



## **Understanding the formation and export of the Greenland-Scotland dense water overflow**

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The thermohaline circulation in the North Atlantic is partly fed by the dense water originating from the Arctic Ocean and the GIN seas (Greenland-Iceland-Norwegian). The exact composition of the dense water outflow is however not well known, nor its long-term variability well understood. Immediately north of the ridge, the formation processes involve coupling between a convective basin and a warm boundary current transporting heat from the North Atlantic over the ridge. We examine the formation of the dense water overflow using a high resolution version of Micom which is able to represent explicitly mesoscale processes, especially eddy fluxes which are crucial for the exchange of properties between the rim current and the convective interior. The model has been implemented with idealized geometry and forcing representative of the GIN seas. Bottom topographies with increasing complexity are considered to understand their impact on the simulated overflow.