

## Installation Environment Investigation of K-NET and KiK-net Observation Points -Fukuoka Prefecture and Saga Prefecture-

# Nobuyuki Morikawa[1]; Shigeki Adachi[1]; Hiroshi Takenaka[2]; Takashi Kunugi[1]; Hiroyuki Fujiwara[1]

[1] NIED; [2] Dept. Earth & Planet. Sci., Kyushu Univ.

Strong-motion records of K-NET and KiK-net, operating by National Research Institute for Earth Science and Disaster Prevention (NIED), is supplied by three components (North-South, East-West and Up-Down directions). Although the strong-motion seismograph is installed only on the ground in each stations of K-NET, the seismograph is installed at the bottom of the well and on the ground in each stations of KiK-net. Attention that there is a misalignment in each of North-South direction and East-West direction for borehole seismograph of KiK-net is pointed out on the Web site. The installed azimuth of borehole seismograph estimated by using records of Hi-net, which established and operated along with KiK-net, is shown on the Web site (Shiomi et al., 2003). On the other hand, it is shown that there are stations not suitable for the direction of North-South and East-West for the seismograph on the ground by past investigations (Takenaka et al., 1999, Watanabe et al., 2000). Soil information on each station including the PS-logging data is also open on the Web site. But it is not necessarily enough as information to know the site characteristics of the site because it is investigated only up to 20m in depth for K-NET. Here we report on the installation azimuth investigation of the seismograph on the ground and result of microtremor measurement to supply soil information and site amplification characteristics of the stations of K-NET and KiK-net.

The investigation was carried out for two periods until April 18 through April 20 and June 7 through 10, 2005 at stations in Fukuoka Prefecture, Saga Prefecture and the island of Iki. The number of station is 25 for K-NET (Fukuoka Pref. 16, Saga Pref. 8 and the island of Iki 1) and 14 for KiK-net (Fukuoka Pref. 9 and Saga Pref. 5). We investigated the installation azimuth of the ground seismograph following the method of Takenaka et al. (1999) and Watanabe et al. (2000), and observed the microtremor for 10-15 minutes at each site.

As a result of the azimuth investigation, the gap from the north of the North-South component was within 5 degrees at the site more than half. However, the gap of about 30 degrees was confirmed with one station (FKOH03), and the gap of about 20 degrees was confirmed with 7 stations. There was no station with the problem for an inclination and a fixation of the seismograph. Based on the investigation, we estimated the installation azimuth of the borehole seismograph of KiK-net. The result shows almost same as the azimuth shown in Hi-net website. The H/V spectrum of the observed microtremor was compared with the amplification factor of SH wave by the 1D reflection theory using the result of PS-logging and the H/V spectrum of strong motion record. The predominant frequency is almost corresponding among the three. At a part of K-NET station, however, only H/V spectra have predominant frequency in the low frequency range. At such stations, it is thought that the effects of the deeper underground structure than the bottom of the PS-logging data appeared.