[JJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS14]Strong Ground Motion and Earthquake Disaster

convener:Masayuki Kuriyama(Central Research Institute of Electric Power Industry)
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Strong ground motion has social impacts as it induces earthquake disasters. We solicit contribution on any seismological topics related to strong ground motion that includes, but are not limited to, source processes, wave propagation, and site effects. We also welcome contribution on earthquake related disaster mitigation.

[SSS14-P16]Characteristics of ground vibration and cause of structural damage due to the 2016 central Tottori prefecture earthquake in the central Tottori prefecture, Japan

*Tatsuya Noguchi[1], Sho Nakai[1], Kazu Yoshimi[1], Hiroshi Ueno[1], Taiga Hidaka[2], Hayato Nishikawa[3], Shohei Yoshida[1], Takao Kagawa[1] (1.Department of Management of Social Systems and Civil Engineering, Civil Engineering Course Graduate School of Engineering, Tottori University, 2.Department of Civil Engineering, Tottori University, 3.NIT. Maizuru college, Mizuru)
Keywords:2016 central Tottori prefecture earthquake, structural damage, microtremor observation, characteristics of ground vibration

An earthquake (Mj6.6) occurred in central Tottori Prefecture in Japan on October 21, 2016. Characteristics of ground vibration and nonlinear soil response of the strong ground motion observation sites were understood from analysis of seismic data in the central Tottori Prefecture, Japan. Also densely microtremor observations were carried out to estimate the characteristic of ground vibration in the damage area. Microtremor H/V spectra and a distribution of the predominant period and underground structure models were obtained, and grasped the ground vibration based on this result. In addition, we calculated a nonlinear soil response due to this earthquake using an index for easily evaluating the degree of nonlinear response. Further, maximum response deformation angles were estimated from seismic records and we considered the relation with characteristics of ground vibration and nonlinear soil response, and investigated a cause of structural damage. As a result, it was found that a difference of the underground structure depth to about 10m and a short period component of predominant period less than 0.5seconds may have influenced structural damage.