



DUNDEE ASTRONOMICAL SOCIETY

Sky Notes for December 2024

THE SUN



December 1 st	sunrise 8.22 am GMT	sunset 3.39 pm GMT
December 15 th	sunrise 8.40 am GMT	sunset 3.33 pm GMT
December 31 st	sunrise 8.46 am GMT	sunset 3.44 pm GMT

In mid-November, the sky is reasonably dark between 5.00 pm and 7.00 am GMT.

The Sun lies amongst the stars of the constellation of Ophiuchus, the Serpent Bearer, for the first part of December. On Wednesday 18th it crosses into Sagittarius where it remains for the rest of the month.

Saturday December 21st is the **winter solstice**, when the Sun reaches the most southerly point on its annual path around the sky. In central Scotland the Sun is above the horizon for just under 7 hours, and at noon reaches no more than 10° high in the south.

The sunrise, sunset and twilight times given here are for Dundee but generally apply across central Scotland.

THE MOON



New Moon is on the morning of Sunday December 1st, and the young crescent Moon will reappear low in the south-west after sunset from Wednesday 4th onwards. On that evening, the narrow Moon will lie to the lower right of Venus as the sky grows dark, and on the following evening it will appear out to the planet's left (see diagram below).

First Quarter is on Sunday December 8th, when the half-illuminated Moon will be low in the south in the early evening. It will also be just to the upper left of the planet Saturn.

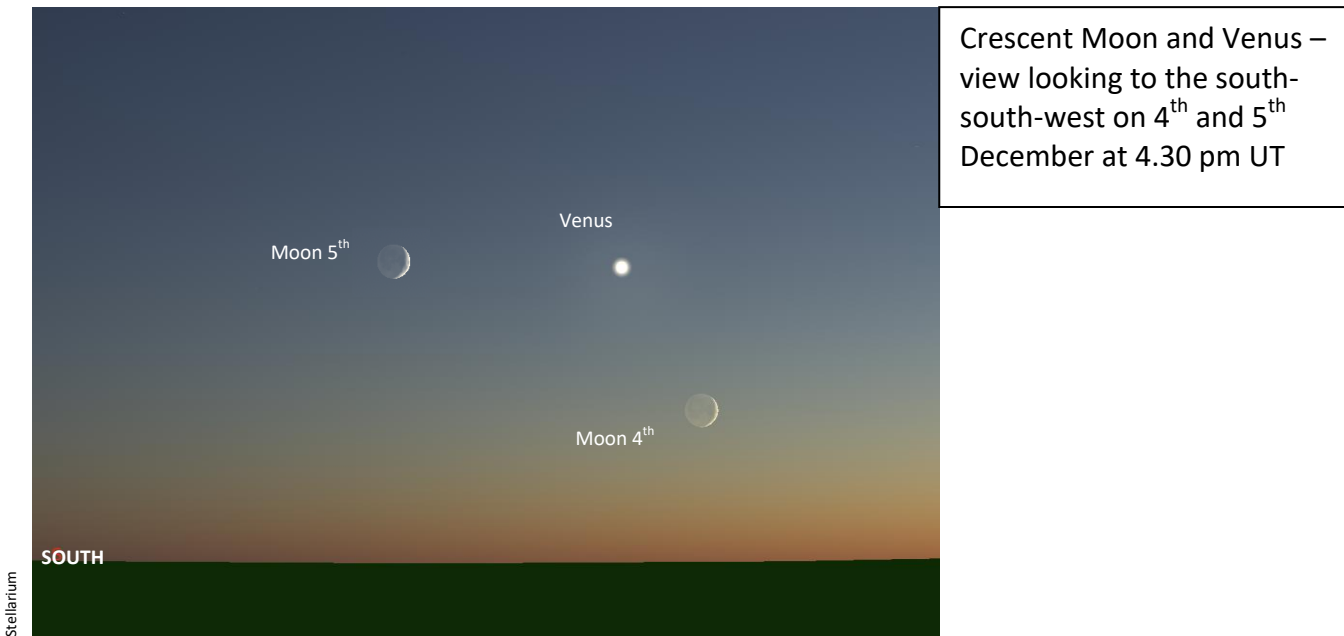
On the evening of Friday 13th, the broad gibbous Moon will appear close to the little star cluster of the Pleiades, and on the night of Saturday 14th the Moon will lie above the bright planet Jupiter.

Full Moon falls on Sunday December 15th. The Moon rises in the north-east almost an hour before sunset, and shines high in the south among the stars of Gemini at midnight; this is the highest Full Moon of the year. It sets again in the north-west around two hours after sunrise on Monday 16th.

On the evening Tuesday 17th, the waning gibbous Moon will appear to the upper right of Mars, and on the following night, Wednesday 18th, to the planet's lower left.

Last Quarter is late in the evening of Sunday December 22nd; the half Moon rises in the east just after midnight and shines in the south at sunrise. After this, the waning crescent Moon may be followed into the morning sky, remaining visible at dawn until Saturday 28th.

A second **New Moon** occurs this month, late on the evening of Monday December 30th. The narrow young crescent Moon will become visible again low in the south-west at sunset from Thursday January 2nd.



THE PLANETS

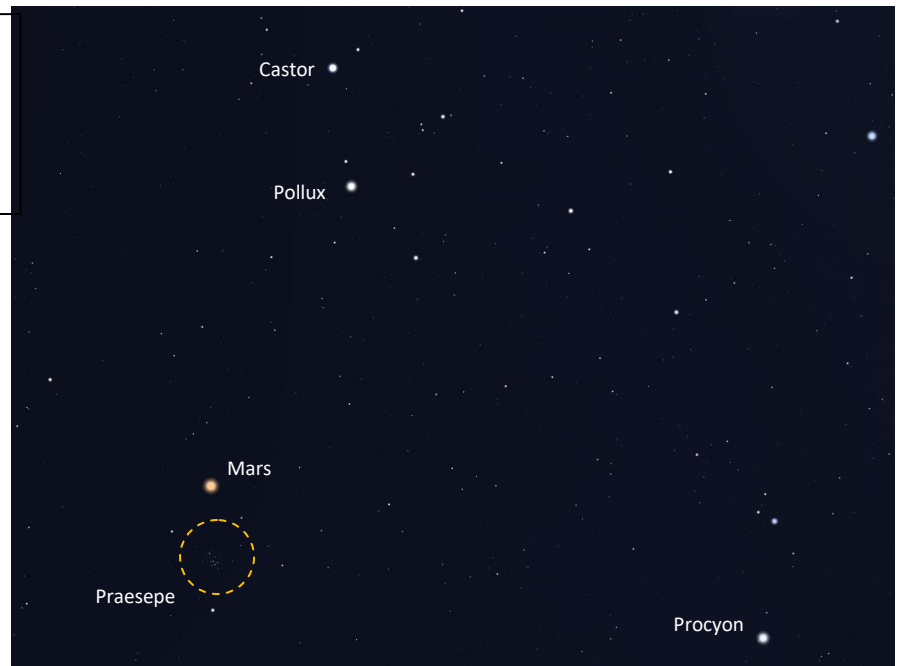


Mercury passes through **inferior conjunction** on December 6th when it travels between the Earth and the Sun; it then moves into the morning sky and reaches **greatest elongation** from the Sun on the 25th. For around a week centred on this date Mercury will be rising in the south-east about two hours before the Sun and will appear as a 'star' of magnitude -0.4 low in the dawn twilight.

Venus is a brilliant 'Evening Star' of magnitude -4.3 in the south-west as the sky grows dark. It climbs a little higher each evening and by the end of the month will be setting over four hours after the Sun.

Mars is rising in the north-east around 7.30 pm at the start of December and soon after sunset by the end of the month. It lies among the stars of Cancer, close to the 'Beehive' or Praesepe star cluster and to the lower left of Castor and Pollux in Gemini. Over the course of the month Mars brightens from magnitude -0.5 to -1.2.

Mars and the Praesepe cluster in Cancer, mid-December



Jupiter is at **opposition** on December 7th, when the giant planet lies opposite the Sun in the sky and is at its brightest at magnitude -2.8, as well as its closest to Earth at a distance of 380 million miles. Jupiter rises in the north-east around sunset and shines high in the sky at midnight; it lies among the stars of Taurus, the Bull, to the upper left of the bright red giant star Aldebaran. Steadily-held binoculars will show the changing positions of Jupiter's four largest moons, which appear as star-like points of light close in to the planet, and telescopes will reveal its cloud belts.

Saturn shines at magnitude 1.1 low in the south as the sky gets dark, and sets in the south-west in the late evening.

Uranus lies in western Taurus for most of December, about 7° to the lower right of the Pleiades, though the planet's retrograde motion carries it westwards into Aries in the last days of the month. It is easily found in binoculars at magnitude 5.6.

Neptune lies in southern Pisces, about 14° to the upper left of Saturn, and at magnitude 7.9 can also be seen in binoculars.

METEORS



The annual **Geminid** meteor shower is at maximum on the night of Friday 13th into Saturday 14th December, though unfortunately this year it will be seriously impacted by bright moonlight, with Full Moon falling on the morning of Sunday 15th.

THE STARS



The stars of the 'Summer Triangle', **Deneb**, **Vega** and **Altair** are low in the west on December evenings, though Deneb and Vega are far enough north to be followed throughout the night, just clearing the northern horizon during the early hours of the morning.

The little diamond shape of **Delphinus** the Dolphin is to the upper left of Altair, and the fainter outline of **Aquarius** the Water Carrier is low in the south-west, with the bright planet Jupiter nearby.

The Square of **Pegasus** is higher in the south-west; the head and neck of Pegasus lead off to the right, ending the star **Enif** which marks the flying horse's nose. The stars of **Andromeda** extend from the opposite corner of the Square, leading to the stars of **Perseus**. Almost overhead are the constellations of **Cassiopeia** and **Cepheus**.

Below Andromeda are two small but distinctive constellations – **Triangulum** the Triangle and **Aries**, the Ram. The southern sky is largely filled by the fainter and less obvious pattern of **Cetus**, the whale.

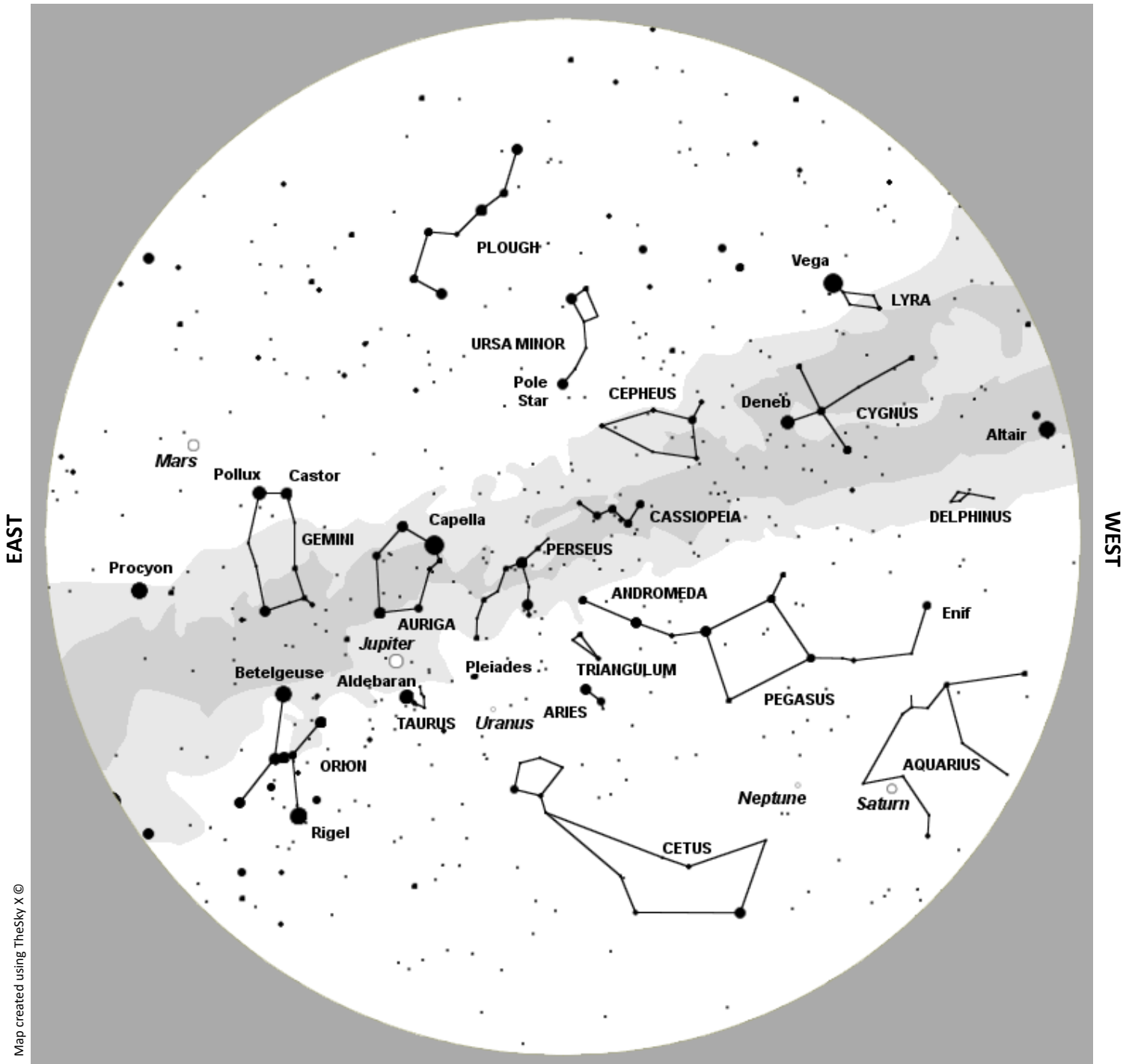
The bright constellations of winter are now visible in the south-east. **Orion** the Hunter is the most prominent, with his three Belt stars accompanied by orange-coloured **Betelgeuse** and blue-white **Rigel**. The V-shaped head of **Taurus** the Bull is to Orion's upper right, with another red giant star, Aldebaran, marking the bull's eye; slightly higher are the stars of the **Pleiades** or Seven Sisters cluster.

Auriga the Charioteer is high above Orion, its brightest star **Capella** almost overhead, and **Gemini** with its Twin stars of **Castor** and **Pollux** is well up in the east. Below Gemini is the bright white star **Procyon**, also known as the Little Dog Star.

Circling the **Pole Star** are the circumpolar stars – on December evenings the **Plough** is slowly climbing higher in the north-east while the 'W' shape of **Cassiopeia** stands almost overhead. The faint pattern of **Ursa Minor**, the Little Bear, curves from the Pole Star towards the Plough.

The **Milky Way** crosses overhead from south-east to north-west, running through Gemini, Orion and Auriga into Perseus and Cassiopeia and down through Cygnus. Moonless winter evenings are ideal for exploring the many clusters and starfields that lie along the extent of the Milky Way.

NORTH



EAST

WEST

SOUTH

THE SKY AT 9 PM GMT IN MID-DECEMBER

The map above shows the night sky as it will appear from central Scotland at the time and date shown. The point in the sky directly overhead is at the centre of the map; the outer circle is the horizon with the cardinal compass points in the direction shown.

The map shows the brighter stars that are visible to the unaided eye. Some of the more distinctive constellations are outlined.