



PISGAH
ASTRONOMICAL
RESEARCH INSTITUTE

Astro Advisory

*Notice of an upcoming
astronomical event.*

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THE AUTUMNAL EQUINOX

Rosman, NC (September 12, 2017) – Astronomers at the Pisgah Astronomical Research Institute point out that at 4:02 p.m. EDT on Friday, September 22 the Sun will cross the celestial equator in the sky heading south. This will be the first moment of autumn.

What is the astronomical significance of this moment? At this moment the Sun in its apparent path around the sky will stand directly over the equator of the Earth. It is one of two times during the year when this happens, the other being on the first day of spring. These are the two days of the year when the Sun is above the horizon for exactly half the day and is below the horizon an equal amount of time. Thus, the length of daylight is equal to that of the night (neglecting twilight) and this day is termed the *equinox* from the Latin for “equal night.”

After the equinox in September, called the *autumnal equinox*, the hours of daylight continue to shorten with the Sun above the horizon for a shorter time each day. This continues until the *winter solstice* in December (this year at 11:28 a.m. EST on December 21). Following the solstice the days get longer until at the *spring* or *vernal equinox* (next at 12:15 p.m. EDT on March 20), the day and night are once again equal in length.

This change of the seasons is not due to the changing distance of the Earth from the Sun as we orbit the Sun. Rather it is due to the tilt of the Earth’s rotational axis. On the autumnal equinox the Earth is passing through the point where it is changing from the northern hemisphere tilting towards the Sun to the time when it tilts away from the Sun. Of course, the opposite is happening in the southern hemisphere; therefore, their seasons are reversed from ours and September 22 is the spring equinox below the equator.

About PARI

PARI is a public not-for-profit public foundation established in 1998. Located in the Pisgah National Forest southwest of Asheville, NC, PARI offers STEM educational programs at all levels, from K-12 through post-graduate research. For more information about PARI and its programs, visit www.pari.edu.

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