

Source models for great intra-slab earthquakes using the empirical Green's function method

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We construct source models for two great intra-slab earthquakes, the 1993 Kushiro-oki earthquake ($M_w=7.6$) and the 1994 Hokkaido Toho-oki earthquake ($M_w=8.2$), by comparing observed broad-band (0.3-10Hz) strong motion records with synthetics using the empirical Green's function method. Both models have small areas (about 10 km x 10 km) with an extremely high local stress drop of about 400MPa. The size of combined high stress drop area for each event is less than 1/4 of combined area of asperities estimated for inland earthquakes compiled by Somerville et al.(1999). This implies that intra-slab earthquakes have a different scaling relation from that for inland earthquakes.