



Application of the Seismic Interferometric Method to Image Lithospheric Structure of the Korean Peninsula

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To delineate the lithospheric structure of the southern part of the Korean peninsula, the seismic interferometry method was applied to the crustal refraction data recorded in 2002. The seismic signals were generated by detonating 1000 and 500 kg explosives in drill holes on a 294-km WNW-ESE profile, and recorded by 2-Hz portable seismometers at a nominal interval of 1.5 km. Seismic interferometry was applied to extract the reflected-wave Green's functions from the coarsely-spaced crustal data. Cross-correlation of each pair of seismic traces yielded 195 virtual shot gathers for each real shot. Autocorrelation functions of source signatures were then removed by zero-phase deconvolution of the virtual data. Finally, conventional seismic reflection processing techniques of gain recovery, band-pass filtering, normal moveout correction, muting, common-midpoint stacking, predictive deconvolution, and migration were applied. The preliminary reflection section indicates very complex geologic structures, including many inclined shear zones.