

How can solar activity affect Earth climate

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The fundamental energy to drive the geophysical fluid motion is from the solar radiation. The Earth climate and its variation should be related with solar activity. Some data analyses have shown that there is a good correlation between the climate variation (such as the temperature, sea level pressure) and the solar activity, particularly the sunspots. But it is an important problem remains to be solved how can solar activity affect the Earth climate. Based on the previous studies, we will discuss possible influence ways of the solar activity on the Earth climate. The direct impacts through the solar irradiance, the solar UV and the solar proton, will lead to atmospheric circulation and climate anomalies. The indirect impacts through geomagnetic field anomaly caused by the solar activity, which can lead to geomagnetic energy anomaly and the Earth rotation speed, then atmospheric circulation and the Earth climate will be affected.