Session: C39 Poster: TH169A

## Towards a better understanding and improved predictions of hydroclimate extremes in the Canadian Prairies

Kit Szeto[†];
[†] Environment Canada, Canada
Leading author: Kit.Szeto@ec.gc.ca

The Canadian Prairies is characterized by the frequent occurrence of droughts and pluvials that significantly affect the region's agricultural activities. To better understand the key physical processes that affect the development of these hydroclimate extreme events, monthly time series of basin-scale surface and atmospheric water budgets were calculated for the 1960-2002 period by using various datasets. Results from correlation analysis performed with the budget components were interpreted with knowledge of hydroclimate processes that affect the region to clarify the roles of different interacting processes in governing the interannual variability of warm season precipitation. Results of the analysis suggest that the interannual variability, including the development of extremes, of warm-season Prairie precipitation is strongly affected by synoptic activities that occur in its southern vicinity. It was further found that the variability of warm-season synoptic activities that affect the area are controlled by characteristic upper-level largescale flow features that are at least partially forced by sea surface temperature anomalies over the tropical and mid-latitude Pacific. Based on the results of the study, a new approach will be proposed to improve the prediction of Prairie hydroclimate extremes.