Arctic coastal and drifting ice processes and dynamics

Annual Report 2020
Licence # 02 063 20R-M Issued to D. Mueller, Carleton University

Most of our field plans were canceled in the spring and summer of 2020 this year due to COVID-19. We were fortunate to get some information on ice conditions and test equipment with the help of our community partners in Arctic Bay. On northern Ellesmere Island the Milne Ice Shelf calved and lost nearly half of its extent and is discussed below.

Admiralty Inlet, Baffin Island:
Although our Carleton team was not able to travel to to Arctic Bay, we worked with our community partners, SmartICE and Arctic Bay Adventures to put 4 cameras out to observe the landfast ice breakup in Admiralty Inlet. Two of these cameras were recovered in August and videos can be found here: https://youtu.be/nBqmXhM5DN8 and here: https://youtu.be/opbzT_ilgSI. One of our low-cost current meters was deployed north of Arctic Bay and was recovered successfully at the end of the summer. We are planning another camera deployment for this spring but have not made plans to travel to Arctic Bay this year.

Milne Fiord, Ellesmere Island:
At the end of July 2020, the northern part of Milne Ice Shelf broke away from the fiord and drifted away. This ice shelf break-up event was first discovered by the Canadian Ice Service using satellite imagery. When news broke, we had prepared a web page (https://wirl.carleton.ca/calving-2020) that explained the event along with maps, photos and video of the ice shelf that highlights its significance. Many interviews were given to northern media (e.g., https://nunatsiaq.com/stories/article/nunavuts-milne-ice-shelf-collapses/). We are very interested in returning to the site to check on our monitoring equipment, determine the stability of the remaining portion of the ice shelf and to observe what has changed at this site.

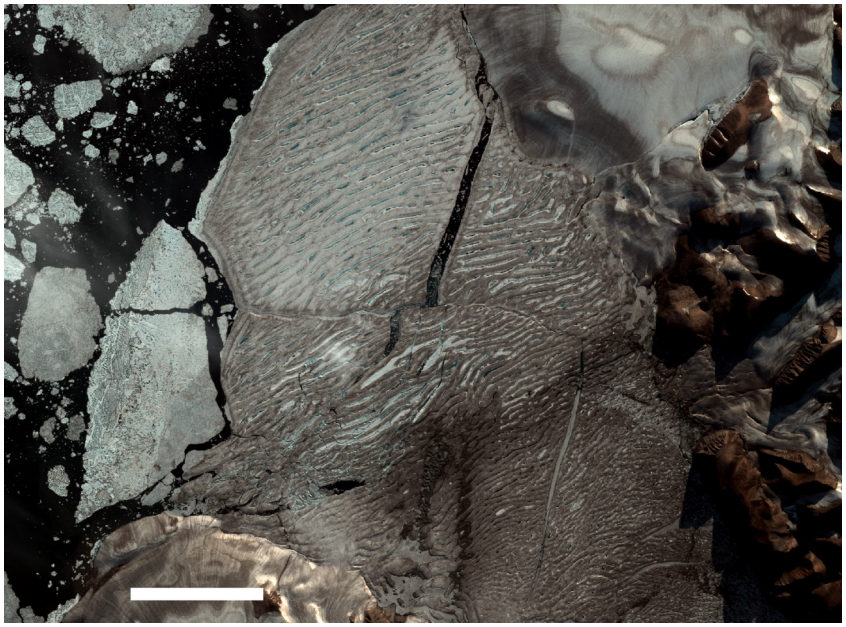

Figure: *Satellite image of the Milne Ice Shelf break-up in late July 2020. The ice shelf ice is often brown with sediment and has parallel lakes. The northern portion is now drifting freely to the west in the Arctic Ocean. The scale bar in the lower right is 2.5 km. Image courtesy of PlanetScope. (https://www.planet.com/gallery/#!/post/milne-ice-shelf-collapse)*