Investigation of structure of earth's deep discontinuities by using Hi-net data

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The major discontinuities within the earth, ICB and CMB, have a great role on the earth's dynamics. The estimation of physical properties changes (seismic velocity and density) across these discontinuities gives the important constraints to the earth's dynamics as a boundary condition. The detections and analyses of reflected phases from these discontinuities are useful to infer the structures of these discontinuities. However, the small amplitude of the reflected waves does not enable us to detect them easily. Here, we present some examples of identifiable seismic phases from the earth's deep discontinuities by using the waveform stacking for the densely distributed seismic stations of network, Hi-net. Figure shows the stacked traces within the azimuth bin of 10 degree. Despite of the small reflection coefficient, steep angle reflection from the ICB (PKiKP) can be detected clearly. This shows the high performance of Hi-net as an array for investigating the earth's deep interior.

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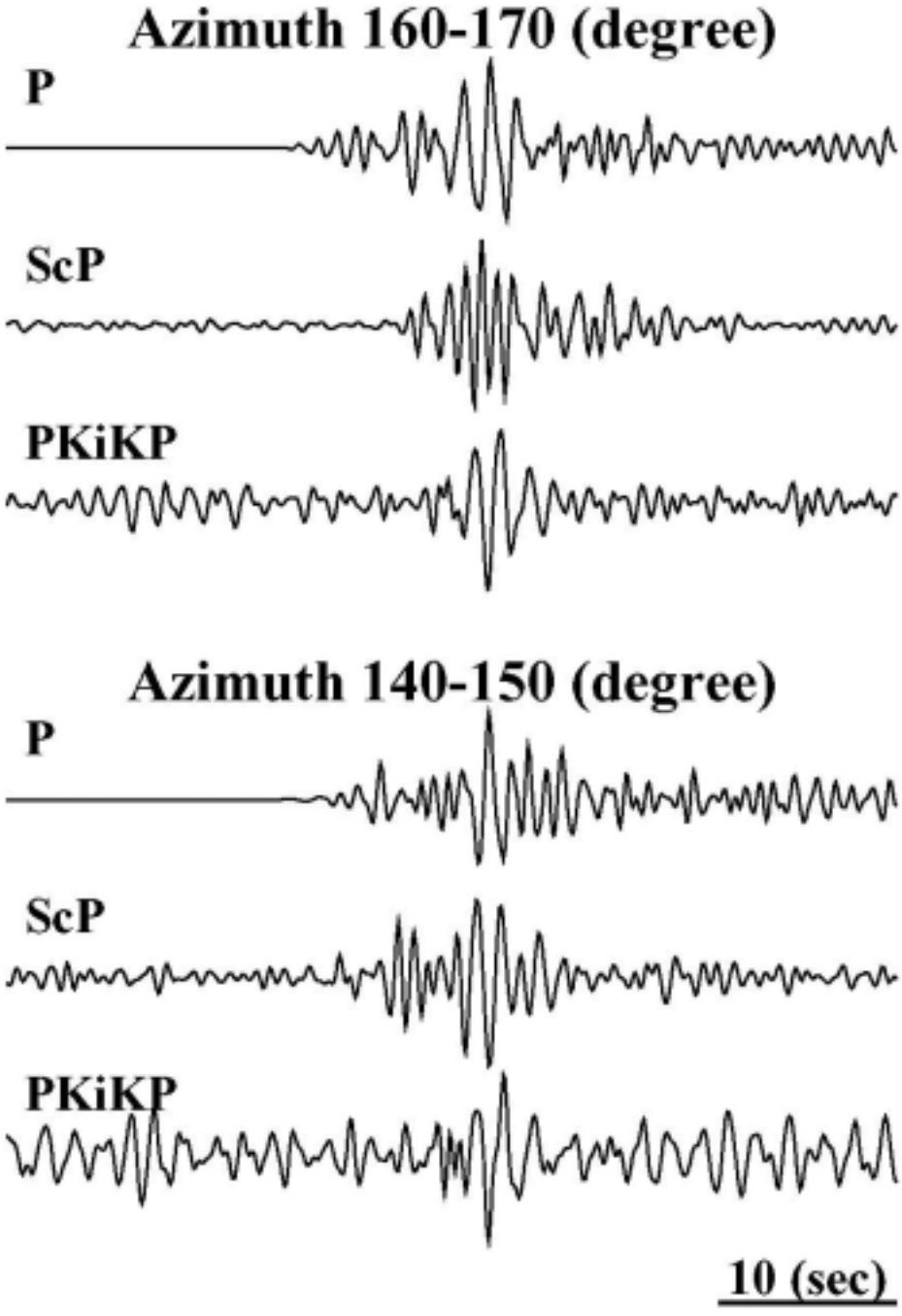
Azimuth 160-170 (degree)
P
ScP
PKiKP
Azimuth 140-150 (degree)
P
ScP
PKiKP
10 (sec)