
Bay of Biscay: a cornerstone for the Iberia Plate kinematics

Roxane Mathey^{*1}, Julia Autin¹, Gianreto Manatschal¹, Daniel Sauter¹, Marc Schaming¹, and Luis Somoza²

¹Institut Terre Environnement Strasbourg – université de Strasbourg, Centre National de la Recherche Scientifique : UMR7063, Centre National de la Recherche Scientifique – France

²Instituto Geológico y Minero de España – Espagne

Résumé

The Iberia Plate kinematics is a challenging topic since decades of research. The constraints allowing to characterize its movement are not well established spatially and temporally. Indeed, the use of magnetic lineation as markers of Earth Magnetic Field Reversals (EMFR), and thus isochrons, is highly controverted, both in the Western Iberia rifted margin (Atlantic Ocean) and in the Northern Iberia / Europe rifted margins (Bay of Biscay). Indeed, the breakup takes place during the Cretaceous magnetic quiet zone and the former M0 isochron (J anomaly in the Western Iberia margin) is now considered as diachronic and not related to EMFR. Moreover, the margins evolution prior to final spreading is dominated with mantle exhumation that can record several stages of deformation, that are not considered in classical kinematic models. This PhD thesis is part of the ANR project FirstMove. This work is based on seismic reflection data acquired during the Breogham cruise (2005) around the Galicia corner and through the presumed fossil spreading ridge. We use an iterative approach with the analysis of seismic and magnetic data nourishing our kinematic models (Gplate software) and with the identification of retroactive effects of the kinematic models that should be observed in the geophysical data. Here, we present our first attempts at identifying possible spatial and temporal markers (sedimentary sequences, structural indicators of movement direction...) that could complement the re-analysis of the magnetic signal in the basin.

Mots-Clés: Bay of Biscay, seismic reflection, magnetic anomalies, kinematics

^{*}Intervenant