

EGU21-2014

<https://doi.org/10.5194/egusphere-egu21-2014>

EGU General Assembly 2021

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## Evaluation of stratigraphic effects on seismic site response over large areas: the case study of Italy

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Estimation of site effects over large areas is a key-issue for land management and emergency system planning in a risk mitigation perspective. In general, site-conditions are retrieved from available global datasets and the ground-shaking estimation is based on ground motion prediction equations.

An advanced procedure to estimate site effects over large areas is here proposed with reference to the Italian territory. Site-condition were defined for homogenous morpho-geological areas in accordance to the borehole logs and the geophysical data archived in the Italian database for seismic microzonation (<https://www.webms.it/>). Ground motion modifications were determined by means of about 30 million of one-dimensional numerical simulations of local seismic site response. Correlations between amplification factors (i.e. the ratio between free-field and outcrop response spectra), AF, and site-condition (i.e. harmonic mean of the shear wave velocity in the upper 30 m of the deposit,  $V_{S30}$ ) were determined for each morpho-geological homogeneous area depending on the reference seismic intensity (i.e. referred to the outcropping stiff rock characterised by  $V_{S30} \geq 800$  m/s). The AF- $V_{S30}$  correlations were proved to satisfactory forecast the site effects when compared with the results of site specific estimation of local seismic site response.