# The Evening Sky Map

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

WWW.SKYMAPS.COM

## NORTHERN HEMISPHERE SEPTEMBER 2014

## Sky Calendar – September 2014

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1 **Moon near Mars** (evening sky) at 1h UT. Mag. +0.6.

2 **Moon near Antares** (evening sky) at 10h UT.

2 **First Quarter Moon** at 11:11 UT.

8 **Moon at perigee** (closest to Earth) at 4h UT (358,389 km; angular size 33.3').

9 **Full Moon** at 1:38 UT. Last Supermoon of 2014.

14 **Moon near the Pleiades** (morning sky) at 6h UT.

15 **Moon near Aldebaran** (morning sky) at 1h UT.

16 **Last Quarter Moon** at 2:05 UT.

19 **Moon near Beehive Cluster** (49° from Sun, morning sky) at 19h UT.

20 **Moon near Jupiter** (43° from Sun, morning sky) at 8h UT. Mag. –1.9.

20 **Moon at apogee** (farthest from Earth) at 14h UT (distance 405,845 km; angular size 29.4').

20 **Mercury 0.55° SSW of Spica** (26° from Sun, evening sky) at 20h UT. Mags. +0.1 and +1.0.

21 **Mercury at greatest elongation**, 26° east of Sun (evening sky) at 22h UT. Mag. +0.1.

23 **September equinox** at 2:29 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.

23 **Moon near Venus** (8° from Sun, morning sky) at 13h UT.

24 **New Moon** at 6:12 UT. Start of lunation 1135.

26 **Moon near Spica** (21° from Sun, evening sky) at 3h UT.

26 **Moon near Mercury** (25° from Sun, evening sky) at 12h UT.

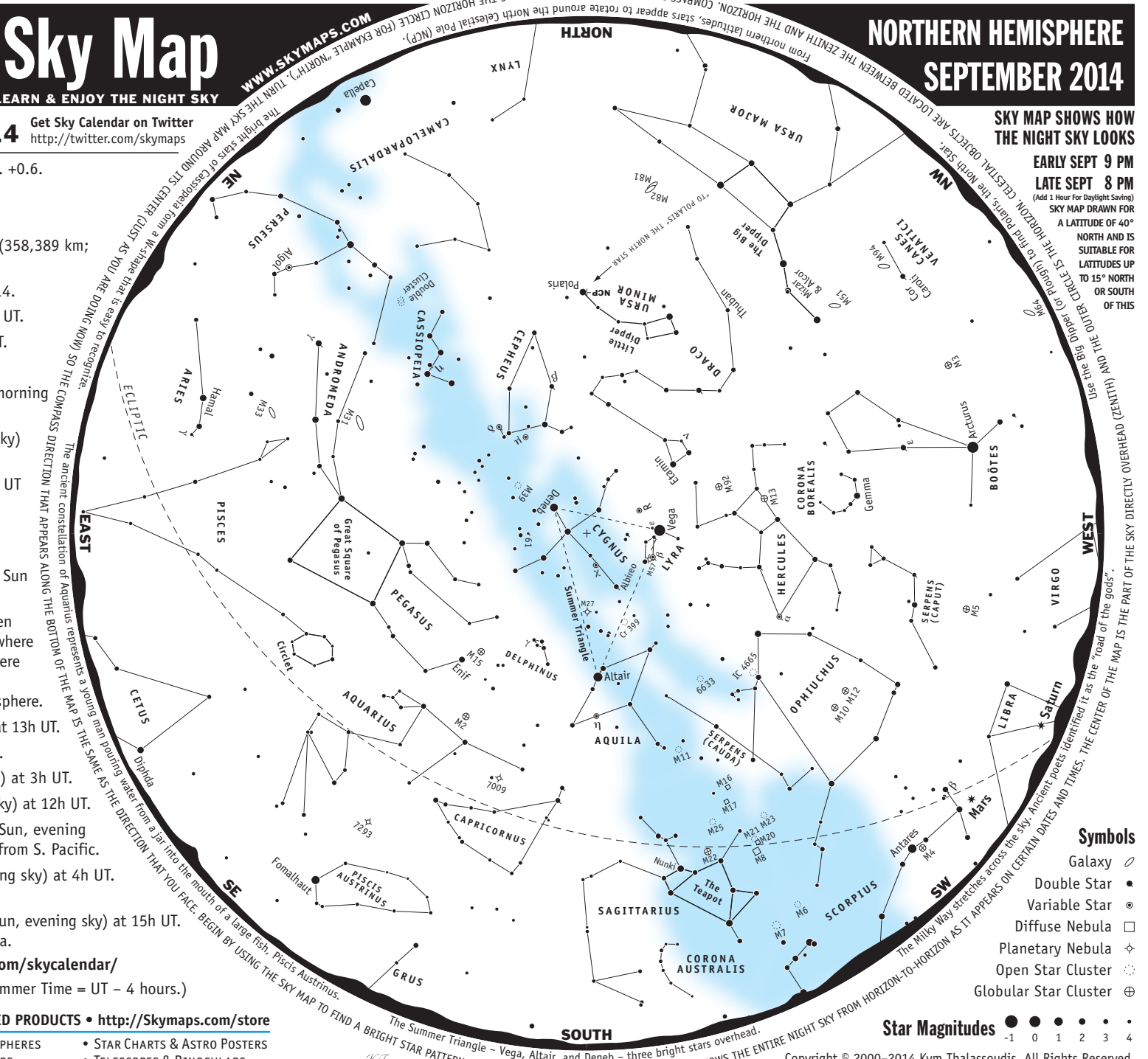
28 **Moon very near Asteroid 1 Ceres** (43° from Sun, evening sky) at 0h UT. Mag. +8.2. Occultation visible from S. Pacific.

28 **Moon very near Saturn** (44° from Sun, evening sky) at 4h UT. Mag. +0.6. Occultation visible from Hawaii.

28 **Moon very near Asteroid 4 Vesta** (51° from Sun, evening sky) at 15h UT. Mag. +7.0. Occultation visible from North Africa.

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

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




The ancient constellation of Aquarius represents a young man pouring water from a jar into the mouth of a large fish, Piscis Austrinus.

The Summer Triangle – Vega, Altair, and Deneb – three bright stars overhead.

The Milky Way stretches across the sky. Ancient poets identified it as the "road of the gods".

The bright stars of Cassiopeia form a W-shape that is easy to recognize. 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.

From northern latitudes, stars appear to rotate around the North Celestial Pole (NCP). 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.

Use the Big Dipper (or Plough) to find Polaris, the North Star. CELESTIAL OBJECTS ARE LOCATED BETWEEN THE ZENITH AND THE HORIZON. CELESTIAL OBJECTS ARE LOCATED BETWEEN THE ZENITH AND THE HORIZON. The Milky Way stretches across the sky. Ancient poets identified it as the "road of the gods". The Summer Triangle – Vega, Altair, and Deneb – three bright stars overhead. Use the Big Dipper (or Plough) to find Polaris, the North Star. The ancient constellation of Aquarius represents a young man pouring water from a jar into the mouth of a large fish, Piscis Austrinus.

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

**EARLY SEPT 9 PM**
**LATE SEPT 8 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



KT

**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).

## 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.

# CELESTIAL OBJECTS

NORTHERN HEMISPHERE
SEPTEMBER 2014

Skymaps.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. |
| Antares | Sco | • | Red, supergiant star. Name means "rival of Mars". Dist=135.9 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. |
| M3 | CVn | ⊕ | Easy to find in binoculars. Might be glimpsed with the naked eye. |
| 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. |
| 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. |
| 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. |
| 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". |
| ε Boötis | Boo | ◉ | Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split. |
| 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. |
| 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. |
| 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. |
| M27 | Vul | ✧ | Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly. |

Calendario Estelar - Septiembre 2014

1 La Luna cerca de Marte (cielo nocturno) a la 1h TU. Mag. 0.6.

2 La Luna cerca de Antares (cielo nocturno) a las 10h TU.
Luna Creciente a las 11:11 TU.

5 Venus 0,7 ° NNE de Regulus (13 ° del Sol, cielo matutino) a las 18h. Mags. -3,9 y 1,3.

8 Luna en el perigeo (el más cercano a la Tierra) a las 4h TU (358.389 kilómetros; tamaño angular de 33,3 ').

9 Luna llena en 01:38 UT. Última Superluna de 2014.

14 La Luna cerca de las Pléyades (cielo matutino) a las 6h TU.

15 La Luna cerca de Aldebarán (cielo matutino) a la 1h TU.

16 Luna Nueva a las 2:05 TU.

19 La Luna cerca del cúmulo Beehive (49 ° del Sol, cielo matutino) a las 19h.

20 La Luna cerca de Júpiter (43 ° del Sol, cielo matutino) a las 8h. Mag. -1.9.
Luna en apogeo (más lejana de la Tierra) a las 14h TU (distancia 405.845 kilómetros; tamaño angular de 29,4 ').
Mercurio 0,55 ° SSW de Spica (26 ° del Sol, cielo nocturno) a las 20h TU. Mags. 0,1 y 1,0.

21 Mercurio en su mayor elongación, 26 ° al este del Sol (cielo nocturno) a las 22h TU. Mag. 0.1.

23 Equinoccio de Otoño a las 2:29 UT equinoccio. El momento en que el Sol alcanza el punto de la eclíptica donde cruza hacia el hemisferio sur celeste que marca el inicio del otoño en el hemisferio norte y la primavera en el hemisferio sur.

23 La Luna cerca de Venus (8 ° del Sol, cielo matutino) a las 13h.

24 Luna Nueva a las 6:12 TU. Inicio de la lunación 1135.

26 La Luna cerca de Spica (21 ° del Sol, cielo nocturno) a las UT 3h.
La Luna cerca de Mercurio (25 ° del Sol, cielo nocturno) a las 12h TU.

28 La Luna muy cerca Asteroide 1 Ceres (43 ° del Sol, cielo nocturno) a las 0h TU. Mag. 8.2. Ocultación visible desde Pacifico sur.

28 La Luna muy cerca de Saturno (44 ° del Sol, cielo nocturno) a las 4h TU. Mag. 0.6. Ocultación visible desde Hawaii.
La Luna muy cerca Asteroide 4 Vesta (51 ° del Sol, cielo nocturno) a las 15h TU. Mag. 7.0. Ocultación visible desde el norte de África.

Todas las horas son en Tiempo Universal (UT). Un cielo despejado hasta el próximo mes!