

Carbonate characteristics and buffer capacity of water masses along the North-Atlantic section 59.5°N as a response to ocean acidification

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The carbonate system variables, pH_T , total alkalinity (A_T) and total dissolved inorganic carbon (C_T) have been measured along the hydrographic section CLIVAR A59°30'N (A1E) between Greenland and Scotland from 2009 to 2016.

The results of this study have focused on the analysis of pH , carbonate saturation states (Ω), CO_2 buffering capacity and the Revelle factor of the intermediate and deep waters in the Irminger Sea and the Iceland Basin.

The knowledge of these properties are necessary to quantify both the sensitivity of the water masses to changes in C_T and A_T , and the resistance to changes of the pH in order to understand how these waters masses will respond to ocean acidification.

The Irminger Sea is a region of particular importance where wintertime convection takes place and different waters meet in the area, spreading through the Atlantic.

A comparison with data from World Ocean Circulation Experiment (WOCE) A1E/AR7E line (1991–1997) has been done in order to evaluate long-term trends.