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Abstract
Nuove idee per la perforazione scientifica

The Oligocene switch from compression to extension in the Western Mediterranean: insights from drilling offshore Corsica

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In Late Eocene - Early Miocene the geodynamic setting of the Mediterranean sector corresponding to Corsica/Sardinia and the adjacent Tyrrhenian and Balearic/Gulf of Lion seas evolved from a compressional into an extensional regime. In Corsica a piece of the “undeformed” European plate is preserved, on top of which remnants of the Alpine wedge are stacked. The youngest sediments affected by the Alpine metamorphism are Bartonian in age, whereas the oldest sediments sealing the thrust contacts are Burdigalian. Although no Oligocene sedimentation has been reported from onshore Corsica, sediments of this age have been found along the eastern and north-western shelf offshore Corsica. In the latter case, the Oligocene sedimentation is described as syn-rift deposits associated to the opening of the Gulf of Lion back-arc basin, caused by the anticlockwise rotation of the Corsica-Sardinia block. However, at present access to this data is limited to seismic data (CROP M12A, ECORS) and proprietary drill hole data (Jolivet et al., 2015; Tognarelli et al., 2011). Thus, the only way to access these rocks that bear an important record on the geodynamic evolution of the Western Mediterranean is to drill them. Access to this data will enable to analyze the tectono-metamorphic, stratigraphic and paleo-morphological evolution of Corsica and the whole Western Mediterranean during the switch from compression to extension. Key questions are: what controls this change, how fast does it occur, and how is it recorded in the sedimentary evolution. Moreover, this study, together with the investigation of seismic data, will enable to analyze how far inherited orogenic structures have been used during the rifting stage.

For this reason, we propose to drill the Oligocene sequences at both sides of the island of Corsica, in order to: (1) characterize the sediments that constitute the Oligocene deposits, (2) estimate their thickness, and (3) characterize the basement on which they lie.

References.

Jolivet L., Gorini C., Smit J., Leroy S. (2015). Continental breakup and the dynamics of rifting in back-arc basins: the Gulf of Lion margin, *Tectonics*, 34, 662-679.

Tognarelli A., Stucchi E.M., Musumeci G., Mazzarini F., Sani F. (2011). Processing of the CROP M12A seismic line focused on halo-depth geological structures in the northern Tyrrhenian Sea. *Boll. Geof. Teorica e Appl.*, 52, 23-38.

