



Storm evolution and return period of the June 2016 flooding event in the northern Canadian Rockies

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**13:00 PRRD Board
Room**

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Flooding is the most common and costliest natural disaster in Canada that can be initiated by processes such as intense rainfall, abrupt snowmelt, ice jams, dam failures, and coastal storm surges. One example of a rainfall-driven flood is the June 2016 event in the northern Canadian Rockies. During this event, communities of northeastern BC such as Chetwynd, Tumbler Ridge, and Dawson Creek all experienced heavy rainfall followed by devastating flooding. Based on media reports, communities were evacuated, main highways were closed, and significant economic losses were incurred by the affected communities.

Thus, in this research we present the synoptic conditions that favored the intense rainfall event during the second week of June 2016 and the hydrological response in the creeks and rivers draining the northern Rockies during and immediately following the event. Between 13 and 16 June 2016, the northern Rockies experienced more than 100 mm of rainfall in less than 36 hours. Our results reveal the presence of an 'Omega Block' marked by a persistent ridge over central Canada during that week that blocked the inland progression of a Pacific storm, which then stalled over northeastern BC resulting in the intense rainfall. A flood frequency analysis using Generalized Extreme Value (GEV) distribution shows that the June 2016 flood event has a return period of more than 100 years for some of the rivers in the region including the Kiskatinaw and Pouce Coupe. Furthermore, the long-term trends over the period of 1984-2016 on the annual peak runoff show an increasing pattern of higher flows for most of the stations in that area.

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