



ASTRONOMY TERMS

Albedo

A measure of the reflectivity of an object and is expressed as the ratio of the amount of light reflected by an object to that of the amount of light incident upon it. A value of 1 represents a perfectly reflecting (white) surface, whilst a value of zero represents a perfectly absorbing (black) surface. Some typical albedos are: The Earth - 0.39; The Moon - 0.07; Venus - 0.59.

Aphelion

The point in an orbit around the Sun at which an object is at its greatest distance from the Sun (Opposite of perihelion).

Apogee

Similar to aphelion The point in an orbit when a body orbiting the Earth, (eg Moon or artificial satellite.) is farthest from the Earth (opposite of perigee).

Astronomical Unit (A.U.)

This is the mean distance from the Earth to the Sun, i.e. 149,597,870 km. (approx 93 million miles);

Aurora

A glow in the Earth's ionosphere caused by the interaction between the Earth's magnetic field and charged particles from the Sun (The Solar Wind). It gives rise to the "Northern Lights", or Aurora Borealis, in the Northern Hemisphere, and the Aurora Australis in the Southern Hemisphere.

Cepheid Variable

A particular class of variable stars which are used to estimate stellar distances because of the correlation between their periodicity and distance.

Chromosphere

The layer between the photosphere and the corona in the atmosphere of the Sun, or any other star, mainly composed of excited hydrogen atoms.

Conjunction

When two bodies appear to close together in the sky, i.e. they have the same Right Ascension. Mercury & Venus are said to be at Superior Conjunction when they are behind the Sun, and at Inferior Conjunction when they are in front of it. The outer planets are simply said to be at conjunction when they pass behind the Sun

Eccentricity

The eccentricity of an ellipse (orbit) is the ratio of the distance between its foci and the major axis. The greater the eccentricity, the more 'flattened' is the ellipse.

Eclipse

A chance alignment between the Sun, or any other celestial object, and two other celestial objects in which one body blocks the light of the Sun, or other body, from the other. In effect, the outer object moves through the shadow of the inner object.

Ecliptic

The apparent path the Sun (and, approximately that of the planets) as seen against the stars. Since the plane of the Earth's equator is inclined at 23.5 degrees to that of its orbit, the ecliptic is inclined to the celestial equator by the same angle. The ecliptic intersects the celestial equator at the two equinoxes.

Equinox

This is the time when the Sun crosses the celestial equator. There are two equinoxes; Vernal (Spring), around March 21st and Autumnal (Autumn) around September 23rd. On these dates, day and night are equal. Actual dates and times vary due to the Earth's precession.

Galilean Moons

Jupiter's four largest moons: Io, Europa, Ganymede and Callisto. First discovered by Galileo

Magnetosphere

The region of space in which a planet's magnetic field dominates that of the solar wind

Occultation

This is when one celestial body, passes in front of, and obscures, another.

Parallax

The angular difference in apparent direction of an object seen from two different viewpoints.

Parsec

A unit for expressing large distances. It is the distance at which a star would have a parallax of one arc second with a baseline of 1AU (the mean Sun-Earth distance). A Parsec is equal to 3.2616 light years, 206,265 astronomical units (AU) or 30.857×10^{12} km.

Penumbra

Means, literally, "dim light". It most often refers to the outer shadow cast during eclipses, and defines the region of shadow which gives rise to a partial eclipse. It is also the lighter area surrounding the central region of a sunspot.

Perigee

The point in its orbit where the Moon, or planet is closest to the Earth.

Perihelion

The point in its orbit when an object is closest to the Sun.

Photosphere

The visible surface of the Sun;

Precession

Circular motion about the axis of rotation of a body; fixed with respect to the stars. The Earth is a giant gyroscope whose axis passes through the North and South Poles and this axis precesses with a period of 27,700 years.

Prominence

A cloud, or plume, of hot, luminous gas in the Sun's corona. It appears bright when seen against the cool blackness of space. When they are in silhouette against the disc they are known as filaments. They are mainly composed of hydrogen, helium and calcium.

Pulsar

A rapidly rotating Neutron star which emits strong electromagnetic radiation in two tightly focused beams in the form radio waves, X-Rays and Gamma Rays.

Quasars

Compact, extra galactic, objects at extreme distances, which are highly luminous. They are thought to be active galactic nuclei. The name is an acronym for quasi-stellar radio source. A quasar is very similar to a QSO (quasi-stellar object) but gives out radio waves also.

Red Giant

A spectral type K or M star nearing the end of its life having a low surface temperature and large diameter eg Betelgeuse in Orion.

Red Shift

The lengthening of the wavelength of electromagnetic radiation caused by relative motion between source and observer. Spectral lines are red-shifted from distant galaxies, indicating that the galaxies are moving away from us due to the expansion of the Universe.

Resolution

The amount of small detail visible in an image (usually telescopic); low resolution shows only large features, high resolution shows many small details.

Retrograde

Rotation of a planet, or orbit, opposite to that normally seen.

Sidereal Time

Star time; the hour angle of the vernal equinox. Time measured with respect to the fixed stars rather than the Sun or body orbiter.

Sidereal Month

The 27.32166 day period of the Moon's orbit.

Solar Flare

A sudden, short lived, burst of energy on the Sun's surface, lasting from minutes to hours.

Solar Wind

A stream of charged particles emitted from the Sun which travel into space along lines of magnetic flux.

Solstice

This is the time when the Sun reaches its most northerly or southerly point (around June 21st & December 22nd, respectively.). It marks the beginning of Summer and Winter in the Northern Hemisphere, and the opposite in the Southern Hemisphere.

Sunspot

A cooler region of the Sun's photosphere (which, thus, appears dark) seen as a spot, on the Sun's disc. They are caused by concentrations of magnetic flux, typically occurring in groups or clusters. The number of sunspots varies according to the Sun's 11 year cycle. More sunspots are seen at the Maxima of solar cycles, with few being observed during the Minima between.

Umbra

From the Latin for shade, it is the shadow area defining a total eclipse, or the dark central region of a sunspot.

Variable Star

Any star whose brightness or magnitude varies with time. The variations can be intrinsic because of internal processes or extrinsic, due to eclipses, dust and other phenomena. Variations can also be irregular or periodic.

White Dwarf

A whitish star, of up to 1.4 Solar masses, and about the size of the Earth with consequential very high density, characterized by a high surface temperature and low brightness.

Worm Hole

A hypothetical shortcut through the space time continuum.

Zenith

The point on the celestial sphere directly above an observer, or the highest point in the sky reached by a celestial body

Zodiac

The apparent path, in the sky, followed by the sun, moon and most planets, lying within 10 degrees of the celestial equator. Ancient Astrologers (nothing to do with modern astronomy!) divided it into 12 groups, the *Signs of the Zodiac*, though there are actually 13 astronomical constellations which lie on the zodiac, since the Sun passes through Ophiuchus each December. Ophiuchus is not recognized by astrologers.