



Application of seismic velocity modelling at footwall escarpment areas in Greece

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The contemporary techniques of seismic velocity modelling can be effectively used in the study of complex structures, with acute dips and abrupt changes in the velocity values as those can be met across fault zones.

A variety of cases applied at footwall escarpments areas led us to significant conclusions a) about the usability of those methodologies and b) about reliability of their results.

Example case histories are presented from surveys conducted at the fault areas of Heraklion (Crete), Sparta (Peloponnese) and Arkitsa (central Greece). In all these three cases several tomographic algorithms were tested. Both refraction and reflection arrivals were used in the data processing. The Accelerated Dropping Weight that was used as seismic source, was powerful enough to map the subsurface structure down to bedrock (depth of few hundred meters). The results at shallow depths were combined with borehole data and palaeoseismological trench information.

Extensive analysis was done on the evaluation of the solution with synthetic data. The synthetic data were based on the modelling of some characteristics that are critical to identify the active character of a fault.