



SUN Moving through *Libra* the Scales into *Scorpius*.

MOON New Moon on the 16th, Full Moon on the 2nd.

PLANETS **Mercury** is a out of sight this month

Venus is out of sight this month.

Mars is a morning object this month as it passes through *Cancer*. Its ruddy colour makes it easy to pick out in this empty star field.

Jupiter is visible all night, rising as the Sun sets and passing through *Capricornus* shining at -2.4^m . Binoculars will reveal the four Galilean moons stretched out in a line. Telescopes will show belts and zones on the planetary disc and even the Great Red Spot.

Saturn is an early morning object in *Virgo* visible just before sunrise in the SE.

COMETS No bright comets expected this month.

METEORS The Taurids are still active from last month but are very sparse.

Between the 15th and 19th the Leonids will be visible, peaking on the morning of the 18th. Normally this shower only yields about 10 per hour, but every 33 years the Earth passes directly through the trail of gas and dust left behind by comet P Temple-Tuttle. Last time this happened in 1966 there was a meteor "storm" with rates in the thousands. Over the last few years the rates were significantly high with many bright fireballs reported. We are past the main peak now and there might be a few Leonids visible but no likelihood of a storm until 2032.

STARS Almach (α *andromedæ*) is a beautiful coloured double star when seen through a small telescope. It is actually a triple system, one orange and the other two a very close blue/green pair.

Less easy to see is the telescopic coloured double ι (or δ) *trianguli*.

Mesarthim (γ *arietis*) is a fine telescopic double star with white matched components.

There is a famous star in *Cetus* by the name of Mira (the wonderful). It was first discovered to be variable in 1596 and ranges in brightness from 2.5^m to 9.3^m over 331 days. At its maximum it has a reddish tinge.

NEBULÆ There are no notable nebulæ in this area of the sky.

CLUSTERS NGC 752 in *Andromeda* is a fairly bright open cluster visible in binoculars.

GALAXIES The constellation of *Andromeda* plays host to the finest galactic showpiece in the sky. The Andromeda Galaxy (M31) is visible as a fuzzy patch with the naked eye on dark nights. It is 2.2 million ly. away and is the furthest object visible with the unaided eye. It is a spiral galaxy tilted at about 20° to us and so appears oval and extends over a full 3° of sky - 6 times the width of the full moon! Binoculars will reveal the bright core region, but to see any detail in the spiral arms requires a much larger instrument and clear dark skies.

The andromeda spiral is the Milky Way's big brother, containing an estimated 300 billion stars. Just as we have satellite starclouds (the Large and Small Magellanic Clouds), Andromeda has two smaller companions, M32 and M110 which are visible in binoculars or a small telescope.

The third major component of the Local Group can be seen in *Triangulum*. M33 is a low surface brightness, face-on spiral which needs dark skies to pick out in binoculars.

Just visible in binoculars on a clear night is M77 in *Cetus* - an example of a Seyfert galaxy.