

# Evolution of Baffin Bay Water Masses and Transports in a Climate Change Experiment Including Greenland Runoff

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Baffin Bay is a small water body between the Canadian Arctic and Greenland. It receives warm salty inflows from the sub-polar North Atlantic and cold and fresh Arctic waters, which it then transports south to the rest of the Atlantic. It also receives runoff from the Greenland ice sheet. This study is based on two different numerical model experiments using the coupled ocean/sea-ice general circulation model NEMO, using different atmospheric and runoff forcing for the years 1970 to 2010. One forcing set is based upon a traditional inter-annual atmospheric forcing devised to force ocean general circulation model. The other set comes from a atmospheric model forced with a climate scenario taking into consideration the predictive increase of atmospheric CO<sub>2</sub> and where the climatic anomalies are corrected by a bias correction approach. We perform a budget study examining the transports, storage and surface flux components, and their variability, in the different runs and look at the importance of runoff and atmospheric forcing in the model response. We then look at the evolution of Baffin Bay over the next century (2010-2100) in the run forced by the climate scenario.