



The Adams Event, a geomagnetic-driven environmental crisis 42,000 years ago

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Geological archives record multiple reversals of Earth's magnetic poles, yet the potential impacts of these events remain unknown. The lack of any obvious association between the last major inversion, the Laschamps Excursion ~41 thousand years ago (ka), and polar ice paleoclimate records has underpinned the view that geomagnetic reversals do not have major environmental consequences. We find this is not the case. Importantly, the weakened geomagnetic field causes rapid production of atmospheric radiocarbon, and the lack of accurate calibration records has complicated dating of environmental and archaeological events in other parts of the world. Here we exploit the first detailed record of radiocarbon levels across the Laschamps Excursion using New Zealand swamp kauri (*Agathis australis*) trees to precisely align Pacific Basin environmental changes with polar paleoclimate records (via ¹⁰Be). Comprehensive radiocarbon-dated and glacial sequences are consistent with global chemistry climate modelling, and show synchronous climate changes across the mid to low latitudes that are concentrated during the geomagnetic field minima (42.2-41.5 ka) in the transitional phase that precedes the Laschamps Excursion. Critically, the revised timing reveals associations with a wide range of extinction events and major changes in the global archaeological record, which we hereby term the Adams Event. The climatic, environmental, and evolutionary impacts of past magnetic reversals now form a critical issue for future investigation.

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