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Delineation of Deformation Using Finite Element Modeling: A Case From Western Turkey

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In this study, theoretical models are composed using finite element method for understanding the deformation changing on an extensional zone. Gediz Graben, which is located at Western Turkey, is chosen as a case study area. The geometry and rheology of the study area are very complicated. Finite element modeling is a good method for solving these complex problems. Mohr-Coulomb material for brittle upper crust, Drucker-Prager material for middle crust and power law creep material for lower crust are used in the theoretical model. The results are presented to show how surface deformation is influenced by the distribution of these rheology and fault geometrics. Finally these results are compared with Gediz Graben which is an excellent example of continental extension in a back-arc environment.

Keywords: Finite element modeling, extensional zone, Gediz Graben.

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