

Kitt Peak Nightly Observing Program

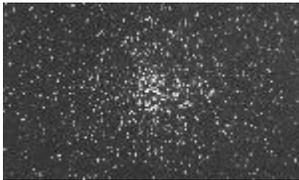
Splendors of the Universe on YOUR Night!

Many pictures are links to larger versions.

Click here for the [“Best images of the AOP” Gallery](#) and more information.



Almach (γ Andromedae) appears as a golden and blue double star in small telescopes. The blue star itself is actually three stars, too close together to see as individuals, making Almach a four-star system. It is about 350 light-years away.



M37: The second of three bright open star clusters in the constellation of Auriga. It is the brightest and richest of the three. It lies about 4,400 ly away, contains about 150 stars with a diameter of about 25 ly, and is an old cluster at 300 million years old.



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.



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.



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.



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.



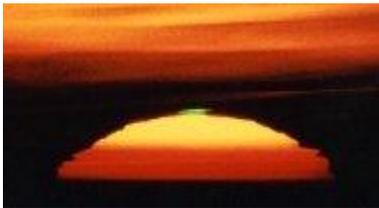
Mars, the red planet, has a thin carbon dioxide atmosphere, clouds, dust storms, and polar caps made of dry ice. Images of dry riverbeds from orbiting spacecraft show us that liquid water once flowed on the Martian surface.



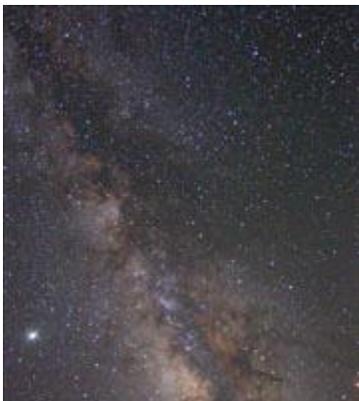
Jupiter is the largest planet in the Solar System, a “gas giant” 11 Earth-diameters across. Its atmosphere contains the Great Red Spot, a long-lived storm larger than Earth. The 4 large Galilean satellites and at least 59 smaller moons orbit Jupiter.



M1: The explosion that created this nebula was seen by Chinese astronomers in 1054 A.D. This explosion was bright enough to be seen in the daytime for almost a month. The nebula is 10 lightyears in diameter and is expanding at the rate of 1,800 km per second.



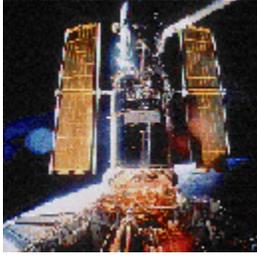
The Green Flash: A smidge of green on the top of the sun as it sets (or rises). This rare event needs just the right atmospheric conditions.



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.

Carmen Austin

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

Kevin Bays

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

Jeronimo Cruz

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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