

Time variation of wave phases in the transfer function between Toki ACROSS source and Hi-net Hourai station

Toshiyuki Furukawa[1]; # Toshiaki Watanabe[2]; Kenji Yamazaki[3]; Yoko Hasada[4]; Koshun Yamaoka[4]; Ryoya Ikuta[5]

[1] Environment, Nagoya Univ; [2] RCSV, Nagoya Univ.; [3] Earth and Environmental, Nagoya Univ.; [4] RSVD, Nagoya Univ.; [5] Faculty. Sci. Shizuoka Univ.

For the long-term continuous monitoring of plate boundaries using ACROSS (Accurately Controlled and Routinely Operated Signal System), we have been studying the detection of the wave reflected at plate boundary and the monitoring of their time variation.

So far, using the Toki ACROSS source and the seismic array deployed at the neighbor of Hi-net Hourai station. Soma et al. (2007) detected the wave reflected at

the plate boundary from the semblance analysis of ACROSS transfer function with the assistance of the estimated travel time calculated by Tsuruga et al. (2005). Using Hi-net Hourai data of the ACROSS transfer function, the temporal variation of the travel-time and the cross-correlation value were extracted. Furukawa et al. (2008) extended the analysis term up to 17 month and applied detailed analysis with an error estimation due to noise.

In this study, we used the Hi-net data from Jan., 2005 to Mar. 2007 and obtained the time-variation of the cross-correlation values, the travel-time and energy of each wave phase shown in Hzr, Hrr and Htt component of the transfer functions.

The results are as follows.

1. The variation of the cross-correlation value and the travel-time are larger than the effect of noise.
2. The stability of the cross-correlation value was proved.
3. The travel time variation of the later phases are larger than that of the first arrival.
4. The time-variation of some phases shows seasonal variation. The synchronicity of deep low-frequency tremors remains unclear.

We are grateful to Dr.T.Kunitomo of JAEA for operating the ACROSS source at Toki and NIED and Dr.Y.Yoshida of JMA for the use of Hi-net data.