**July Night Sky**

Although it’s getting colder these long winter nights provide brilliant opportunities to see stars and planets.

High above and slightly to the east, Scorpius dominates the sky, The Scorpion's tail, upside down, is stretched out to the right of the bright star Antares making the 'fish-hook of Maui' in Maori star lore.

Below Scorpius, the ‘pot’ of Sagittarius sits up on its handle.

Still very high, but to the south, the bright pair Alpha & Beta Centauri (the southern pointers) sit above Crux (the Southern Cross) to their right. Much lower in the south Achernar brushes the horizon, with brilliant Canopus to its west – this star is 13 000 times brighter than the sun and 300 light years away. Just a little further west Sirius, the 2nd brightest star, might be seen setting in the twilight

Further north, part way down the sky, orange Arcturus is easily seen. This bright star sets in the northwest around midnight, twinkling red and green when low in the sky.

In the early dawn Matariki becomes easier to see in the northeast. Find the pot (with the star Puanga or Rigel above), look for an orange star, Aldebaran, to its left. Take an imaginary line between these 2 further left to find Matariki. This constellation is also named Pleiades or the 7 Sisters but astronomers usually just call it M45. Māori recognise nine stars with the naked eye - many more can be seen with binoculars. The lunar phase at the time of sighting determines the timing of the Matariki celebrations and restarts the Māori lunar calendar with the following new moon.

The Milky Way is brightest and broadest in the east toward Scorpius and Sagittarius. In a dark sky it can be traced up past the Pointers and Crux, fading toward Sirius. 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 is 30 000 light years away in Sagittarius. The hub surrounds a black hole four million times heavier than the Sun.

The Large and Small Clouds of Magellan, LMC and SMC, look like two misty patches of light low in the southern sky. These 2 small galaxies are easily seen by eye on a dark moonless night.

In winter, the Sun is low in our daytime sky. This means that planets opposite the Sun in our night sky will be high above the horizon by the middle of the night and easily viewed through a telescope.

**MERCURY**: Mercury is low in the northeast from late June to late July before dawn. A crescent Moon is close-by on 8 July. Mercury is soon lost to the Sun’s glare as the mornings pass.

**VENUS:** Venus is the brilliant 'evening star', appearing in the northwest soon after sunset. Venus's moves higher in the twilight and sets later each night through the month: soon after 7 pm at the beginning, near 8:30 at the end of July. Venus passes by the Beehive star cluster, on the 3rd and Mars on the 14th. The Moon is near the pair on the 12th and 13th.

**MARS:** Reddish Mars is low in the northwest, above Venus at the beginning of July but much fainter. On 12 July, the pair will sit above and to the left of a crescent Moon.

**JUPITER:** This planet appears bright in the southeast about 9:30 pm at the beginning of the month.. The Moon will be above Jupiter on the evening of the 25th and near Jupiter on the 26th.

**SATURN:** Saturn rises about an hour and a half before Jupiter, both rising earlier each day until by the end of the month it is becoming visible at the end of twilight. The full moon will be near Saturn on the night of the 24th-25th.

<https://www.stardome.org.nz/astronomy/star-charts/> and <https://www.rasnz.org.nz/in-the-sky/the-evening-sky>