Geophysical Research Abstracts
Vol. 13, EGU2011-5693, 2011
EGU General Assembly 2011

Seismic anisotropy pattern beneath Iberia and Northern Morocco: first results from the second TopoIberia-IberArray deployment

Jordi Diaz Cusí, Josep Gallart, and TopoIberia Seismic Working Group
ICT J. Almera - CSIC, Geophysics, Barcelona, Spain (jdiaz@ictja.csic.es, 34 934110012)

In the framework of the large-scale TOPOIBERIA project, and starting in summer 2009, the central part of the Iberian Peninsula has been covered by a network of up to 55 broad-band seismic stations distributed in a regular grid, with a nominal spacing of 60 km. 19 additional stations have remained operative in the Northern part of Morocco till the summer 2010. From this date on, most of them have been moved southward, covering the Atlas belt.

Beneath Iberia, this second deployment covers mainly the Variscan units of the Central Iberian Massif, even if, to the East, the investigated area includes the southern part of the Celtiberian Chain and reaches the Valencia Gulf, affected by a significant extensional episode in Neogene times. Beneath Morocco, the recently installed stations covers the Atlas belt, and area with a still not well understood geodynamics, that seems to show a significant lithospheric thinning.

We focus here in the results related to the presence of anisotropy as evidenced from the analysis of splitted teleseismic phases. To investigate this feature, events with epicentral distances between 85 and 120 degrees and magnitude greater than 5.8 are systematically extracted from the continuous dataset and SKS, SKKS and PKS phases are inspected for anisotropy using the SplitLab software.

We expect that the results would extend the anisotropic map obtained from the first TOPOIBERIA-Iberarray deployment in the Betics-Alboran zone (Díaz et al, 2010). The inferred FPD have clearly documented a spectacular rotation along the Gibraltar arc, following the curvature of the Rif-Betic chain, from roughly N65E beneath the Betics to close to N65W beneath the Rif chain. The stations of that first deployment located in the Iberian Massif tend to present a relatively small amount of anisotropic and suggest the presence of complex anisotropy features, probably including two anisotropic layers. The southernmost stations of the first deployment, located in the northern part of the Atlas belt, suggest that the FPD is subparallel to the belt.

Even if the processing of the dataset from this second deployment is still ongoing, we expect that the first results presented here will provide new elements to the knowledge of the geodynamics of this complex area and, in particular, of the anisotropic properties beneath the Iberian Central Massif and the Atlas belt.