

The Venus Cycle – Astronomy

Venus takes nearly 225 days to orbit the Sun (its sidereal period). However, as seen from the Earth, its synodic period (from conjunction back to the same conjunction with the Sun) takes nearly 284 days (about 19 months). Venus forms two kinds of conjunction with the Sun – inferior and superior. The inferior conjunction occurs when Venus is between the Earth and the Sun. Venus is always retrograde at inferior conjunction. The superior conjunction occurs when Venus is conjunct the Sun, but on the far side of the Sun. Venus is never retrograde at superior conjunction.

As seen from the Earth, Venus (like the other planets) travels from west to east in the order of the Zodiac signs in its orbit around the Sun. It goes retrograde as it begins to approach inferior conjunction and travels against the order of the Zodiac signs from east to west. Venus appears as a morning star, rising in the east before the Sun, soon before it turns direct. Venus then reaches its maximum distance from the Sun as a morning star at greatest elongation west when it is never more than 47° west of the Sun. Still as a morning star it continues its journey behind the Sun until it eventually disappears and forms a superior conjunction with the Sun. Sometime after the superior conjunction, Venus begins to appear as an evening star when it can be seen setting in the west soon after the Sun has set. It reaches its greatest distance as an evening star at greatest elongation east and it can never be more than 47° east of the Sun at this stage of its cycle. Venus now continues on its journey as an evening star until it starts to come between the Earth and the Sun. It turns retrograde before it disappears as an evening star and then arrives again at inferior conjunction when a new cycle begins.

The last complete Venus cycle started on 31 October 2002 when Venus was at inferior conjunction with the Sun at 8° Scorpio. It reached greatest elongation west as a morning star on 11 January 2003. It was at superior conjunction with the Sun on 18 August 2003 at 25° Leo and was at greatest elongation east on 29 March 2004. On 17 May 2004, it went retrograde at 26° Gemini. On 8 June 2004, it formed an inferior conjunction with the Sun at 18° Gemini, going direct again on 29 June 2004 at 9° Gemini. During this inferior conjunction on 8 June, Venus transited across the face of the Sun. This is a rare event occurring every 122 years, but occurs twice in 8 years. On 6 June 2012, Venus will again transit the face of the Sun. Then there will be a gap of 122 years before a similar transit occurs. Usually Venus is above or below the Sun at inferior and superior conjunction.

Venus has phases much like the Moon when seen through a refracting telescope. At inferior conjunction, when it is retrograde, it usually appears as a thin crescent above or below the Sun and is in its 'new' phase. At greatest elongation west, when Venus peaks as a morning star, it appears to be similar to a gibbous Moon in shape and is at its 'first quarter' phase. At superior conjunction, Venus is in its 'full' phase and appears to be full, much like a full Moon. At greatest elongation east, when Venus peaks as an evening star, it again looks like a gibbous Moon, but is actually in its 'last quarter' phase. The length of time Venus is in a phase (or is invisible) varies but the overall synodic cycle takes nearly 284 days.

References

Retrograde Planets by Erin Sullivan, Samuel Weiser Inc. 2000.
Astronomy Now magazine, Venus in Transit, June 2004, published in UK.