



## **S-waves velocity model for the SW-Iberia derived from the IBERSEIS wide-angle seismic reflection transects**

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The IBERSEIS wide-angle seismic reflection transects acquired in 2003 in SW-Iberia Peninsula provided constraints on the P-wave seismic velocity structure across the three tectonic provinces in the area: the South Portuguesse Zone (SPZ), the Ossa-Morena Zone (OMZ) and the Central Iberia Zone (CIZ). These data were acquired by 650 vertical component seismographs (TEXAN seismic recorders) from the IRIS-PASSCAL Instrument center, using explosive sources with charge sizes ranging from 500 to 1000 kg. Both transects A and B are, approximately, 300 km long with a station spacing of 400 m and of 150 m respectively. The relatively small station spacing favored the lateral correlation of the seismic events and provided enough resolution for the identification of shear-wave arrivals. The most prominent S-wave phase recorded by the vertical component sensors corresponds to the SmS which is nearly horizontal for a velocity reduction of 4600 m/s. This phase can even be followed up to near vertical incidence at 18 s(twtt). A few S-wave crustal arrivals can be also identified, although at small offsets they interfere with the previous P-wave arrivals. The Sn phase can be observed at very far offsets providing additional constraints on the nature of the shallow subcrustal mantle. Furthermore, slant stacks of the shot gathers (tau-p sections) reveal the existing of PS energy. PS phases are more difficult to identify in the shot gathers. Finally, a preliminary S-wave velocity model has been derived by iterative forward modeling to provide additional constraints on the nature of the deep crust and upper mantle beneath the Variscan of SW-Iberia.