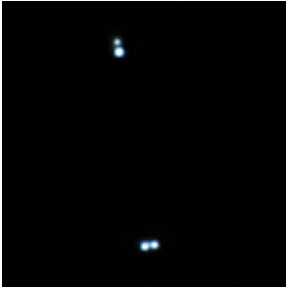


Kitt Peak Nightly Observing Program

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.



The **Double-Double** (ϵ Lyrae) looks like two stars in binoculars, but a good telescope shows that both of these two are themselves binaries. However, there may be as many as ten stars in this system! The distant pairs are about 0.16 light-year apart and take about half a million years to orbit one another. The Double-Double is about 160 light-years from Earth.



In the handle of the Big Dipper, **Mizar & Alcor** (ζ & 80 Ursae Majoris) or the "Horse & Rider" form a naked-eye double star. They are traveling through space together about 80 light-years away from us, separated by about a light-year. However, it is unknown if they are actually orbiting each other. A telescope splits Mizar itself into two stars, but these both are again doubles, bringing the total in this system to six.



M6: The "Butterfly Cluster." A few hundred stars near the tail of Scorpius, next to M7. It is smaller than M7, about 12 lightyears across and 1600 lightyears away.

M7: The "Ptolemy Cluster." An open cluster near the "stinger" of Scorpius. It is a group of suns in a gravitational dance, 25 lightyears across and about 1000 lightyears away.



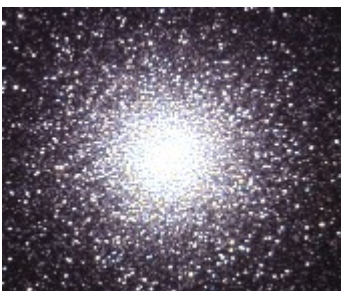
M16: The "Eagle Nebula" (also known as the "Star Queen Nebula" or "The Spire") is a young open cluster of stars in the constellation Serpens, discovered by Jean-Philippe de Cheseaux in 1745-46. The names refer to visual impressions of the dark silhouette near the center of the nebula. The nebula contains several active star-forming gas and dust regions, including the Pillars of Creation made famous by the Hubble Space Telescope.



M8: The "Lagoon Nebula." A huge cloud of gas and dust beside an open cluster of stars (NGC 6530). The Lagoon is a stellar nursery, 4,100 lightyears away, towards the galactic core.

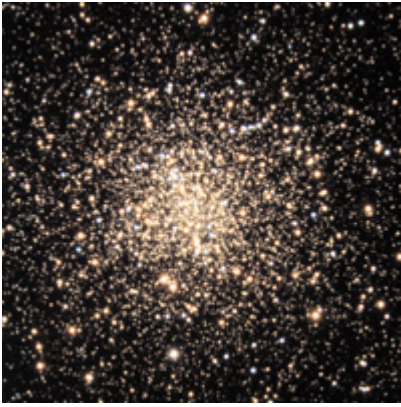


M17: The "Swan Nebula," also called the "Omega Nebula." A vast cloud of gas, mostly hydrogen, with clumps contracting to make new stars. 15 lightyears across, and five to six thousand lightyears away.



M3: This globular cluster has a half-million stars, and orbits the core of our Milky Way almost perpendicular to the disk. It is approaching our Solar System at 100 miles per second.

M4: A globular cluster appearing near Antares, in Scorpius. It is on the small side, as globular clusters go:



only 70-75 lightyears across. It is about 7,200 lightyears away, which makes it possibly the closest globular cluster to our solar system.



M13: The "Great Globular Cluster in Hercules" was discovered by Edmund "Comet" Halley in 1714. It is 22,000 lightyears away, and light would need over a century to traverse its diameter.



M51: The Whirlpool Galaxy. This galaxy gets its name from its bright and prominent spiral arms. It lies at a distance of 23 million ly. It also has a smaller, companion galaxy (NGC 5195). The two galaxies are in the process of a massive collision in space.



Jupiter is the largest planet in the Solar System, a “gas giant” 11 Earth-diameters across. Its atmosphere contains the Great Red Spot, a long-lived storm 2-3 times the size of the Earth. The 4 large Galilean satellites and at least 63 smaller moons orbit Jupiter.



Saturn, the second-largest planet in the Solar System, is known for its showy but thin rings made of ice chunks as small as dust and as large as buildings. Its largest moon, Titan, has an atmosphere and hydrocarbon lakes; at least 61 smaller moons orbit Saturn.



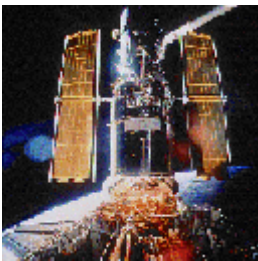
M57: The Ring Nebula. This remnant of a dead star looks exactly as it's name says - a ring or doughnut shape cloud of gas. The nebula is about 2.6 lightyears across and lies about 2,300 lightyears away.



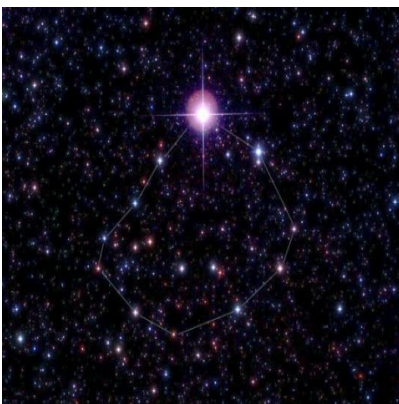
Milky Way: That clumpy band of light is evidence that we live in a disk-shaped galaxy. Its pale glow is light from about 200 billion suns!



Quick streaks of light in the sky called **meteors**, shooting stars, or falling stars are not stars at all: they are small bits of rock or iron that heat up, glow, and vaporize upon entering the Earth's atmosphere. When the Earth encounters a clump of many of these particles, we see a **meteor shower** lasting hours or days.



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.

Alexandria Bauccho 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](#).

Copyright © 2015 Kitt Peak Visitor Center