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Preliminary results from the SARDINIA deep seismic cruise on the Western Sardinia and Gulf of Lions conjugate margin pair

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The conjugate margins of the Gulf of Lions and West Sardinia represent a unique natural laboratory to address fundamental questions (e.g. on crustal thinning and on the nature of the transition zone) on the formation of continental margins: i) these margins are young; ii) detailed stratigraphic and tectonic data are available, onshore and offshore; iii) plate kinematic reconstructions are well constrained, and thus the conjugate margins can be readily compared; iv) Messinian reflectors provide information on the paleo-geometry of the basin 5.5 Ma ago. The main goals of the SARDINIA project were to image the deep structure of the conjugate margin pair, to characterize the nature of the crust and to define the geometry of the basins using reflection and wide-angle seismic data.

The North-Western basin of the Mediterranean results from the rotation of the Corsica-Sardinia block which started 30-20 Ma ago. The basin is presumed to be oceanic in nature. During the SARDINIA cruise of the R/V Atalante in December 2006, three wide-angle seismic profiles were acquired in the Gulf of Lions area and three profiles on the conjugate margin offshore Sardinia.

During the cruise, a total of 57 ocean bottom seismometer/hydrophones (OBS/OBH) from Ifremer, the University of Brest and Geomar, Kiel were deployed in the Gulf of Lions region and 47 OBS and OBH offshore Sardinia. The seismic profiles perpendic-

ular to the margin were extended on land by landstations. Two OBH were moored on 900 m lines to record the far field signature of the airgun array, which consisted of of 16 airguns in size from 100 in3 G-guns to 16 L Bolt airguns. First interpretations of the deep seismic data from the margin perpendicular profile located in the Gulf of Lions confirms Ecors Experiment results and indicates, that crustal thinning in the Gulf of Lions area occurs within a 100 km wide zone. Part of this zone is also characterized by high crustal velocities ($>$ 7 km/s) atypical for either thinned continental or normal oceanic crust. The sedimentary layer shows a thickness of up to 7.5 km and is locally strongly disturbed by salt tectonics.