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Theme -Theme 2: Observing in Support of Adaptation and Mitigation

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Poster title (brief) Ultra-high resolution mapping and monitoring exposure of Beaufort Sea coastal communities to flooding and coastal erosion

Abstract - text box

Arctic warming is leading to an increased reduction in Arctic sea ice, with models for 2100 indicating a reduction in the sea ice area from 43 to 94% in September and from 8 to 34% in February (IPCC, 2014). An increase of the sea-ice free season duration will increase the exposure of coasts to wave action, with changing climate also modifying the contribution of terrestrial erosion processes (Fritz et al., 2015, Ramage et al 2018, Irrgang et al 2018). Coastal erosion can also be increased by warmer sea waters and sea-level rise, and the more frequent storms and associated surge events will also result in increased flooding.

Our work focusses on the hamlets of Tuktoyaktuk and Paulatuk (Northwest Territories, Canada), where we are conducting extensive ultra-high resolution surveys with UAVs, allowing to generate orthophotomosaics, digital surface models, as well as derived landuse, geomorphological and socio-economical activities maps. The work is done in cooperation with both communities with the results being provided for land planning and improve mitigation and adaptation measures to climate change.

UAV surveys have been conducted in 2018 and 2019 and the hamlets of Tuktoyaktuk and Paulatuk have been fully mapped. We will present the first results of this initiative.

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