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Synchoronous inter-hemispheric alpine glacier advances during the Late Glacial?

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The termination of the last glaciation in both hemispheres was a period of rapid climate swings superimposed on the overall warming trend, resulting from large-scale reorganizations of the atmospheric and oceanic circulation patterns in both hemispheres. Environmental changes during the deglaciation have been inferred from proxy records, as well as by model simulations. Several oscillations took place both in northern and southern hemispheres caused by melt water releases such as during the Younger Dryas in north and the Antarctic Cold Reversal in south. However, a consensus on the hemispheric linkages through ocean and atmosphere are yet to be reached. Here we present a new multi-proxy reconstruction from a sub-annually resolved lake sediment record from Lake Lusvatnet in Arctic Norway compared with a new reconstruction from the same time interval at South Georgia, Southern Ocean, suggesting inter-hemispheric climate linkages during the Bølling/Allerød time period. Our reconstruction of the alpine glacier in the lake Lusvatnet catchment show a synchronous glacier advance with the Birch-hill moraine complex in the Southern Alps, New Zealand during the Intra Allerød Cooling period. We propose these inter hemispheric climate swings to be forced by the northward migration of the southern Subtropical Front during the Antarctic Cold Reversal. Such a northward migration of the Subtropical Front is shown in model simulation and in palaeorecords to reduce the Agulhas leakage impacting the strength of the Atlantic meridional overturning circulation. We simply ask if this can be the carrier of rapid climate swings from one hemisphere to another? Our high-resolution reconstructions provide the basis for an enhanced understanding of the tiny balance between migration of the Subtropical Front in the Southern Ocean and the teleconnection to northern hemisphere.