

## Abstract

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Atlantic water hydrography in the Faroe area – sources and variability

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The inflow of Atlantic water across the Greenland-Scotland Ridge and into the Nordic Seas controls both physical and biological conditions in the northeastern Atlantic through its transport of heat, salt and other properties. The two main branches of this flow pass through the Iceland-Faroe Gap and the Faroe-Shetland Channel, respectively. Regular monitoring along four standard sections crossing these flows provides time series of the Atlantic water temperature and salinity variability since the late 1980s. The presented analysis of these series shows a persistent increasing trend in both temperatures and salinities, modulated by smaller sub-decadal oscillations. Using supplementary data sources, we support the previously established link between the large-scale circulation in the North Atlantic and the Atlantic inflow properties. The salinity is also impacted by large changes in the Bay of Biscay source waters, while up-stream air-sea heat fluxes modulate the temperatures. We furthermore discuss the relation between changes in transports and associated residence times, and the modifying strength of air-sea interaction and mixing.

Keywords: Air-sea interaction, Atlantic inflow, source waters, subdecadal variability, Subpolar Gyre.

## Reference

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