

The dynamic state and future fate of western Canadian glaciers

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Glaciers are an important natural resource of western Canada, and they are also sensitive indicators of climate change. At seasonal to annual time scales, the net mass balance of a glacier is controlled by winter snowfall and summer melt. An imbalance between winter accumulation and summer ablation at time scales of decades to centuries causes glaciers to adjust their dimensions to reach a new equilibrium state with climate. I review past glacier fluctuations in western Canada and the climatic conditions responsible for their behaviour. I also discuss the pattern of glacier retreat during the twentieth and early twenty-first century and consider how future climate will affect glaciers in British Columbia and Alberta.

Biographical Sketch

Education

BA 1994, University of Colorado, Boulder

MA 1996, University of Colorado, Boulder

PhD 2002, University of British Columbia

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Current research is directed around understanding past and present climate change and its impact on mountain watershed in the Canadian Cordillera. Methods used to document these changes include the recovery and analysis of high-resolution sediment records, contemporary monitoring of sediment and water discharge from proglacial environments and analysis of the instrumental record. Primary research topics include:

1. Reconstructing hydro-climatic events from annually-laminated lake sediments
2. Holocene glacier fluctuations in western North America
3. Recent and future changes in western Canadian glaciers