

# December 2020 Sky Events

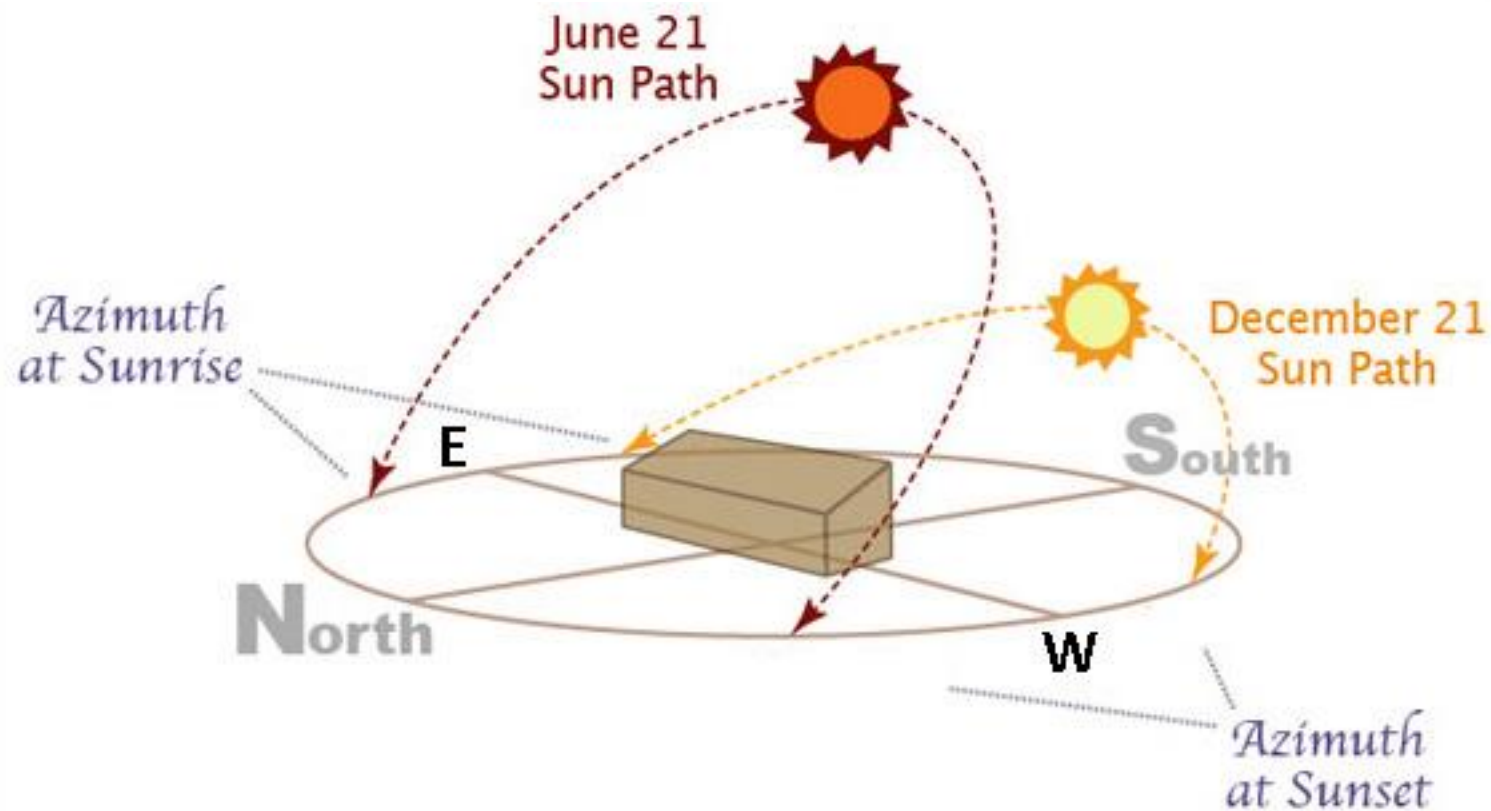
## December 21<sup>st</sup>, 2020 Winter Solstice

- ★ The northern hemisphere's winter solstice occurs on **Monday, December 21<sup>st</sup>, at 5:03 a.m. EST**. This marks the beginning of winter in the northern hemisphere, but it's the start of summer in the southern hemisphere.
- ★ It's the shortest day (and longest night) of the year in the northern hemisphere.
- ★ **The Sun's position on the winter solstice in the Asheville area reaches two extremes in azimuth and altitude (the following values are rounded):**
  1. First, the Sun rises  $30^\circ$  south of east and sets  $30^\circ$  south of west on the winter solstice, compared to  $30^\circ$  north of east and  $30^\circ$  north of west on the summer solstice; that's a  $60^\circ$  azimuth swing over 6 months.
  2. Next, the Sun rises only  $31^\circ$  above the horizon at high solar noon on the winter solstice, compared to  $78^\circ$  above the horizon on the summer solstice; that's a  $47^\circ$  altitude swing over 6 months (Earth's  $23\frac{1}{2}^\circ$  axial tilt times 2).

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- ★ **Translation:** At the winter solstice, the Sun takes not only a shorter path across the sky but also a much lower path across the sky, yielding a much shorter daylight period, with the Sun's radiation at a less intense angle.



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## Reason for the Seasons:

It's both the Earth's  $23\frac{1}{2}^{\circ}$  axial tilt and its orbit about our star that cause the seasons.

