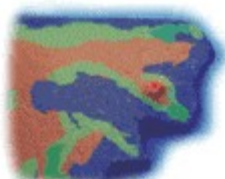
Paint brush

Magnifying glass (if you have it)



What to do:

1. Print out the map pattern. (Of course you don't need to print it in color. You will be painting the finished puzzle your own colors, anyway.) Tape the two pages together down the middle of Africa so you have one big 11-by-17-inch map.
2. Cut out the puzzle pieces along the white lines. It's okay to make the edges straighter or to cut in different places. These lines are only suggestions.
3. If you are using clay, place it on waxed paper. If you are using dough, place it on a lightly floured countertop or table. Use the rolling pin to roll the clay or dough to about one-half a centimeter (or about 1/4 inch) thick all over. You should have enough clay or dough to roll out to at least as big as the map, with a little left over for features like mountains and volcanoes.
4. Place the paper pattern pieces on the clay or dough and cut around the pattern with the knife. Peel off the paper, and carefully lift the pieces and place them on the cookie sheet.
5. Make "topographical" features on the surface of your "land masses." Use your fingers, toothpicks, the dull knife, or whatever tools are handy to make shallow dents or cracks for rivers, lakes, or craters. Add bits of clay or dough to fashion mountain ranges, gently rolling hills, volcanoes, forests, cities, or whatever strikes your fancy.
6. Dry or bake the puzzle pieces, following the directions for the clay or dough you are using. Make sure the puzzle pieces are **completely** dry before you paint them!
7. When you pick up ocean pieces or any other smooth pieces from the cookie sheet after they are dry, make a mark (like an "X") on the back so you don't paint the back of the piece by mistake!



8. Paint the pieces, making the surface features you added look interesting. Use the paper map as a guideline for where to paint the borders of the continents. You can paint in the islands (shown in black on our map pattern) too, if you want.
9. When the paint is dry, put your puzzle together and admire your beautiful world!

If you have a magnifying glass, look at your topographical features through it and see how interesting they are!

www.KIWIDOMES.co.nz

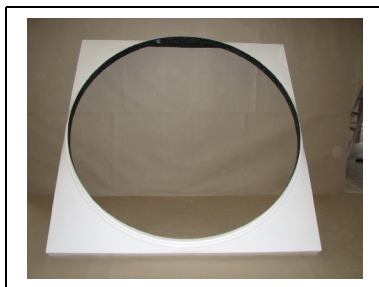
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