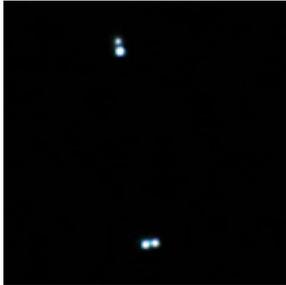


Kitt Peak Nightly Observing Program

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.



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.



M104: A spiral galaxy like the Milky Way, nicknamed the "Sombrero Galaxy" because the lane of dust in the disk looks like the brim of such a hat. It is about 50,000 lightyears across and about 29 million lightyears away.



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.

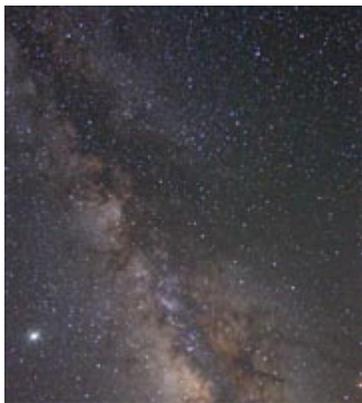


Saturn, the second-largest planet in the Solar System, is known for its showy but thin rings made of ice chunks as small as dust and as large as buildings. Its largest moon, Titan, has an atmosphere and hydrocarbon lakes; at least 61 smaller moons orbit Saturn.



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.

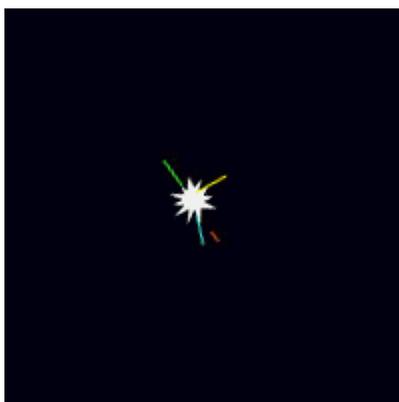
Milky Way: That clumpy band of light is evidence that we live in a disk-shaped galaxy. Its pale glow is light



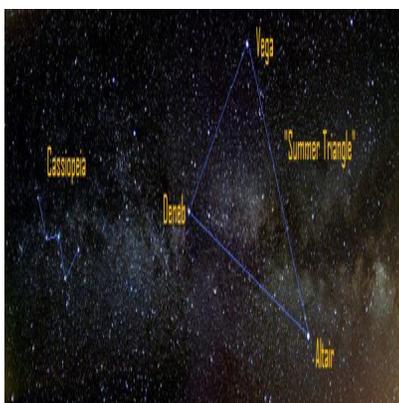
from about 200 billion suns!



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.



Scintillation: The twinkling of star light is a beautiful effect of the Earth's atmosphere. As light passes through our atmosphere, its path is deviated (refracted) multiple times before reaching the ground. Stars that are near to the horizon will scintillate much more than stars high overhead since you are looking through more air (often the refracted light will display individual colors). In space stars would not twinkle at all- and this is the way astronomers would like it if they could control the effects of this troubling twinkle.



The Summer Triangle is an astronomical asterism involving an imaginary triangle drawn on the northern hemisphere's celestial sphere, with its defining vertices at Altair, Deneb, and Vega, the brightest stars in the three constellations of Aquila, Cygnus, and Lyra, respectively.

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](#).

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