

Date: April 18, 2018

Re: Letter of Support for Nicole Trenholm's Field Research in Croker Bay, Nunavut

To Whom It May Concern,

I am writing this letter in support of Nicole Trenholm's proposed field research project in Crocker Bay, Nunavut during the summer of 2018. Ms. Trenholm plans to conduct a bathymetric and oceanographic survey from a vessel of opportunity as part of her Master's Thesis at the University of Maryland. Ms. Trenholm has offered to share the depth soundings and ocean property data she collects, data that could prove very useful for my own research.

Bathymetric and oceanographic data in many regions of the Canadian Arctic Archipelago (CAA) are lacking, with observations near marine-terminating glaciers particularly sparse. These observations are important to determine the role of the ocean in driving submarine melting of glaciers, the contribution of Canadian glaciers to global sea level rise, and the effect of meltwater on ocean physics and ecology. My own research indicates that a warm subsurface Atlantic Water anomaly has recently propagated across Baffin Bay into the straits of the CAA, including Lancaster Sound, adjacent to Crocker Bay. However, given the paucity of ocean observations near glaciers in the CAA, it is unknown if this warm water anomaly has penetrated to the head of nearby fjords. Ms. Trenholm's data will provide the necessary observations to determine the extent of the anomaly, and the role the warm water may have played in determining the mass balance of glaciers draining portions of the Devon Ice Cap.

The acquisition of in situ oceanographic data in the Arctic is very costly and requires substantial logistical support, thus international collaborations and data sharing are critical to advancing the state of science in these regions. The inclusion of opportunistic observations like Ms. Trenholm's into publically available archives is a useful and valuable contribution. I also intend to utilize the bathymetric data and ocean temperature and salinity profiles Ms. Trenholm collects to initiate and calibrate a high resolution ocean circulation model to investigate the propagation of Atlantic Water into the CAA.

I do not know Ms. Trenholm personally, however, I am aware of her involvement in the NASA funded project Oceans Melting Greenland (OMG), during which she conducted bathymetric surveys and collected ocean profiles around Greenland from a small research vessel. My understanding is that she has the necessary field and technical skills required to collect oceanographic data in the Arctic. The data that she collected as part of OMG has already proven valuable to the larger glacier-ocean scientific community, and her forthcoming efforts in Crocker Bay will be a particularly useful contribution to researchers studying the Canadian Arctic.

Best regards,



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