

Modeling procedure of fault rupturing with detailed information of surface traces for predicting strong motions and permanent displacements

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We explained a modeling procedure of fault rupturing with detailed information of surface traces for predicting strong motions and permanent displacements. An example was shown for the 2016 Kumamoto earthquake, Japan. Figure 1 shows the seismic fault model (deep fault) obtained by Oana *et al.* (2019) and earthquake surface fault observed by Shirahama *et al.* (2016). Figure 2 shows an example of connecting the seismic fault (Futagawa segment) with the segment f01 of the earthquake surface faults. Figure 3 shows the slip-velocity time functions on the fault. Here, we assumed that the peak velocity on the shallow fault was a half the peak velocity on the seismic fault (deep fault). Figures 4 and 5 shows the calculation results of ground displacements.

Keywords: inland crustal earthquake, fault-rupturing model, surface fault trace, strong ground motion prediction, permanent displacement prediction, 2016 Kumamoto earthquake

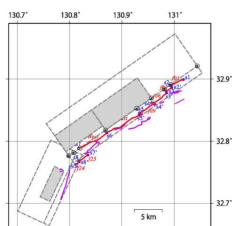


図 1 2016 年熊本地震の Oana *et al.* (2019) による震源断層と Shirahama *et al.* (2016) による地殻地震断層

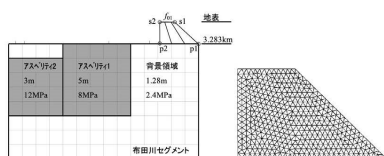


図2 2016年熊本地震の震源断層と地表地震断層 f_{01} を結んだ例

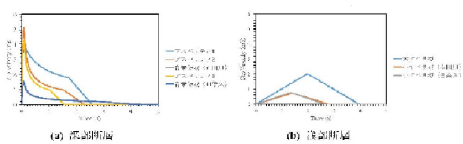


図3 2016年熊本建築のすべり速度時間関数

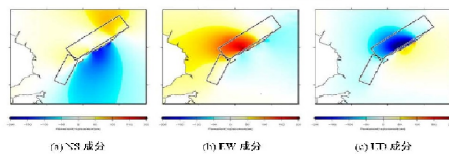


図4 計量で得られた2016年熊本地震の永久変位分布(市田川セグメントのみを平均化)

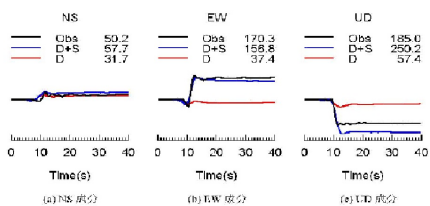


図5 西原村における変位波形(単位は μm)の比較