

Post-Doctoral Research Opportunity at Dalhousie University, Canada

Spatio-temporal Statistical Modeling of Ocean Carbon in the Northwest Atlantic

Goal: Develop quantitative tools for estimation of the regional carbon uptake for the Northwest (NW) Atlantic / Labrador Sea – a region that plays a key role in the global carbon cycle. This involves the use of advanced statistical methods for combining observational information, remote sensing, and available numerical circulation model output in order to estimate the spatio-temporal ocean carbon state (or the carbon budget) for the NW Atlantic.

Duties: Acquisition of available oceanic and atmospheric information and data in the form of numerical model output/re-analyses products, satellite data, as well as acquiring, organizing and managing the diverse array of *in situ* data collected on biogeochemical variables related to NW Atlantic carbon dynamics. Research activities using these data would involve the development and application of advanced statistical approaches to analyse and map the multivariate ocean carbon state and fluxes, in both space and time. Candidate approaches could include spatial analysis, time series and state space models, as well as Bayesian methods. There is also potential to apply machine learning approaches through collaborative efforts with other research modules. The work is intended as a step towards the future development of data assimilation systems for ongoing numerical ocean modeling efforts into regional carbon system dynamics.

Qualifications: The ideal candidate would have a PhD in Statistics, Oceanography, Climate Science or a closely allied field. Skills required include advanced statistical methods for spatio-temporal environmental data, and solid computing skills using programs such as R, MATLAB or Python.

This work is funded as part of the recently established Ocean Frontier Institute and many collaborative research opportunities are possible.

Please contact Mike Dowd (michael.dowd@dal.ca) for further information.