

# The Evening Sky Map

FREE\* EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

**SOUTHERN HEMISPHERE  
SEPTEMBER 2007**

## Sky Calendar – September 2007

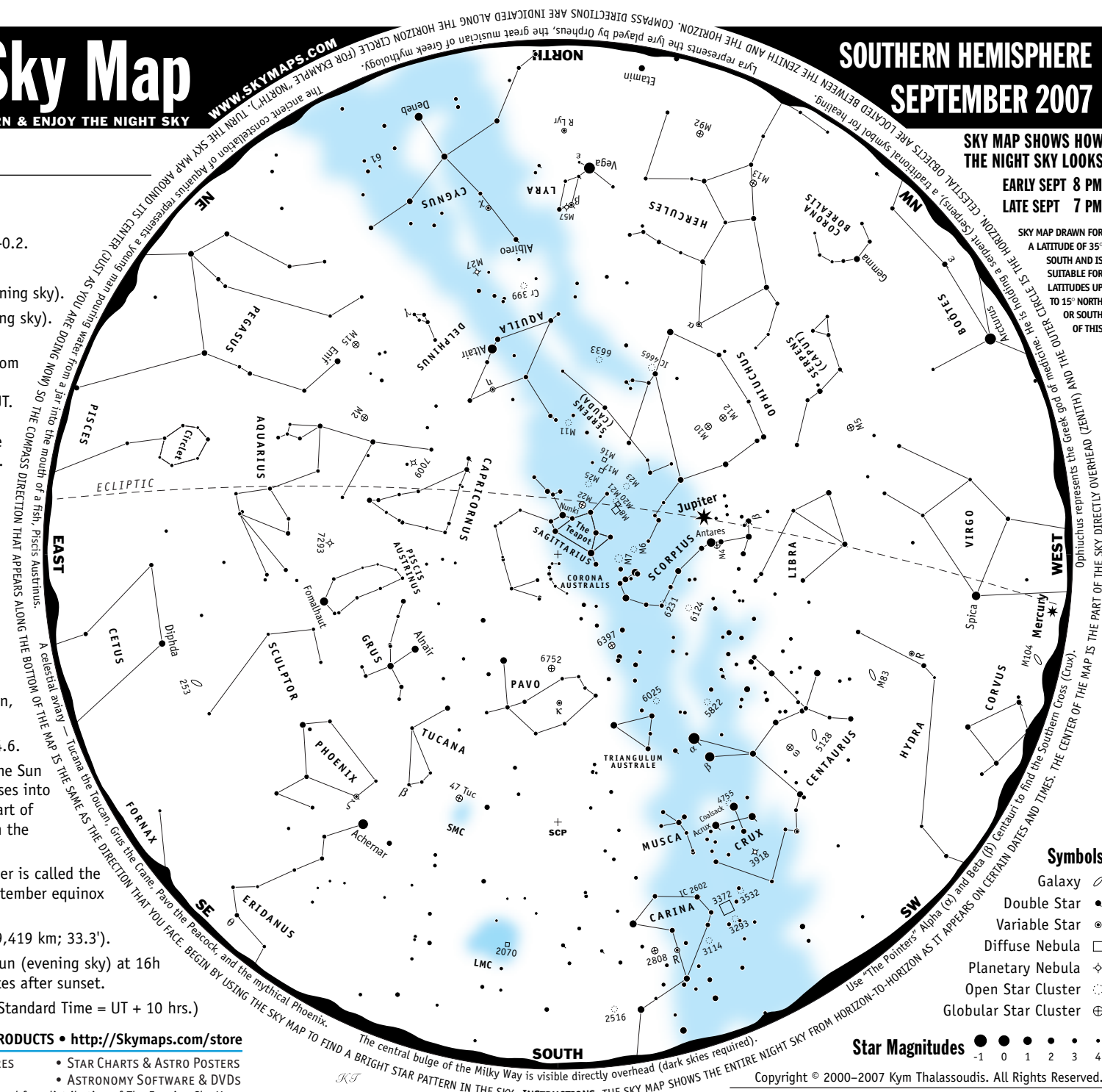
- 3 Moon near the Pleiades at 7h UT (morning sky).
- 4 Last Quarter Moon at 2:33 UT.
- 4 Moon near Mars at 13h UT (morning sky). Mag. +0.2.
- 7 Moon near Pollux at 4h UT (morning sky).
- 8 Moon near Beehive cluster (M44) at 7h UT (morning sky).
- 9 Moon near Venus at 1h UT (29° from Sun, morning sky). Mag. -4.5.
- 11 Partial Eclipse of the Sun at 12:31 UT. Visible from parts of South America, Antarctica and South Atlantic. Eclipse begins at 10:26, ends at 14:37 UT. **WARNING: NEVER LOOK AT THE SUN** — it will instantly damage your eyes! Instead, use a pinhole in a card to project the Sun's image onto a surface.
- 11 New Moon at 12:44 UT. Start of lunation 1048.
- 13 Moon near Mercury at 11h UT (22° from Sun, evening sky). Mag. -0.1.
- 14 Moon near Spica at 11h UT (evening sky).
- 15 Moon at apogee (farthest from Earth) at 21h UT (distance 405,642 km; angular size 29.5').
- 18 Moon very near Antares at 8h UT (evening sky).
- 18 Moon near Jupiter at 14h UT (evening sky).
- 19 First Quarter Moon at 16:48 UT.
- 22 Mercury 0.10° from Spica at 9h UT (25° from Sun, evening sky). Mags. 0.0 and +1.0, respectively.
- 23 Venus brightest at 5h UT (morning sky). Mag. -4.6.
- 23 September equinox at 9:54 UT. The time when the Sun reaches the point along the ecliptic where it crosses into the southern celestial hemisphere marking the start of autumn in the Northern Hemisphere and spring in the Southern Hemisphere.
- 26 Full Moon at 19:46 UT. The full Moon of September is called the "Fruit Moon". As the nearest Full Moon to the September equinox it is also called the "Harvest Moon".
- 28 Moon at perigee (closest to Earth) at 2h UT (359,419 km; 33.3').
- 29 Mercury at greatest elongation, 26° east from Sun (evening sky) at 16h UT. Mag. +0.1 low in the west about 30–45 minutes after sunset.

All times in Universal Time (UT). (Australian Eastern Standard Time = UT + 10 hrs.)



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**SKY MAP SHOWS HOW THE NIGHT SKY LOOKS**

**EARLY SEPT 8 PM  
LATE SEPT 7 PM**

SKY MAP DRAWN FOR A LATITUDE OF 35° SOUTH AND IS SUITABLE FOR LATITUDES UP TO 15° NORTH OR SOUTH OF THIS

### Symbols

- Galaxy ☾
- Double Star ●●
- Variable Star ⊙
- Diffuse Nebula □
- Planetary Nebula ◇
- Open Star Cluster ○
- Globular Star Cluster ⊕

**Star Magnitudes** ●●●●●  
-1 0 1 2 3 4

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## About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. **Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars.** They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

## Tips for Observing the Night Sky

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

## Astronomical Glossary

**Conjunction** – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

**Constellation** – A defined area of the sky containing a star pattern.

**Diffuse Nebula** – A cloud of gas illuminated by nearby stars.

**Double Star** – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

**Ecliptic** – The path of the Sun's center on the celestial sphere as seen from Earth.

**Elongation** – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

**Galaxy** – A mass of up to several billion stars held together by gravity.

**Globular Star Cluster** – A ball-shaped group of several thousand old stars.

**Light Year (ly)** – The distance a beam of light travels at 300,000 km/sec in one year.

**Magnitude** – The brightness of a celestial object as it appears in the sky.

**Open Star Cluster** – A group of tens or hundreds of relatively young stars.

**Opposition** – When a celestial body is opposite the Sun in the sky.

**Planetary Nebula** – The remnants of a shell of gas blown off by a star.

**Universal Time (UT)** – A time system used by astronomers. Australian Eastern Standard Time (for example Sydney, Australia) is 10 hours ahead of UT.

**Variable Star** – A star that changes brightness over a period of time.

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CELESTIAL OBJECTS

Sky maps.com

## Easily Seen with the Naked Eye

Altair	Aql	• Brightest star in Aquila. Name means "the flying eagle". Dist=16.8 ly.
β Centauri	Cen	• With Alpha Centauri, forms the so-called "Pointers-to-the-Cross". Dist=525 ly.
α Centauri	Cen	• Nearest bright star to Sun at 4.4 ly. Brilliant double star in a telescope. 80 year period.
Coalsack	Cru	• Most famous naked-eye dark nebula. Requires dark sky. Dist=600 ly.
Deneb	Cygn	• Brightest star in Cygnus. One of the greatest known supergiants. Dist=3,000 ly.
Achernar	Eri	• Brightest star in Eridanus, The River. Arabic name meaning "end of river". Dist=144 ly.
α Herculis	Her	• Semi-regular variable. Magnitude varies between 3.1 & 3.9 over 90 days. Mag 5.4 companion.
Vega	Lyr	• The 5th brightest star in the sky. A blue-white star. Dist=25.3 ly.
Fomalhaut	PsA	• Brightest star in Piscis Austrinus. In Arabic the "fish's mouth". Dist=25 ly.
Antares	Sco	• Red, supergiant star. Name means "rival of Mars". Dist=135.9 ly.
Spica	Vir	• Latin name means "ear of wheat" and shown held in Virgo's left hand. Dist=260 ly.

## Easily Seen with Binoculars

M2	Aqr	• Resembles a fuzzy star in binoculars.
6397	Ara	• Thought to be the nearest globular. Dist=7,000 ly.
ω Centauri	Cen	• Largest and brightest globular star cluster in sky. 1 million stars. Dist=17,000 ly.
4755	Cru	• Jewel Box. Outstanding star cluster. Many contrasting colours. Dist=7,600 ly.
χ Cygni	Cyg	• Long period pulsating red giant. Magnitude varies between 3.3 & 14.2 over 407 days.
LMC	Dor	• Large Magellanic Cloud. A neighbouring galaxy of the Milky Way. Dist=180,000 ly.
M13	Her	• Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly.
R Hydrae	Hya	• Long period variable. Mag varies between 3.0 & 11.0 over 390 days. Brilliant red.
e Lyrae	Lyr	• Famous Double Double. Binoculars show a double star. High power reveals each a double.
R Lyrae	Lyr	• Semi-regular variable. Magnitude varies between 3.9 & 5.0 over 46.0 days.
M10	Oph	• 3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly.
κ Pavonis	Pav	• Cepheid-type. Magnitude varies between 3.9 & 4.8 over 9.088 days.
6752	Pav	• One of the better globular star clusters in the sky. Dist=14,000 ly.
M15	Peg	• Only globular known to contain a planetary nebula (Mag 14, d=1"). Dist=30,000 ly.
M8	Sgr	• Lagoon Nebula. Bright nebula bisected by a dark lane. Dist=5,200 ly.
M25	Sgr	• Bright cluster located about 6 deg N of "teapot's" lid. Dist=1,900 ly.
M22	Sgr	• A spectacular globular star cluster. Telescope will show stars. Dist=10,000 ly.
M4	Sco	• A close globular. May just be visible without optical aid. Dist=7,000 ly.
M6	Sco	• Butterfly Cluster. 30+ stars in 7x binoculars. Dist=1,960 ly.
M7	Sco	• Superb open cluster. Visible to the naked eye. Age=260 million years. Dist=780 ly.
253	Scl	• Fine, large, cigar-shaped galaxy. Requires dark sky. Member of Sculptor Group.
M5	Ser	• Fine globular star cluster. Telescope will reveal individual stars. Dist=25,000 ly.
6025	TRa	• A small open star cluster in Milky Way. Dist=2,700 ly.
47 Tucanae	Tuc	• Spectacular object. Telescope will reveal stars. Near edge of SMC. Dist=15,000 ly.
β Tucanae	Tuc	• Complex multiple star. Binoculars show one pair. Telescope required to split primary star.
SMC	Tuc	• Small Magellanic Cloud. Companion galaxy to Milky Way. Requires dark sky. Dist=210,000 ly.
Cr 399	Vul	• Coathanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly.

## Telescopic Objects

7009	Aqr	• Saturn Nebula. Requires 8-inch telescope to see Saturn-like appendages.
7293	Aqr	• Helix Nebula. Spans nearly 1/4 deg. Requires dark sky. Dist=300 ly.
5128	Cen	• Bisected by a wide obscuring lane. Strong radio source. Dist=14 million ly.
Albireo	Cyg	• Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4".
γ Delphini	Del	• Appear yellow & white. Mags 4.3 & 5.2. Dist=100 ly. Struve 2725 double in same field.
M83	Hya	• Classic face-on spiral. Discovered in 1752 by Lacaille. In attractive star field.
5822	Lup	• Large, attractive cluster. Dist=1,800 ly. Open cluster NGC 5823 to the south.
β Lyrae	Lyr	• Eclipsing binary. Mag varies between 3.3 & 4.3 over 12.940 days. Fainter mag 7.2 blue star.
M57	Lyr	• Ring Nebula. Magnificent object. Smoke-ring shape. Dist=4,100 ly.
M20	Sgr	• Trifid Nebula. A telescope shows 3 dust lanes trisecting nebula. Dist=5,200 ly.
M17	Sgr	• Omega Nebula. Contains the star cluster NGC 6618. Dist=4,900 ly.
6124	Sco	• Contains 5 bright tightly packed stars near centre. 7 star chain. Dist=1,600 ly.
M11	Sct	• Wild Duck Cluster. Resembles a globular through binoculars. V-shaped. Dist=5,600 ly.
M16	Ser	• Eagle Nebula. Requires a telescope of large aperture. Dist=8,150 ly.
M27	Vul	• Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly.