

How does solar radiation affect the Earth's atmosphere?

By understanding the characteristics of solar radiation and its impact on the Earth's atmosphere, we gain a deeper appreciation for the forces that govern our planet's climate and weather systems. The energy emitted by the Sun provides nearly 99.9% of the total energy that heats the Earth's surface.

How does solar energy affect Earth's climate?

When the incoming solar energy is roughly balanced by the energy radiated back into space, the Earth achieves a state of equilibrium, maintaining an approximately constant temperature (Hartmann, 2016). To accurately explain Earth's climate, reliable radiation measurements are essential.

Why is solar radiation important?

Solar radiation is the primary source of energy for Earth's atmosphere, surface, and climate systems. It plays a crucial role in sustaining life by providing the energy required for processes such as photosynthesis, atmospheric circulation, and ocean currents.

How does altitude affect solar energy?

This variation in the Sun's altitude affects the amount of solar energy reaching the Earth's surface. When the Sun is at a lower angle, its rays pass through a greater thickness of the atmosphere, increasing the likelihood of absorption or reflection of solar radiation. The Earth's spherical shape further impacts insolation.

This aerial photo taken on Dec. 23, 2023 shows a solar power plant in Tangshan City, north China's Hebei Province. In recent years, Tangshan City in Hebei Province encouraged the ...

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