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# Adverse Effect of Uneven Offset Range on a Seismic Interferometry Stack Image across the Korean Peninsula

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Reflection images derived by seismic interferometry (SI) may contain various acquisition and processing effects that may be misinterpreted as true subsurface structures. To image the upper mantle structure beneath the southern part of Korean peninsula, the reflection interferometry method was applied to seismic noise data recorded at 119 stations on the seismic network of the Korea Meteorological Administration (KMA) in 2014. Each pair of noise traces was cross-correlated and then sorted into common cell gathers along a 362-km NW-SE profile. The cell size was 60 $\times$ 1.5 km. To the cross-correlated data, conventional reflection processing techniques were applied. The sub-horizontal reflection events at two-way reflection times of 7-11 s and 17-22 s correlate well with the Moho discontinuity and the lithosphere/asthenosphere (LAB) boundary. In the two-dimensional SI stack image, an anomalous, relatively strong concave feature seems to cut across the Moho discontinuity near 8-10 s. For these data, the distribution of the KMA seismic stations and stretch mute during normal moveout correction yielded large variations of common-midpoint fold with receiver-pair offset ranges greatest in the middle of the profile. Automatic gain control lessened some of the effects of variable offset ranges.