

## **G02: Current deformation of the Canadian Cordillera**

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### **Session Description**

The Canadian Cordillera includes plate boundary zones in Western Canada and their associated inland deformation, extending from the US border to the Yukon and the Beaufort Sea. The region has a complex deformation history related to a series of subduction events and associated magmatism, possible subduction slab windows, and terrane collisions. Current deformation of the Canadian Cordillera is a result of a complex plate boundary zone that accommodates relative motions between the oceanic and continental plates. Plate boundary types range northward from subduction of the Juan de Fuca and Explorer oceanic plates at the Cascadia Subduction Zone, to oblique convergence at the southern Haida Gwaii margin transitioning to nearly pure strike slip further north, and to the Yakutat collision zone. Oblique convergence along much of the margin results in the motion of fore-arc blocks relative to stable North America. Lithospheric stresses are transmitted long distances across the Cordillera, so that seismicity is recorded far inland in the Mackenzie and Richardson Mountains of Yukon and offshore in the Beaufort Sea in the region of the Mackenzie Delta. Significant strain is transferred from the plate boundary to inland mountain ranges, causing crustal deformation in the back-arc. In addition, glacial isostatic adjustment (GIA), as a solid earth response to both past deglaciation and present-day ice mass change, is causing significant ongoing internal deformation within the Cordillera, modifying tectonic strain. New insights into current deformation within the Cordillera call for reevaluation of the seismic hazard in this region. We solicit observational and/or modeling studies that will constrain current deformation in the Canadian Cordillera and improve understanding of seismic hazard.

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