



Atlantic Water inflow into the Arctic Ocean through the St. Anna Trough

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An oceanographic mooring was deployed on the eastern flank of the St. Anna Trough (SAT) in the outflow of the Barents and Kara seas into the Arctic Ocean from September 2008 to September 2009, and accompanying CTD sections were run. The SAT outflow to the Arctic Ocean is conditioned by interaction between recirculating Fram Strait Branch Water (FSBW), Barents Sea Branch Water (BSBW) – both of Atlantic origin, and water of local Barents Sea origin (BW), with a distinct horizontal density front overlying the SAT eastern slope. A persistent northward barotropic current has been recorded along the SAT eastern slope with a mean velocity of ~18 to 23 cm/s. Modeling shows that the SAT outflow is density driven. It is expected to increase at enhanced cross-trough density gradients mainly conditioned by the difference in properties between the recirculating FSBW, BSBW and BW. Further modeling efforts are necessary to investigate hydrodynamic instability and eddy generation caused by the interaction between the SAT outflow and FSBW boundary current