

Rupture propagations inferred from HFER durations for the 1994 far east off Sanriku and 2003 Tokachi-oki earthquakes

HARA, Tatsuhiko^{1*}

¹IIGEE/BRI

Hara (2011, EPS, 63, 525-528) showed a clear azimuthal dependence of high frequency energy radiation (HFER) durations measured from teleseismic P waves for the 2011 off the Pacific coast of Tohoku Earthquake. He suggested that it reflected the rupture propagation that generated high frequency energies. In this study, we investigated whether such azimuthal dependences were observed for the 1994 far east off Sanriku earthquake (Mw 7.7) and the 2003 Tokachi-oki earthquake (Mw 8.3). We applied the measurement procedure of high frequency energy radiation duration of Hara (2007, EPS, 59, 227-231) to these earthquakes, and found their azimuthal dependences. We calculated high frequency energy radiation durations referring to previous rupture process models of these earthquakes, and compared them to the observed high frequency energy radiation durations. For the 1994 far east off Sanriku earthquake, we found a good correlation between them. For the 2003 Tokachi-oki earthquake, although the observed azimuthal dependence is consistent with the direction of the rupture propagation, there is a substantial difference between their absolute values, which needs further detailed analyses.

Keywords: high frequency energy radiation duration, rupture propagation, azimuthal dependence