A Study on anisotropy of shear wave velocity near the source region of the 2016 Kumamoto earthquake
-On the basis of seismic interferometry between ground surface and down hall of KiK-net observation-

*Kentaro Motoki[1], Kenichi Kato[1]

1. Kobori Research Complex

Some studies said that site amplification might affect destructive strong ground motions around Mashiki-Town according to results of aftershock observation and microtremor measurements. We evaluated subsurface structure models from microtremor array explorations, and explained that the resulted Vs structure models caused high amplitude of ground motions along NS direction, comparing between Mashiki-Town and just near a surface fault. The Vs models could not, however, reproduced strong motions along EW direction, and we found that different natural periods showed from each other horizontal direction at Mashiki Town (KMMH16). In this report, we investigated anisotropy of Vs near the source region of the 2016 Kumamoto earthquake, by applying seismic interferometry to KiK-net data.
We picked 3 stations, which are KMMH16, KMMH14 and KMMH03, as target sites. Resulted anisotropy parameters, which is $(v_{fast}-v_{slow})/v_{fast}$, are 0.22 at KMMH16, 0.23 at KMMH03 and 0.15 at KMMH14. This anisotropy might not be explained by irregularity of subsurface structure, because there were few changes in results of seismic interferometry by binned back azimuth.
We expect directional difference of stress field due to plate motion as a factor of anisotropy, because Nakata and Snieder(2012) showed that the fast shear wave direction correlated with the direction of the plate motion in Tohoku district, Japan. In near future, we will apply this investigation to a number of stations, and will construct subsurface structure model for each polarization direction considering with other explorations, e.g. receiver function and phase velocity.

Keywords: the 2016 Kumamoto earthquake, seismic interferometry, KiK-net, anisotropy of shear-wave velocity

