POSTING: PhD STUDENT – Primary Production Hotspots

I am seeking a motivated student for a PhD studentship to study hotspots of marine primary production within the Canadian Arctic coastal zone. The project will investigate physical and biological processes controlling primary production in sea ice, pelagic, and benthic environments. A strong focus will be placed on physical processes that drive the existence and distribution of hotspots in the Canadian Arctic coastal zone and how climate change may influence their persistence into the future. The student will have access to existing datasets as well as numerous opportunities to plan out and participate in field campaigns based out of coastal communities and research vessels within the Canadian Arctic. Particular regions of interest are Hudson Bay, James Bay, and Baffin Bay. The student is to be supervised by Dr. C.J. Mundy and their degree housed within the Centre for Earth Observation Science (umanitoba.ca/ceos), Department of Environment & Geography at the University of Manitoba, Winnipeg, Canada. The successful student will also become a member of the Arctic Science Partnership (asp-net.org) and ArcticNet (http://www.arcticnet.ulaval.ca) providing national and international opportunities above and beyond a standard graduate degree. The successful candidate will have a MSc (or equivalent) degree in physical and/or biological oceanography, or related field. The studentship is fully funded as part of existing NSERC and DFO projects.

Brief Background: The coastal zone encompasses some of the most productive regions in the Arctic. In particular, localized areas within the coastal zone support seasonal and sometimes interannual aggregations of higher trophic level organisms. These biological hotspots play a critical ecosystem services role to nearby northern communities that depend on them for subsistence hunting, culture and overall well-being. However, our knowledge of the processes driving production in these hotspots and their potential response to a rapidly changing climate is rudimentary at best. Assuming the Arctic marine ecosystem is largely driven by bottom-up dynamics, a logical place to focus our efforts is on the physical and environmental processes that control primary production in a region. For example, periodic tidal flow across a shallow-constricted strait can erode local surface stratification as well as the sea ice cover, potentially forming a polynya and mixing new nutrients into surface waters. In turn, local primary production will be intermittently enhanced. However, the type of primary production occurring (i.e., ice, pelagic, and/or benthic) will be dependent on a variety of physical and environmental processes that interact over time and space. This example is one of many mechanisms that can promote the localized persistence of biological hotspots in the Arctic coastal zone.

Initial applications should be sent directly to Dr. Mundy (cj.mundy@umanitoba.ca) and include: a cover letter (<1 page) that talks to your previous research, experiences, interests, and aspirations relevant to the studentship, a CV with names of two academic references willing to write letters of support; 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. Mundy.

Application deadline: Open until filled

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