



Lithospheric strength across the Africa-Eurasia plate boundary

M.C. Neves

CIMA, Universidade do Algarve, Portugal

The present day deformation mechanisms along a transect running from the South Portuguese Zone to the African-Eurasia plate boundary are investigated using two-dimensional finite element analysis. The input model is based on published results on lateral variations of layer composition and geothermal gradient proposed by Fernández, Marzán and Torné (2004). Several power law rheologies coupled with a frictional law in the brittle regime are tested for the oceanic crust, mantle, upper, middle and lower continental crust. The relative contribution of these different layers to the total strength of the lithosphere is systematically assessed. As a result, lateral variations of strength are mapped and the spatial distributions of viscosity and strain rate are computed along the transect. The model results are discussed in the light of the observed strain rates and seismicity .