

EGU2020-8422

<https://doi.org/10.5194/egusphere-egu2020-8422>

EGU General Assembly 2020

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## **A satellite-based Lagrangian perspective on Atlantic Water fractionation in the Nordic Seas**

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The Arctic Ocean has been receiving more of the warm and saline Atlantic Water in the past decades. This water mass enters the Arctic Ocean via two Arctic gateways: the Barents Sea Opening and the Fram Strait. Here, we focus on the fractionation of Atlantic Water at these two gateways using a Lagrangian approach based on satellite-derived geostrophic velocities. Simulated particles are released at 70N at the inner and outer branch of the North Atlantic current system in the Nordic Seas. The trajectories toward the Fram Strait and Barents Sea Opening are found to be largely steered by the bottom topography and there is an indication of an anti-phase relationship in the number of particles reaching the gateways. There is, however, a significant cross-over of particles from the outer branch to the inner branch and into the Barents Sea, which is found to be related to high eddy kinetic energy between the branches. This cross-over may be important for Arctic climate variability.