

# Newsletter July 2026

One year of Dark Sky newsletters!

I was checking out our first Newsletter, to make sure I don't repeat any information about what can be seen in the sky at this time of the year.

Our first Newsletter talked about our first project...BATS!

We are pleased to bring you the results of the ongoing survey we have been doing around Glenorchy. This town is full of Long Tailed bats. We're still searching for short tailed bats, and haven't lost hope that we will find them. Check out the image on this page to find out where we get the most bats. How many do you get near your house?

In case you are wondering why so many have been recorded near the pines at the golf course, this is probably a roosting spot and it is likely that many bats are being recorded several times as they come and go from the roost

This month we're looking at the planet Neptune. In mythology Neptune (Poseidon) is the God of the ocean. This planet is also an ice giant, and is the 8th and final



## This month:

-  1st to 3rd July: Glenorchy Dark Sky Group is hosting visitors from Taiwan
-  10th July: Matariki
-  11th July: Our Matariki celebration
-  14th July: New Moon
-  29th July: Full Moon

recognised planet in our solar system. (We'll talk about Pluto next month)

The Tāhuna Glenorchy Dark Skies Group is pleased to be hosting a Dark Sky Group from Taiwan. We are arranging a cosy winter talk with them at the Headwaters on the 2nd of July. One of the group has just spent a month in Rarotonga learning ancient pacific wayfaring skills. How cool is that!

On the 11th of July our popular Matariki midwinter dinner is back on. The coming year will be the year of the ... lizard, Mokomoko. (both skinks and geckos) This is also the dress theme for our dinner, so "Get your skink on" I'm looking forward to seeing your costumes. Tickets on sale at the garage as usual.

**FUN FACTS:** Mokomoko don't just eat bugs; they are crucial pollinators! They use their long, fleshy tongues to lap up nectar and pollen from native plants.

While most lizards around the world lay eggs, nearly all of New Zealand's geckos and skinks give birth to live young to protect them from the cold.



# World Astronomy News

## *To prove scientists haven't forgotten about the ultimate goal of reaching Mars...*

NASA is changing how it explores deep space. The agency just announced a brand-new partnership with commercial rocket maker Relativity Space to pull off an ambitious new mission to Mars, scheduled to blast off in 2028.

The teamwork model is simple but powerful: NASA is building the high-tech science tools, while Relativity Space is handling the heavy lifting—supplying the rocket, the spacecraft, and running the flight operations to get those tools safely to the Red Planet.

By teaming up with private space companies, NASA can hitch a ride on commercial investments. This frees up the agency to focus on what it does best—cutting-edge science—while pulling off more frequent, faster, and cheaper missions.

"Public-private partnerships like this are a force multiplier for science," says NASA Administrator Jared Isaacman. "By pairing NASA's world-class instruments with commercial innovation, we can deliver more science, more often."

**The Mission:** The star of this upcoming mission is a NASA-developed instrument suite named **Aeolus**. Once it arrives, Aeolus will give scientists their very first daily, global view of Martian weather—tracking winds, temperatures, dust storms, and cloud patterns in real-time.

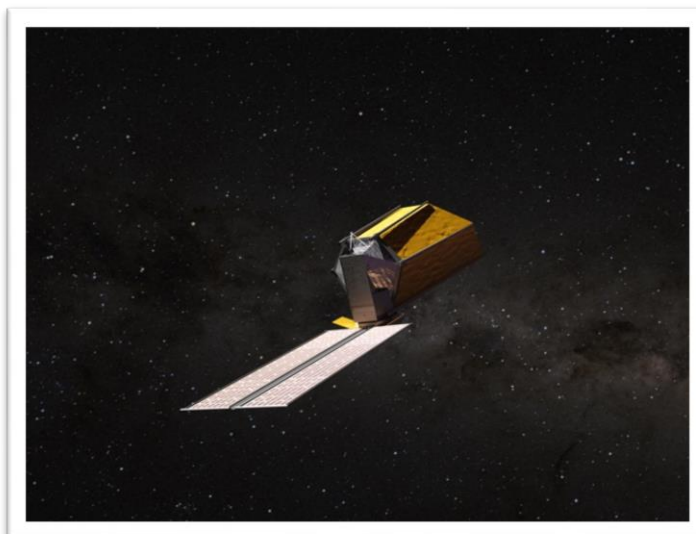
Mars is notorious for its brutal, unpredictable atmosphere, which makes landing a spacecraft there incredibly risky. By creating a highly detailed "weather map" of the planet, Aeolus will provide the exact data engineers need to build safer landing systems, protect uncrewed rovers, and eventually pave the way for astronauts to safely touch down on the Martian surface.

## *And the search for life in the universe continues...*

**Next-Generation Observations:** NASA is actively designing the **Habitable Worlds Observatory**, (HWO) a massive space telescope dedicated to capturing direct images of Earth-like exoplanets and hunting for biosignatures like oxygen and methane in their atmospheres.

To spot a dim Earth-like planet right next to a glaring star, HWO will use state-of-the-art coronagraphs or starshades (Think giant space umbrella!) to block out stellar light by a factor of 10 billion to 1. HWO is not due to launch until 2040, so there is a bit more development to do yet.

**SETI** stands for the **Search for Extra-terrestrial Intelligence**. It is a collective term for scientific and observational projects dedicated to detecting artificial signals—such as radio waves or laser pulses—to find evidence of intelligent technological civilizations beyond Earth. More about SETI next month.



# Learn the night sky

## This month...

The New Moon is on the 14th of July, and the Moon will be full on 29th of July. Dark night begins at 7.01 pm on the 1st of July and begins at 7:23 pm by the end of the month on the 31st of July.

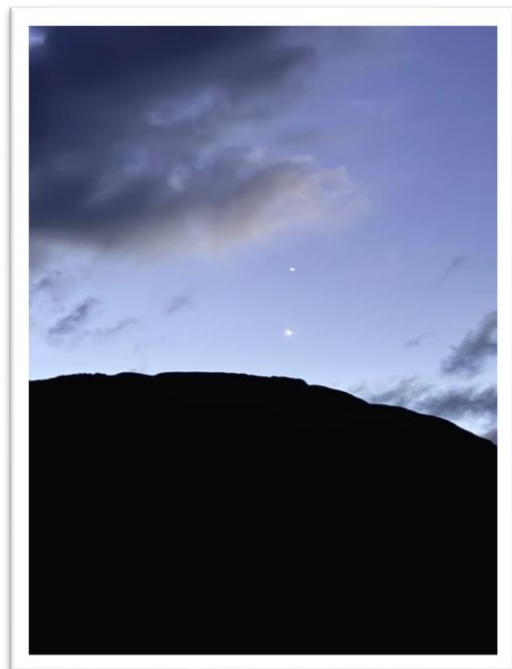
## In the Morning Sky

Mercury begins the month in the evening sky but then appears just before sunrise in the morning sky. Jupiter is low in the evening sky and also moves to the morning sky at the end of the month. Saturn is well up in the east in the morning sky and enters retrograde motion at the end of the month. (26th of July) Mars is in the constellation of Taurus, also seen in the morning sky.

## In the Evening Sky

Venus is our bright evening star this month as Jupiter sinks below the mountains before reappearing in the morning sky. I hope you all enjoyed watching the two evening stars changing position last month.

*photo credit: Leslie Van Gelder.*



Next up in our constellation line-up is Aquarius, one of the oldest charted constellations in the night sky. Officially it ranks as the 10th largest constellation. Yet, despite its sprawling size, it can be notoriously tricky to spot with the naked eye, because it lacks any ultra-bright stars –making it a rewarding treasure hunt for stargazers.

## A Celestial Neighbourhood Called "The Sea"

Long ago, ancient stargazers packed this rainy-season patch of the sky with water themes. They historically dubbed the region "The Sea," positioning Aquarius right alongside other aquatic constellations like Pisces (the Fishes) and Cetus (the Whale).

If you look closely at classic star maps, the celestial river Eridanus is often depicted as pouring directly out of Aquarius's water jug, sending a winding stream of stars down through the night.

While the constellation itself might be faint, it acts as the spectacular launchpad for multiple annual meteor showers. Most notably, it hosts the **Eta Aquariids**. Peaking in early May, this display can yield up to 35 shooting stars per hour. You are actually looking at cosmic crumbs. They are leftover pieces of icy debris shed by the famous **Halley's Comet** during its trips through our solar system.

## ★ Fun Facts

- **The "Lucky" Stars:** The two brightest stars in Aquarius are *Sadalsuud* and *Sadalmeik*. Their ancient Arabic names translate to "Luck of Lucks" and "Luck of the King." So, if you manage to spot them, you might just have a bit of cosmic good fortune on your side!
- **The Eye of God:** Deep inside Aquarius lies NGC 7293, better known as the **Helix Nebula**. This stunning planetary nebula is nicknamed the "Eye of God" because it looks exactly like a giant, colorful eye staring out across the universe.



# Let's talk about Neptune



When you look up at the night sky, most of the planets we know can be seen with the naked eye. But at the edge of our solar system sits Neptune—a deep-blue world that hid from humanity until we learned how to hunt for it with mathematics.

Named after the Roman god of the sea because of its intense ocean-blue color, Neptune is a world of extremes.

## The Planet Found with a Pencil

For centuries, stargazers tracked the planets using only their eyes and early telescopes. But Neptune was different. In the 19th century, astronomers noticed something strange: Uranus wasn't following its predicted path. It was being tugged by the gravity of an invisible neighbour.

Instead of searching the skies blindly, French mathematician Joseph Le Verrier and British astronomer John Couch Adams independently used mathematics to calculate exactly where this mystery planet should be. Armed with Le Verrier's precise

maths, German astronomer Johann Galle pointed his telescope into the dark in 1846 and found Neptune on his very first night of looking!

## What is an "Ice Giant," Anyway?

While planets like Jupiter and Saturn are gas giants, Neptune (along with its neighbor Uranus) belongs to the class of planet called **ice giants**.

Don't let the name fool you, though—it's not a solid ball of ice. Instead, Neptune is made of an icy, dense, fluid "soup" of water, methane, and ammonia, all wrapped around a rocky core.

So, where does that gorgeous blue color come from? It's all in the air. Neptune's atmosphere is packed with hydrogen, helium, and methane gas. The methane acts like a color filter, absorbing red light and reflecting a brilliant, vivid blue back into space.

## Fun Fact: The Moon That Walks Backwards

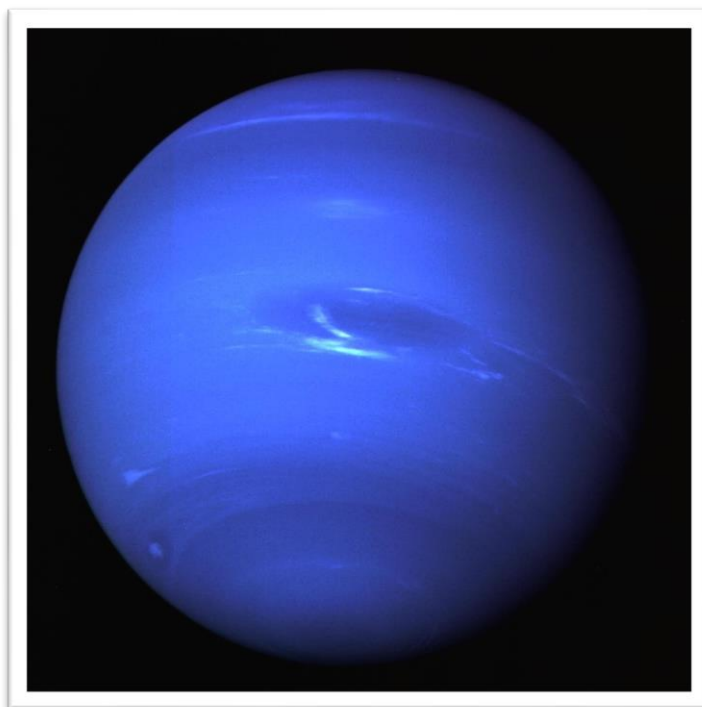
Neptune has 14 known moons, but one of them is different. Its largest moon, **Triton**, is the only large moon in our solar system that travels in a *retrograde* orbit. This means it circles the planet in the opposite direction of Neptune's own rotation!

Because it's traveling backwards, scientists are convinced Triton didn't form alongside Neptune. Instead, Triton was likely a lonely dwarf planet wandering through space until it got a little too close and was captured by Neptune's massive gravity.

## A Very, Very Long Year

A single year on Neptune takes **165 Earth years**. In fact, since humans first discovered the planet in 1846, Neptune has only managed to complete *one single orbit* around the Sun, celebrating its first "Neptunian birthday" in 2011!

- **The Ultimate Wind Machine:** Neptune has the most violent weather in the solar system. Winds there can reach up to 2,000 km/h—fast enough to shatter the sound barrier!
- **It Has Rings!** Saturn gets all the credit, but Neptune actually has five faint, dark rings made of dust and debris, likely crushed up from old, shattered moons.



# Let's tackle light pollution at home

Light pollution levels are on the rise globally, and beautiful scenic spots like Glenorchy aren't immune.

Interestingly, it isn't our street lights causing the increase in glow. The main contributor is actually the growth in our communities—specifically, the number of new private homes, many of which feature bright new outdoor lighting. The good news is that we don't have to live in the dark to fix this. There are simple, everyday habits each of us can adopt to significantly reduce our lighting footprint, starting right in our own living rooms.

## The Magic of Pulling the Curtains

Curtains do a lot more than just frame a window or tie a room's decor together. They play a surprisingly vital role in the comfort, health, and harmony of our homes and community. Here is why drawing the curtains at night is so important:

- **Keeping the Warmth In:** On these chilly southern nights, curtains act as a cosy blanket for your windows. Drawing them early traps the heat inside, keeping your home snug without forcing your heater to work overtime.
- **Being a Great Neighbour:** Closing your curtains at night stops indoor light from spilling out into the darkness. This keeps glare out of your neighbours' windows and helps preserve the pristine, clear night skies we all love.
- **Protecting Local Wildlife:** Our native birds and insects rely on natural darkness to navigate, feed, and rest. By keeping your indoor light contained, you're helping create a safer environment for our local ecosystem.
- **Supporting Better Sleep:** Exposure to natural light during the day is wonderful for our circadian rhythm—our body's internal clock that regulates energy and mood. But when it's time to sleep, our bodies need total darkness. Curtains block out stray light, paving the way for a deep, restful night's sleep so you can wake up feeling your best.



## A Few Extra Tips for a Brighter Community (and Darker Skies):

- **Mind the Gap:** When choosing or hanging curtains, look for options with thermal or blackout linings that seal well against the window frame. This maximizes both heat retention and light blocking.
- **Think Outside the House:** For those essential outdoor lights, consider switching to motion sensors, timers, or down-facing shields. That way, you have light exactly when and where you need it, without broadcasting it into the atmosphere.

By keeping both light and heat in check, you're saving energy, cutting down on utility bills, and doing your bit for the environment—all with a simple, pull of the curtains.

*Let's work together to keep Glenorchy cosy inside, and beautifully dark outside. When the sun goes down, let's pull those curtains!*