Geophysical Research Abstracts
Vol. 18, EGU2016-13736-1, 2016
EGU General Assembly 2016

Architectures of the Moroccan continental shelf of the Alboran Sea: insights from high-resolution bathymetry and seismic data.

Manfred Lafosse (1), Christian Gorini (1), Pascal Leroy (2), Elia d'Acremont (1), Marina Rabineau (2), Gemma Ercilla (3), Belén Alonso (3), and Abdellah Ammar (4)

(1) PSorbonne Universités, UPMC Univ Paris 06, CNRS, Institut des Sciences de la Terre de Paris (iSTeP), 4 place Jussieu 75005 Paris, France, (2) Université Européenne de Bretagne, Université de Brest, CNRS, UMR 6538 Domaines Océaniques, Institut Universitaire Européen de la Mer, Place Copernic,29280 Plouzané, France, (3) Institut de Ciències del Mar, CSIC. Passeig Marítim de la Barceloneta 37-49, 08003,Barcelona, Spain, (4) Université Mohammed V-Agdal, Rabat, Morocco

The MARLBORO and the SARAS oceanographic surveys have explored the continental shelf in the vicinity of the transtensive Nekor basin (South Alboran Sea, Western Mediterranean) and over three submarine highs located at several tens of kilometers from the shelf. Those surveys have produced high-resolution ($\leq$29m^2/pixel) bathymetry maps. Simultaneously, seismic SPARKER and TOPAS profiles were recorded.
To quantify and understand Quaternary vertical motions of this tectonically active area, we searched for morphological and sedimentary paleobathymetric or paleo-elevations markers. Shelf-edge wedges associated marine terraces and paleo-shorelines have been identified on the bathymetry and on seismic cross-sections. These features reflect the trends of long term accommodation variations. Along the Moroccan continental shelf the lateral changes of shelf-edges geometries and the spatial distribution of marine landforms (sedimentary marine terraces, sediment wave fields, marine incisions) reflect the interaction between sea level changes and spatial variations of subsidence rates.
Positions of paleo-shorelines identified in the studied area have been correlated with the relative sea-level curve (Rohling et al., 2014). Several still stands or slow stands periods have been recognized between -130-125m, -100-110m and -85-80m. The astronomical forcing controls the architecture of Mediterranean continental shelves. Marine landforms distribution also reveals the way sea level changed since the LGM. The comparison with observations on other western Mediterranean margins (e.g. the Gulf of Lion, the Ionian-Calabrian shelf) allowed a first order access to vertical motion rates.