

Along-Strike Ground Motion Variation for the 2016 Kumamoto Earthquake Sequence

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Several earthquakes mainly with strike-slip faulting occurred during the 2016 Kumamoto earthquake sequence. Ground motions are observed by nationwide seismic networks installed after the 1995 Kobe earthquake. Especially, long-period ground motion pulse with a dominant period of around 3 s is observed along-strike stations as seen at NIED/KiK-net KMMH16 (downhole), Nishihara village station of the Kumamoto prefecture, KiK-net KMMH04 (ground surface). Fault parallel components are larger between the Mashiki town and the Nishihara village, on the other hand, fault normal components are larger inside the caldera of the Aso volcano. The former indicates rupture passed through along-strike stations, and the latter stations located at the forward rupture direction (e.g., Miyatake, 1999). We here investigate ground motion characteristics of the fault normal, fault parallel, and vertical components. In addition to the along-strike stations, ground motions at the rock site stations as KMP1 (Kyushu University) and NIED/F-net well constrain pulse width and arrival times for short-period and long-period components. However, current density of permanent stations is not enough to capture overall ground motion characteristics for M7-class inland crustal earthquakes. To overcome this issue, temporary strong motion observation along strike direction is deployed just after the 2016 Kumamoto earthquake sequence. The temporary stations record small-to-moderate size earthquakes. We introduce ground motion characteristics of some along-strike stations (Kumamoto Techno Research Park and Toriko in the Nishihara village) from azimuth dependency of source locations.

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