1999 Spring Meeting

0830h
T21B-03

Hunting Big Slab in Kamchatka With the SEKS Portable Seismic Network

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Subduction of the Pacific plate under the southern part of the Kamchatka Peninsula presents a textbook example of a convergent plate boundary. Its overall geometry is known well from the distribution of earthquake hypocenters, as well as through large-scale seismic velocity inversions that utilize global data. New data from the ongoing "Side Edge of Kamchatka Slab" (SEKS) portable broad band deployment provide an opportunity to explore the properties of the Kamchatka slab in greater detail. We use observations of compressional-to-shear converted phases within the coda of the teleseismic P waves to locate impedance contrasts associated with the Kamchatka slab, to estimate their sharpness, and to constrain the dip of the slab. Data quality from many of the portable SEKS stations compares well with that of the sole permanent broad band observatory on the Kamchatka peninsula - GSN station PET. We see clear converted phases of both SV and SH polarization at most stations in southern Kamchatka. Along the eastern coast of Kamchatka these converted phases arrive approximately 10 sec behind the parent compressional (P) wave. Further inland they are seen at roughly 20 sec behind the P phase. Complexity in receiver functions from SEKS data indicate that some P-S conversions by the slab do not correspond to a simple single impedance contrast. Both SV and SH polarizations are observed in the converted phases, which implies dip and/or seismic anisotropy at conversion interfaces.

3040 Plate tectonics (8150, 8155, 8157, 8158)
7203 Body wave propagation
7218 Lithosphere and upper mantle
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