



## **STRUCTURE OF THE SOUTHEASTERN CONTINENTAL MARGIN OF THE BAY OF BISCAY: RESULTS FROM MARCONI DEEP SEISMIC REFLECTION PROFILES**

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The Bay of Biscay formed during the Cretaceous as a consequence of the opening of the North Atlantic. The convergence between the Iberian and Eurasian plates during the Tertiary resulted in the building of the Pyrenean-Cantabrian Mountains on land, and the partial closure of the Bay of Biscay. The main part of this deformation and shortening concentrated in the North Iberian Margin and convergence stopped at an early stage, making this area a unique place to study the initial stages of deformation in a passive margin. In summer 2003, 11 deep seismic reflection profiles were acquired in the MARCONI seismic experiment, aboard the Spanish R.V. Hesperides, providing a new 3D image of the structure at the south-easternmost part of the Bay of Biscay. This new set of reflection seismic data show that the structure of this margin is characterized by a thick sequence of Tertiary sediments (up 4 s TWT) partially deformed by northward vergent thrusts and related folds. The kinematic analysis of growth structures in the syntectonic Tertiary units allows the detailed establishment of the tectonic evolution of the margin. A Mesozoic sedimentary basin imaged has indications of a Tertiary tectonic inversion. Evidences of lateral and/or transfer structures coincide with two important North-South striking submarine canyons. Another relevant feature inferred from the seismic images is the development of very recent episodes of deformation affecting the sea floor which could be partially related to salt

activity.

The overall crustal structure of the south-easternmost part of the Bay of Biscay has been interpreted as a thinned continental crust underthrustled below the extremely steep North Spanish continental slope. The new MARCONI multichannel seismic images together with the coincident refraction/wide angle reflection data acquired during the cruise might give more support to this interpretation and reveal the transition of the North-Pyrenean structural units towards the eastern part of the Bay of Biscay.