

Crustal Composition and Moho Characteristics Beneath Northern African Region: New contribution for seismic Hazard Assessment

Three different techniques will be used to investigate the composition of crust and Moho characteristics beneath the northern African region, including Egypt, Libya, Tunisia, Algeria, and Morocco. These methods are the receiver function (RFs), the joint inversion of RFs and surface wave dispersion (SWD), and seismic tomography. The RFs results will give us the crustal thicknesses (Moho depths) and the composition of the crust beneath each country region. While, by using the joint inversion and seismic tomography, the shear wave velocity model and the characteristics of Moho discontinuity, (sharp or gradational) beneath each country will be obtained. In fact the depth of Moho is an important parameter to characterize the overall structure of a crust and can often be related to the geologic and tectonic evolution of the region. Its lateral variation has strong influence on the seismic wave propagation in the crustal waveguide and controls the strong shaking from damaging earthquakes in certain distance range. As a result, damage could occur due to these coming waves. The work will be focused on how to obtain a significant information not only on the Moho depths or undulations beneath some regions in Morocco but also the characteristics of the Moho discontinuity.

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