

## Ground motion amplification obtained with microtremor, aftershock and borehole measurements in heavily damaged zone in the Mashiki town, Kumamoto prefecture

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Heavily damaged zone by the ground motion of the 2016 Kumamoto earthquake, Japan, was recognized in the downtown area of the Mashiki town, Kumamoto prefecture. Five records of the mainshock in/around the zone show that the ground motion in the zone were about 2-3 times stronger than that observed at KMMH16 in terms of the linear response around the period 1 sec. (Hata et al., 2016), which might explain difference of the damage. Goto et al. (2016, 2017) demonstrated that the nonlinear response of the shallower soil (down to 50 m as much) owed much to the amplification. We conducted borehole survey (Yoshimi et al., 2016, 2017; Shingaki et al., 2017), aftershock and microtremor observation at three sites in the damaged zone. Site amplification characteristics of those sites in linear and nonlinear regime will be demonstrated.

Keywords: 2016 Kumamoto Earthquake, Ground amplification, Aftershock observation, Borehole survey, nonlinear site response