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## Changes in Arctic Meridional Overturning (ArMOC) under past abrupt warming

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According to the recent generation of global climate models, a weakening of the Atlantic Meridional Overturning Circulation (AMOC) is unequivocal in the context of global warming. However, a recent study (Bretones et al, 2021) showed that the weakening of the AMOC at the reference latitude of 26N is decorrelated from the overturning trend north of the Greenland-Scotland Ridge.

From a paleo perspective, AMOC oscillations are believed to be one of the main drivers of the Dansgaard-Oeschger events, an alternation of cold and warm periods during the last glacial period in Greenland and with global signatures. During a warming phase, the AMOC is believed to be in a strong mode compared to the cold phase, thereby with increased amount of northward heat transport, and hence increased air temperature.

In this study, we investigate the presence and evolution of the Arctic Meridional Overturning Circulation (ArMOC) during the abrupt warming transition from Heinrich event 4 (H4) to the Greenland interstadial 8 (GI8) in the NorESM climate model (Guo et al, 2019). The simulation is based on a validated GI8 simulation and freshwater hosing experiments to simulate H4 conditions. In the model, the transition of H4 to GI8 presents a warming of around 10°C within 30 years in Greenland, which is similar with what was observed in ice cores.