

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 AOP” Gallery](#) and more information.



Castor (α Geminorum) is a multiple star in the constellation Gemini, the twins. Through the telescope, a close pair of bright white stars and a more distant red dwarf companion are visible, but these are each spectroscopic binaries, making Castor a six-star system. Castor is about 50 light-years away.



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 Star Cluster. 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 380 lightyears away and is around 100 million years old.



NGC 2158: Distant open star cluster, 16,000 ly away. It looks small and dim, but if placed at the same distance as M35, it would be as big and bright as the closer cluster!



M42: The Great Orion Nebula. This is a region of star formation about 1,500 ly away. It is 30 ly across and contains enough material to make 10,000 stars the size of our sun.



M79: Though dim, this is just about the only globular cluster easily seen in the Winter evening sky. It lies 41,000 light years away and orbits our galaxy further out than our sun does- unusual since most globular clusters are congregated towards the center of the galaxy.



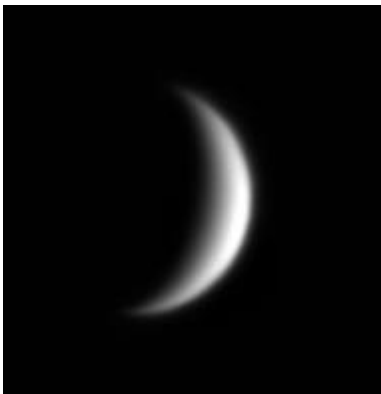
M31: The Andromeda Galaxy, our nearest major galactic neighbor. It is a spiral galaxy, lies 2,200,000 lightyears away and has a diameter of 180,000 lightyears. This galaxy contains as much material as 300 billion suns.



M81: A small spiral galaxy, seven million lightyears away. It is a disk of 50 billion suns or so, only a stone's throw (100,000 lightyears) from M82.



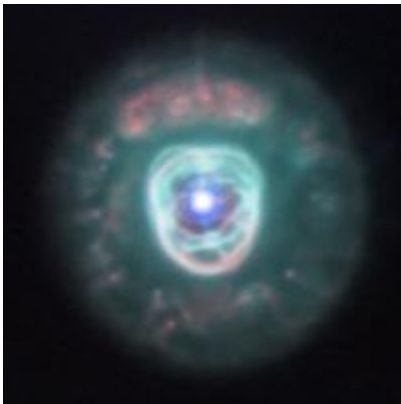
M82: This lumpy streak of an irregular galaxy is seven million lightyears away, and perhaps 30,000 lightyears across. There are vast gas clouds here, where suns are being born at an incredible rate.



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.



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 larger than Earth. The 4 large Galilean satellites and at least 59 smaller moons orbit Jupiter.



NGC 2392: The "Eskimo Nebula." A round cloud of gas ejected by a dying star. Since this sort of object always appears round, William Hershel named them "planetary nebulae" (he discovered this one in 1787).



Milky Way: That clumpy band of light is evidence that we live in a disk-shaped galaxy. Its pale glow is light from billions of 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 10,000 of these in Low Earth Orbit (we can't see the higher ones). We see these little "moving stars" because they reflect sunlight.

Roy Lorenz

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 <http://www.noao.edu/outreach/nop>. Most of the above images were taken as part of the all-night observing program. For more information on this unique experience please visit <http://www.noao.edu/outreach/aop>.
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