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The cosmic ray clock during the Younger Dryas cold period - clues about climate forcing and the timing of climate change

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The last cold spell of the last deglaciation, the Younger Dryas period, serves as the prime example for rapid climate change induced by ocean circulation changes. However, the detailed processes behind this cold event are far from being satisfactorily understood. Although, the oceanic involvement in this climate deterioration is not disputed, there are various speculations about mechanisms that could have triggered and terminated it.
Here we present 10Be data from the GRIP ice core around the transition from the Bölling/Alleröd warm period into the Younger Dryas cold period. The data provide a high-resolution cosmic ray signal that can be used to synchronize different radionuclide records and the connected climate reconstructions. This approach can lead to robust results about synchronous and non-synchronous climate changes at different locations, insights into the possible processes behind the changes and also the prospect of an improved 14C calibration beyond the Holocene period.