

SOLAR SYSTEM DATA

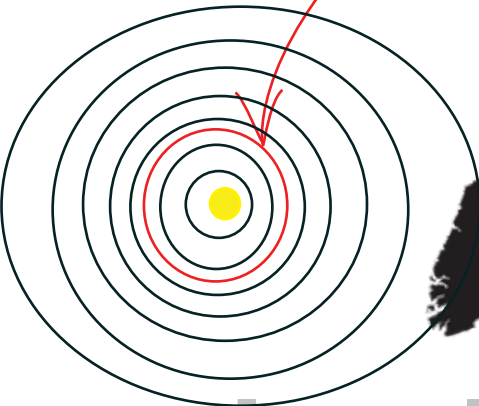
Wellington New Zealand
 Latitude: 41° 19' South
 Longitude 174° 46' East

- ☉ **Sun:** Libra, Scorpius and Ophiuchus, 8 light minutes (lmin) away from Earth
- ☾ **Moon:** 1.33 light seconds (lsec)

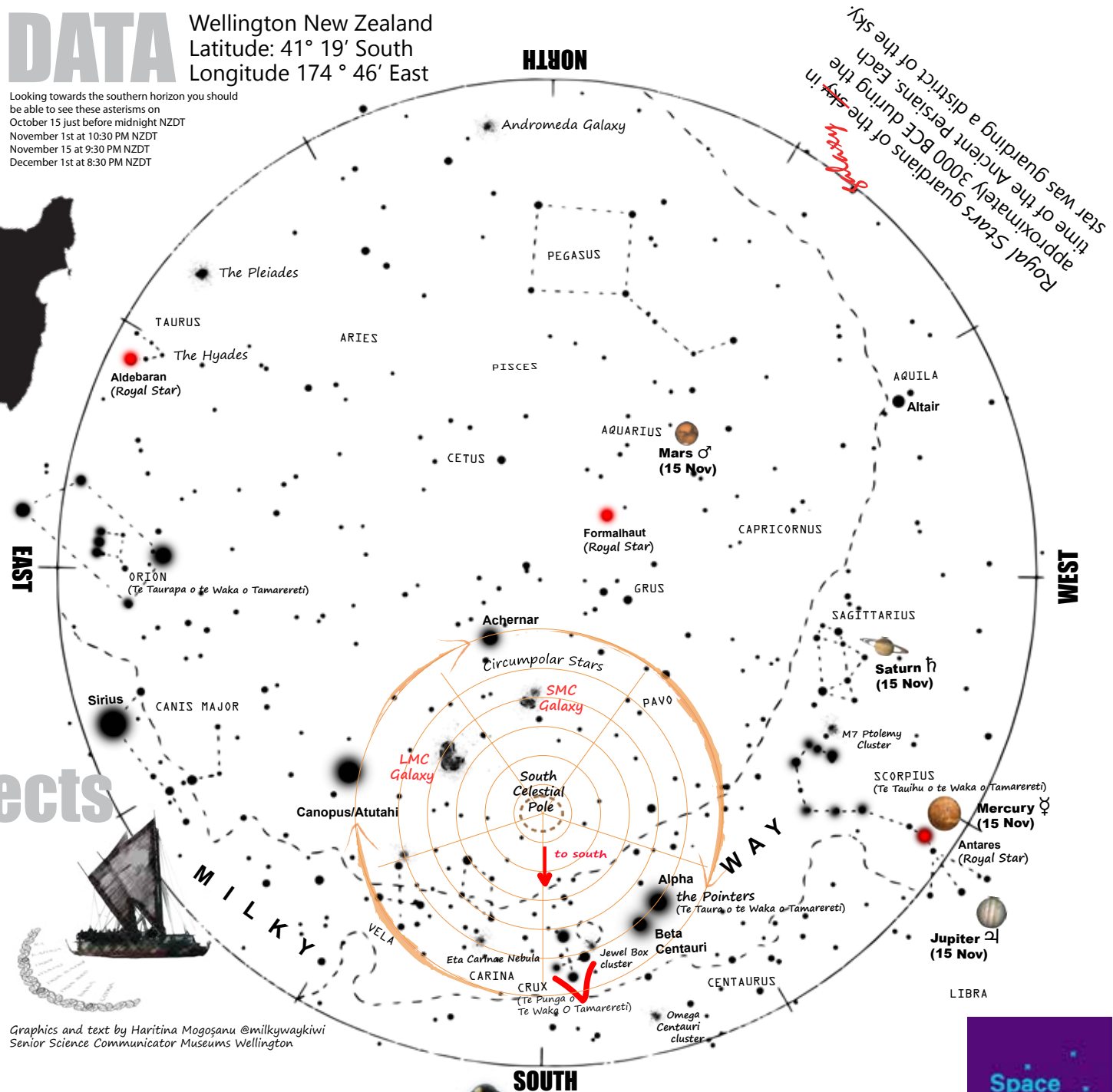
Naked eye

- ♿ **Mercury:** Scorpius, 9.28 lmin
- ♄ **Saturn:** Sagittarius 88 lmin
- ♂ **Mars:** Capricornus 6.57 lmin

Mira (Omicron Ceti)
 variable star in Cetus,
 299 light years ly



Looking towards the southern horizon you should be able to see these asterisms on
 October 15 just before midnight NZDT
 November 1st at 10:30 PM NZDT
 November 15 at 9:30 PM NZDT
 December 1st at 8:30 PM NZDT



Royal Stars guardians of the sky in approximately 3000 BCE during the time of the Ancient Persians. Each star was guarding a district of the sky.

deep sky objects

Binoculars

M44 Pleiades, The Hyades; M 31 Andromeda Galaxy; NGC 4755 Jewel Box Cluster; M 7 Ptolemy Cluster; Alpha Centauri double star.

Telescope

M31 Andromeda, M77 spiral galaxy (Cetus), Large Magellanic Cloud (LMC), NGC 2070 Tarantula Nebula, Small Magellanic Cloud (SMC), NGC 104 47 Tucanae Globular Cluster, M42 Orion Nebula.

Graphics and text by Haritina Mogoşanu @milkywaykiwi Senior Science Communicator Museums Wellington

in November



2018



NOVEMBER 2018

Three Royal Stars are in the sky of November, and here in Wellington New Zealand we are looking at a Māori asterism called Te Waka O Tama Rereti (or Tamarereti), which is the great canoe that placed the stars in the sky. We are also talking about the circumpolar stars, the Magellanic Clouds and latest research results revealing they collided in the not so distant past, which resulted in a MiniMe Magellanic Cloud hurrying behind one of them. Fomalhaut is my favourite star this month, the loneliest star in the sky as it's called and the Pleiades are back in the east just in time for Halloween.

TE WAKA O TAMA RERETI (OR TAMARERETI)

In the Eastern Sky, this time of the year, the Pleiades are visible again on the horizon. Harbingers for Halloween in the northern hemisphere where now skies are grey and ravens await for the first snows, for Māori, the Pleiades are now harbingers of summer. Together with the Hyades they make the wake and feathers from the Great Canoe (Waka) of Tama Rereti. November is the month when Milky Way surrounds the horizon like an ocean and the Great Waka was used by Māori to mark the arrival of the warm season when it was safe to travel the ocean. Tama Rereti's Waka placed the stars in the sky and now lies moored in the wake of the Milky Way. Scorpius is Tauihu, the prow, floating low on the western horizon. Due south sits Te Punga, the anchor (the Southern Cross), with its rope, Te Taura, which is represented by the Pointers (Beta and Alpha Centauri). The latter is actually a multiple star system that holds our closest solar neighbour, the red dwarf Proxima Centauri, at 4.25 light years from Earth. The sails of Tama Rereti's canoe are Achernar and the beautiful southern dwarf galaxies the Small and Large Magellanic Clouds (SMC and LMC). Canopus/Atutahi is the paramount chief of the skies at vigil in the waka. A source

of X-rays and the most luminous close star at 310 light years from the Sun, Canopus is used for navigation by all spacecraft that employ star tracker devices, which determine the orientation (or attitude) of the spacecraft with respect to that star. Te Taurapa, or the stern of the waka is in the Eastern Sky, formed by Orion.

Here in New Zealand we can see both Scorpius and Orion in the sky in the same time and this is the time of the year to do it.

CIRCUMPOLAR OBJECTS – THE MAGELLANIC CLOUDS

With the Milky Way laying across the horizon, there aren't so many deep sky objects handy to observe. However, we are in the Southern Hemisphere and the spectacular Magellanic Clouds (or Nubeculae Magellani) are high in the sky at this time of the year. The large Magellanic Cloud is about 160,000 light years from us and the Small Magellanic Cloud is about 200,000 light years away. To find them, draw a line from the southern cross to Achernar. Two thirds from the southern cross on each side of the line are the two galaxies. Now far apart, it seems that the Magellanic Clouds collided in the past.

Inside the Magellanic Clouds are amazing deep sky objects, including Tarantula Nebula and 4-7 Tucanae Globular Cluster.

THE VOID FROM THE NORTH

Really once I've seen the galactic centre at zenith and the southern circumpolar objects, the northern sky seemed a bit devoid of stars. Still, having said that, to the North, the great horse of Pegasus is flying through the sky. And Andromeda galaxy is in the sky too.

What's NOT in the sky

First of all, from Wellington New Zealand we cannot see the northern circumpolar stars. These are the stars that make the Big and Small Dipper, Polaris (which is opposite to the

South Celestial Pole) and Casiopea, which is on the other side of the Milky Way, kind of opposite the Southern Cross.

On the Zodiacal band, the Sun is in Libra from October 30 to November 23 then in Scorpius from November 23 to November 29 and finally in Ophiuchus from November 29 to December 17 (Ophiuchus is not included in the Zodiac) so during those dates we cannot see those respective constellations either.

The Solar System

At the beginning of the month **Jupiter** and **Mercury** will be low in the west at dusk, setting toward the southwest 1½ hours after the Sun. Orange **Mars** is in Capricornus north of overhead at dusk. Midway between Mars and Jupiter is **Saturn** in Sagittarius. Jupiter sets earlier each night as we move to the far side of the sun from it. By mid-month it is lost in the twilight. **Mercury** holds its position in the west before disappearing late in November when it passes between us and the Sun. A thin crescent **Moon** will be near Mercury and Jupiter on the 9th. At the end of the month Saturn and Mars are the only naked-eye planets in the evening sky. The Moon will be near Saturn on the 11th and 12th and close to Mars on the 16th. **Venus** rises a little south of east 50 minutes before the sun at the beginning of the month; more than 1½ hours before sunrise at the end. It is a long thin crescent in a telescope and big binoculars.

The month starts with the Moon at Last Quarter, then New Moon is on the 8th, followed by First Quarter on 16 November and full Moon on the 23rd.

Clear skies,

Haritina Mogoşanu, Senior Science Communicator Museums Wellington.

@milkywaykiwi

You can email me if you have any questions about the night sky at haritinam@experiencewellington.org.nz