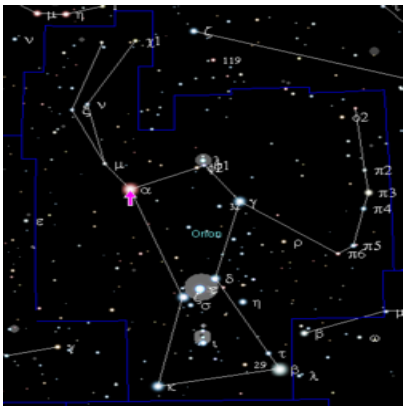
# Kitt Peak Nightly Observing Program

## Splendors of the Universe on YOUR Night!

Many pictures are links to larger versions.
Click here for the "Best images of the OTOP" Gallery and more information.

---



Betelgeuse (also called Alpha Orionis, α Orionis, or α Ori) is one of the brightest and largest known stars, though it is not one of the most massive. Located approximately 600 light-years from Earth, it is part of the constellation Orion and a vertex of the Winter Triangle asterism. Its large volume suggests that if it were at the center of the Solar System, it would wholly engulf Mercury, Venus, Earth, and Mars, with its surface extending out to between the orbits of Mars and Jupiter. It is classified as a red supergiant and as a semiregular variable star—that is, it shows considerable periodicity as its light changes, but this periodicity is sometimes irregular.

---

M35: An open star cluster of over 300 stars. It lies at a distance of 2,800 ly, near the foot of Castor, one of the Gemini twins. Could you see the tiny cluster NGC 2158 nearby?

---

M45: The "Pleiades," the "Seven Sisters," or "Subaru". A bright, nearby star cluster in the last stages of star formation. It has six to seven bright stars along with hundreds of fainter stars. It lies about 440 lightyears away and is around 100 million years old.

---

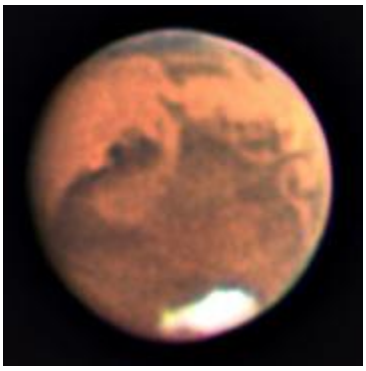
The Hyades is the nearest open cluster to the Solar System at about 150 light-years away and thus one of the best-studied of all star clusters. It consists of a roughly spherical group of hundreds of stars sharing the same age, place of origin, chemical content, and motion through space. The Hyades Cluster appears in the constellation Taurus, where its brightest stars form a V shape along with the brighter red giant Aldebaran, which is not part of the cluster, merely lying along our line of sight. The age of the Hyades is estimated to be about 625 million years. The cluster core, where stars are most densely packed, has a diameter of about 18 light years. However, about one-third of confirmed member stars have been observed well outside this boundary, in the cluster's extended halo; these stars are probably in the process of escaping from its gravitational influence.

---

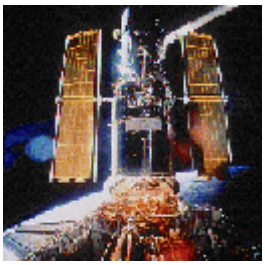
"Double Cluster" (NGC 884 and NGC 869): These two star clusters are a treat for binoculars and telescope alike. Each is a congregation of many hundred stars around 50-60 light years in diameter. These clusters are both about 7500 light years away.

---

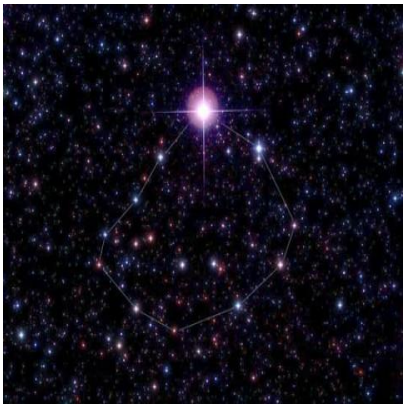
**Venus**, the second planet, is the brightest natural object in the sky other than the Sun and Moon and is often erroneously called the “morning star” or “evening star.” It is completely wrapped in sulfuric acid clouds and its surface is hot enough to melt lead.



**Mars**, the red planet, has a thin carbon dioxide atmosphere, clouds, dust storms, and polar caps made of dry ice. Images of dry riverbeds from orbiting spacecraft show us that liquid water once flowed on the Martian surface.



Satellites: Human technology! There are almost 500 of these in Low Earth Orbit (we can't see the higher ones). We see these little "moving stars" because they reflect sunlight.



The Engagement Ring: Through binoculars, the North Star (Polaris) seems to be the brightest on a small ring of stars. Not a constellation or cluster, this asterism looks like a diamond engagement ring on which Polaris shines brightly as the diamond.

Johnathan Siquieros

Your Telescope Operator and Guide. Thank you for joining me this evening! See you soon!!

The web page for the program in which you just participated is at Nightly Observing Program. Most of the above images were taken as part of the Overnight Telescope Observing Program. For more information on this unique experience please visit Overnight Telescope Observing Program.