Source process of the Yoshino earthquake of July 18, 1952, inferred from low-gain seismograms

Masayuki Kikuchi[1], Misao Nakamura[2], Kazumitsu Yoshikawa[3]

[1] ERI, Univ. Tokyo, [2] ISDP, [3] Japan Meteorological Agency

We use low-gain seismograph data of the 1952 Yoshino earthquake to investigate the details of source rupture process. In the waveform inversion we consider the uncertainty of instrumental constants (pendulum period, magnification and even polarity), timing, and chart speed. The main source parameters obtained are: (strike, dip, rake) = (115, 33,-143); the seismic moment = 2.8e19 Nm (Mw = 6.9), source time= 10s (6s for main rupture), fault area = 20 km x20 km, maximum dislocation = 2.0m, stress drop =8.8 MPa. The results suggest that this earthquake is an intra-plate earthquake due to a horizontal extention associated with the deformation of the slab.