

Subproject: Air-Sea CO₂ Exchange within the North Water Polynya Region

Actual field dates: July 8-Aug 14, 2014

Field site: Baffin Bay, Lancaster Sound, Nares Strait

Number of man-days in the field: 37

Summary:

We successfully collected over 35 days of continuous underway and flux data throughout Leg 1 of the ArcticNet research cruise. This data allows us to characterize the air-sea gradient of carbon dioxide along the ship track, and estimate exchange rates throughout the region. We also used the ship's rosette to collect seawater samples for the analysis of dissolved inorganic carbon (DIC), total alkalinity (TA), and oxygen isotope ratios ($\delta^{18}O$) throughout the water column. This extra information will allow us to fully characterize the carbonate chemistry of the seawater, and will aid in identifying local processes influencing the amount of dissolved carbon in the seawater. Many processes such as primary production/respiration, sea ice melt, and ocean circulation patterns have an impact on dissolved concentrations of carbon dioxide in seawater.

Photos:

Fig. 1: Rosette sampling stations throughout study area

Credit: Tonya Burgers

Fig. 2: Meteorological tower installed at the bow of the ship.

Credit: Tonya Burgers

Fig. 3: Polar bear spotted off the coast of Baffin Island

Credit: Tonya Burgers

Participants:

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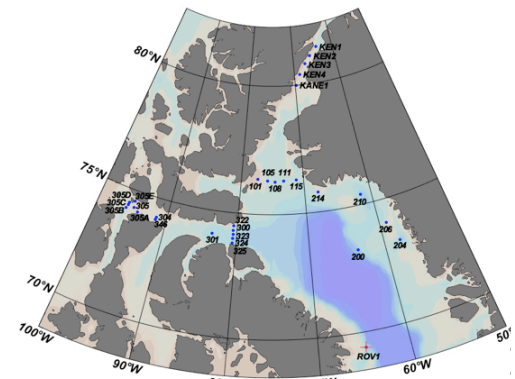


Figure 1

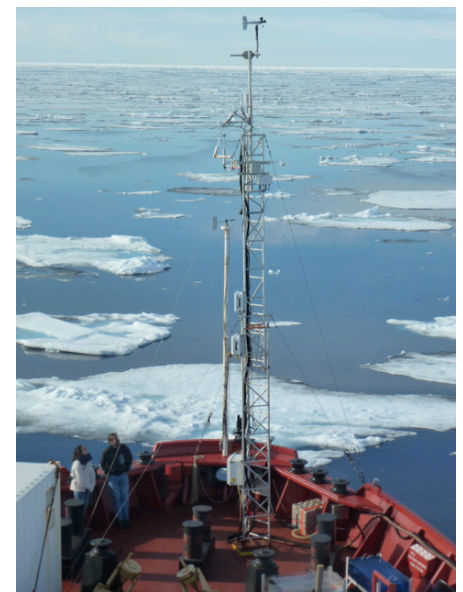


Figure 2



Figure 3