# **Probing connections between deep earth and surface processes**

# **in a land-locked ocean basin transformed into a giant saline basin:**

# **the Mediterranean IODP Pre-857A project[[1]](#footnote-1)**

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**Abstract**

Due to its youth (<30 Ma) and its history of strong subsidence, the almost land-locked Gulf of Lion-Sardinia continental margins system provides a unique record of sedimentary deposition from the Miocene to present. Palaeoclimatic variations, tectonic events, and subsidence history are all recorded there at very high resolution. The late Miocene isolation and desiccation of the Mediterranean, the youngest and most catastrophic event which occurred in the Neogene period, the Messinian Salinity Crisis (MSC), induced drastic changes in marine environments: widespread deposition of evaporite (gypsum, anhydrite and halite) in the central basin, and intense subaerial erosion along its periphery. These extraordinary mass transfers from land to sea imparted strong isostatic re-adjustments that are archived in the sedimentary record and represents a window to the lithospheric rheology and the deep processes.

The GOLD project, pre857A, part of the Umbrella proposal “Uncovering a salt Giant”, proposes to explore this unique sedimentary record as well as the nature of the deep crustal structure, providing valuable information about the mechanisms underlying vertical motions in basins and their margins. The pre-proposal has been accepted by the SEP-CIB panels, a Full proposal will be submitted on 1st April 2015.

**Keywords :**

Deep drilling, Paleoclimate, Messinian, Deep Biosphere, Geodynamic

1. DREAM : Deep-sea Record of Mediterranean Messinian Events Drilling project

   GOLD : Gulf Of Lion Drilling Project

   MSC : Messinian Salinity Crisis [↑](#footnote-ref-1)