# Estimation of source parameters of medium and small earthquakes as empirical Green's functions using K-NET data

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The empirical Green's function method is very convenient for predicting site-specific strong ground motion from future earthquakes. The synthetics are affected by the source parameters of earthquake as empirical Green's functions. In this study, we try to estimate source parameters of earthquakes using strong motion data by Kyoshin Net (K-NET) system developed all over Japan in NIED. And our final objective is to construct the database for source parameters (seismic moment, fault area and stress drop and so on) of medium and small earthquakes which are available for empirical Green's functions. We estimate the average and the standard deviation of the source parameters from several ten station data for an earthquake. The source parameters are basically evaluated from the source spectrum calculated by removing local site effect and pass effect from K-NET data. Furthermore, the effect of the radiation pattern is examined from the comparison with the theoretical radiation pattern based on the focal mechanisms by F-net in NIED.

Table1 震源パラメータ

| NO. | Origin Time | Lat. | Lon. | depth (km) | Mj | strike | dip | rake | MO (Nm) | fc (Hz) | Area(Km*Km) | Δ σ | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1998/02/10,01:20 | 35.7 N | 137.1 E | 8 | 4.3 | 334 ; 242 | 85 ; 68 | 22 ; 175 | 3.56E+15 | 1.71 | 2.49 | 17.09 | 2.05E+17 |
| 2 | 2000/12/07,23:09 | 35.4 N | 133.3 E | 8 | 4.5 | 79 ; 349 | 85 ; 82 | −172 ; −5 | 1.66E+15 | 2.67 | 1.49 | 34.60 | 2.42E+17 |
| 3 | 2000/10/17,22:17 | 35.2 N | 133.4 E | 8 | 4.6 | 309 ; 218 | 87 ; 72 | 18 ; 177 | 1.87E+15 | 2.71 | 1.78 | 38.49 | 2.74E+17 |
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