Sunrise / Sunset Definitions

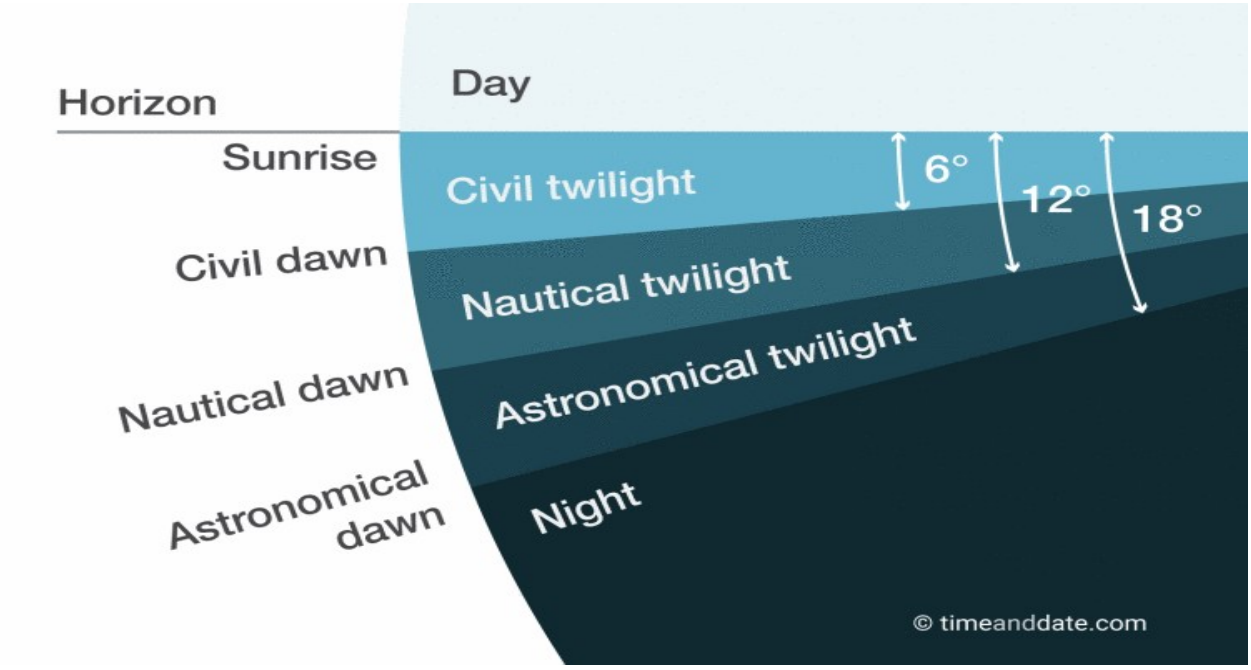
Monday, August 27, 2018

Solstice / Equinox	Date	Sunrise PDT	Sunset PDT	Civil twilight	Astro twilight	Rate min/deg	Golden Hour (before and after sunrise, reverse for sunset)	Blue Hour (before Golden Hour at sunrise or after Golden Hour at sunset)
Spring	Mar 20	6:58 am	7:08 pm	25m	1h 26m	5.0 min/°	-15m to +35m	-10m
Summer	June 21	5:36 am	8:19 pm	30m	1h 40m	5.8	-19m to +39m	-12m
Fall	Sept 22	6:43 am	6:52 pm	26m	1h 27m	5.1	-15m to +35m	-10m
Winter	Dec 21	7:05 am PST	4:43 pm PST	28m	1h 33m	5.4	-18m to +40m	-11m

Cliff Camp 36° 58'N 118° 59'W

Astronomical Dawn occurs about 1 ½ hours before sunrise and after sunset.
Civil Dawn occurs about ½ hour before sunrise and after sunset.
The darkest 10 minutes of Civil twilight often exemplifies Blue Hour.
The lightest 20 minutes of Civil twilight and ½ hour of direct sunlight is known as the Golden Hour.
Sunset follows the same schedule as sunrise in reverse.

Sunrise	First rays of light from Sun . The upper limb of Sun is at the geometric horizon. Atmospheric refraction causes this to occur 50 arcminutes (0.83°) before the geometric center of the Sun would rise above the geometric horizon. Refraction is ~34 arcminutes (0.57°) and the radius of the sun's disk is ~16 arcminutes (0.27°)
Civil Dawn	Geometric center of Sun's disk is 6° below the horizon (5.17° before sunrise)
Nautical Dawn	Geometric center of Sun's disk is 12° below the horizon (11.17°)
Astronomical Dawn	Geometric center of Sun's disk is 18° below the horizon (17.17°)
Golden Hour	The period of diffuse, soft, warm sunlight in early morning or late evening. It is usually the period between when the Sun's center is 6° below the horizon (Civil Dawn) to 6° above the horizon. The same is true for sunset.
Blue Hour	The darker stages of morning and evening twilight, when the sky is deep blue. This period of indirect sunlight occurs while the Sun is so far below the horizon that only the scattered blue wavelengths predominate. It usually occurs while the sun is between 4° and 8° below the horizon.
Zodiacal Light or False Dawn	Hazy light extending in the skies from the horizon in the shape of a triangle or a pyramid. It occurs when sunlight reflects off tiny particles (cosmic dust) from Jupiter family comets. Zodiacal light is mostly observed in the zone around the ecliptic plane and is most likely during these periods in the northern hemisphere: •After sunset during spring in the western sky •Before sunrise during the fall in the eastern sky.


Horizon
Sunrise
Civil dawn
Nautical dawn
Astronomical dawn
Day
Civil twilight
Nautical twilight
Astronomical twilight
Night
6°
12°
18°
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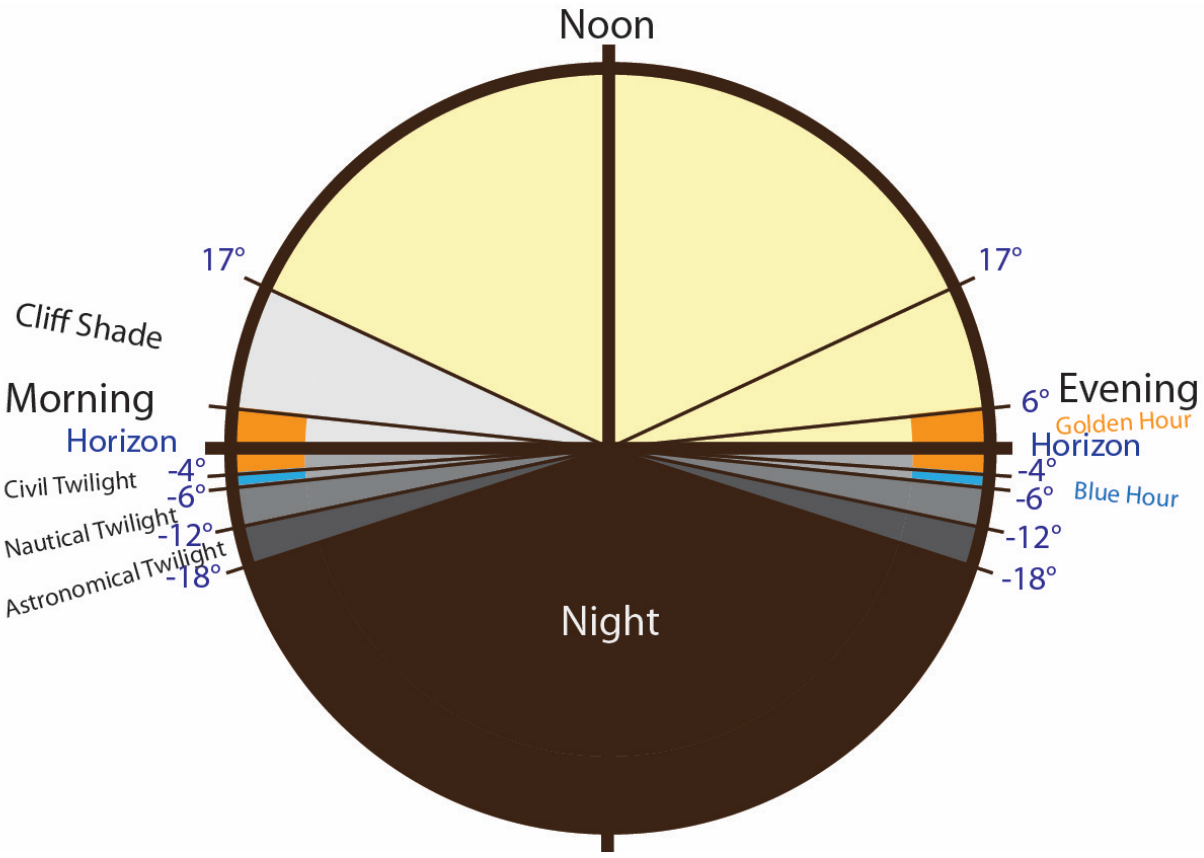
Noon
17°
17°
Cliff Shade
Morning
Horizon
Civil Twilight
Nautical Twilight
Astronomical Twilight
-4°
-6°
-12°
-18°
6°
Evening
Golden Hour
Horizon
-4°
-6°
Blue Hour
-12°
-18°
Night