



## Timing and teleconnections in the climate response to AMOC recovery scenarios

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Glacial abrupt climate change events, first described from North Atlantic and Greenland records, have since been discovered at many locations, even far from the North Atlantic or Greenland. The question of the relationship between these events recorded at different locations and possible mechanisms for such relationships then arises, a question made difficult by the uncertainty in the relative timing of the records.

This presentation will examine this question from a modelling point of view, using the IPSL atmosphere-ocean general circulation model in its IPCC AR4 version. All experiments have been run under Last Glacial Maximum boundary conditions. First, we will analyse the timing of the climatic response to a relatively slow (ca. 200 years) collapse of the Atlantic Meridional Overturning Circulation (AMOC) forced by a 0.1 Sv fresh water discharge imposed in the North Atlantic and in the Arctic. We will show that the climate response to this AMOC shut-down first appears in the North Atlantic and Europe, but that even in the North Atlantic there are regions where this response is delayed due to the different sensitivity of the deep water formation sites to fresh water fluxes. In a second step, we will examine the results of several AMOC resumption scenarios, fast (in ca. 70 years) or twice as slow. This set of simulations will allow us to examine to which degree the climatic changes appearing around the globe, and in particular around the North Atlantic, are synchronous and which mechanisms can explain the (a)synchronicity between the climatic changes at remote locations.