

POSTING: Graduate Student – Regional CO₂ Exchange Budgets

We are seeking a motivated student for a graduate studentship (PhD or MSc) to study sea-air CO₂ fluxes within the Canadian Arctic and subarctic coastal zones. The project will investigate physical and biological processes controlling the CO₂ fluxes, and contribute to the implementation of strategies for the estimation of regional maps of surface pCO₂ and budgeting CO₂ sea-air flux exchange using various data sets, including ship-based in-situ data, reanalysis products, remotely sensing datasets and machine learning techniques. The student will have numerous opportunities to participate in field campaigns based out of coastal communities and research vessels within the Canadian Arctic. Particular regions of interest are Hudson Bay and James Bay. The student will work within a multidisciplinary university team housed within the Centre for Earth Observation Science, (CEOS; umanitoba.ca/ceos), Department of Environment & Geography at the University of Manitoba, Winnipeg, Canada, and under the supervision of CEOS researchers: Drs. Tim Papakyriakou, Zou Zou Kuzyk, and K. Brown, along with team of collaborating investors, including: Drs. Mohamed Ahmed (Esri Canada) and David Capelle (DFO). This research is community partnered, and as such the successful candidate will work closely with engaged and highly motivated community members. The successful candidate (for PhD) will have a MSc (or equivalent) degree in oceanography (chemical or biological), Geography, or related field, preferably with demonstrated experience with GIS and/or remote sensing applications, programming, and data analysis. MSc candidates are welcome to apply. The successful candidate must bring a strong work ethic and desire to contribute toward team-based science. The studentship is fully funded as part of existing NSERC and DFO projects.

Brief Background: The oceans' uptake of anthropogenic CO₂ has slowed the effects of climate change, however, the prolonged uptake of CO₂ has caused a reduction in seawater pH, leading to ocean acidification. The situation in the coastal zone is complicated through the delivery of large amounts of carbon and nutrients through river inflow and coastal erosion impacting both regional CO₂ budgets and susceptibility to ocean acidification. Greenhouse gas induced warming in the northern high latitudes is far outpacing the global average, with impacts on sea ice, permafrost and regional hydrology with poorly understood spin-off effects on carbon cycling in the region's coast zone. Arctic and subarctic coastal zones encompass some of the most productive ocean regions globally, and many of the large rivers feeding the marine systems have been modified for hydroelectric production, impacting the deliver of freshwater, carbon and nutrients. Rapid impacts of climate change are super-imposed upon by changes in the ocean environment brought about through land- and water-use projects, further challenging our ability to characterize contemporary and future CO₂ budgets, and rates of ocean acidification.

Applications should be sent directly to Dr. Papakyriakou (tim.papakyriakou@umantiboba.ca) and should include: a cover letter (<1 page) that outlines your previous research, experiences, interests, and aspirations relevant to the studentship, in addition to a CV with names of two academic reference, a copy of your University transcripts, and an English Language test score, such as TOEFL or IELTS (if you are an international student with English as a second language). For further information, please contact Dr. Papakyriakou.

Application deadline: Open until filled

