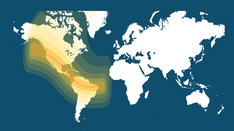
20 Celestial Events 2023–2040

10 Eclipses

Annular Solar Eclipse, October 14, 2023

Path of annularity includes parts of the United States, Mexico, and Central and South America.

31.5 million



Total Solar Eclipse, April 8, 2024

Third of three big solar eclipses across the United States since 2017. Also includes parts of Mexico and Canada.

42.6 million

Total Solar Eclipse, August 12, 2026

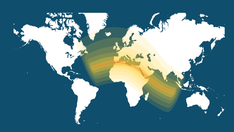
Path of totality crosses Spain, producing the first total solar eclipse in mainland Europe since 1999.

14.5 million

Total Solar Eclipse, August 2, 2027

Produces the second longest solar totality this century: 6 minutes 24 seconds, near Luxor (Egypt).

85.8 million



Total Solar Eclipse, July 22, 2028

Second of five total solar eclipses across Australia between 2023 and 2038. Sydney has just under 4 minutes of totality.

6.2 million

Total Lunar Eclipse, June 25–26, 2029

Second longest lunar totality this century: 1 hour 42 minutes.

3.0 billion

Total Lunar Eclipse, December 20–21, 2029

Biggest lunar totality of the 21st century in terms of population covered (based on population distribution as at 2020).

7.1 billion

Annular Solar Eclipse, June 1, 2030

The Triple Continent Eclipse: cities on path of annularity include Tripoli (Libya), Athens (Greece), and Sapporo (Japan).

74.5 million

Total Solar Eclipse, March 20, 2034

Biggest solar totality between 2012 and 2049 in terms of population covered (based on population distribution as at 2020).

102.3 million

Total Solar Eclipse, September 2, 2035

The East Asian Eclipse: path of totality includes Beijing (China) and Pyongyang (North Korea), and passes just north of Tokyo (Japan).

71.8 million

Planetary Grouping

September 8, 2040

The five naked-eye planets—plus a thin Crescent Moon—form a grouping just 9.3° across soon after sunset.
This diagram of the solar system shows the alignment of the planets on this date.

7 Close Approaches

January 22, 2023	After sunset, 0.34°	Venus, Saturn
August 14, 2024	Before sunrise, 0.31°	Mars, Jupiter
June 24, 2030	Before sunrise, 0.31°	Venus, Saturn
August 13, 2033	Before sunrise, 0.35°	Venus, Saturn
December 1, 2033	After sunset, 0.18°	Mars, Jupiter
July 22, 2037	After sunset, 0.04°	Venus, Saturn
November 2, 2039	Before sunrise, 0.22°	Venus, Jupiter

Transits of Mercury

November 13, 2032

7.2 billion

November 7, 2039

7.0 billion

The biggest two transits of Mercury this century in terms of the population covered (based on population distribution as at 2020).

⚠ Solar filters—eg, eclipse glasses from a reputable vendor—are required for direct viewing of the partial and annular phases of a solar eclipse. Specialist equipment is required for viewing a Mercury transit.

For the eclipse and transit data, 👤 refers to the resident population in the area where at least some part of totality, annularity, or the full transit is visible (using the GPWv4 revision 11 data set from CIESIN, Columbia University, 2020)

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