



Newsletter October 2026

Daylight saving has begun, and summer isn't too far away! October is always a busy month in Glenorchy, kicking off with the fishing competition and followed quickly by the Flower Show.

Corrine spent the beginning of September at an archaeoastronomy field course and exploring the ancient monuments in Scotland so an extra page has been added to the newsletter to explain what she learnt and why this matters...

This month we explain constellations and the question of the month asks "Why do stars twinkle?"

Don't forget...if you have any burning questions about space, email them to us, and we'll attempt to answer in an upcoming newsletter.

Leslie has also been busy running the Preserving Legacies workshops. At the workshop, Dean Whaanga, from Te Ao Marama spoke about the relationship between Dark Skies and wetlands saying that the reflection of the stars in the water was really important. So it turns out that preserving our wetlands has not only good outcomes for our bats, moths, birds, and lizards, but also has important cultural significance, too.

We're happy to report, too, that we were recipients of the LoveQT funding again this year. We'll have more news next month but be excited about being able to do bat monitoring in your own back yard or out tramping as we're going to have bat boxes to loan...just working out the details on it now but we'll be ready for summer!

Coming up this month:

- ✚ 2nd October: Fishing competition
- ✚ 4th October: Saturn in opposition. The ringed planet reaches its closest point to Earth and shines at its brightest and most visible for the entire year.
- ✚ 4th to the 10th of October: World space week
- ✚ 10th October Flower Show
- ✚ 10th October: New Moon
- ✚ 26th October: Full Moon
- ✚ 31st October: Halloween



World Astronomy News

The Nancy Grace Roman Space Telescope is a NASA infrared observatory that successfully launched on August 30, 2026, to study dark energy, dark matter, and exoplanets. At the moment, it is travelling toward the second Lagrange point located one million miles from Earth. NASA recently powered on and activated its primary Wide Field Instrument and Coronagraph for early calibration.

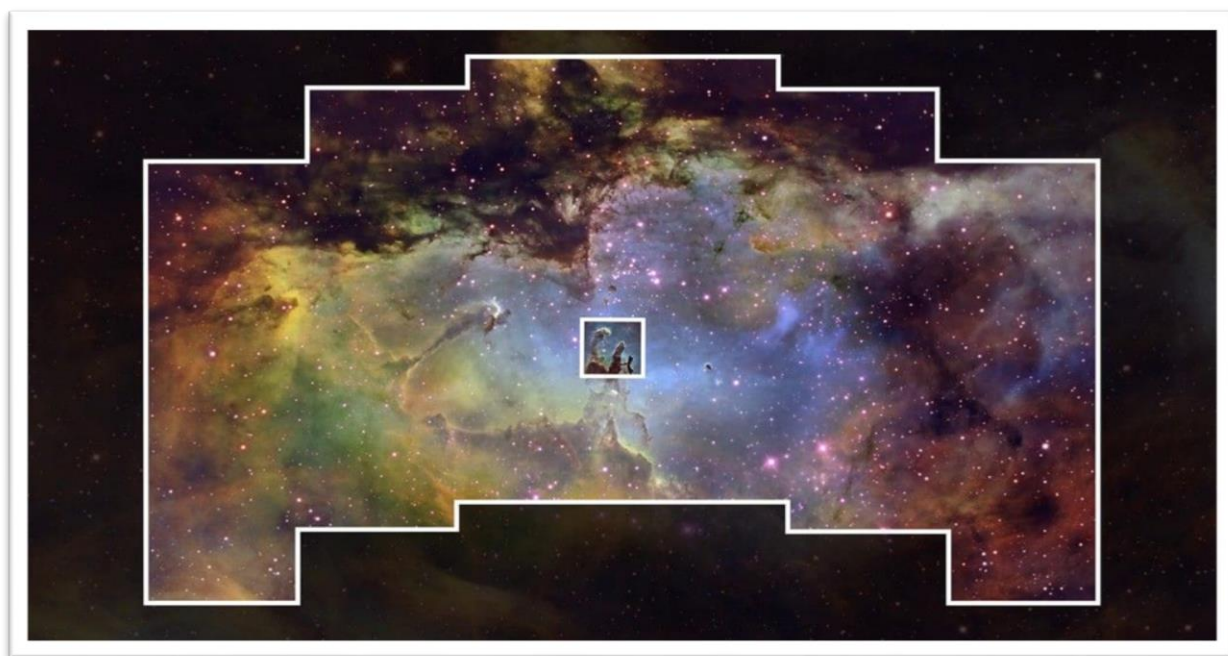
The **Nancy Grace Roman Space Telescope and the James Webb Space Telescope are complementary NASA observatories** optimised for entirely different types of space science. While JWST is built to peer incredibly deep into narrow patches of the sky, Roman is designed for high-speed, wide-area cosmic surveys.

Roman acts as the scout:

Because of its massive 300-megapixel Wide Field Instrument, Roman can map millions of galaxies in days. It identifies grand cosmic structures, dark matter ripples, and rare, interesting exoplanets.

JWST acts as the sniper:

Once Roman discovers a fascinating target or a potential newborn planet, scientists can point JWST at that exact, tiny coordinate. JWST uses its giant 6.5-metre mirror to zoom in, capture hyper-detailed images, and analyse the chemical makeup of the planet's atmosphere.



Archaeoastronomy

So what is Archaeoastronomy?

The short answer? It's the study of how ancient peoples viewed the stars!

The full story is even cooler. Archaeoastronomy brings together astronomy and archaeology to uncover how ancient societies interpreted the heavens. It helps us see how celestial events influenced everything from their religious rituals and architecture to their earliest scientific ideas.

How did this field start?

Archaeologists realised that to fully understand a site, they had to look beyond the ruins and study the surrounding landscape—a field known as landscape archaeology. Then came a lightbulb moment: if everything is connected, shouldn't we look up at the night sky, too? With that, skyscape archaeology - or archaeoastronomy - was officially born.

Why should we be considering archaeoastronomy?

Although New Zealand is a young country without any ancient monuments, the study of what past cultures have done to preserve their heritage and culture is a good place to start when designing a new monument...i.e. our star compass.



For a start, it quickly became obvious that a monument in wood may last 100 or so years, but one built with stones will last for thousands of years!

While in Scotland, I also considered how people would have approached their monuments. Some have an avenue of stones leading to the site; some have gateway or portal stones; others used an avenue lined with banks and ditches.

That's not all. Ancient people also decorated their stones by pecking designs into the surface. Sadly, the knowledge of what these designs mean has been lost, but thousands of years later, the stones and the patterns carved into them remain.

Learn the night sky

This month...

The New Moon is on the 10th of October, and the Moon will be full on the 26th of October. Dark night begins at 9:34pm on the 1st of October and begins at 10:28 pm by the end of the month on the 31th of October.

In the Morning Sky

Jupiter is now in the morning sky, and Mars can also be seen in Cancer, and progressing to Leo for Halloween.

In the Evening Sky

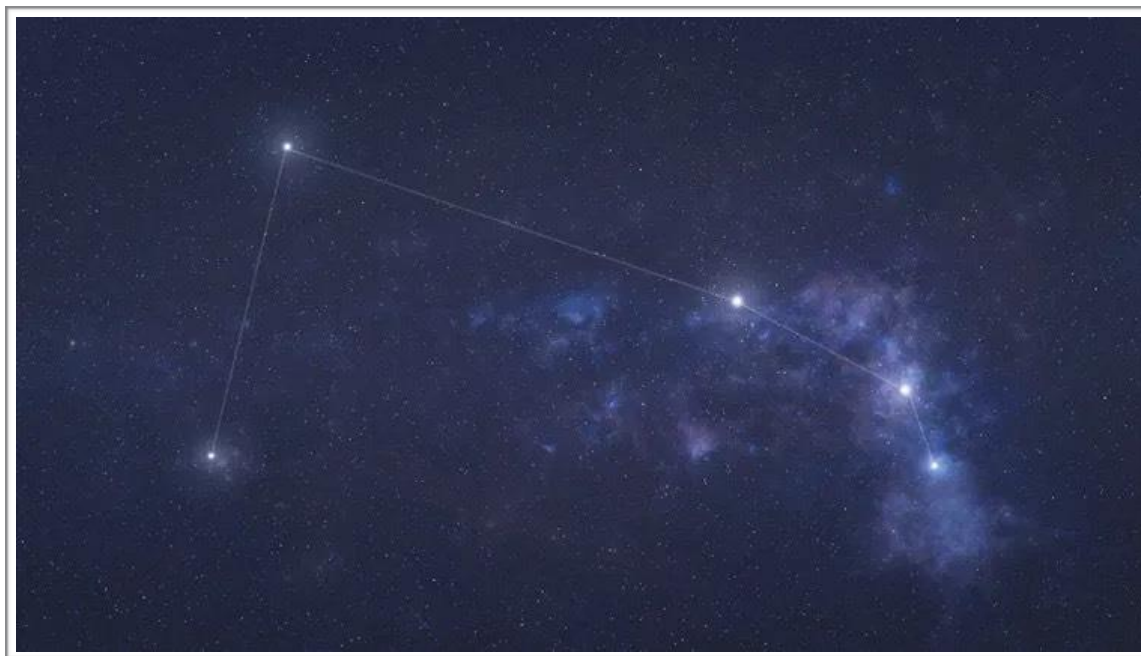
Mercury and Venus are visible shortly after sunset, and Saturn is also in the evening sky at the border of Pisces and Cetus. On the 4th of October, it is in opposition. The ringed planet reaches its closest point to Earth and shines at its brightest and most visible for the entire year

In the Zodiac lineup of Constellations, Aries is the next one to look for.

This is another ancient constellation representing the ram with the golden fleece, sought by Jason and the Argonauts. The constellation is fairly small and faint, but was important in ancient times as it marked the point where the sun crossed the celestial equator each year and, as such, marked the vernal equinox (the start of spring) over two thousand years ago. The movement in Earth's axis since then has shifted it into the neighbouring Pisces constellation.

To find it in the sky, look towards the Pleiades star cluster, and Aries will be to the left.

Hint. It looks nothing like a ram.



Phrixus was the son of King Athamas of Boeotia and his first wife, the nymph Nephele. Athamas divorced Nephele to marry Ino, the daughter of the Phoenician hero Cadmus. In a jealous rage, Ino planned the demise of both Phrixus and his sister, Helle. She tricked Athamas into sacrificing

Phrixus, but before Phrixus died, he was saved by a winged ram with golden fleece sent by Heracles (Hercules). Helle was also whisked away by the ram, but she fell into the sea, which was later named after her (the Hellespont, or the Dardanelles). Phrixus was carried to Colchis, where he sacrificed the ram to Zeus out of gratitude; Zeus placed the ram in the night sky to honour it, while King Aeëtes of Colchis received the ram's Golden Fleece.

Aries sits away from the Milky Way plane, meaning it contains no Messier objects, star clusters, or nebulae. Instead, the constellation features several faint, distant spiral and irregular galaxies best viewed with medium-to-large amateur telescopes.

Let's talk about Constellations

Connecting the Dots

Have you ever looked up at the night sky, spotted a familiar pattern like the Southern Cross or Orion's Belt, and wondered how those sky-connect-the-dots puzzles actually got there?

Constellations are basically humanity's original map system. Long before smartphones or GPS, people used the stars to tell stories, navigate vast oceans, and figure out when to plant crops. Let's look at where constellations came from, how modern astronomers use them today, and why the Southern Hemisphere's sky looks a little different!

Ancient Skywatchers: Storytelling and Survival

Thousands of years ago, ancient civilisations—from the Babylonians and Egyptians to the Greeks and Chinese—noticed that as the Earth rotated, certain clusters of stars held their positions relative to one another. To make sense of the vast, overwhelming sea of stars, they grouped them into familiar shapes: mythical heroes, fierce creatures, and legendary objects.

These shapes weren't just for entertainment, though:

Calendars for Agriculture: Recognising when a specific constellation rose above the horizon helped ancient farmers know when seasons were changing, signalling the exact time to plant or harvest.

Navigation for Travellers: Mariners across the globe used key stars to find north, south, and navigate open seas or vast deserts without getting lost.

Modern Astronomy: Dividing the Celestial Grid

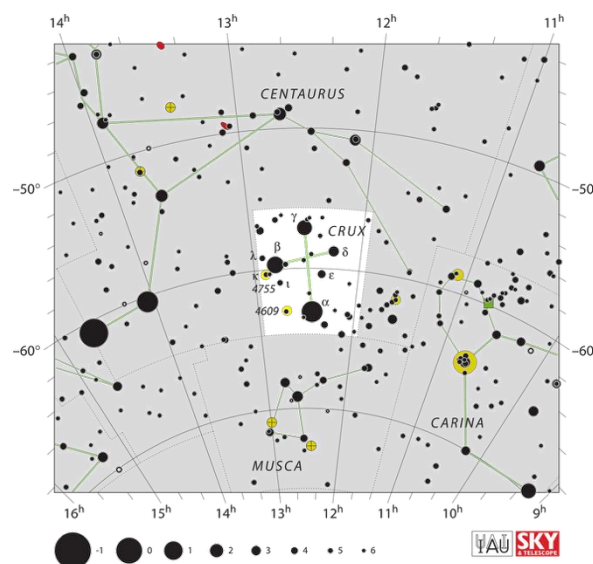
Fast-forward to today, and constellations serve a slightly more formal—but super helpful—purpose.

In **1930**, the International Astronomical Union (IAU) officially divided the entire sky into **88 precisely defined regions** (or constellations). Instead of just thinking of a constellation as a "stick figure" of stars, astronomers treat them like **countries on a map of the world**: **Every single square inch of the night sky belongs to one of these 88 zones.**

If a newly discovered comet, distant galaxy, or exploding star (supernova) pops up, astronomers can immediately say, "*It's located in the constellation Taurus,*" and everyone around the world knows exactly which region of space to look at.

If you look at northern constellations, you'll find classical mythical names like **Hercules**, **Pegasus**, and **Cassiopeia**. But if you hop down to the Southern Hemisphere, you'll run into names like **Telescopium** (the Telescope), **Antlia** (the Air Pump), and **Horologium** (the Clock).

The Age of Exploration: During the 17th and 18th centuries, European explorers and astronomers sailed south of the equator. As they mapped the southern skies for the first time, they named new constellations after the cutting-edge science, technology, and navigational tools of their own era!



SPACE QUESTIONS

Why do stars twinkle (but planets don't)?

If you've ever lain out under a clear, dark night sky, you've probably noticed something pretty cool: some lights above us shimmer and dance continuously, while others glow with a steady, peaceful shine.

It almost feels like a cosmic secret, but the difference between a twinkling star and a steady planet comes down to two simple things: our air and a little bit of geometry!

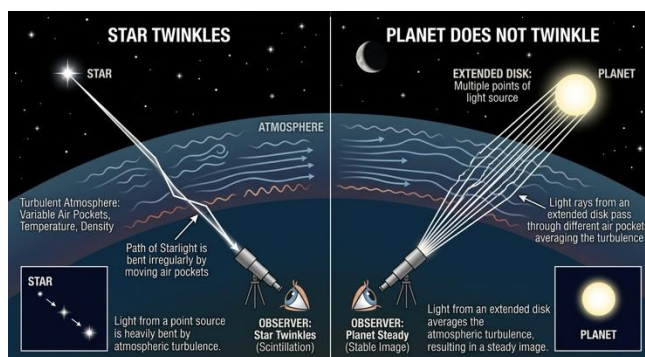
Blame it on the Atmosphere:

The official scientific name for twinkling is **stellar scintillation**, but you can basically think of Earth's atmosphere as a giant, wavy pool of air.

Because stars are light-years away, their light arrives at Earth as tiny, pinprick-sized **single points of light**. Before that light hits your eyes, it has to travel through miles of our atmosphere—which is full of shifting winds, warm and cold air pockets, and moisture.

As that tiny beam of starlight passes through these swirling air layers, it gets bent and bounced around in different directions. By the time it reaches you, the light is rapidly shifting position and intensity, making the star look like it's flickering, dimming, and dancing!

So why don't planets join in on the dance party? It's all about distance.



Planets are our close neighbours in the solar system. Even though they still look like small dots to the naked eye, through a telescope (and to the light hitting Earth), they actually appear as **disks** rather than microscopic points.

Because light is coming from many different points across that disk, the atmospheric distortion gets averaged out. The atmosphere might wobble the light coming from the top edge of the planet, but the light from the bottom edge offsets it. The flickering effect cancels itself out, leaving you with a nice, smooth, steady beam of light!

Fun Fact: If you were floating in space—above Earth's atmosphere—stars wouldn't twinkle at all! They'd shine with a completely steady light, just like the planets.

Reading the Stars to Predict the Weather

Because twinkling is caused by moving air and moisture, people have been using the "dance" of the stars as a natural weather forecast for thousands of years.

Long before modern satellite radar, sailors and indigenous communities learned to read starlight to figure out what the weather had in store:

High Winds and Storms: When stars start twinkling frantically or "hard," it means high-altitude winds and jet streams are churning up the upper atmosphere. Communities like the Meriam people of the Torres Strait and Indigenous groups in North America have historically watched for rapid twinkling to predict approaching monsoons, sudden gales, or heavy winter storms.

Rain and Humidity: Moisture in the air changes how light bends. High humidity can cause twinkling stars to subtly shift colour or take on a bluish glow—a great natural sign that rain is on the way!



Reclaiming the Night: Why Shielding Outdoor Lights Matters

Every night, billions of unshielded outdoor fixtures spill light upward into the atmosphere and sideways into neighbouring windows. This waste—known as light pollution—obscures the stars, disrupts natural ecosystems, and impacts human health. Shielding outdoor lighting is one of the simplest, most effective steps property owners can take to restore the balance of night and day.

Preserving the Natural View of the Night Sky

Unshielded light shines directly into the sky, reflecting off atmospheric particles to create a wash of artificial brightness called "skyglow." Skyglow masks the natural cosmos, hiding constellations, planets, and the Milky Way from view. Fully shielded fixtures direct light downward toward the ground, drastically reducing upward spill and allowing the brilliance of the night sky to emerge.

The Vital Health and Ecological Benefits of Darkness

Natural darkness plays an essential role in biological systems across the planet:

- **Human Health:** Constant exposure to artificial light at night suppresses melatonin production, disrupting circadian rhythms and negatively affecting sleep quality, immunity, and overall metabolic health.
- **Wildlife Preservation:** Nocturnal animals rely on darkness to forage, mate, and avoid predators. Artificial light disorients migratory birds, causes hatchling sea turtles to head inland away from the ocean, and severely disrupts insect populations.
- **Improved Safety and Energy Efficiency:** Glare from unshielded bulbs blinds pedestrians and drivers by casting harsh shadows. Shielded lights focus illumination precisely where it is needed on walkways and entryways, providing safer lighting while reducing energy waste.

Simple Steps for Better Outdoor Lighting

1. **Install Fully Shielded Fixtures:** Choose dark-sky compliant fixtures that direct 100% of the light downward.
2. **Use Warm-Color LEDs:** Opt for bulbs rated at 3000K or lower to minimize harsh, high-energy blue light emissions.
3. **Add Timers or Motion Sensors:** Ensure lights operate only when needed rather than burning continuously through the night.

"Darkness is as essential to our biological well-being and ecological balance as light is to our waking hours."

*Keep it Starry
The Tāhuna Glenorchy Dark Skies Team*