

# Microtremor array measurements at strong motion recording stations, HKD127 and IBUH01, in 2018 Hokkaido Iburi earthquake.

\*Takuto Kogawa<sup>1</sup>, Koji Tokimatsu<sup>1</sup>, Izuru Okawa<sup>1</sup>, Hitoshi Tanaka<sup>1</sup>, Kentaro Motoki<sup>2</sup>

1. TOKYO SOIL RESEARCH CO.,LTD., 2. KOBORI RESEARCH COMPLEX INC.

## 1.Introduction

An earthquake of Mj6.7 occurred at 3:07 on September 6, 2018, in the Eastern part of the Hokkaido Iburi region. High seismic intensities (SI) of upper 6 and 7 were observed during this earthquake, even though the hypocenter of the earthquake was at the depth of 37 km. The amplification of surface ground was considered as one of the main factors that contributed such high SI. In order to estimate the ground amplification of the near surface ground, microtremor array measurements were conducted at six strong motion recording stations that observed SI upper 6 or 7.

In this presentation, we focused on two stations, HKD127 and IBUH01, because there was a difference in SI in spite that the two stations closely located. So we will show the result of analysis for these two sites.

## 2.Microtremor array measurement

The shape of the microtremor array used was an equilateral triangle. The vertical components were measured at three vertex points as well as the center of the array, in addition to the two horizontal components at the center. The measurements with a radius of 10m or less were made for each station, whereas those with a radius of 25m or more were made once around the two stations and used for both, because the distance between the two is as close as about 100m.

## 3.Analysis

A dispersion curve was determined from stationary part of microtremor array data based on SPAC method, and calculated H/V spectra from the three component microtremors observed at the center. The shear wave velocity profiles of the two stations were then back-calculated by the genetic algorithm using both observed dispersion curve and H/V spectra. The influence of higher modes of Rayleigh and Love waves was considered for the observed H/V spectra but neglected for the observed dispersion curve.

Keywords: Microtremor Array Measurement, H/V Spectra, Dispersion Curve, 2018 Hokkaido Iburi earthquake, Velocity Structure