

Observation of induced seismicity by the second water injection experiment at the Nojima Fault area, in southern Hyogo, Japan

Satoru Nagai[1], Keiji Adachi[2], Takeshi Inuma[1], Akinobu Yoshii[1], Naoshi Hirata[3], Keiichi Tadokoro[4], Kin'ya Nishigami[5], Yasuyuki Kano[6], Shiro Ohmi[7], Makoto Koizumi[8], Shigemitsu Matsuo[4], Yoshihiro Hiramatsu[9]

[1] ERI, Tokyo Univ, [2] ERI, Tokyo Univ, [3] ERI, Univ. Tokyo, [4] DPRI, Kyoto Univ., [5] Disas. Prev. Res. Inst., Kyoto Univ., [6] RCEP, DPRI, Kyoto Univ., [7] D.P.R.I., Kyoto Univ., [8] DPRI, Kyoto Univ, [9] Earth Sci., Kanazawa Univ

We have conducted an experiment to detect seismicity induced by water injection at the Nojima Fault area, Japan, where the 1995 Hyogoken-nanbu (Kobe) earthquake occurred. We deployed 4 temporary seismic stations around a borehole into which we injected water. A highly active seismicity occurred 6 days after the third injection of water of 120 kl. The microseismicity consisted of cluster activities in space and time. The 1800-m-deep borehole seismometer detected more than 15 events with an S-P time of 0.4 s. The events occupied a region 2 km WNW of the hole with a diameter of 2 km and that 1 km north with a diameter of 1 km. These were located in a depth range from 2 to 4 km. We found clear similarity in waveform among those events.