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Site amplifications for generic rock sites in Central Italy

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We propose the generic site response for Mesozoic carbonate rocks outcropping in Abruzzo region (Central Italy). In order to determine the absolute site response at the twenty-one Abruzzo Regional network stations, we used 478 events with moment magnitudes ranged between 2.0 and 4.1. Absolute site effects are evaluated by deconvolving the detailed regional attenuation function and coda-derived source spectra from the direct S-wave spectra that are previously derived by Malagnini et al., (2008) using the same dataset in the region. The sites are defined absolute because both coda-derived source and attenuation term are not biased by any specific site term and are independent from any interaction with other terms. Details of the method are described in previous studies by Malagnini et al. (2007), and Mayeda et al. (1996, 2003). Results for each site are averaged over wide ranges of azimuths and incidence.
In order to define a generic rock site for the Abruzzo region we have selected six of the twenty-one stations that are deployed on carbonate rocks, without site distortion induced by shallow geology and topography. We calculated their means to represent the frequency dependent site amplifications as the generic site response for rocks in the central Apennines. We also compare our results with the BJ97 (Boore and Joyner, 1997) hard rock site and with a previous work performed on the same network by De Luca et al. (1998).