

Glacial Isostatic Adjustment in British Columbia

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Glacial isostatic adjustment (GIA) is the response of the solid Earth to the changing surface load induced by fluctuating ice sheets and glaciers. The GIA response in a tectonically active region, such as coastal British Columbia, differs from tectonically less-active areas, such as Hudson Bay and the Gulf of Bothnia. Generally, in tectonically-active regions the Earth's response is faster and suggests reduced values of shallow mantle viscosity. Relative sea-level (RSL) in southern British Columbia features a prominent sea-level high-stand in the late Pleistocene, followed by a rapid fall in sea level to below present, and a slow climb to present-day levels through the early Holocene. However, measurements of relative sea-level indicate a different history at some other localities in coastal BC. Current GIA models explain well most features of relative sea-level change in southern BC, but an extension of the modelling is needed to explain newly published measurements from mid-coastal BC. Special care may also be needed to explain previously published RSL indicators from Haida Gwaii.