

**Title**

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**Theme**

OTHER - Topics relevant to Arctic Observing

**Author list (in order)**

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**Poster title (brief)**

Using Landsat multi temporal imagery to monitor and evaluate shoreline movement along Canada's Northwest Territories.

**Abstract - text box**

This investigation quantified rates of shoreline movement along a 44 km segment of Southwestern Banks Island, Northwest Territories, Canada. Fifty-nine years of shoreline position data (from 1958-2017) were obtained from aerial photos, orthoimagery and Landsat multi-spectral satellite imagery. The data was incorporated into ArcGIS 9.3 and the Digital Shoreline Analysis System (DSAS) was used to determine and evaluate rates of change. Results show that the 44 km stretch of Arctic coastline along Southwestern Banks Island retreated at an average rate of -0.89 meters per year over the duration of the study period. The analysis revealed a dominant erosional signal across a significant portion of the study-area with approximately 72% of the shoreline retreating landward. A localized segment of shoreline in close vicinity to Sachs harbor was also analyzed over the short-term period 1999-2015. Data shows acceleration of erosion in this area over the short-term, with average retreat rates of -1.24 meters/year. Increased storm intensity coupled with elevated air and sea-surface temperatures and decreased sea-ice extent all act as catalysts to accelerate coastal erosion along the Sachs Harbor locale.