



## **Air-sea fluxes of CO<sub>2</sub> and hydrographic variability in the North Atlantic near Iceland**

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Fronts between temperate and arctic influences, both in the atmosphere and the ocean, lie in the vicinity of Iceland. The Irminger Current branch of the North Atlantic Current carries relatively warm Atlantic Water (AW),  $S > 35$ ,  $t > 4$  °C, northward west of Iceland and into the Iceland Sea. The Iceland Sea receives in addition a branch of low salinity Polar Water ( $S < 34.4$ ) from the East Greenland Current. Cold Arctic Intermediate Water in the Iceland Sea is derived from these sources.

We present results of time series observations of ocean CO<sub>2</sub> partial pressure, total dissolved inorganic carbon and nutrients from the northern Irminger Sea and the Iceland Sea. We compare the local time series with spatial coverage from UW-pCO<sub>2</sub> measurements in order to evaluate the representativity of the time series. We observe that pronounced hydrographic changes have induced significant biogeochemical shifts in these regions. Such changes must be taken into account in evaluating decadal variations in the air-sea flux of CO<sub>2</sub>.