



Arctic North Atlantic Water pathways and heat fluxes in Eddy-Admitting and Eddy-Permitting Global Ocean Simulations

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Results from the model tracer releases in global NEMO configurations at 1/4 and 1/12 degree resolution are presented. We examine North Atlantic water (NAW) inflows in the Arctic Ocean in the models in “eddy” regimes and investigate the role of the eddies in the NAW dynamics and heat transports. In the model experiments the NAW tracers have been released in the eastern Fram Strait and the western Barents Sea and traced in the Arctic Ocean and Nordic Sea for the 2000-2015. The model results demonstrate that NAW follows continental shelf slopes within the Arctic Boundary Current and also flows across the shelf slopes in the Arctic Ocean, with the eddy transport being a principal mechanism for the NAW spread. We investigate cascading of the dense northern Barents Sea water into the deep Arctic Ocean, which is another mechanism to transport the modified NAW into the deep Arctic Ocean. The study quantifies eddy heat fluxes across Siberian shelf slopes towards the central Arctic Ocean. By comparing the eddy runs with the similar runs at a lower resolution, the study highlights difference in the NAW model dynamics due to eddy resolving model capabilities.