

Naked Eye Observations



Location: Kathmandu, Nepal

Kathmandu is located in the Northern hemisphere in 27.7172° N, 85.3240° E Coordinates. Thus major celestial objects which can be viewed in Northern Hemisphere and a few from southern hemisphere can be observed from Kathmandu

Major Stars

Throughout the year we can observe different stars in different seasons in the night sky.

- **All year (Circumpolar)**

- o Polaris, Kochab: Polaris (The North Pole star) is the alpha star of the constellation of Ursa Minor which remains apparently fixed in the night sky and is less than a degree off from the north celestial pole. Kochab (also known as beta Ursae Minoris) is a variable double giant star in the constellation of Ursa Minor. Actually, all the stars of the constellation Ursa Minor are visible throughout the year from Kathmandu.

- o Alderamin: This is the alpha star in the constellation of Cepheus that lies near the northern pole. It is a second magnitude star and is relatively close to Earth. Other stars of Cepheus constellation are also visible in Kathmandu throughout the year, depending upon the eyesight of the observer.

- o Thuban: This is a binary star system in the Constellation of Draco. It is a historically significant star since it was the North Pole star from 4th to 2nd millennium BC. Few other stars of the Draco Constellation are also visible throughout the year in Kathmandu.

- **Spring**

- o Pollux and Castor: Pollux is the brightest and Castor is the second brightest star in the constellation of Gemini. They can be easily spotted on the head of “the twins” (Gemini)





o Arcturus: This is the brightest star in the constellation of Bootes. Being the fourth-brightest star in the night sky, it can be easily noticed. It is also a part of the Spring Triangle asterism.

o Capella: This is the alpha star in the constellation of Auriga. It is visible in the night sky only in the first few months of spring.

o Algol (Beta Persei) – The Demon Star: a triple star system where two of the stars (A and B) form an eclipsing binary system. This system is located in the constellation Perseus. In the A and B double (binary) star system, one star passes nearly directly behind the other star, so that the brightness of the system changes by a factor of a little more than 3 for about 10 hours every 2-3 days.

o Epsilon Lyrae – The Double Double: This double star system of almost identical white colored stars in the constellation Lyra will be very difficult to resolve into two stars with the naked eye, though it is certainly possible with binoculars. However, point a 4-to-6-inch telescope at this system with high magnification, and you will be amazed as each of these two stars are again resolved into double stars of their own, hence the name of this system as a double, double.

- **Summer**

- o Vega: It is the brightest star in the constellation of Lyra. It is one of the three stars of the asterism named “Summer Triangle”. It has been extensively studied by astronomers as the most important star after the sun. It was the north pole star around 12000 BC, and again will be so, 13 thousand years later. It is taken as a baseline for the UBV photometric system.

- o Deneb: This is a blue-white supergiant, and the brightest star in the constellation of Cygnus, the swan. Deneb is one of the

vertices of the Summer Triangle asterism and the head of the Northern Cross asterism.

- Altair: This is the brightest star in the constellation of Aquila. It is also another vertex in the Summer Triangle asterism and visible throughout the summer.
- Albireo: A double star system with striking color contrast (blue and yellow). It is resolvable with a small telescope and located in the constellation Cygnus (the swan's head/eye or the bottom of the cross).
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● **Fall**

- Epsilon Pegasi: It is the brightest star in the constellation of Pegasus. It is formally named as Enif. It can be found in the nose of Pegasus, the winged horse.
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- Alpheratz: It is the brightest star in the constellation of Andromeda. It is found on the head of Andromeda. Also, it is the upper left star of the Great Square of Pegasus.

- **Winter**

- Diphda: It is the brightest star in the constellation of Cetus. It is an orange giant and easy to identify in the night sky. It is situated towards the tail of Cetus, the sea monster.
- Betelgeuse and Rigel: They are the brightest stars in the constellation of Orion, and a part of the Winter Hexagon asterism. Betelgeuse is a red supergiant star whereas; Rigel is the red supergiant star.
- Aldebaran: It is the alpha star in the constellation of Taurus. It is often regarded as the bull's eye. It is easy to locate once you find the belt of Orion. It is also a part of the Winter Hexagon.
- Sirius: It is the brightest star visible in the night sky, and the alpha star of Canis Major. It is a binary star consisting of main-sequence star, Sirius A and a faint white dwarf companion termed as Sirius B.



Messier Objects

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- **Spring**

- M44 (in Cancer): Beehive Open Cluster (binoculars or wide 32mm eyepiece)



- o M13 (in Hercules): Great Globular Cluster in Hercules
- o M35 (in Gemini): Open cluster near Castor's Foot (toward Orion's raised elbow/arm).
- o M101 (in Ursa Major): The Pinwheel Galaxy, a grand design spiral galaxy

- **Summer**

- o M28 (in Vulpecula; South of Cygnus in the Summer Triangle): The Dumbbell Nebula, a planetary nebula
- o M57 (in Lyra): The Ring Nebula, a planetary nebula
- o M8 (in Sagittarius): The Lagoon Nebula, a planetary nebula
- o M101 (in Ursa Major): The Pinwheel Galaxy, a grand design spiral galaxy

- **Fall**

- o M45 (in Taurus): The Pleiades, or the Seven Sisters, a young, open star cluster
- o M31 (in Andromeda): The Andromeda Galaxy, our nearest neighbor galaxy – not counting the dwarf galaxies, the Large and Small Magellanic clouds, observable from the Southern Hemisphere
- o M1 (in Taurus): The Crab Nebula, the remains of a supernova explosion
- o M101 (in Ursa Major): The Pinwheel Galaxy, a grand design spiral galaxy

- **Winter**

- o M42 (in Orion): The Orion Nebula
- o M43 (in Orion): De Marian's Nebula
- o M45 (in Taurus): The Pleiades, or the Seven Sisters, a young, open star cluster
- o M31 (in Andromeda): The Andromeda Galaxy, our nearest neighbor galaxy – not counting the Large and Small Magellanic clouds, which are dwarf galaxies that are observable from the Southern Hemisphere
- o M1 (in Taurus): The Crab Nebula, the remains of a supernova explosion
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Constellations

Throughout the year we can observe different stars in different seasons in the night sky.

- **Spring**

Leo, Ursa Major (including the Big Dipper* asterism), Ursa Minor* (the Little Dipper), Bootes, Cepheus*, Cassiopeia*, Draco*, Camelopardalis*

- **Summer**

Libra, Corona Borealis, Scorpius, Lyra, Sagittarius, Cygnus, Aquila, Draco, Hercules

- **Fall** Pegasus, Cetus, Aries, Triangulum, Perseus

- **Winter** Orion, Taurus, Auriga, Canis Major, Canis Minor, Gemini

