



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

### Evening sky in January 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 clockwise or westward rotation from night to night as we orbit the sun.

Sirius, the brightest star, is high in the east at dusk. Left of it is Orion, containing 'The Pot', with Taurus and the Pleiades/Matariki star cluster further left toward the north. Canopus, the second brightest star after Sirius, is southeast of the zenith. Crux, the Southern Cross, and the Pointers are low in the south. From northern New Zealand the bright star Capella is near the north skyline. There are no bright planets in the January evening sky. They appear in the late night and dawn.

## The Evening Sky in January 2016

Bright stars appear in the eastern half of the evening sky in January. There are no bright planets. **Sirius**, the brightest true star, appears high in the east at dusk. Called 'the Dog Star' it marks the head of **Canis Major** the big dog. A group of stars to the right of it make the dog's hindquarters and tail, upside down just now. 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 that follow Orion the hunter across the sky.

Left of Sirius as the sky darkens are **Rigel** and **Betelgeuse**, the brightest stars in **Orion** the hunter. Between them, but fainter, is a line of three stars making Orion's belt. **Rigel** is a bluish supergiant star, 70 000 times brighter than the sun and much hotter. It is 800 light years away. Orange **Betelgeuse**, below Orion's belt, is a red-giant star, cooler than the sun but hundreds of times bigger: a ball of extremely thin hot gas. To southern hemisphere star watchers, Orion's belt makes the bottom of 'The Pot' or 'The Saucepan'. A faint line of stars above and right of the belt is the pot's handle or Orion's sword. It has a glowing cloud at its centre: the Orion Nebula.

Left of Orion is the V-shaped pattern of stars making the face of **Taurus** the Bull. The V-shaped group is called the Hyades cluster. It is 150 light years away. Orange **Aldebaran**, Arabic for 'the eye of the bull', is not a member of the cluster but on the line of sight, half the cluster's distance.

Left again, toward the north and lower, is the **Pleiades/Matariki/Seven Sisters/ Subaru** star cluster. Pretty to the eye and impressive in binoculars, it is 440 light years from us. From northern NZ the bright star **Capella** is on the north skyline. It is 90,000 times brighter than the sun and 3300 light years away.

Low in the south are **Crux**, the Southern Cross, and 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 very luminous and distant: 13 000 times brighter than the sun and 300 light years away.

The **Milky Way** is in the eastern sky, brightest in the southeast toward Crux. It can be traced towards the north but becomes faint below Orion. The Milky Way is our edgewise view of the Galaxy, the pancake of billions of stars of which the sun is just one. Binoculars show many star clusters and a few glowing gas clouds in the Milky Way, particularly in the Carina region. The Milky Way is faint left, or north, of Orion because we are looking toward its thin outer edge. The centre region of the Galaxy, in Sagittarius, is hidden by the sun at this time of year.

The Clouds of Magellan, **LMC** and **SMC** are high in the southern sky and easily seen by eye on a dark moonless night. They are two small galaxies about 160 000 and 200 000 light years away.

The bright planets are all in the late night or dawn sky. Jupiter rises due east before 1 a.m. at the beginning of the month. It is a very bright golden 'star' shining with a steady light. The Moon will be close to Jupiter on New Year's morning. By the end of January Jupiter will be up after 10:30. The disk of Jupiter is seen in a small telescope with its four 'Galilean' moons lined up on each side like stars, changing positions from night to night. It is 720 million km away mid-month.

Brilliant Venus rises after 3:30 a.m. through the month; up about 2½ hours before the sun. It is the brightest 'star' in the sky by far. While Venus stays put, the stars and the other planets creep higher and westward through the month. At the beginning of the month Saturn is below and right of Venus, looking like a bright creamy-white star. Around January 9-10 Saturn will make a close pairing with Venus as it passes the brighter planet. Mars is midway between Jupiter and Saturn, a medium brightness orange 'star'. At the end of the month Mercury will appear below and right of Venus.

\*A **light year** 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 sunlight four years to reach the nearest star, Alpha Centauri.