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Improvement of S-wavevector Receiver Function Analysis for Deep Borehole Logging

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The S-wavevector receiver function (SWV-RF) is useful for deep borehole records to image the seismic structures below the stations (Takenaka and Murakoshi, 2010, AGU). The most significant difference between the SWV-RF from deep borehole records and standard receiver function from the ground surface ones is relatively robust to the structure model in the SWV-RF. The SWV-RF can eliminate the free surface response and the first P-pulse entirely and give the complete representation of the converted waveform in principle. Murakoshi and Takenaka (2011, AGU) applied the SWV-RF from the deep borehole records of the Hi-net (NIED) to obtain the seismic structures under the Kanto Plain, Japan. The resulting SWV-RF images can see the subducted Philippine Sea slab and Pacific slab surface. In this study, we improve the SWV-RF analyis for deep borehole logging.

Keywords: Kanto Plain, crustal structure, receiver function, deep borehole