Geophysical Research Abstracts, Vol. 7, 06981, 2005
SRef-ID: 1607-7962/gra/EGU05-A-06981

Estimation of S-Wave Velocity Structures in Hualien, Taiwan, Using Array Records of Microtremors

Huey-Chu Huang and Ming-Chung Yao

Institute of Seismology, National Chung Cheng University, Chia-Yi, Taiwan
(seihuey@eq.ccu.edu.tw / Fax: 886 5-2720807)

The objective of this study was to estimate the S-wave velocity structure of the Hualien area, which is needed for strong-motion evaluation. To achieve this goal, we have conducted array measurements of microtremors with a total of 20 arrays at five sites (DAH, SUW, YIT, ROK, and MEL) in Hualien. According to the F-K analysis, in frequencies lower than about 1 Hz, propagation directions are concentrated in the eastern direction. It may be generated by the effect of the Pacific Ocean. The harder site (MEL) has higher phase velocities while the softer sites (DAH, SUW, YIT) have lower phase velocities especially at the frequencies of 1∼5Hz. Based on the surface wave inversion technique using phase velocities estimated from array records of microtremors, we find that the alluvial thickness in Hualien is about 500∼700m if the S-wave velocity of the bedrock is assumed to be 1500 m/sec. The shallow velocity structure at the depths less than 800m can be roughly divided into 4∼5 layers. The depths of the alluvium gradually increase from the east (MEL) to the west (SUW).