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pCO_2 measurements on the moored and moving platforms using submersible autonomous sensors

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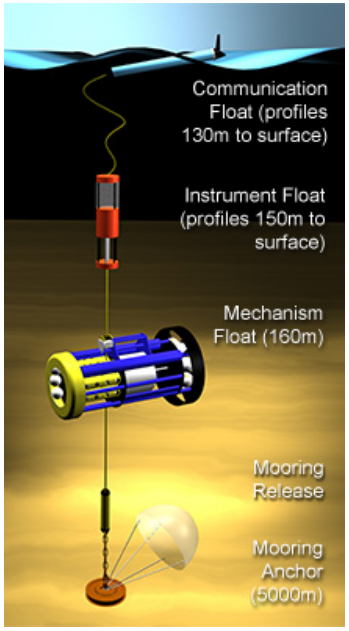
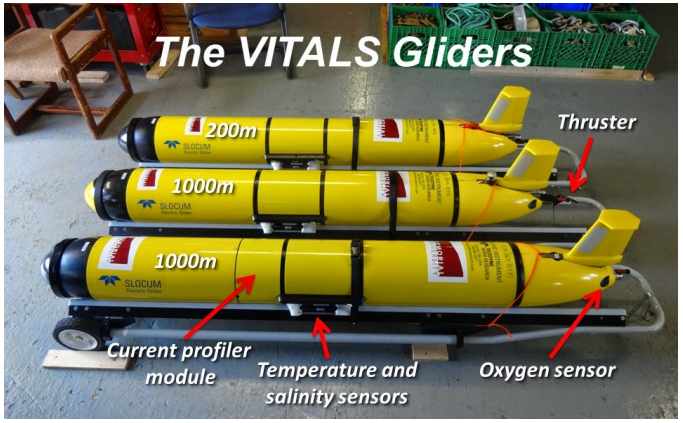
Project VITALS: SeaCycler



1 year deployment in the Labrador Sea, 3300m
upper 150m profile /day (O_2, pCO_2, fluorometer, PAR, nitrate, currents, CTD)
CTD/DO down to 3200m, 8 depths
O_2, pCO_2, ADCPs, CTD – at 165m, 2h resolution

Gliders



Preparation and integration of pCO2 optodes into the gliders

pCO_2 optode

pCO2 in ferrybox systems onboard VOS

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Quality of pCO_2/O_2/pH measurements and challenges in using water samples data for referencing

Sensors calibration facility at Dalhousie University

- designing and setting up a gas calibration system allowing for automated, accurate and efficient calibration procedure of sensors and instruments measuring O_2 and pCO_2 parameters (pH in the future);
- using the system for preparation of the sensors for a number of deployments within VITALS;
- conducting the response time tests with pCO_2 optodes requiring further characterization and performance assessment.

Bias in Total Alkalinity measurements due to unaccounted contribution from organic acids

- estimation of organic alkalinity (OA) contribution into TA measurements using potentiometric titration;
- establishing patterns of OA contribution throughout the year, Bedford basin, Halifax, NS;
- predicting calculation errors in derived carbonate system parameters.