

## Modeling Effects of Greenland Ice Sheet Melting on AMOC Variability and Predictability.

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The evolution of the AMOC is one of the key uncertainties of future climate projections. State-of-art climate models that took part in the CMIP5 project show that over the 21<sup>st</sup> century the AMOC might reduce by 20-30% under the intermediate RCP4.5 scenario and by 36-44% under the high end RCP8.5 scenario relative to preindustrial values. However, a major uncertainty in these projections is the lack of enhanced meltwater input from the Greenland Ice Sheet in the future scenarios. To improve climate change projections, we will include the climate feedback provided by partial melt of the Greenland Ice Sheet, on top of greenhouse-gas-driven climate change, in a large model inter-comparison project. Through this we can study the potential impact of future melt of the Greenland Ice Sheet on the AMOC evolution over the course of 200-300 years, assess the likelihood of an AMOC collapse and investigate how a weakening of the AMOC could in turn influence future melt rates of the Greenland Ice Sheet.