



Seismic response of a Taiwanese ridge

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A line of 6 broadband seismometers have been deployed across a ridge in the Hualien County (Eastern Taiwan) in order to study the seismic response of the hill. From March 2015 to June 2016, the network has been continuously recording waves incoming from the Taiwanese regional seismicity. The hill is well approximated by a triangular topography of 3600m in length by 900m in height. We present the primarily analysis performed on 1272 earthquakes of magnitude (M_l) greater than $M_l=3$ and less than 200km distant to the study site. We show that most of the uphill records exhibit a systematic amplification of seismic waves (peak to peak velocity) on the resonance frequency band of the ridge [0,5-3Hz] with respect to the referenced records at the base of the hill. Amplification on sharp frequency band also occurs in other sites, reflecting complex local site effects. We found that the average amplification at the top on the transverse component to the ridge elongation is found to be 2.5 time higher than the one on the parallel. This amplification is found to be independent of the shaking intensity (PGV). But we show that it strongly depends on the parameter α defined as the angle between the azimuth of incoming wave and the azimuth of the ridge divide.