

# Newsletter

WELLINGTON ASTRONOMICAL SOCIETY

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## THIS MONTH'S MEETING FEATURES:

### Palomar: The building of the Observatory

1hr 26min - movie

#### In this issue:

Wednesday, 2<sup>nd</sup> of February,  
7:30 PM at Carter Observatory

<i>PRESIDENTS REPORT FOR FEBRUARY NEWSLETTER</i>	2
<i>HOW I GOT HOOKED ON OCCULTATIONS</i>	3
<i>COUNCIL OF THE WELLINGTON ASTRONOMICAL SOCIETY INC.</i>	3
<i>DECEMBER CROSSWORD ANSWERS</i>	4
<i>RESEARCH ASTRONOMY GROUP</i>	4
<i>OBSERVING AT THOMAS KING</i>	4
<i>OBSERVING AT PAUATAHANUI</i>	4
<i>BINOCULAR HUNT THROUGH CARINA</i>	5
<i>THE EVENING SKY IN JANUARY 2011</i>	7
<i>CROSS WORD WITH MURRAY FORBES</i>	8

## 02-2011

Wellington  
Astronomical  
Society





## Presidents Report for February Newsletter

### I would like to start 2011 by wishing everyone a Happy and Prosperous New Year.

I would like to thank all those volunteers who have come along to Carter on Saturday evenings and assisted Ross Powell in Running the 9.75" Cooke Refractor.

I have been assured by Carter that the other groups who use Carter now have to step up and assist Ross on Saturdays. So we will not have to supply volunteers all of the time in future.

Carter is considering having another observing evening when daylight saving finishes and therefore having two evenings per week instead of just one.

Carter is also considering hiring out the Thomas King Observatory for Children's Birthday Parties but this will only happen in the summer. They may open up the Thomas King Telescope for Solar Observing during the day at these birthday parties.

I hope we have clearer weather for observing this year whereas last year was not good with only three observing evenings which were clear.

Even the December barbecue and observing evening set down for Saturday December 11th was canceled because of low cloud and drizzle. Although it did clear about 11pm.

Prior to the barbecue evening Chris Mongatti and me went out to Pauatahanui Observatory and did some much needed weeding and generally tidying up. We removed all the Thistles and the Long Spiky grass that was growing along the roadway. We checked out the Telescope to see if it was running properly and it was.

The amount of weeding we did made a pile a meter high. After the weeding we sprayed the area with weed killer as grass had grown over the Plastic Matting that we laid a couple of months ago and sprayed around the concrete slab that we often setup on.

I checked out the site the other day and the grass was all dead but there still needs to be some cleaning up. The dome is starting to look very patchy and is in need of painting. Although I think Chris has this in hand. With all the heavy rain and strong winds we have been experiencing there had been no leaks or any damage to the observatory.

Apparently there was a Lunar Eclipse on Tuesday 21st December but I watched the clouds up till midnight from my place and never saw a glimpse of the Moon. I gave up.

In my last report I mentioned the SBig ST7E CCD camera, which belongs to the society, which I am currently trying to use. I have now been able to fix the Filter wheel along with my focal reducer to the camera and so now it can be used for CCD Photometry using the Photometric Filters.

If only the weather would clear and give us a good sky to do some real photometry.

Over the summer break I checked out the Tawa College Country Classroom with Chris Mongatti in the Wairarapa to see if it would be suitable for a weekend astro camp. Unfortunately it is not suitable as there is only one room and not very big also there are several huge Pine trees and Gum trees shading the place, which may be alright during

the heat of the day but no good for observing as there would be no Southern sky. The grounds have been hired out to a local farmer who has run cattle in the grounds and unfortunately the grounds are a mess with hundreds of holes made by cattle hooves. Accommodation at the school room would be Marae style although they have quite good showers and toilets. There is also a river that runs nearby.

We still intend to have an Astro Camp this summer and at this stage we are still considering Tatum Park just South of Levin.

The next observing at Pauatahanui will be on Feb 5th starting at 9.30pm.

This year we have added an extra Saturday to the observing at Pauatahanui each month so if one is clouded or rained out we will have the following Saturday to fall back on.

Observing at the Thomas King Observatory is every Friday evening but ring Ross Powell first.

The WAS Dobsonian telescopes are all out on hire at present. Anyone wanting to hire one of the societies Dobsonians should call Chris Monigatti.

The society has invested in a new Finder for one of the Dobsonians as one had gone missing.

The **WAS Research Group** was approached by the Gifford Observatory Trust to see if any of our members would be interested in using the Observatory all be it with a different telescope installed which would possibly be a C14 with a CCD camera attached. This proposal is still under discussion.



Next months talk will be by Hari Mogosanu ,crew member at the Mars Desert Research Station located in the plateau country near Hanksville,Utah, USA. This station is run by the Mars Society <http://www.marssociety.org/> to solve as many problems as possible before mankind actually colonises Mars...

We also have a DVD by National Geographic 'Martian Robots' which runs for 47 minutes.

## How I got hooked on Occultations

When I was at Auckland University back in about 1961-62 I started making a 6 inch f6 mirror. I got it to the almost polished stage before life and work got in my way and it still sits in my workshop cupboard waiting to be finished.

For my 60th birthday my family bought me a 6 inch telescope with simple manual RA mount. After having looked at a few things like the Moon and Orion Nebula I felt the need to do some "real" observations. I joined WAS and was inspired by Graham Blow's talk on Occultations to have a go.

My first attempt at an Asteroidal Occultation was on 2005-May-28 when I tried to visually observe 436 Patricia occult TYC 7292-01766-1 using the 6inch telescope and using shortwave radio tuned to WWV and recorded on a cassette tape recorder. I found the star and recorded a Miss. But I had got the bug and on 2005-Aug-03 I observed a positive for 1071 Brita occulting TYC 6856-01519-1. That was my first, and so far only, positive MP event despite many tries since!

I soon realised that I would have to go to video recording and bought one of the batch that Graham Blow imported. That had two effects, the field of view on the TV screen was much smaller making it harder to find the field and the star, but on the plus side it gave a definite record that gave much improved certainty of being sure that something had happened. The first event I tried to observe with the video was a Lunar Graze of ZC35 on 2005-Nov-12 which had the graze line within 1 km of my site. I could see lots of blinks but translating the video events to audio times proved a challenge and my data ended up in bin 13.

The next step was to get a KIWI-OSD GPS time inserter. The first event with that was a D of Antares behind the moon on 2006-Sep-28 at 09:20:37.42 and I am confident it was accurate and real.

Also in 2006 Graham twisted my arm to take on the Minor Planet reporting role of RASNZ Occsec and I have been doing that job since.

In 2008-09 I built a cheap 10 inch scope and have observed a lot of Lunar, Asteroid (none positive) and Jupiter moon events. Most of the lunar and Jupiter events would have been feasible with the 6 inch.

So if you have a telescope of any sort have a go at observing a lunar event during the next first quarter of the moon when it is easy to see on the evening sky and you can still get a good night's sleep. Predictions for Wellington area for the next month are posted on our web site at <http://was.org.nz/01Occs.html> . All the events there should be visible with a 6 inch telescope.

John Talbot

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## December Crossword answers

**Across:** 1. DEWCAP, – used to prevent moisture condensing on a telescope; 7. VEGA, – alpha Lyr; 9. DESDEMONA, – A satellite of Uranus, a character in Othello; 14. ANTARES, – heart of the scorpion; 16. ION, – an arrested atom; 17. MASS, – I weight 6 times less on the Moon, but still have the same ???; 18. CANOPUS, – Antahi; 21. PARALLAX, – apparent shift of an object against a distant background due to the observer's movement; 22. VIRGO, – Constellation with Spica; 23. LOKI, – volcano on Io; 26. GIOTTO, – Name of ESA spacecraft that intercepted Halley's comet; 28. MESSIER, – a catalogue; 30. SOHO, – satellite observatory studying the Sun; 32. DENEK, – alpha Cygnus; 34. ICE, – frozen liquid; 36. BAR, – some spiral galaxies have one; 37. SEYFERT, – type of galaxy with unusually bright nucleus; 38. CLUSTER, – An open or globular ...; 40. SHEPHERD, – astronaut; 45. NOON, – mid-day; 46. ZODIAC, – also a small inflated rubber boat; 47. NORTH, – thorn (anagram); 48. SCHMIDT, – type of telescope; 49. FUSION, – process that powers stars; 52. BINARY, – a double star; 53. LEO, – A lion circling the Earth; 54. HELIUM, – second most common element; 55. ECLIPTIC, – plane of Earth's orbit around the Sun;

**Down** 1. DAY, – 24 hours; 2. APOGEE, – When the Moon is furthest from the Earth; 3. TAURUS, – You don't want this constellation in a China shop; 4. HST, – an orbiting telescope; 5. VENUS, – a very cloudy planet; 6. HOUR, – unit of time; 8. EQUINOX, – 23rd September; 10. ATOM, – smallest indivisible piece of a element; 11. GAS, – solid, liquid or ...; 12. NADIR, – opposite to zenith; 13. POLARIS, – The North Star; 15. ALGOL, – Demon star; 19. PERIGEE, – When the Moon is closest to the Earth; 20. DINOSAURS, – an asteroid may have done them in; 21. PELE, – volcano on Io; 24. CEPHEID, – A type of pulsating variable star, often used for distance measurements; 25. NUTATION, – Causes small changes in RA and Dec coordinates; 27. PHOBOS, – A Moon of Mars; 29. SMC, – satellite galaxy to the Milky Way; 31. PROCYON, – brightest star in Canis Minor; 33. EARTH, – Tellus; 35. REDDWARF, – Main Sequence stars cooler & smaller than the Sun, also the name of a cult sci fi/comedy series; 39. AZIMUTH, – horizontal angle around the sky; 41. HYADES, – an open cluster in Taurus; 42. RUTHCRISP, – Carter Observatory's public telescope; 43. ECLIPSE, – to block light from another object; 44. HALO, – angels and galaxies both have one; 47. NOVA, – a new star; 50. UFO, – flying saucer; 51. IO, – One of the Galilean satellites; 53. LMC, – could be mistaken for a cloud;

## Research Astronomy Group

**The main areas we have decided to focus on are Variable Stars and Occultations. Many of the group already observe one or both.**

Murray Forbes is leading the Variables group and set us home work to map and locate a known eclipsing binary variable star RS Cha (Chameleon) also known as Tycho 9403-1987-1 at RA 8:43:12, Dec -79:04. This should be visible above 0 deg altitude year round so is not season dependant.

John Talbot is leading the Occultation group and is publishing predictions for the Wellington area on our web site at <http://was.org.nz/01Occs.html>.

These include both Lunar events that should be visible in a 6 inch telescope and Minor Planet events that may be a bit dimmer but which have high probability of being seen. Even if you do not have recording equipment it can be fun in the evening to observe a star disappearing behind the dark edge of the moon during the first half. Or if you like getting up real early and want a harder challenge try for some bright reappearances during the second half of the cycle.

*The Research group meets each month at 6:30pm before the main meeting.*

Please feel free to come along and join in if you are interested. This is also a good time to bring along that telescope or observing problem you may have for discussion.

### OBSERVING AT THOMAS KING

All public observing evenings will be held at the Thomas King Observatory run by our Observatory Director Ross Powell. from 8:30. **Ring Ross on 389 9765** to check if there are public observing evenings on most FRIDAYS, starting as soon as it gets dark depending on the weather and Ross's availability.

The WAS sub group has now been meeting for about 6 months and it is clear that we have a core group of about 10 to 12 people who are at most meetings.

Please be assured that any other members who might be interested in coming along at 6:30 pm on normal meeting evenings are most welcome. The two main areas that have emerged for now are measuring Occultations (of all sorts) and Variable Stars. Again this should not hinder anyone else who would like to raise other topics.

Some of you may feel that you need a lot of equipment but be very aware that you can start simple and gradually get more "stuff". Some bright star occultations and many variables can be observed with nothing more than binoculars and the stop watch in your cell phone.

If these areas of research are not for you then please consider some of the many other topics in Astronomy where you can provide real input to the science. Come to the meeting and discuss them. The following web sites may give you some inspiration.

The Association of Lunar and Planetary Observers

<http://alpo-astronomy.org/index.htm>

Collaborative Asteroid Lightcurve Link  
<http://www.minorplanetobserver.com/astlc/default.htm>

John Talbot

### OBSERVING AT PAUATAHANUI

The next observing evening at Pauatahanui is on February 5th starting at 9.30pm. If the weather is looking doubtful we have a backup evening the following Saturday 12th February. **If doubtful please ring Chris Mongatti on his mobile 021 890 222 to see if the session is going ahead.**



## Binocular hunt through Carina



Carina, the Keel, was once part of the great constellation of Argo. This constellation was broken up into the smaller constellations of Vela, the sails, Puppis, the stern, Pyxis, the compass and the largest section Carina. This constellation sits along the Milky Way and contains a large number of objects visible in binoculars or small telescopes.

A good starting point is Alpha Carinae (Canopus), the second brightest star in the night sky. Until recently, estimates of the distance of this star ranged from 76 to 1200 light years from our Solar System. The Hipparcos Satellite has measured the distance of this star as 310 light years with a visual magnitude of -0.7 and an absolute magnitude of -5.53.

Head to Beta Carinae the brightest star in the asterism of the "Diamond Cross" shining at magnitude 1.68. Move to the other end of the Diamond Cross is the

hazy "star" Theta Carinae. Binoculars reveal the star is in fact a cluster with Theta Carinae the brightest a magnitude of 2.74, all the other stars in the cluster are 5th magnitude or fainter. The cluster resembles the Pleiades and is commonly known as the "Southern Pleiades".

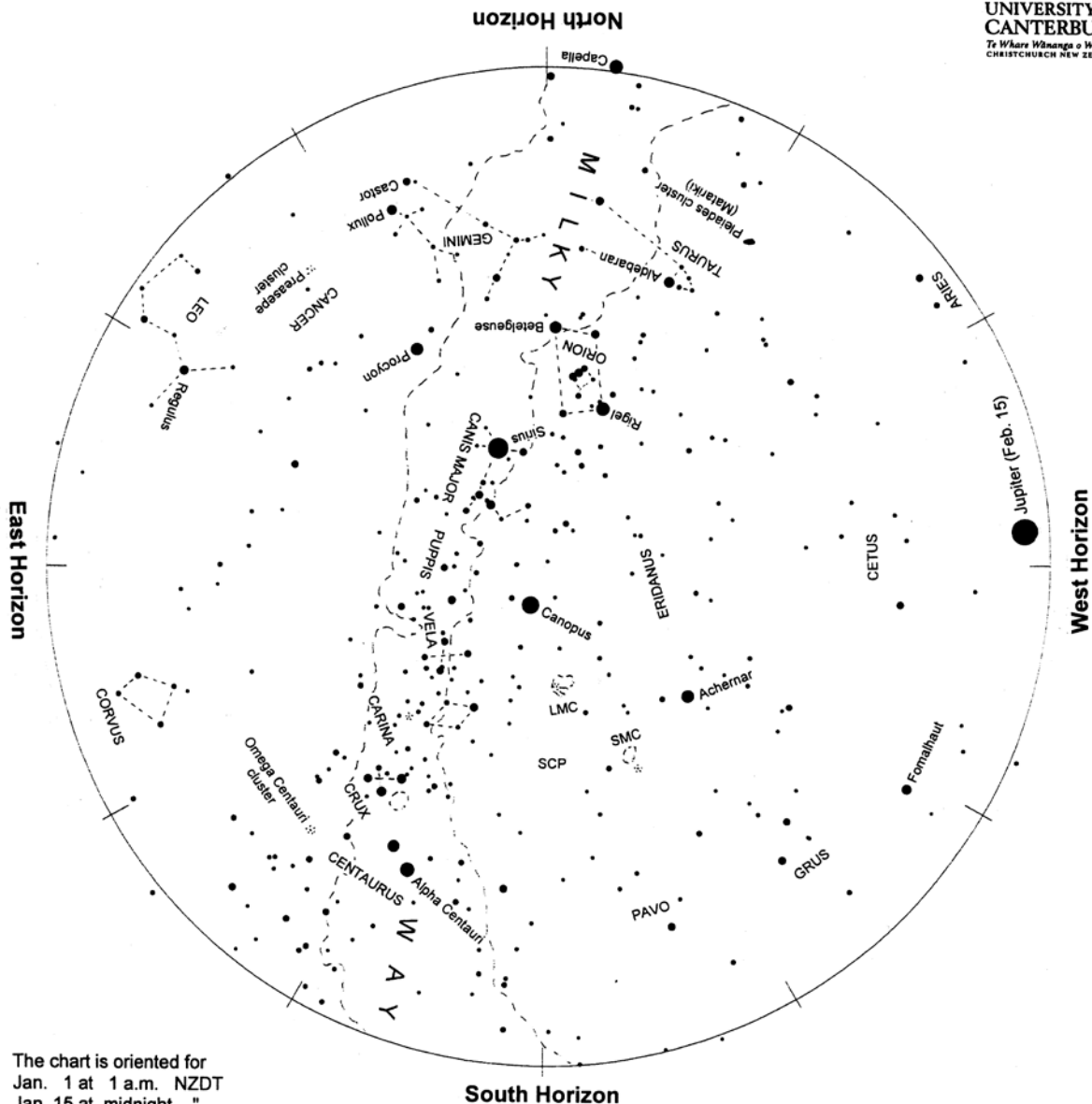
Nearby to the Southern Pleiades is the globular cluster NGC 2808 appearing as a bright fuzzy star. This one of the most massive globular clusters in our galaxy and has an apparent magnitude of 7.8.

Slightly lower to the horizon is the Eta Carina nebula appearing as large haze in your binoculars. Dark lanes and stars abound in this region. Eta Carina appears as a bright orange in this region. The star has been slowly brightening over the last 10 years and now is visible to the unaided eye a magnitude 5.5 and may continue to brighten over the next few years.

Nearby to the Eta Carina nebula is the open cluster NGC 3532, known as the "Whishing Well Cluster" with the stars representing the silver dollars in the bottom of the wishing well. Consisting of approximately 150 stars of magnitude 7th or greater, this cluster was the first target of the Hubble Space Telescope in 1990. The cluster is about 1300 light years distant and has an apparent brightness of magnitude 3.

Also close to Eta Carina is NGC 3293, the Gem Cluster, consisting of more than 50 stars, brightest of which is a red giant at 6.5, amongst many blue bright stars. With an estimated age of only 10 million years, NGC 3293 is a very young cluster.

Variable star I Carina is yellow super-giant star approximately 1600 light years away and varies in brightness from 4.2 to 3.3 every 36 days. It is a prime target for visual variable star observers.



The chart is oriented for  
 Jan. 1 at 1 a.m. NZDT  
 Jan. 15 at midnight "  
 Feb. 1 at 11 p.m. "  
 Feb. 15 at 10 p.m. "

### Evening sky in February 2011

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.

Jupiter, low in the west, is the first 'star' out but sets as twilight ends. Sirius, the brightest star, appears north of overhead at dusk. Canopus, the second brightest star, is south of the zenith. Orion, containing 'The Pot', is midway up the north sky with Taurus and the Pleiades/Matariki toward the northwest. The Southern Cross and Pointers are midway up the southeast sky. The Clouds of Magellan, LMC and SMC, are high in the south sky. Saturn rises due east in the late evening.

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, P.O. Box 56, Lake Tekapo 7945, New Zealand. [www.canterbury.ac.nz](http://www.canterbury.ac.nz)



## The Evening Sky in January 2011

Jupiter is the first 'star' to appear at dusk, low in the western sky. Soon after, Sirius is seen north of overhead. Below it, and a bit to the left, are Rigel and Betelgeuse, the brightest stars in Orion. Between them is a 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 and left to a V-shaped pattern of stars making the face of Taurus the Bull. Left again, toward the northwest and lower, is the Pleiades or Matariki star cluster, also known as the Seven Sisters and Subaru. From northern New Zealand the bright star Capella is on the north skyline. The sixth brightest star, Capella is 190 times brighter than the sun and 42 light years\* away.

Jupiter is low in the western sky at dusk, setting around 10 pm NZDT. Because we are looking at it through a lot of air it appears blurry and distorted in a telescope. Its four big moons should still be visible, looking like small stars lined up on each side of it. Jupiter is on the far side of the sun from us now, around 840 million km away.

Sirius, 'the Dog Star', marks the head of Canis Major the big dog. A group of stars above and right of 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, in the northeast below Sirius, marks the smaller of the two dogs following Orion the hunter across the sky.

Rigel, directly above Orion's belt, is a bluish supergiant star, 40 000 times brighter than the sun and much hotter. It is 800 light years away. Orange Betelgeuse, below the line of three, is a

red-giant star, cooler than the sun but much bigger and 9 000 times brighter. It is 400 light years from us.

The handle of "The Pot", or Orion's sword, has the Orion Nebula at its centre; a glowing gas cloud many light-years across and around 1300 light years away.

The V-shaped group pattern making the face of Taurus the bull is called the Hyades cluster. It is 130 light years away. Orange Aldebaran, Arabic for 'the eye of the bull', is not a member of the cluster but merely on the line of sight, half the cluster's distance. The Pleiades cluster, impressive in binoculars, is 400 light years from us. Its stars formed around 100 million years ago.

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. Beta Centauri, like most of the stars in Crux, is a blue-giant star hundreds of light years away. Canopus is also a very luminous distant star; 13 000 times brighter than the sun and 300 light years away.

The Milky Way is brightest in the southeast toward Crux. It can be traced up the sky, fading where it is nearly overhead. It becomes very faint east or 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 Clouds of Magellan, LMC and SMC are high in the south sky, easily seen by eye on a dark moonless night. They are two small galaxies about 160 000 and 200 000 light years away.

Saturn (not shown on the chart) rises in the east around 11 pm, looking like a moderately bright star. To its right and higher in the sky is Spica, the brightest star in Virgo, similar in brightness to Saturn. Saturn's rings appear quite thin; nearly edge-on to us. It is 1300 million km away in February.

Brilliant Venus (not shown) rises in the south-east after 3 a.m. It is bright enough to cast shadows in dark locations. In a telescope it looks like the moon between full and last quarter. It is leaving us behind and moving away to the far side of the sun. At mid-month it is 140 million km away.

Mercury rises in the southeast after 5 a.m. at the beginning of the month but falls lower and fades into the dawn twilight by mid February.

It is 200 million km away on the far side of the sun.

*\*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.*

*Notes by Alan Gilmore, University of Canterbury's Mt John Observatory, P.O. Box 56, Lake Tekapo 7945, New Zealand.  
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## Cross Word with Murray Forbes



**Across** 1. *Autabi*; 6. *A Moon of Mars*; 11. *one phial (anagram)*; 14. *spectral classes*; 17. *satellite observatory studying the Sun*; 18. *When the Moon is furthest from the Earth*; 20. *volcano on Io*; 22. *A type of pulsating variable star, often used for distance measurements*; 23. *a very cloudy planet*; 24. *frozen liquid*; 27. *Tellus*; 31. *a shepherd satellite of Saturn's F ring, also the first women in Greek mythology*; 32. *a phase of the Moon*; 33. *I weight 6 times less on the Moon, but still have the same ???*; 34. *smallest indivisible piece of a element*; 35. *an open cluster in Taurus*; 36. *alpha Lyr*; 39. *angels and galaxies both have one*; 40. *alpha Cygnus*; 42. *Constellation with Spica*; 43. *an orbiting telescope*; 44. *Main Sequence stars cooler & smaller then the Sun, also the name of a cult sci fi/comedy series*; 47. *could be mistaken for a cloud*; 48. *plane of Earth's orbit around the Sun*; 49. *constellation with a sting*; 50. *Name of ESA spacecraft that intercepted Halley's comet*; 52. *One of the Moons of Mars*; 54. *second most common element*; 55. *23rd September*;

**Down** 2. *Causes small changes in RA and Dec coordinates*; 3. *flying saucer*; 4. *New Zealander*; 5. *One of the Galilean satellites*; 7. *type of telescope*; 8. *24 hours*; 9. *a new star*; 10. *An open or globular ...*; 12. *mid-day*; 13. *The Peacock constellation*; 15. *solid, liquid or ...*; 16. *volcano on Io*; 17. *star time*; 19. *A type of star whose core hydrogen has been used up*; 20. *A lion circling the Earth*; 21. *The SI unit of mass*; 25. *Once in a ...*; 26. *thorn (anagram)*; 28. *type of telescope*; 29. *A satellite of Uranus, a character in Othello*; 30. *used to prevent moisture condensing on a telescope*; 37. *Carter Observatory's public telescope*; 38. *brightest star in Camis Minor*; 41. *to block light from another object*; 45. *proposed theory of evolution*; 46. *process that powers stars*; 51. *an arrested atom*; 53. *satellite galaxy to the Milky Way*;