

GEOELECTRICAL CONSIDERATIONS OF THE CENTRAL BETIC LITHOSPHERIC STRUCTURE: EXTENDING THE PREVIOUS WORKS TOWARDS WEST

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The Betic Chain is a WSW-ENE oriented Alpine Chain located in the western end of the Mediterranean. Together with the African Rif Chain it forms an arc shaped orogenic belt surrounding the Alboran Basin, formed as a consequence of the convergence between the African and Iberian plates since the Late Cretaceous. The Betics are divided into the External Zone, formed by sedimentary rocks of the former Iberian Massif margin, and the Internal Zone, which is a stack of three metamorphic complexes that were emplaced over the External Zone. Both Internal and External parts of the Betic Chain overthrust the Iberian Massif. The Betic Chain has been the focus of numerous geophysical studies pointing at the study of its crustal and lithospheric structure, showing its complexity. The 3D geoelectrical model obtained from a previous magnetotelluric study had shown the presence of an upper- middle crust conductor in the Internal Zone, interpreted as high conductive mineralisations. New magnetotelluric data has been acquired in the area by the University of Barcelona in order to check whether this conductor body has continuity towards West or not, and to better constrain the structures imaged in the previous model, using 3D inversion modelling. Preliminary results show that the conductive body under the Sierra de los Filabres has no clear continuity to the West under Sierra Nevada. A new conductor appears West of Granada. Its depth and conductivity are being constrained through several sensitivity tests. Some other new conductive and resistive bodies appear at the Western part of the model, which can be associated to geological units such as the Alpujárride Complex or the Granada Basin. Moreover, new long period magnetotelluric data is being processed in order to characterize the deepest structure in the area.

Magnetotellurics, Betics, 3D inversion

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