

# The Evening Sky Map

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

## Sky Calendar – March 2014

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- 1 **New Moon** at 8:02 UT. Start of lunation 1128.
- 7 **Moon near the Pleiades** (evening sky) at 2h UT.
- 7 **Moon near Aldebaran** (evening sky) at 22h UT.
- 8 **First Quarter Moon** at 13:26 UT.
- 10 **Moon near Jupiter** (evening sky) at 10h UT. Mag.  $-2.4$ .
- 11 **Moon at apogee** (farthest from Earth) at 20h UT (distance 405,364 km; angular size 29.8').
- 12 **Moon near Beehive Cluster** (evening sky) at 18h UT.
- 14 **Mercury at greatest elongation**,  $28^\circ$  west of Sun (morning sky) at 6h UT. Mag.  $+0.2$ .
- 14 **Moon near Regulus** (evening sky) at 15h UT.
- 16 **Full Moon** at 17:10 UT.
- 18 **Moon near Spica** (morning sky) at 22h UT.
- 19 **Moon near Mars** (morning sky) at 2h UT. Mag.  $-1.0$ .
- 20 **Asteroid 163 Erigone occults Regulus** at 6:06 UT (evening sky). Observable to the naked-eye by anyone in its path across the NE USA and into Canada. The bright star will "vanish" for up to 14 seconds in the middle of the 108km wide path.
- 20 **Vernal equinox** at 16:57 UT. The time when the Sun reaches the point along the ecliptic where it crosses into the northern celestial hemisphere marking the start of spring in the Northern Hemisphere and autumn in the Southern Hemisphere.
- 21 **Moon very near Saturn** ( $127^\circ$  from Sun, morning sky) at 3h UT. Mag.  $+0.3$ . Occultation visible along a path between E South America and SW Africa.
- 22 **Moon near Antares** (morning sky) at 8h UT.
- 22 **Venus at greatest elongation**,  $47^\circ$  west from Sun (morning sky) at 19h UT. Mag.  $-4.4$ .
- 24 **Last Quarter Moon** at 1:47 UT.
- 27 **Moon near Venus** ( $46^\circ$  from Sun, morning sky) at 6h UT. Mag.  $-4.4$ .
- 27 **Moon at perigee** (closest to Earth) at 19h UT (365,703 km; angular size 32.7').
- 30 **New Moon** at 18:47 UT. Start of lunation 1129.

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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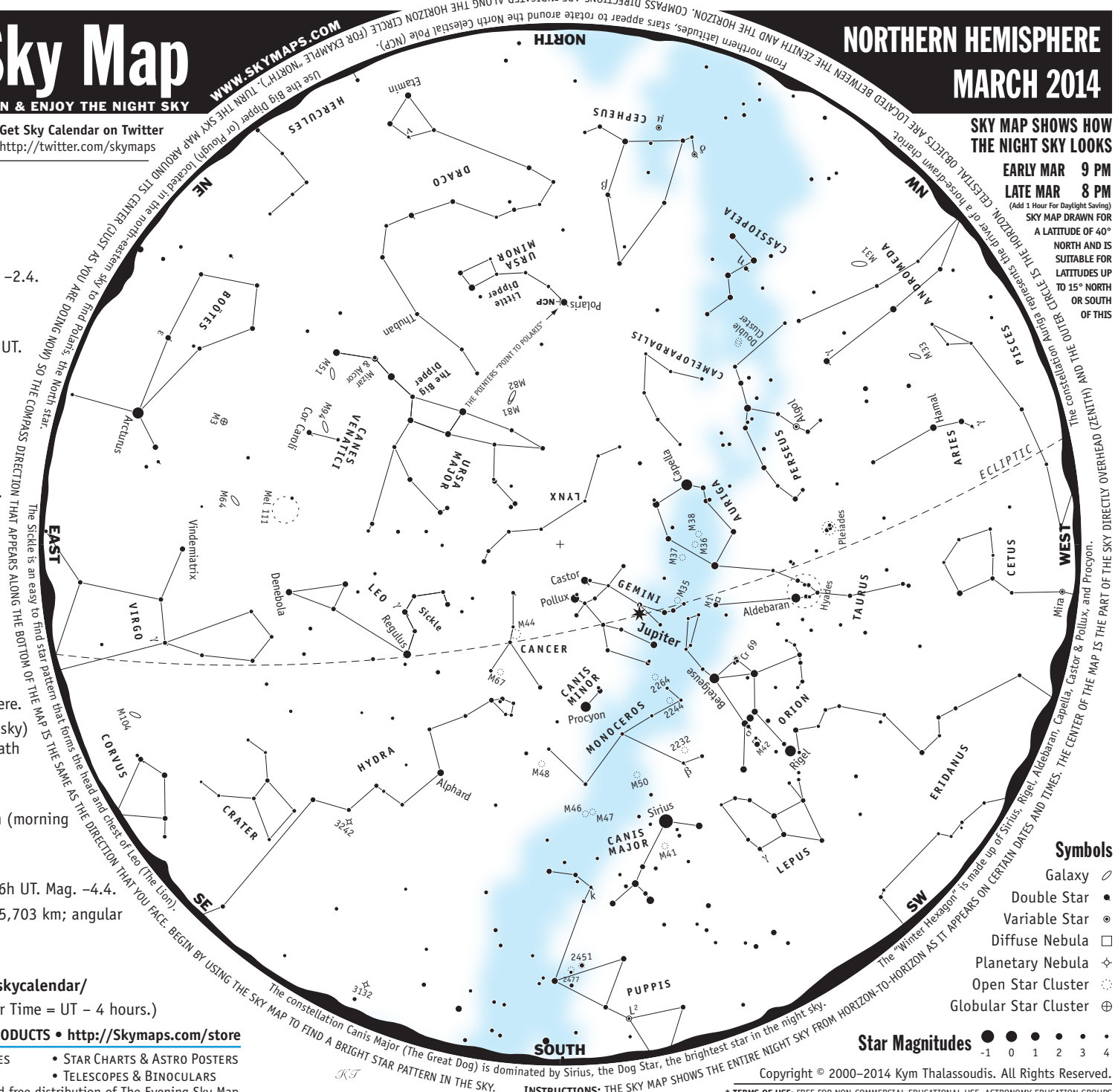
- STAR ATLAS & PLANISPHERES
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  - BOOKS FOR SKY WATCHERS
  - TELESCOPES & BINOCULARS
- Help support the production and free distribution of The Evening Sky Map

## NORTHERN HEMISPHERE MARCH 2014

SKY MAP SHOWS HOW  
THE NIGHT SKY LOOKS

EARLY MAR 9 PM  
LATE MAR 8 PM

(Add 1 Hour For Daylight Saving)  
 SKY MAP DRAWN FOR  
 A LATITUDE OF  $40^\circ$   
 NORTH AND IS  
 SUITABLE FOR  
 LATITUDES UP  
 TO  $15^\circ$  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 constellation Canis Major (The Great Dog) is dominated by Sirius, the Dog Star, the brightest star in the night sky.

The stickle is an easy way to find star patterns that form the head and chest of Leo (The Lion). THE STICKLE IS THE SAME AS THE DIRECTION THAT YOU FACE. BEGIN BY USING THE SKY MAP TO FIND A BRIGHT STAR PATTERN IN THE SKY.

The constellation Andra represents the driver of a horse-drawn chariot. CELESTIAL OBJECTS LOCATED BETWEEN THE ZENITH AND THE HORIZON, COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE. (FOR EXAMPLE "NORTH"). USE THE BIG DIPPER (OR THROUGH IT LOCATED IN THE EASTERN SKY TO FIND POINTS 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.

WEST

EAST

NORTH

SOUTH

NE

NW

SE

SW

ECLIPTIC

ZENITH

NCP

SOUTH

NORTH

ECLIPTIC

ZENITH

NCP

SOUTH

NORTH

ECLIPTIC

ZENITH

NCP

## 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 MARCH 2014 CELESTIAL OBJECTS Sky maps.com

## Easily Seen with the Naked Eye

|            |     |   |   |
|------------|-----|---|---|
| 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.                                |
| Sirius     | CMa | • | The brightest star in the sky. Also known as the "Dog Star". Dist=8.6 ly.                     |
| Procyon    | CMi | • | Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly. |
| δ Cephei   | Cep | ☉ | Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion.             |
| Castor     | Gem | • | Multiple star system with 6 components. 3 stars visible in telescope. Dist=52 ly.             |
| Pollux     | Gem | • | With Castor, the twin sons of Leda in classical mythology. Dist=34 ly.                        |
| Regulus    | Leo | • | Brightest star in Leo. A blue-white star with at least 1 companion. Dist=77 ly.               |
| Rigel      | Ori | • | The brightest star in Orion. Blue supergiant star with mag 7 companion. Dist=770 ly.          |
| Betelgeuse | Ori | • | One of the largest red supergiant stars known. Diameter=300 times that of Sun. Dist=430 ly.   |
| Algol      | Per | ☉ | Famous eclipsing binary star. Magnitude varies between 2.1 & 3.4 over 2.867 days.             |
| Pleiades   | Tau | ☉ | The Seven Sisters. Spectacular cluster. Many more stars visible in binoculars. Dist=399 ly.   |
| Hyades     | Tau | ☉ | Large V-shaped star cluster. Binoculars reveal many more stars. Dist=152 ly.                  |
| Aldebaran  | Tau | • | Brightest star in Taurus. It is not associated with the Hyades star cluster. Dist=66.7 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=2.5 million ly.          |
| M38            | Aur | ☉ | Stars appear arranged in "pi" or cross shape. Dist=4,300 ly.                                  |
| M36            | Aur | ☉ | About half size of M38. Located in rich Milky Way star field. Dist=4,100 ly.                  |
| M37            | Aur | ☉ | Very fine star cluster. Discovered by Messier in 1764. Dist=4,400 ly.                         |
| M44            | Cnc | ☉ | Praesepe or Beehive Cluster. Visible to the naked eye. Dist=590±20 ly.                        |
| M3             | CVn | ☉ | Easy to find in binoculars. Might be glimpsed with the naked eye.                             |
| M41            | CMa | ☉ | First recorded observation by Aristotle in 325 BC as "cloudy spot". Dist=2,300 ly.            |
| Mel 111        | Com | ☉ | Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=288 ly. Age=400 million years.                |
| M35            | Gem | ☉ | Fine open cluster located near foot of the twin Castor. Dist=2,800 ly.                        |
| M48            | Hya | ☉ | 12+ stars in 7x binoculars. Triangular asterism near centre. Dist=1,990 ly.                   |
| γ Leporis      | Lep | • | Visible with binoculars. Gold & white stars. Mags 3.6 & 6.2. Dist=30 ly. Sep=96.3".           |
| 2232           | Mon | ☉ | A large scattered star cluster of 20 stars. Dist=1,300 ly.                                    |
| 2244           | Mon | ☉ | Surrounded by the rather faint Rosette Nebula. Dist=5,540 ly.                                 |
| M50            | Mon | ☉ | Visible with binoculars. Telescope reveals individual stars. Dist=3,000 ly.                   |
| Cr 69          | Ori | ☉ | Lambda Orionis Cluster. Dist=1,630 ly.  |
| M42            | Ori | ☐ | The Great Orion Nebula. Spectacular bright nebula. Best in telescope. Dist=1,300 light years. |
| Double Cluster | Per | ☉ | Double Cluster in Perseus. NGC 869 & 884. Excellent in binoculars. Dist=7,300 ly.             |
| M47            | Pup | ☉ | Bright star cluster. 15+ stars in 7x binoculars. Dist=1,500 ly.                               |
| M46            | Pup | ☉ | Dist=5,400 ly. Contains planetary NGC 2438 (Mag 11, d=65") - not associated.                  |
| Mizar & Alcor  | UMa | • | Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.       |

## Telescopic Objects

|               |     |   |  |
|---------------|-----|---|--|
| γ Andromedae  | And | • | Attractive double star. Bright orange star with mag 5 blue companion. Sep=9.8".                |
| 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.    |
| M67           | Cnc | ☉ | Contains 500+ stars mag 10 & fainter. One of the oldest clusters. Dist=2,350 ly.               |
| M94           | CVn | ☉ | Compact nearly face-on spiral galaxy. Dist=15 million ly.                                      |
| 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".               |
| M64           | Com | ☉ | Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star".                  |
| 3242          | Hya | ✦ | Ghost of Jupiter. Bright blue disk. Mag 11 central star. Dist=2,600 ly.                        |
| γ Leonis      | Leo | • | Superb pair of golden-yellow giant stars. Mags 2.2 & 3.5. Orbit=600 years. Sep=4.4".           |
| β Monocerotis | Mon | • | Triple star. Mags 4.6, 5.0 & 5.4. Requires telescope to view arc-shape. Sep=7.3".              |
| 2264          | Mon | ☉ | Christmas Tree Cluster. Associated with the Cone Nebula. Dist=2,450 ly.                        |
| σ Orionis     | Ori | • | Superb multiple star. 2 mag 7 stars one side, mag 9 star on other. Struve 761 triple in field. |
| k Puppis      | Pup | • | Telescope easily shows two blue-white stars of almost equal brightness. Sep=9.9".              |
| M1            | Tau | ☐ | Crab Nebula. Remnant from supernova which was visible in 1054. Dist=6,500 ly.                  |
| M81           | UMa | ☉ | Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope.                   |
| M82           | UMa | ☉ | Close to M81 but much fainter and smaller.   |
| γ Virginis    | Vir | • | Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.          |

## Calendario del Cielo - marzo 2014

- 1 Luna Nueva a las 08:02 UT. Inicio de la lunación 1128.
- 7 La Luna cerca de las Pléyades (cielo nocturno) a las 2h TU.  
La Luna cerca de Aldebarán (cielo nocturno) a las 22h TU.
- 8 Luna Creciente a las 13:26 TU.
- 10 La Luna cerca de Júpiter (cielo nocturno) a las 10h TU. Mag. -2.4.
- 11 La Luna en apogeo (más lejana de la Tierra) a las 20h UT (distancia 405.364 kilómetros; tamaño angular de 29,8 ').
- 12 La Luna cerca del cúmulo Beehive (cielo nocturno) a las 18h TU.
- 14 Mercurio en su mayor elongación, 28 ° al oeste del Sol (cielo matutino) a las 6h TU. Mag. 0.2.  
La Luna cerca de Regulus (cielo nocturno) a las 15h TU.
- 16 Luna Llena a las 17:10 TU.
- 18 La Luna cerca de Spica (cielo matutino) a las 22h.
- 19 La Luna cerca de Marte (cielo matutino) a las 2h TU. Mag. -1.0.
- 20 El asteroide 163 Erígone oculta a Regulus a las 06:06 TU (cielo nocturno). Observable a simple vista por cualquiera en su camino a través del NE de EE.UU. y en Canadá. La brillante estrella ÒvanishÓ se verá durante 14 segundos en el medio de la ancha trayectoria de 108 kilómetros.
- 20 Equinoccio de primavera o Vernal a las 16:57 TU. Es el momento en que el Sol alcanza el punto de la eclíptica en el que cruza al hemisferio norte celeste, que marca el inicio de la primavera en el hemisferio norte y el otoño en el hemisferio sur.
- 21 La Luna muy cerca de Saturno (127 ° del Sol, cielo matutino) a las 03h TU. Mag. 0.3. Ocultación visible a lo largo de un camino entre E América del Sur y SW África.
- 22 La Luna cerca de Antares (cielo matutino) a las 8h de la UT.  
Venus en su mayor elongación, 47° al oeste del Sol (cielo matutino) a las 19h TU. Mag. -4.4.
- 24 Cuarto Creciente a las 1:47 TU.
- 27 La Luna cerca de Venus (46 ° del Sol, cielo matutino) a las 6h TU. Mag. -4.4.
- 27 Luna en el perigeo (el más cercano a la Tierra) a las 19h TU (365.703 kilómetros, el tamaño angular de 32,7 ').
- 30 Luna Nueva a las 18:47 TU. Inicio de la lunación 1129.

Todas las horas Tiempo Universal (TU).

¡Un cielo despejado hasta el próximo mes!