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Cosmic Rays, Clouds and Climate

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Changes in the intensity of galactic cosmic rays seems alter the Earth's cloudiness. A recent experiment has shown how electrons liberated by cosmic rays assist in making aerosols, the building blocks of cloud condensation nuclei, while anomalous climatic trends in Antarctica confirm the role of clouds in helping to drive climate change. Variations in the cosmic-ray influx due to solar magnetic activity account well for climatic fluctuations on decadal, centennial and millennial timescales. Over longer intervals, the changing galactic environment of the Solar System has had dramatic consequences, including Snowball Earth episodes.