The Significance of the Active Tectonics and Seismicity in the Central Part of the Betic Cordillera (Granada and Guadix-Baza Basins, Southern Spain)

C. Sanz de Galdeano[1], C. López Casado[2], and J.A. Peláez[3]
[1] IACT, CSIC-Univ. of Granada, Spain,
[2] Dpt. of Theoretical Physics, Univ. of Granada, Spain
[3] Dpt. of Physics, Univ. of Jaén, Spain

The Betic Cordillera is the most tectonic and seismically active region of the Iberian Peninsula, where several large historical and instrumental earthquakes have produced local but significant effects in the past. Its central part is to a great extent occupied by the Granada and Guadix-Baza basins, in addition to the important mass of Sierra Nevada. Specially, in the Granada Basin, there are important active faults with associated seismicity. In contrast, in the Guadix-Baza basin active faults are less important, with the exception of the Baza fault, being the seismicity clearly lower.

The majority of these active faults correspond to NW-SE faults that greatly contribute to the present ENE-WSW extension, nowadays suffered by the Betic Cordillera. This extension is combined with a perpendicular NNW-SSE compression that, since the Late Miocene, formed the great anticlinorium of Sierra Nevada. Nevertheless, most earthquakes present extensional, and in some cases strike slip, focal mechanisms, indicating the importance of the extension and transpression, at least in shallow structural levels.

Key words : Betic Cordillera, Active tectonic, seismicity, earthquakes