**The July Night Sky**

**Sirius,** the brightest true star, sets in the southwest as twilight ends. **Canopus**, the second brightest star, is also in the southwest at dusk. It swings down to the southern skyline before midnight then moves into the southeast sky in the morning hours. It is a circumpolar star as from NZ it never sets.

South of the zenith the stars Beta and **Alpha Centauri** (Ranginui & Hakihea) point to Mahutonga **Crux** the Southern Cross constellation on their right. Alpha Centauri is the third brightest star in the sky and is also the closest. Beta Centauri, like most of the stars in Crux, is a hot blue-giant star. Crux and the Pointers are also circumpolar. In a telescope the jewel box cluster can be seen nearby.

The Large & Small **Clouds of Magellan** (LMC & SMC or Tuputuputu and Tioreore)appear as two luminous clouds low in the southern sky. These small galaxies are easily seen by eye in a dark sky.

Midway down the north sky is the orange star Ruawāhia **Arcturus**. It sets in the northwest around midnight, twinkling red and green. Although much brighter than our sun, it has an orange colour because it is cooler, around 4000°C. The star Whanui **Vega** rises in the northeast around 9 pm. It is on the opposite side of the sky to Canopus: low in the north when Canopus is low in the south.

The delta-Aquarids meteor shower peaks in the early hours of the 30th with its source close to Saturn, northwest of the zenith.

The constellation **Scorpius** dominates the eastern sky, with the star Rerehu Antares as its heart. This red giant is the brightest star in this region of the sky. The scorpion is seen to be on its back, with Te Tauihi the tail hook on the right turning down and directly overhead at midnight.

In the eastern sky and below Scorpius are several globular star clusters and the Lagoon nebula where new stars are being born.

The constellation **Sagittarius** appears in the east as a teapot with 2 handles and a lid, lying on its side. Away from city lights Te Mangoroa the **Milky Way** can be seen arcing across the sky from the south west to the northeast, brightest and broadest near Sagittarius.

In the early hours **Matariki** becomes easier to see in the northeast to the left of the orange star Taumatakuku **Aldebaran** in the constellation of **Taurus**. This star cluster is known to Europeans as the Pleiades or the Seven Sisters and many other cultures have their own names for it. Astronomers usually call it M45. Although known as the Seven Sisters the number of stars perceived with the naked eye depends on individual visual acuity. In Aotearoa New Zealand some iwi recognise seven stars while others recognise nine. Many more can be seen with binoculars.

**MERCURY:** Often too close to the sun to be seen, it starts to be clearly visible this month. On the 15th it will be well below and left of Venus, setting 50 minutes after the Sun. On the 29th it will be just to the right of Venus, making a close pair with Regulus. The crescent Moon will be below Mercury on the 19th .

**VENUS:** This brilliant evening star appears in the northwest soon after sunset. It reaches its highest altitude in the sky on July 3rd then falls a little lower each day as it moves between us and the Sun. At the beginning of July it sets around 8:40pm, by the end of the month it is setting an hour earlier. Venus is at its brightest on the 10th and appears like a tall thin white crescent in a telescope.

**MARS:** At the beginning of the month Marsappears as a medium-bright reddish star above and to the right of Venus, with the star Regulus at the top end of the line of 3. Regulus moves to be close to Mars around the 10th, Mars holding its position as Venus and Regulus set earlier. On the 13th the new order will be Venus, Regulus and Mars. The Moon will be near all 3 on the 21st. Mars appears as just a tiny disk in a telescope.

**JUPITER:** The brightest object in the morning sky**,** Jupiter rises about 3am early in the month and around 1:40 am at the end. The Moon is close-by on the 12th. By July’s end Jupiter dominates the northern sky and is well placed for viewing at dawn. A telescope will show Jupiter as an oval disc with its four big Galilean moons lined up on either side.

**SATURN:** At the beginning of the monthSaturn rises after 10 pm and around 8pm at the end. It looks like a medium-bright star, due east, all on its own. The near-full Moon will be above Saturn on the 6th and below it on the 7th. By dawn Saturn is northwest of the zenith. Saturn is worth a look in any telescope but might be fuzzy when low in the sky. The ring can be seen at 20x magnification. Saturn's largest moon, Titan, appears as a star four ring-diameters from the planet.

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