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The cause of climate changes

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Sunspots, solar irradiance, and solar magnetism vary over time, and correspond with global climate changes on Earth. Quantitative correlations between sun spot numbers (SSN), total solar irradiance (TSI), solar magnetism, cosmic ray incidence, and production of 14□ and 10Be in the atmosphere can now be made. Cosmic rays in the upper atmosphere produce ions that serve as cloud nuclei resulting in increased cloudiness that reflects incoming sunlight and cools the Earth. The amount of cosmic radiation is greatly affected by the sun's magnetic field, so during times of weak solar magnetic field, more cosmic radiation reaches the Earth, creating more cloudiness and cooling of the atmosphere. Clouds account for about 28 Wm−2 of global cooling, so even small changes in cloud cover can have a significant effect on climate. Each of the Grand Solar Minimums of the Little Ice Age (1300-1977 AD) were characterized by low sunspot numbers, low total solar irradiance, decreased solar magnetism, increased cosmic ray intensity, and increased production of radiocarbon and beryllium in the upper atmosphere. When SSNs and TSIs were, low, global temperatures cooled, and production rates of 14C and 10Be were high because of increased cosmic radiation. These data suggest that periodic weakening of the strength of the sun's magnetic field allows more cosmic radiation to reach the Earth, producing greater ionization and cloud formation in the atmosphere, which reflects solar energy and causes global cooling. These processes account for the global synchronicity of climate changes, abrupt climate reversals, and warming and cooling of the atmosphere. Thus, cloud-generating cosmic rays provide a satisfactory explanation for climate changes.

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