

## **Storm Surge Climatology for Coastal British Columbia.**

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Storm Surge is a natural hazard unique to coastal areas. On British Columbia's coast, storm surges periodically occur in response to extra-tropical cyclones. The objective of this study is to provide a better understanding of the extreme storm surge climatology of coastal BC, in terms of the spatial distribution, severity and frequency of occurrence.

The study is primarily based on application of Extreme Value Analysis on measured extreme water level residuals (Observed Total Water level – Predicted Tide) at eleven tide gauge stations with climate considerations. Results shows spatially consistent increases in the frequency of occurrence of extreme storm surge events associated with Warm ENSO episodes in Coastal BC. In addition, the climate variability patterns described by the Pacific North American pattern (PNA) and the Northern Oscillation Index (NOI) shows strong controls over the storm surge climatology of coastal BC. These results raise our level of awareness on impacts of climate variability on storm surge phenomenon in coastal BC, particularly for long-range scenario development against vulnerability to climate change.