SE01: Geophysical studies of structure and tectonics of the Canadian Cordillera

Conveners: Pascal Audet[1], David Eaton[2], Roy Hyndman[3,4], and Andrew Schaeffer[5]

Co-chairs: Pascal Audet[1], David Eaton[2], Roy Hyndman[3,4], and Andrew Schaeffer[5]

[1] Dept. Earth and Environmental Sciences, University of Ottawa, Ottawa, ON, K1N 6N5
Phone: 613-562-5800 x2344, E-mail: pascal.audet@uottawa.ca
[2] Dept. of Geoscience, University of Calgary, Calgary, AB, T2N 1N4
Phone: (403) 220-4233 E-mail: eatond@ucalgary.ca
[3] Pacific Geoscience Centre, Geological Survey of Canada
[4] School of Earth and Ocean Sciences, University of Victoria, Victoria, BC, V8W 2Y2
E-mail: roy.hyndman@canada.ca
[5] Dept. Earth and Environmental Sciences, University of Ottawa, Ottawa, ON, K1N 6N5
Phone: 613-562-5800 x4761, E-mail: andrew.schaeffer@uottawa.ca

Session Description

The Canadian Cordillera exhibits highly variable past and present tectonic interactions along its western margin with important consequences on the structure, geology and deformation of the crust and uppermost mantle. Despite past (e.g., Lithoprobe) and current (e.g., Earthscope Transportable Array) large-scale efforts to image crust and upper mantle structure in this area, several key scientific questions remain to be addressed. Example questions include: What is the nature of the Cordillera-Craton transition at crustal and upper mantle depth? How is current deformation distributed within the Cordillera? What is the importance of tectonic inheritance in controlling Cordilleran evolution? An opportunity is currently emerging to expand the coverage of geophysical monitoring sensors (seismic, GNSS) and supporting geoscience activities all across the Canadian Cordillera, from the Beaufort Sea to the US borders – the Canadian Cordillera Array (CCArray) initiative. This session aims to bring together Earth scientists who work on deciphering the structure and processes associated with the evolution and current deformation of the Canadian Cordillera, in anticipation of CCArray. We seek contributions from geophysics, seismology, geodynamics, tectonics, structural geology, petrology, geochronology and related fields that yield constraints on the thermal and compositional structure as well as active deformation of the crust and mantle through field observations, laboratory studies and numerical modeling.

Primary Affiliation: CGU (Solid Earth)