

2006 Fall Meeting
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[Upper Mantle Discontinuity Structure From Receiver Functions Along the CANOE Array](#)

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AB Receiver functions across the Canadian Northwest Experiment (CANOE) seismic study will be used to analyze the structure of the transition zone and overlying upper mantle discontinuities. CANOE is a Y-shaped array of nearly 60 broadband seismometers located in northern British Columbia and Alberta and southern Yukon and Northwest Territories. Most stations are spaced 35-50 km apart, with a densified region along the eastern arm of the array that has station spacings of 10-12 km. The instruments were installed during the summers of 2003 and 2004 and recorded data until late September 2005. The CANOE array traverses a wide variety of continental settings, allowing the study of mantle discontinuity variability associated with continental assembly. The accretional progression spans nearly 4 Ga of geologic history, beginning at the eastern end of the array with the Archean Slave Province, continuing west to the Wopmay and Racklan orogens, and finally to the Northern Cordillera, which extends to relatively recent times. The close spacing of instruments in the CANOE array will provide a detailed view of the mantle across these transitions. We examine receiver functions from nearly 700 events with

magnitude > 5.5. Ps conversions from the transition zone discontinuities at 410-km, 520-km, and 660-km and from other upper mantle discontinuities will be analyzed to study variations across the region. The influence of tectonic regions and surface features on discontinuity structure is expected to change across the array due to lithosphere-mantle interaction varying with the age and structure of accreted terrains across the study area. Discontinuity variability resulting from relatively recent tectonic activity in the Northern Cordillera will be analyzed beneath stations at the western end of the array. Further into the craton, the role of the tectosphere in coupling the lithosphere to the upper mantle and inducing variability along upper mantle discontinuities will be examined.

DE: 7203 Body waves

DE: 7208 Mantle (1212, 1213, 8124)

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SC: Seismology [S]

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