Geophysical Research Abstracts
Vol. 14, EGU2012-11849, 2012
EGU General Assembly 2012

Analysis of array records of ambient noise at Low Andarax River Valley (SE Spain)

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The Andarax river valley is located in a zone of SE Spain with moderate-to-high seismic hazard. In order to investigate the geological structure of this basin, we have performed five passive seismic experiments based on small aperture arrays (R<500m). The datasets have been analyzed by using FK as well as SPAC-like array methods, including some recently developed three-component methods. Reliable shallow ground models have been inverted from Rayleigh- and Love-wave dispersion curves and from the horizontal-to-vertical spectral ratios (HVSR). A novel approach (Sánchez-Sesma et al. 2011) based on the diffuse wavefield theory has been employed for forward calculation of HVSRs.

This work provides new data on the bedrock geometry and elastodynamic properties of the main sedimentary bodies. The retrieved models contribute to the knowledge of the so called “deep aquifer” and will be used in future estimations of the seismic response of the basin. Finally, we also show that joint inversion methods contribute to reducing the uncertainties in the inverted models, especially those regarding the tradeoff between P and S wave velocities of the layers.

References

Sánchez-Sesma F. J., Rodríguez M., Iturrarán-Viveros U., Luzón F., Campillo M., Margerin L., García-Jerez A., Suarez M., Santoyo M. A., Rodríguez-Castellanos A. (2011). A theory for microtremor H/V spectral ratio: application for a layered medium, Geoph. J. Int. 186, 221-225.