Geophysical Research Abstracts, Vol. 9, 01781, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-01781

Recent deformation in the basement of the Bajo Segura Basin

I. Martín-Rojas, P. Alfaro, A. Estévez and M. Martín-Martín

Dpto de Ciencias de la Tierra y del Medio Ambiente, University of Alicante

Ap 99, 03080, Alicante, Spain. Ivan.Martin@ua.es

The Bajo Segura Basin is located in the eastern sector of the Betic Cordillera, the westernmost segment of the Alpine peri-mediterranean chains. Currently, this region is undergoing the convergence of the African and Euroasian plates (4-5 mm/year). As a result, the regional stress field is dominated by NW-SE compression (and perpendicular extension), responsible for the folding and fracturing of the Lower Segura Basin Miocene-Quaternary infilling. The basement of this basin consists of marbles, phyllites and quartzites belonging to the Alpujarride Complex (Internal Betic Zone). In this work, we have characterized the structure of this basement in order to elucidate the effects of the recent deformation.

In the Orihuela and Callosa ranges, the main outcrops of the basement of the Lower Segura Basin, the structure is dominated by syn- to late-metamorphic vergent folds and nappes. These structures are affected by broad open folds of kilometric scale with ENE-WSW strike. North of the Orihuela range, north-dipping Upper Miocene (Tortonian) rocks overlie north-dipping basement rocks. South of this range the basement dips towards the south, whilst the infilling of the basin is covered by more than 30 m of horizontal Holocene deposits; the available seismic profile reveals how the sediments overlying the basement also dips southwards. On the basis of these data the Orihuela range can be considered to be an open anticlinorium developed from the Upper Miocene on.