



## **Site effects estimation for the seismic reclassification of Friuli Venezia Giulia, Italy**

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A seismic reclassification project of the Region Friuli Venezia Giulia, North-East Italy was commissioned by the Regional Board for Civil Defense, involving Universities of Trieste and Udine and OGS Trieste. A number of test sites were selected as "typical terrains" in terms of seismic response. These sites were investigated with both invasive - and relatively expensive - geophysical tools (as calibration) and by cheaper, non-invasive tools: H/V Ratio - also with the use of recently developed SSA- and Wavelet-based preprocessing techniques - and refraction microtremor technique (ReMi). The latter techniques, integrated by the use of 1D and/or 2D modelling of the seismic response at each site, allow the extension of the results to much wider areas. The initial hazard, provided in terms of e.g. PGA, can then be modified by taking into account the filtering acted by the stratigraphy and by the effects of morphology of the sites. The capabilities of the PGA parameter, suggested by the current Italian regulations, for a subsequent risk evaluation, are discussed especially for what concerns the effects on the typical Friulian pre-existing masonry structures, for which the comparison with the database of the damages produced by the Friuli 1976 earthquake suggests that other estimators may be more suitable.