



Seasonality of Arctic Mediterranean Exchanges

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The Arctic Mediterranean communicates through a number of passages with the Atlantic and the Pacific Oceans. Most of the volume exchange happens at the Greenland-Scotland-Ridge: warm and saline Atlantic Water flows in at the surface, cold, dense Overflow Water flows back at the bottom and fresh and cold Polar Water flows out along the East Greenland coast. All surface inflows show a seasonal signal whereas only the outflow through the Faroe Bank Channel exhibits significant seasonality. Here we present a quantification of the seasonal cycle of the exchanges across the Greenland-Scotland ridge based on volume estimates of the in- and outflows within the last 20 years (ADCP and altimetry). Our approach is comparatistic: we compare different properties of the seasonal cycle like the strength or the phase between the different in- and outflows. On the seasonal time scale the in- and outflows across the Greenland-Scotland-Ridge are not balanced. The net flux thus has to be balanced by the other passages on the Canadian Archipelago, Bering Strait as well as runoff from land.