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11 - Python

Reading and Writing

Why the 4 seasons occur on Earth

Why does the sun's position change when looked at the same place and time? Should the sun stay at the same place? The sun changes position because of the phenomena called analemma. Analemma is a diagram of the sun's position relative to a fixed location and time throughout the year. This is one of the reasons why Earth has 4 seasons.

One of the factors that affect the sun's position is the elliptical orbit of Earth. Earth's orbit is not a perfect circle like many would believe, but it is oblong or elliptical in shape. Because of its shape, the distance between the Earth and Sun changes. The Earth is closest to the Sun at around January while it is farthest from the Sun around July. Thus, if we were to track the sun's position at the same place and time, the analemma happens.

The Earth's axial tilt also influences the sun's position. The Earth's angle isn't straight up but tilted around 22 to 24 degrees, when the axial tilt is about 23.5 degrees, the northern hemisphere experiences summer and warm weather while the southern hemisphere experiences winter and cold weather. This means that the sun's distance i.e. the analemma phenomenon affects the Earth's seasons.

The seasons of the Earth happen because of the analemma phenomenon. The elliptical orbit and the axial tilt play a role in affecting the sun's position and distance to the Earth. Without the analemma phenomena, the 4 seasons wouldn't happen.

Reference:

Vajpai, V. (2020, December 8). Analemma: The Sun's Journey In The Sky – Young Scientists Journal. Https://Ysjournal.Com/Analemma-the-Suns-Journey-in-the-Sky/. https://ysjournal.com/analemma-the-suns-journey-in-the-sky/