

The Evening Sky Map

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

Sky Calendar – October 2015

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- 2 **Moon very near Aldebaran** (119° from Sun, morning sky) at 13h UT. Occultation visible from Alaska.
- 4 **Last Quarter Moon** at 21:06 UT.
- 7 **Moon near Beehive cluster** (morning sky) at 0h UT.
- 8 **Moon very near Venus** (44° from Sun, morning sky) at 18h UT. Mag. -4.5. Occultation visible from western parts of Australia.
- 8 **Moon near Regulus** (45° from Sun, morning sky) at 20h UT.
- 9 **Venus 2.5° SSW of Regulus** (45° from Sun, morning sky) at 6h UT. Mags. -4.5 and +1.3.
- 9 **Moon near Mars** (morning sky) at 15h UT. Mag. +1.8.
- 9 **Moon, Mars and Jupiter** within a 4.0° circle (35° from Sun, evening sky) at 18h UT.
- 9 **Moon near Jupiter** (morning sky) at 22h UT. Mag. -1.7.
- 11 **Moon near Mercury** (17° from Sun, morning sky) at 12h UT. Mag. +0.2.
- 11 **Moon at apogee** (farthest from Earth) at 13h UT (distance 406,388 km; angular size 29.4').
- 13 **New Moon** at 0:06 UT. Start of lunation 1148.
- 16 **Mercury at greatest elongation**, 18° west of Sun (morning sky) at 3h UT. Mag. -0.5.
- 16 **Moon near Saturn** (evening sky) at 14h UT. Mag. +0.6.
- 17 **Mars 0.38° NNE of Jupiter** (40° from Sun, morning sky) at 23h UT. Mags. +1.7 and -1.8.
- 20 **First Quarter Moon** at 20:31 UT.
- 21 **Orionid meteor shower peaks.** Arises from the debris field of Comet Halley. Active from October 2 to November 7. Produces very fast (66 km/sec), generally faint meteors (20 per hour). Radiant located near Orion's club asterism. Observe after midnight on night of 21/22.
- 26 **Venus 1.0° SSW of Jupiter** (46° from Sun, morning sky) at 0h UT. Mags. -4.4 and -1.8. Spectacular!
- 26 **Moon at perigee** (closest to Earth) at 13h UT (358,463 km; angular size 33.3').
- 27 **Full Moon** at 12:05 UT.
- 29 **Moon very near Aldebaran** (146° from Sun, morning sky) at 21h UT. Occultation visible from Europe, north Africa, and west Asia.

More sky events and links at <http://Skymaps.com/skycalendar/>

All times in Universal Time (UT). (USA Eastern Summer Time = UT - 4 hours.)



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All sales support the production and free distribution of The Evening Sky Map.

NORTHERN HEMISPHERE OCTOBER 2015

SKY MAP SHOWS HOW
THE NIGHT SKY LOOKS

EARLY OCT 8 PM

LATE OCT 7 PM

(Add 1 Hour For Daylight Saving)

SKY MAP DRAWN FOR

A LATITUDE OF 40°

NORTH AND IS

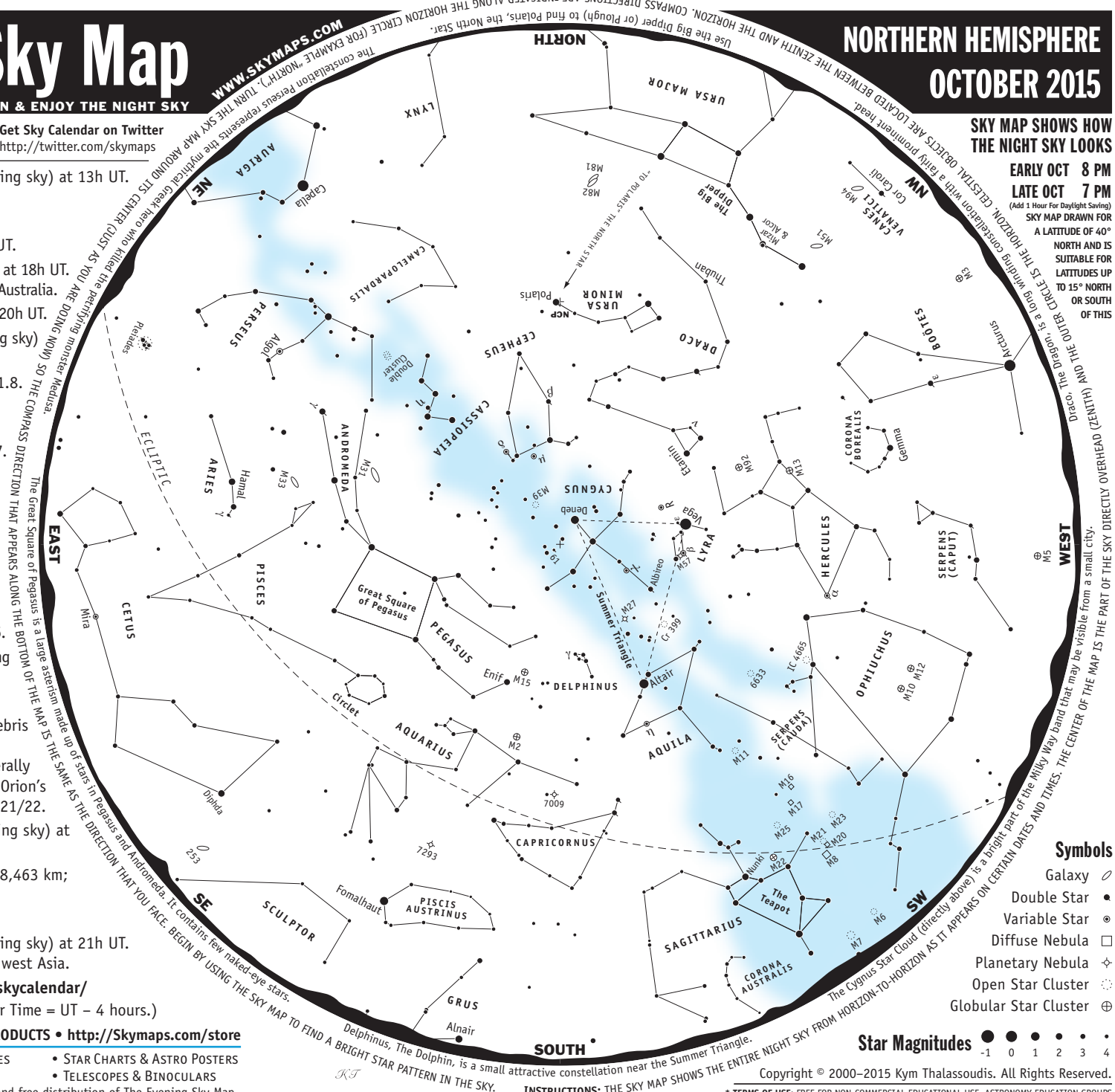
SUITABLE FOR

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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INSTRUCTIONS: THE SKY MAP SHOWS THE ENTIRE NIGHT SKY FROM HORIZON-TO-HORIZON AS IT APPEARS ON CERTAIN DATES AND TIMES. THE CENTER OF THE MAP IS THE PART OF THE SKY DIRECTLY OVERHEAD (ZENITH) AND THE OUTER EDGE IS A LONG WINDING CORRELATION WITH A BRIGHT PROMINENT HEAD.

Delphinus, The Dolphin, is a small attractive constellation near the Summer Triangle.

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 The constellation Pegasus represents the mythical Greek hero who killed the breathing monster Medusa.
 The Great Square of Pegasus is a large asterism made up of stars in Pegasus and Andromeda. It contains few naked-eye stars.
 The Cygnus Star Cloud (directly above) is a bright part of the Milky Way band that may be visible from a small city.
 The ecliptic is a dashed line representing the path of the Sun.
 The Summer Triangle is formed by the stars Vega, Altair, and Deneb.
 The Big Dipper (or Plough) to find Polaris, the North Star.
 Use the Big Dipper (or Plough) to find Polaris, the North Star.
 COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE (FOR EXAMPLE "NORTH"). TURN THE SKY MAP AROUND ITS CENTER (JUST AS YOU ARE DOING NOW) SO THE COMPASS DIRECTION THAT APPEARS ALONG THE BOTTOM OF THE MAP IS THE SAME AS THE DIRECTION THAT YOU FACE. BEGIN BY USING THE SKY MAP TO FIND A BRIGHT STAR PATTERN IN THE SKY.

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. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.

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

NORTHERN HEMISPHERE
OCTOBER 2015

CELESTIAL OBJECTS

Sky maps.com

Easily Seen with the Naked Eye

| | | | |
|------------|-----|---|---|
| Altair | Aql | • | Brightest star in Aquila. Name means "the flying eagle". Dist=16.7 ly. |
| Capella | Aur | • | The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 ly. |
| Arcturus | Boo | • | Orange, giant K star. Name means "bear watcher". Dist=36.7 ly. |
| δ Cephei | Cep | • | Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion. |
| Deneb | Cyg | • | Brightest star in Cygnus. One of the greatest known supergiants. Dist=1,400±200 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=25.0 ly. |
| Algol | Per | • | Famous eclipsing binary star. Magnitude varies between 2.1 & 3.4 over 2.867 days. |
| Fomalhaut | PsA | • | Brightest star in Piscis Austrinus. In Arabic the "fish's mouth". Dist=25 ly. |
| Pleiades | Tau | • | The Seven Sisters. Spectacular cluster. Many more stars visible in binoculars. Dist=380 ly. |
| Polaris | UMi | • | The North Pole Star. A telescope reveals an unrelated mag 8 companion star. Dist=433 ly. |

Easily Seen with Binoculars

| | | | |
|----------------|-----|---|--|
| M31 | And | ◊ | The Andromeda Galaxy. Most distant object visible to naked eye. Dist=2.93 million ly. |
| M2 | Aqr | • | Resembles a fuzzy star in binoculars. |
| η Aquilae | Aql | • | Bright Cepheid variable. Mag varies between 3.6 & 4.5 over 7.166 days. Dist=1,200 ly. |
| μ Cephei | Cep | • | Herschel's Garnet Star. One of the reddest stars. Mag 3.4 to 5.1 over 730 days. |
| χ Cygni | Cyg | • | Long period pulsating red giant. Magnitude varies between 3.3 & 14.2 over 407 days. |
| M39 | Cyg | • | May be visible to the naked eye under good conditions. Dist=900 ly. |
| ν Draconis | Dra | • | Wide pair of white stars. One of the finest binocular pairs in the sky. Dist=100 ly. |
| M13 | Her | • | Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly. |
| M92 | Her | • | Fainter and smaller than M13. Use a telescope to resolve its stars. |
| ε 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. |
| M12 | Oph | • | Close to the brighter M10. Dist=18,000 ly. |
| M10 | Oph | • | 3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly. |
| IC 4665 | Oph | • | Large, scattered open cluster. Visible with binoculars. |
| 6633 | Oph | • | Scattered open cluster. Visible with binoculars. |
| M15 | Peg | • | Only globular known to contain a planetary nebula (Mag 14, d=1"). Dist=30,000 ly. |
| Double Cluster | Per | • | Double Cluster in Perseus. NGC 869 & 884. Excellent in binoculars. Dist=7,300 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. |
| Mizar & Alcor | UMa | • | Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion. |
| Cr 399 | Vul | • | Coathanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly. |

Telescopic Objects

| | | | |
|---------------|-----|---|---|
| γ Andromedae | And | • | Attractive double star. Bright orange star with mag 5 blue companion. Sep=9.8". |
| 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. |
| γ Arietis | Ari | • | Impressive looking double blue-white star. Visible in a small telescope. Sep=7.8". |
| M51 | CVn | ◊ | Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly. |
| η Cassiopeiae | Cas | • | Yellow star mag 3.4 & orange star mag 7.5. Dist=19 ly. Orbit=480 years. Sep=12". |
| Albireo | Cyg | • | Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4". |
| 61 Cygni | Cyg | • | Attractive double star. Mags 5.2 & 6.1 orange dwarfs. Dist=11.4 ly. Sep=28.4". |
| γ Delphini | Del | • | Appear yellow & white. Mags 4.3 & 5.2. Dist=100 ly. Struve 2725 double in same field. |
| 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. |
| M23 | Sgr | • | Elongated star cluster. Telescope required to show stars. Dist=2,100 ly. |
| M20 | Sgr | ◻ | Trifid Nebula. A telescope shows 3 dust lanes trisecting nebula. Dist=5,200 ly. |
| M21 | Sgr | • | A fine and impressive cluster. Dist=4,200 ly. |
| M17 | Sgr | ◻ | Omega Nebula. Contains the star cluster NGC 6618. Dist=4,900 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. |
| M33 | Tri | ◊ | Fine face-on spiral galaxy. Requires a large aperture telescope. Dist=2.3 million ly. |
| M81 | UMa | ◊ | Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope. |
| M27 | Vul | ✧ | Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly. |

Calendario cielo nocturno - octubre 2015

- 1 La Luna cerca de las Pléyades (cielo matutino) a las 20h TU.
- 2 Luna muy cerca de Aldebarán (119 ° del Sol, cielo de la mañana) de TU 13h. Ocultación visible desde Alaska.
- 4 Cuarto Creciente a las 21:06 TU.
- 7 La Luna cerca de la clúster Beehive (cielo matutino) a las 0h TU.
- 8 Luna muy cerca de Venus (44 ° del Sol, cielo de la mañana) de TU 18h. Mag. -4.5. Ocultación visible desde partes occidentales de Australia.
La Luna cerca de Regulus (45 ° del Sol, cielo de la mañana) de TU 20h.
- 9 Venus 2,5 ° SSW de Regulus (45 ° del Sol, cielo matutino) a 6h TU. Mags. -4.5 Y 1.3.
La Luna cerca de Marte (cielo matutino) a las 15h TU. Mag. 1.8.
Luna, Marte y Júpiter dentro de un círculo 4,0 ° (35 ° del Sol, cielo nocturno) de TU 18h.
La Luna cerca de Júpiter (cielo matutino) a las 22h TU. Mag. -1.7.
- 11 La Luna cerca de Mercurio (17 ° del Sol, cielo matutino) a las 12h TU. Mag. 0.2.
Luna en apogeo (más alejada de la Tierra) a las 13h TU (distancia 406,388 kilómetros; tamaño angular de 29,4 ').
- 13 Luna Nueva en 0:06 TU. Comience de lunación 1148.
- 16 Mercurio en su mayor elongación, 18 ° al oeste del Sol (cielo matutino) en TU 3h. Mag. -0.5.
La Luna cerca de Saturno (cielo nocturno) a las 14h TU. Mag. 0.6.
- 17 Marte 0.38 ° NNE de Júpiter (40 ° del Sol, cielo de la mañana) de TU 23h. Mags. 1,7 y -1,8.
- 20 Luna Creciente a las 20:31 TU.
- 21 Lluvia de las Oriónidas. Surge desde el campo de escombros del cometa Halley. Activa desde el 2 octubre-noviembre 7. Produce muy rápido (66 km / s), meteoros generalmente débiles (20 por hora). Radiante situado cerca del asterismo de Orión. Observar después de la medianoche en la noche del 21/22.
- 26 Venus 1,0 ° SSW de Júpiter (46 ° del Sol, cielo matutino) a 0h TU. Mags. -4,4 Y -1,8. ¡Espectacular!
Luna en el perigeo (el más cercano a la Tierra) a las 13h TU (358,463 kilómetros; tamaño angular de 33,3 ').
- 27 Luna llena a las 12:05 TU.
- 29 La Luna cerca de las Pléyades (cielo matutino) a las 6h TU.
La Luna muy cerca de Aldebarán (146 ° del Sol, cielo de la mañana) de TU 21h. Ocultación visible desde Europa, norte de África y Asia occidental.

Todas las horas Tiempo Universal (TU). ¡Un cielo despejado hasta el mes que viene!