The October Night Sky

The evenings are stretching out as the constellations of winter (Libra, Scorpius, Sagittarius) set earlier and earlier. At the same time Orion, the major constellation of the summer sky returns, rising in the east.

Orange **Rehua Antares** marks the body of the Scorpion. The Scorpion's tail loops up the sky in the evening, making a back-to-front question mark with Antares being the dot. The curved tail is the 'fish-hook of Maui' in Māori star lore. Antares is a red giant star: 600 light years (ly) away and 19,000 times brighter than the sun. Above and right of the Scorpion's tail is 'the teapot' made by the brightest stars of **Sagittarius**. It is upside down in our southern hemisphere view.

**Autahi Canopus** is low in the southeast at dusk often twinkling colourfully. It swings up into the eastern sky during the night. Canopus is 13 000 times the sun's brightness and 300 ly away. On the north skyline is **Whanui Vega**, setting in the early evening. It is 50 times brighter than the sun, 25 ly away and the 5th brightest star in the sky. Places in the north of Aotearoa NZ will see **Deneb** near the north skyline in the middle of the Milky Way. Deneb is the brightest star in the cross-shaped constellation of **Cygnus** the swan. It is one of the most distant stars visible to the naked eye, around 2600 ly away. Its brightness is uncertain because of the distance but it could be as bright as 200 000 times the Sun's luminosity.

In the southwest are The Pointers, **Te Taaura o te Punga Alpha & Beta Centauri**, making a vertical pair. They point down to **Taki-o-Autahi Crux** the Southern Cross, lying on its side. Alpha Centauri, the top Pointer, is our closest star at 4.3 ly away. Beta Centauri is a blue-giant star, very hot and very bright, hundreds of ly away.

**Te Mangoroa the Milky Way** is brightest and broadest in Scorpius and Sagittarius. In a dark sky it can be traced down to the south. In the north it meets the skyline right of **Whanui Vega**. 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, 27 000 ly away, is in Sagittarius. The actual centre, with a black hole four million times the sun's mass, is hidden by dust clouds in space. Its direction is a little outside the Teapot's spout. The nearer 'interstellar' clouds appear as gaps and slots in the Milky Way. The dust and gas has come from old stars that have thrown much of their material back into space as they faded or blew up. New stars eventually condense from this stuff. A scan along the Milky Way with binoculars shows many clusters of new stars and some glowing clouds of left-over gas. There are many in Scorpius and Sagittarius and in the Carina region.

The Large and Small Clouds of Magellan, **LMC** and **SMC**, look like two misty patches of light in the southeast sky above Canopus. Easily seen by eye on a dark moonless night, they are galaxies like our Milky Way but much smaller,160 000 to 200 000 ly away.

On moonless evenings in a dark rural sky the **Zodiacal Light** is visible in the west. It looks like late twilight: a faint broad column of light reaching up toward Antares, fading out at the Milky Way. It is sunlight reflecting off meteoric dust in the plane of the solar system. The dust may have come from a big comet, centuries ago.

**MERCURY and VENUS:** Will be too close to the Sun for us to see.

**MARS:** Rises around midnight and remains visible until dawn when it fades into the gathering light in the north to north-western sky. It is visible as a small orange disc, the brightest body in that part of the sky. The Moon is near Mars on the mornings of the 15th and 16th.

**JUPITER:** Jupiter rises in the northeast at sunset, can be called the evening star, and is visible until dawn. Ideally placed for telescope viewing high in the northern sky, especially in the later hours. It shines with a steady golden light and its 4 large moons are easily spotted with modest telescopes. The moon will be near Jupiter on the 8th and 9th

**SATURN:** Seen high in the north eastern evening sky. It has a cream colour and is well placed for telescope viewing, where its rings are readily visible. The moon will be near Saturn on the 5th.

Sources:

Alan Gilmore, Mt St John Observatory and <https://www.stardome.org.nz/star-charts--sky-spotter>