



## **Impact of a realistic river routing in a coupled ocean-atmosphere simulation of the Last Glacial Maximum climate**

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The presence of large ice sheets over North America and North Europe at the Last Glacial Maximum (LGM) strongly disturbed river path ways on the northern hemisphere continents. Such changes in the surface hydrology have never been taken into account in simulations of the LGM Climate, whereas it changes the freshwater input to oceans. We use the ICE-5G LGM topography, which takes into account the presence of the ice sheets and the isostatic effects, to reconstruct the LGM rivers routing. Because the uncertainties in the extent of the Fennoscandian ice sheet in the Eastern part of the Kara Sea, we have considered two scenarios of more realistic rivers routing in the three-dimensional climate model IPSL\_CM4. The first one with presence of an ice dammed lake southern of the Fennoscandian ice sheet. This lake is fed by the Ob and Yenisei rivers. In the second simulation, these rivers (Ob and Yenisei) flow directly into the Arctic Ocean. We have studied the impact of those changes on the LGM climate, especially for the overturning thermohaline circulation.