



Extreme solar particle events: The worst case scenario

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Sporadic eruptive energetic events on the Sun may occur during periods of high solar activity. Sometimes such events can be strong or even extreme posing serious hazards for the modern technology and communication dependent society. It is important to assess the worst case scenario for an extreme solar particle event and what the probability of its occurrence. The era of direct scientific exploration of the Sun is short - from few decades to a century, and yet several strong harmful events took place during that time. Can we expect even greater events? How often? What shall we prepare for? In order to answer these questions, one has to rely upon indirect methods by analyzing natural proxy archives.

Here we present an overview of the history of extreme solar events in the past, from hundreds to millions of year, based on an analysis of cosmogenic isotopes in terrestrial archives (polar ice cores and tree rings) and in lunar rocks.