

## The First Crustal Refraction Survey in the Korean Peninsula

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The first crustal refraction survey in the Korean Peninsula was carried out over the survey line connecting Seosan-Yeongdong-Kyeongju on Dec. 15, 2002. The total length of the survey line was about 300 Km and 198 portable seismometers were deployed with approximately 1.5-km interval. The survey line itself was geologically important since it was almost normal to the so-called Sino-Korean structural trend. Two shots, one at Seosan (west end point) and the other at Yeongdong (mid-point), were exploded. They were 100-m deep drill well explosions. The Seosan shot consisted of a ton emulsion type explosive, while Youngdong consisted of 500 kg one. Both shots generated signals with good S/N ratios to the farthest receivers. Seismic signals were recorded by 195 receivers out of 198 ones. Although the originally planned Kyeongju shot (east end point) could not be exploded due to public discontent, the experiment was evaluated very successful. First breaks in all recorded traces were picked up and two preliminary analyses were carried out. The one is conventional flat layer analysis and the other was refraction tomographic analysis. The one resulted in average 32-km thick two-layer crust and the underlying mantle with 8.05-km/s P-velocity. The top crust layer with 3.86 km/s P-velocity was 2.5-km thick and the lower crust layer with 6.01 km/s P-velocity was 29.5-km thick. The other resulted in a velocity cross-section. The confidence level of the velocity cross-section could not be evaluated at this time because only two shot were exploded. Detailed analyses such as surface wave dispersion are on going. Continuing crustal scale refraction surveys are planned in Korea.