



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 2016

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 is the 'evening star'. It appears due east in the late evening at the beginning of the month. It rises earlier each night so is up at dusk most of the month. 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. Below and left of Orion are Taurus and the Pleiades/Matariki star cluster. The Southern Cross and Pointers are midway up the southeast sky. The Clouds of Magellan, LMC and SMC, two nearby galaxies, are high in the south sky.

## The Evening Sky in February 2016

In February bright stars are nearly overhead. **Sirius**, the brightest star, is north of the zenith. **Canopus**, the second brightest star, is south of the zenith. Below and left of Sirius are Orion's bright stars: bluish **Rigel** and reddish **Betelgeuse**. Between them is the line of three stars making Orion's Belt. The Belt line points left and down to orange **Aldebaran**, the eye of Taurus the Bull. Continuing the same line finds a tight bunch of fainter stars making the **Pleiades/Matariki** star cluster.

In the late evening, at the beginning of the month, **Jupiter** rises due east. It is brighter than any of the stars and shines with a steady golden light. Later on Jupiter is already up at dusk, appearing in the eastern sky soon after sunset. Any telescope will easily show Jupiter's four bright moons. They were first seen by Galileo in 1610. Binoculars, steadily held, often show one or two. Jupiter is 680 million km from us mid-month. The planet is 11 times Earth's diameter and 320 times Earth's mass. The full moon appears close to Jupiter on the 24th.

**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. **Procyon**, in the northeast below Sirius, marks the smaller of the two dogs that follow Orion the hunter across the sky. Sirius is eight light years\* away.

Below and left of Sirius 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'. The handle of the pot is Orion's sword. The Orion Nebula at its centre; a glowing gas cloud many light-years across and around 1300 light years away.

The belt stars point to orange **Aldebaran**. It is at one tip of a V-shaped pattern of stars making the face of **Taurus** the bull. The V-shaped group 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 from us.

Low in the northwest is the **Pleiades** or **Matariki** star cluster, also known as the Seven Sisters and Subaru. Six stars are seen by most eyes. Dozens are visible in binoculars. The cluster is 440 light years from us. Its stars formed around 100 million years ago. From northern New Zealand the bright star **Capella** is on the north skyline. It is the sixth brightest star in the sky.

**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, nearby for galaxies. The Large Cloud is about 5% the mass of the Milky Way galaxy; the Small Cloud about 3%.

At dawn all the bright planets are visible. Golden Jupiter is midway up the northwest sky. Reddish Mars is in the northeast of the zenith. Creamy-white Saturn is midway up the eastern sky. Above Saturn but fainter is the orange star Antares, the heart of Scorpius. Brilliant Venus is lower in the east. Mercury is below and right of Venus. Mars, Saturn and Mercury are the same brightness, roughly. The moon is near Mars on the morning of February 2nd; near Saturn on the 4th; and passing the region of Venus and Mercury on the 6th and 7th.

\*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.