



## **Hurricane Arthur and its effect on the short term variation of pCO<sub>2</sub>**

Jonathan Lemay (1), Helmuth Thomas (1), Susanne Craig (1), Blair Greenan (2), and Katja Fennel (1)

(1) Dalhousie University, Department of Oceanography, Halifax, NS, Canada (helmuth.thomas@dal.ca), (2) Bedford Institute for Oceanography, Fisheries and Oceans Canada, Dartmouth, NS, Canada

Seasonal changes in carbon cycling over the years have become better understood on the Scotian Shelf, however little is resolved in short term variation. Hourly measurements were collected from an autonomous moored instrument (CARIOCA) stationed at Halifax Line 2 (HL2), roughly 30km off the coast of Halifax for the 2014 year. Data from the 2007 deployment of the SeaHorse vertical sampling mooring at HL2 was also collected. Focusing on the storm event, Hurricane Arthur, July 5th 2014 reveals a significant drop in pCO<sub>2</sub>. With the shelf having carbon rich deep water, a reduction of pCO<sub>2</sub> due to mixing went against current understanding. It was revealed that slightly above the mixed layer there is a sustained population of phytoplankton. When wind mixing from storms occurs, this population moves to the surface allowing greater light and nutrients for short term growth. This growth then reduces pCO<sub>2</sub> for a short period of time until wind speeds slow down reducing mixing of the water column.