

Skynotes March 2009

Month Highlights

There is a comet in the sky this month! It is faint but for the first week of March, Comet Lulin is visible in the north-east around 10pm. It can be found above and to the left of **Regulus** (*Leo, the lion*). To see the comet with the naked eye it is best to go to a dark site, well away from light pollution. Unfortunately the Moon will begin to drown out the comet around the 5th – so the best observing time will be after midnight, when the Moon has set and the comet will be in the north-west. From the 8th, the Moon will be in the same part of the sky as the comet and by 16th the comet will be too faint to be visible with the naked eye. You will then need a finding chart and binoculars to spot it. A finding chart for Comet Lulin can be found at the [Sky and Telescope website](http://www.skyandtelescope.com/observing/highlights/35992534.html). (<http://www.skyandtelescope.com/observing/highlights/35992534.html>)

The **Autumn Equinox** occurs on the 20th. It is often thought that on the equinox, day and night are equal but this is not strictly true. On the equinox the centre of the Sun is above the horizon for exactly 12 hours but we have 12 hours and 9 minutes of daylight. Why the extra time? We calculate sunrise and sunset as being when the edge of the Sun first appears above or disappears below the horizon (rather than the Sun's centre). What's more, the Earth's atmosphere adds its own strange effect - it bends light from the Sun so that at sunrise we actually 'see' the Sun before it physically crosses the horizon. And the reverse occurs at sunset, we continue to see the edge of the Sun for several minutes even after it has sunk below the western horizon. So when is the date of equal day and night? It occurs after the equinox on Tuesday 24th.

Planetarium Events

Discover the Night Sky – March 2009

The Melbourne Planetarium at Scienceworks presents special after-dark sessions, **Thursday evenings from 5 to 26 March** at 7pm. All evenings include complementary wine and cheese, the opportunity to chat to the Planetarium's Astronomer and be immersed in a planetarium experience. You will finish the evening stargazing through telescopes (weather permitting).

Each evening will showcase a different aspect of the night sky. For more information, pricing or bookings see the

What's On listing (<http://museumvictoria.com.au/discover-the-night-sky>) or call the Scienceworks Booking Office on 9392 4819 between 9am and 4.30pm, Monday to Friday.

Winning sky photos: the David Malin Awards

Some of the most spectacular images of the sky are currently on display at Scienceworks. See the winners and selected entries from the annual photography competition named after the world-renowned astrophotographer and competition judge Prof. David Malin. The competition is run by the Central West Astronomical Society based in the NSW town of Parkes, with support from Canon Australia and the CSIRO's Australian Telescope National Facility. It is toured by the Powerhouse Museum, Sydney.

Can you see the stars? GLOBE at Night

Join thousands of people world-wide hunting for stars from **16th - 28th March**. GLOBE at Night is an international event held each year to observe the night sky and learn more about light pollution around the world. Participants are asked to observe the constellation of Orion and match what they can see to one of eight charts provided on the GLOBE at Night website. The results are plotted on a world map to see how our view of the dark night sky varies by location and over time.

In Melbourne, Orion can be found in the northern sky at 9:30pm. Make sure you check out Mars at the same time, which lies just below Orion.

To participate in the event see the [GLOBE at Night website](http://www.globe.gov/globeatnight). (<http://www.globe.gov/globeatnight>)

Sunrise & Sunset Times

	Rise	Set
Sunday 1st	7:04	8:00
Wednesday 11th	7:14	7:46
Saturday 21st	7:24	7:31
Tuesday 31st	7:33	7:16

Moon Phases

First Quarter	Wednesday 4th
Full Moon	Wednesday 11th
Last Quarter	Thursday 19th
New Moon	Friday 27th

The Moon will be at perigee (closest to Earth) on Sunday 8th, at a distance of 367 019km.

The Moon will be at apogee (furthest from Earth) on Friday 20th, at a distance of 404 301km.

Let The Moon Be Your Guide

The Moon can be used as a pointer to find other objects in the sky:

- After sunset on the 3rd, the waxing crescent Moon is near the star cluster **Pleiades**.
- On the night of the 7th, the waxing gibbous Moon is found near the twin stars of *Gemini*, **Castor** and **Pollux**.
- On the 9th the Moon sits near **Regulus** (*Leo, the lion*).
- On the evening of the 11th, the **Full Moon** travels across the sky with **Saturn**.
- On the 13th the waning gibbous Moon is near **Spica** (*Virgo*).
- During the early hours of the 17th the Moon can be found near the red supergiant **Antares** (*Scorpius*).
- On the morning of the 23rd the Moon is close to **Jupiter**.
- Before sunrise on the 24th, the waning crescent Moon sits above red **Mars**.
- After sunset on the 30th, the Moon has come full circle and is once again near the star cluster **Pleades**.

Planets

Mercury can be seen at the start of the month, sitting just above **Mars** in the eastern sky before sunrise. Leading the way to Mercury is the bright planet **Jupiter** which is higher up in the eastern sky. On the mornings of the 2nd and 3rd, Mercury has dropped slightly and now sits next to Mars. It continues to move towards the horizon and disappears by the middle of the month.

Venus is lost from view this month, as it disappears from the evening twilight and moves closer to the Sun. It will spend the month in the daytime sky.

Earth experiences the **Autumn Equinox** on Sunday 20th. At 10:44pm the **Sun** crosses the celestial equator and moves into the northern hemisphere.

Mars is low to the eastern horizon before sunrise. On the 1st, **Mercury** sits just above Mars, but as the days go by and Mercury drops towards the horizon, Mars holds steady. On the morning of the 9th, **Neptune** (invisible to the naked eye) sits directly to the left of Mars. Sitting high in the east, above Mars, is the bright planet **Jupiter**. On the morning of the 24th the thin crescent **Moon** sits above Mars.

Jupiter sits above **Mercury** and **Mars** in the east at sunrise. On the morning of the 23rd, the crescent **Moon** sits just to the left of Jupiter.

Saturn reaches opposition on the 8th, which means that it lies on the opposite side of the Earth to the Sun. Since it is opposite the Sun, Saturn spends the entire night in the sky; the planet rises around sunset and sets at sunrise. On the 11th, Saturn is joined by the **Full Moon**. It so happens, that a Full Moon occurs when the Moon is in opposition and it is the only phase when the Moon is in the sky for the entire night.

Meteors

Unfortunately, March is not a great month for meteor watchers, with no shower exceeding rates of ten per hour.

The small meteor shower, the **gamma Normids** is due to peak around the 17th. This shower is centred on the yellow giant star, **gamma Normae** in the constellation of *Norma, the level*. This constellation is one of 14 invented by Nicolas Louis de Lacaille in the 1750's to fill the southern skies. He named his constellations after scientific instruments and most are now obscure. *Norma* lies near the South Celestial Pole.

The **delta Pavonids**, which peak in early April, will start to appear from the 21st. This shower is centred on the constellation of *Pavo, the peacock*, which also lies near the South Celestial Pole.

The best time for viewing meteor showers is generally between midnight and dawn.

Stars & Constellations

The constellations of *Orion* and *Taurus* are now lying on their sides, in the northwest after sunset. *Taurus* contains the **Pleiades** or **Seven Sisters**, a small and beautiful cluster including many young blue giant stars.

The brightest star in our night sky, **Sirius**, is nearly overhead at sunset. Nearby, high in the northern sky, is **Procyon** the brightest star in *Canis Minor*. The twin stars of *Gemini*, **Castor** and **Pollux**, lie low in the north-west

while the bright star **Regulus**, in *Leo*, is low in the north-east.

The constellation of *Virgo* rises in the east after sunset. One legend speaks of *Virgo* as the corn goddess, Demeter, and in the sky she is holding an ear of wheat represented by the bright star **Spica**. Sitting above *Virgo* is the kite-shaped group of stars that form *Corvus* (*the crow*).

Crux (or the *Southern Cross*) is now beginning to climb up to its autumn position - lying on its side in the south-east.

International Space Station

The ISS orbits the Earth every 90 minutes at an average distance of 400 km. The ISS appears as a bright star that steadily moves across the sky. It can often be seen from Melbourne, for example at:

6:36am - 6:41am, Saturday 21st March.

The Station will appear from the north-west and travel directly overhead, through the constellation of *Scorpius*, before disappearing in the south-east.

Predictions of where and when to see the ISS can be obtained from the [Heavens Above website](http://www.heavens-above.com). (<http://www.heavens-above.com>)

On This Day

1st 1966, *Venera 3* (USSR) became the first craft to impact another planet (**Venus**).

4th 1979, *Voyager 1* (USA) discovered the rings of **Jupiter**.

5th 1950, Tycho Brahe discovered a comet in the constellation of *Pisces*, *the Fish*. He was the first to show that comets were further away than the **Moon**.

6th 1986, *Vega 1* (USSR) made the first flyby of **Comet Halley** and returned the first close-up images of a comet.

6th 1994, the *Biosphere 2* experiment began in Oracle, Arizona.

8th 1618, Johannes Kepler formulates his Third Law of Planetary Motion.

8th 1976, the largest known fall of stony meteorites in Jilin, China. The largest single meteorite had a mass of 1.77 tonnes.

9th 1979, *Voyager 1* (USA) discovered volcanism on **Io** (a moon of **Jupiter**).

11th 1977, the rings of **Uranus** were discovered as the planet moved in front of a distant star (USA).

13th 1781, **Uranus** was discovered by Sir William Herschel (UK).

14th 1879, Albert Einstein was born.

17th 1958, *Vanguard 1* (USA) was launched. It is the oldest satellite still in orbit.

18th 1965, *Voskhod 2* (USSR) carried the first two-person crew into orbit. Aleksei A. Leonov, also carried out the first tethered space walk.

20th 1916, Albert Einstein publishes his theory of gravity, the *General Theory of Relativity*.

23rd 1860, J W Draper (UK) takes a daguerrotype of the **Moon**, the first astrophotograph.

25th 1655, Christiaan Huygens discovers **Titan**, the largest moon of **Saturn**.

29th 1974, *Mariner 10* (USA) made the first flyby and took the first close-up images of **Mercury**.