

Sky views October 2007 – revised 10/8/07  
(excerpted from Astronomy magazine, 10/2007 issue)  
by Barbara Wiese

Monthly Overview - Views by Date – Definitions

Overview	Viewing	Notes
Jupiter in Ophiuchus	<p>Jupiter lies lower and lower in the SW. Best viewing is at twilight. By 10/30 sets before 8pm CDT and fades to magnitude -1.9. Jupiter courses through constellation Ophiuchus throughout October and lies 7° NE of Antares, the red super-giant star in Scorpius.</p>	<p>Soon after October will not be seen in the evening sky.</p> <p>Jupiter's moons can easily be seen with small scopes.</p>
Neptune in Capricornus	<p>View Neptune by perusing the southern edge of Capricornus:</p> <p>Looking due South, trace your way over the bottom of the Capricornus triangle, going NE from Algedi up to star Theta at the halfway point. Then SE down to the 3 brightest stars Iota, Nashira, with Deneb Algiedi at the endpoint. Locate Neptune's pale turquoise dot slightly SW of the halfway point between Iota and Nashira, a little less than 2° NE of Iota.</p> <p>Because Neptune is reaching the western end of its retrograde* loop, it hardly moves relative to its background stars this month. It is stationary in right ascension* 10/31 and sets after midnight.</p>	<p>Viewable w/7x35 binoculars, magnitude 8, pale turquoise.</p> <p>Since its discovery by Johann Galle 9/23/1846 Neptune has been marching across the sky, yet to complete a full orbit.</p>
Mercury	Planet Mercury lies far south of the ecliptic*.	
Mars crosses Gemini	<p>Mars rises around midnight and appears at its highest in southern sky at dawn.</p> <p>9/25/07 Mars brightened to magnitude 0.0 lying 15° due north of Betelgeuse in Orion (another red star).</p> <p>Mars crossed into Gemini at the end of September and 10/3 skims past open cluster M35 in Gemini.</p> <p>Mars' eastward motion slows daily as Earth closes in and prepares to overtake it.</p>	<p>Mars is a fine telescopic object from now → 2/2008. Most telescopes begin to show surface features.</p> <p>This coming winter's observing season of Mars will be the best view until 2016! It will be brief and peak in late December when Mars reaches its greatest</p>

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	<p>Mars swings back to Taurus in late January, 2008 as it concludes its retrograde* path</p>	<p>apparent size and will glow at its brightest.</p> <p>Mars now lies as close to the Earth as to the Sun. But by December's opposition*, it will halve this distance.</p>
Milky Way	<p>View Milky Way's hazy starlight due south, rising nearly vertically to the west of Jupiter, into the Cygnus constellation.</p> <p>Its biggest splash is the Sagittarius Star Cloud around the hub of our galaxy, lying between Scorpius' "stinger stars" and Sagittarius' Teapot asterism.</p> <p>Locate the large Sagittarius Star Cloud 10° N-NE of M7 (center of the Milky Way)</p> <p>SW of the Sagittarius Star Cloud, locate star cluster M7 (NGC 6475) surrounded by a star cloud.</p>	<p>Large Sagittarius Star Cloud marks the center of the Milky Way, some 30,000 light years away. Shines with a pale golden sheen.</p> <p>By month end, Scorpius will slip below the horizon.</p>
Double Stars in Capricornus	<p>Western corner of Capricornus triangle, view 2 sets of visible double stars Algedi and Dabih.</p> <p>Algedi comprises two 4th magnitude stars.</p> <p>Dabih, just south of Algedi, lies in the same binocular field. Dabih Major shines as magnitude 3. Dabih Minor shines at magnitude 6. Dabih system includes at least 3 other stars not visible with binoculars</p>	Viewable w/8x21 binoculars.
Uranus in Aquarius	<p>View Uranus (SE of Neptune – see above) in the SE corner of Aquarius, 2/3 of the way E to endpoint star Phi, from star Lambda magnitude 4.</p> <p>Uranus reached opposition* in September and remains well placed for observing.</p>	<p>Viewable w/7x35 binoculars, Uranus is magnitude 6, greenish.</p> <p>Uranus attains exact alignment 12/16/07 at its equinox. Then, its equator bisects Uranus' visible disk.</p>
NGC 7009 - Saturn	Locate NGC 7009, the Saturn Nebula, in NW part of Aquarius. First locate the NW	Saturn Nebula has a telescopic likeness to

<b>Overview</b>	<b>Viewing</b>	<b>Notes</b>
Nebula	endpoint star of Aquarius with 3 more stars forming an upside down kite (SE of Capricornus star Algedi). NGC 7009 lies NE of the kite.	planet Saturn and looks like a faint, pale greenish star smaller but similar to Uranus with binoculars.
Saturn Venus Regulus	View early pre-dawn.  Venus is now moving away from Earth and spans just 23" by month end.  Venus lies < 3° SW of Regulus, Leo's brightest star.  Saturn lies 6° E. of Venus. Saturn's rings now angle only 8° to our line of sight. The rings will be edge-on to us in 2009. Their long axis spans 39", while the rings' short axis spans just 5". Look on the rings' western side for Saturn's shadow.	Venus is bright, shining at magnitude -4.7. A telescope reveals a 38% lit disk at the beginning of Oct.  Venus' sunlit portion rises to 50% when it reaches greatest elongation* (46.5°) 10/28.  Saturn shines at magnitude 0.8.

### Views By Date

<b>Date(s)</b>	<b>Viewing</b>	<b>Notes</b>
10/1	Jupiter hovers 20° above the horizon 1 hour after sunset, about 7° from Antares, a red super-giant star. Rises lower throughout the month. Best view is at twilight.	By 10/31, Jupiter hovers at 12°, fades to -1.9 magnitude, and soon will not be seen in the evening sky.
10/2	3pm CDT Moon passes 5° N of Mars.	
10/3	Asteroid Hygiea is at opposition*.  Mars stands within a degree (< 2 Moon diameters) of Gemini's open Cluster M35.	View Mars and M35 with binoculars.
10/6	10pm CDT Moon passes 3° N of Venus.	
10/7	Early morning after 3:30am CDT, in the East view the moon, Saturn, Venus, Regulus, and Mars all within a 6° circle.	Spectacular morning view.

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	2am CDT Moon passes .2° N of Regulus.	
10/8	Asteroid Victoria is at opposition*.	
10/9	Draconid meteor shower peaks.  6am CDT Venus passes 3° S of Regulus.	
10/12	8pm CDT Moon passes 1.3° S of Mercury.  Asteroid Egeria is at opposition*.	Planet Mercury lies far south of the ecliptic*.
10/13	4:51am CDT Moon is at apogee*	
10/15	9am CDT Venus passes 3° south of Saturn	
10/16	1am CDT Moon passes 5° S of Jupiter	
10/20	10pm CDT Moon passes 1.3° S of Neptune	
10/21	Orionid meteor showers peak	
10/23	7pm CDT Mercury slips between Earth and the Sun (inferior conjunction*).	Mercury makes a brief and poor appearance for Northern Hemisphere observers.
10/26	6:51am CDT Moon is at perigee*	
10/28	10am CDT Venus is at greatest western elongation* (46°) and its sunlit portion rises to 50%.	
10/30	2pm CDT Moon passes 3° N of Mars	
10/31	Jupiter is only 12° high 1 hour after sunset and sets before 8pm CDT.  Mars' disk increases to 12", revealing its distinctly gibbous* phase. Mars now lies nearly 20° away from red star Betelgeuse in Orion.  Neptune is stationary in right ascension* and sets after midnight.	Jupiter fades to -1.9 magnitude  Soon, Jupiter will not be seen in the evening sky.  Mars reaches -0.6 magnitude and is a fine telescopic object from now, until 2/2008.

**\*Astronomical Definitions**

<b>Term</b>	<b>Definition</b>	<b>Related Term(s)</b>
apogee	For objects orbiting Earth (geocentric orbit), point in orbit most distant from the center of the Earth.  Moon at apogee is ~252,700 mi. from Earth.  The term apoapsis is used for other bodies.	vs. apoapsis, perigee
aphelion	For an object orbiting the sun (heliocentric orbit), point in its orbit farthest from the sun.  At aphelion, the object is orbiting the sun at minimum speed.	vs. perihelion
apoapsis	Point in an orbit when two objects are farthest apart. Used to describe orbits around bodies other than Earth. For Earth, the term apogee is used.	vs. apogee
appulse	Refers to the very near approach of one celestial object to another, as seen from a third body. Usually it refers to the close approach of two planets together in the sky, or of the Moon to a star or planet as the Moon follows its monthly orbit around Earth, as seen by an observer located on Earth. An "appulse" can also be referred to as a conjunction  Where the celestial bodies come so close together that one actually passes over the other, the event is known as an occultation.	vs. conjunction, occultation
conjunction	Two celestial bodies appear near one another in the sky. The event is also sometimes known as an appulse.  Inferior conjunction: Inferior planets—those with orbits smaller than the Earth's (namely, Venus and Mercury)—have two kinds of conjunctions with the Sun. An inferior conjunction occurs when the planet passes approximately between Earth and Sun;  10/23/07 Mercury slips between the Earth and the Sun (inferior conjunction)	vs. appulse, opposition
culminates	To reach the highest or lowest point above an observer's horizon. An object culminates when it reaches greatest and least altitude (upper culmination and lower culmination, respectively)	
declination	A method of establishing a celestial object's location	vs. right ascension

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	<p>by using the angular distance north or south of the celestial equator. A coordinate which, along with right ascension, may be used to locate any position in the sky.</p> <p>Analogous to latitude for locating positions on the Earth. it is measured from -90o at the south celestial pole to +90o at the north celestial pole.</p>	
ecliptic	<p>Path of the sun.</p> <p>In October, planet Mercury lies far south of the ecliptic.</p>	
greatest elongation	<p>Position of an inner planet (Mercury or Venus) when it lies farthest from the Sun. Mercury and Venus are particularly easy to see when they are at greatest elongation.</p> <p>Mercury and Venus peak as "evening stars" at their greatest eastern elongations, and as "morning stars" during their greatest western elongation.</p> <p>For Venus, its greatest elongation (the angle made between the sun, the earth, and Venus) is 47°. So it can never be seen much later than 3 hours after sunset or 3 hours before sunrise.</p>	
gibbous (moon)	<p>When &gt; 50% &lt;= 100% of the illuminated surface of a planet or satellite can be seen from a point at a distance from that body. The term is most often used to describe Earth's moon phases.</p>	
inferior conjunction	<p>Inferior planets—those with orbits smaller than the Earth's; namely, Venus and Mercury—have two kinds of conjunctions with the Sun. An inferior conjunction occurs when the planet passes approximately between Earth and Sun</p> <p>10/23/07 Mercury slips between the Earth and the Sun (inferior conjunction)</p>	
inferior planet	<p>Planet with orbit smaller than the Earth's; namely, Venus and Mercury</p>	
occultation	<p>The blockage of light by the intervention of another object; a planet can occult (block) the light from a distant star.</p> <p>Where the celestial bodies come so close together</p>	vs. appulse, conjunction

Term	Definition	Related Term(s)
	that one actually passes over the other, the event is known as an occultation.	
opposition	<p>When a superior planet or object is directly on the opposite side of the Earth from the Sun.</p> <p>This is generally the closest it comes to the Earth and the time at which it is most easily visible.</p> <p>(e.g. when Mars, Earth and the Sun are located along a straight line, Mars is in opposition as seen from Earth)</p>	
perigee	<p>Point in its orbit where an Earth satellite is closest to the Earth.</p> <p>Moon at perigee is ~ 221,676 mi. from Earth.</p>	vs. apogee
perihelion	<p>For an object orbiting the sun, point in its orbit closest to the sun.</p> <p>At perihelion, the object is orbiting the sun at maximum speed.</p> <p>Earth reaches perihelion in January.</p>	vs. aphelion
prograde	Planets in the solar system (except Venus) rotate in a counterclockwise direction when viewed from above their north poles; this direction is called direct, or prograde.	vs. retrograde
retrograde	<p>Actual or apparent motion of a body in a direction opposite to that of the (direct / prograde) motions of most members of the solar system or of other astronomical systems with a preferred direction of motion.</p> <p>Venus, however, rotates in the opposite, or retrograde, direction. Were it not for the planet's clouds, an observer on Venus's surface would see the Sun rise in the west and set in the east.</p>	vs. prograde
right ascension	<p>Coordinate for measuring east-west position for an object in the sky. A coordinate which, along with declination, may be used to locate any position in the sky.</p> <p>Analogous to longitude for locating positions on the Earth.</p> <p>The amount of time that passes between the rising of</p>	vs. declination

<b>Term</b>	<b>Definition</b>	<b>Related Term(s)</b>
	<p>Aries and another celestial object. Right ascension is one unit of measure for locating an object in the sky.</p> <p>Measured in Hours, Minutes, and Seconds, it is the arc between the zero point of right ascension (the first point in Aries, just as the zero point for longitude on the Earth is the prime meridian) and the object.</p> <p>(e.g. Hydra, largest and longest of all the constellations, spans some 7 hours in right ascension.)</p>	