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Fate of the North Atlantic Current Water in the Nordic Seas from Two Eddy-Permitting NEMO Hindcast Simulations

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The interactions between the Northeastern Atlantic Ocean and the Nordic Seas are both complex and crucial to the larger global ocean circulation. One of the major exchange pathways between the two basins involves warm, salty water from the North Atlantic Current entering the Nordic Seas over the Iceland-Scotland Ridge and through the Denmark Strait. The exact fate of this incoming water after crossing the sill is, however, still poorly understood.

We are using 2 50-year (1958-2004) hindcasts of the 1/4 degree eddy-permitting ORCA025 configuration of the NEMO general circulation model to examine the life of this water in some detail. In addition to analyzing the models' hydrographic and velocity fields, we use the Ariane particle tracking tool for offline calculation of 3D streamlines to gain further insight into the exchanges, pathways, and long-term variability experienced by this water mass after entering the Nordic basins.