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Paleo space weather inferred from ice cores and the benefits for ice core research

Content

The recent discovery of short-term radionuclide enhancements due to enormous solar storms has provided us with the opportunity to study completely new aspects of solar variability. In addition, these distinct global signals have expanded our toolbox for precise synchronization of ice core time scales from Greenland and Antarctica. Furthermore, these events allow for a very precise link between ice core and tree-ring records. We will present an overview of radionuclide-inferred indications of enormous solar storms in the past and discuss the present status of this emerging field. Besides the value for solar studies and risk assessments we will show how the identification of past solar storms supports and improves the time scale comparison between ice core and tree ring chronologies and offers the potential for a better understanding of aerosol transport & deposition and carbon cycle changes in the past.

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