Yearly Solar Events 2027
By Judith Frey

January

On January 2, at 7:33 PM, the earth reaches its closest point to the sun for the year (perihelion), 91.4 million miles. Our orbit around the sun is slightly elliptical due to the movement of the moon and other planets. The word perihelion is from the ancient Greek, meaning “close to the sun.” The earth is farthest from the sun in July (aphelion). See Notes (below).

The latest sunrise of the year occurs on January 5 at 7:26 AM. The days have been lengthening almost imperceptibly since the solstice on December 21, but from now on the daylight is increasing in the morning as well as the evening.

March

The spring (vernal) equinox is March 20 at 2:24 PM.

The sun is directly over the equator at noon, and it rises due east and sets due west. The length of the day has been increasing more and more rapidly since the winter solstice, to a rate of change of about 5 minutes per day.

June

The earliest sunrise of the year is on June 14, at 5:40 AM.

June 21 is the summer solstice, the longest day of the year. At about 10:10 AM, the north pole is tilted the closest to the sun. The sun’s angle relative to earth’s equator changes so gradually around the solstices that the difference is almost imperceptible for about ten days. This means that the sun rises and sets, respectively, in the same places on the horizon during that period. The word solstice is derived from the Latin *solstitium*, a combination of *sol*, “the sun,” and *sistere*, “to make stand, stand still.” The length of the day now is slightly more than 14 hours, 55 minutes.

June 27 is the day of the latest sunset of the year, at 8:37 PM. After this, the long summer twilight begins to shorten very gradually.

July

On July 4, the earth reaches its aphelion, the farthest point from the sun, at 11:06 PM. At that time, the sun and earth are separated by some 94.5 million miles--while the average distance is around 93 million miles.

September

The fall (autumnal) equinox is September 23 at 12:02 AM; now the days and nights are nearly equal in length. The rate of change is very rapid now; the days are getting shorter faster and the light is dimming noticeably.

December

The year's earliest sunset is on Dec. 7, at 4:44 PM. Every year I raise a glass and offer a toast to the setting sun, for soon there will be more light in the early evening! The winter solstice, the first day of winter, is Dec. 21 at 7:42 PM. At this time, the south pole is tilted closest to the sun. This night is the longest of the year and the day is the shortest, with about 9 hours and 25 minutes of daylight in Colorado.

New Year's Eve, Dec. 31, is an astronomical celebration of sorts—at midnight, the brightest star in the sky, Sirius, reaches its highest point for the entire year!

Notes: The orbit of the earth around the sun varies due to the gravitational influences of other planetary objects, particularly the moon. Approximately every 100,000 years, the earth's orbital path changes from being nearly circular to elliptical.

The length of a solar day is not exactly 24 hours long. It varies throughout the year because of the elliptical shape of earth's orbit and its axial tilt. It is longer than 24 hours around the summer and winter solstices and shorter than 24 hours around the spring (vernal) and fall (autumnal) equinoxes.

On most days, solar noon does not occur at the same time as noon on a clock. On December 21, 2026—the day of the Northern Hemisphere winter solstice—solar noon is at 12:05 PM. On January 5, 2027, the day of the latest sunrise, solar noon takes place 7 minutes later, at 12:12 noon. The following day, January 5, solar noon falls at 12:13, and keeps getting later until mid-February, at 12:21. This is why a location's earliest sunset occurs before, and its latest sunrise occurs after, the winter solstice.