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New paleomagnetic data from Jurassic Sediments from Sardinia ()

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The dynamic history of the Corso-Sardinian microplate since Oligocene times is well defined based on numerous geologic, geophysical and paleomagnetic studies (e.g. Vigliotti and Langenheim 1995), especially the counter clockwise rotation and the associated opening of the Liguro-Provençal ocean (Gattacceca et al., 2007). In the early 80's Horner and Lowrie (1981) published paleomagnetic results from Jurassic and Triassic carbonates from the Orosei region, eastern Sardinia. Although these data are of rather poor quality they nevertheless indicate a two step rotational history of the microplate. Horner and Lowrie concluded that a cw rotation of ~70° -90° is required in order to compensate the opening of the Liguro-Provençal ocean and to restore Sardinia into its pre-Oligocene position. However these results are of very limiting regional spread and do not allow to test the structural integrity of the island for post-Jurassic times. Data for the Permian basins and the Carboniferous dyke swarms indicate large rotations between

Northern, Central and Southern Sardinia (Emmer et al., 2005). In order to better constrain the timing of these movements a detailed paleomagnetic study was undertaken covering all areas of Sardinia where Jurassic rocks have been identified. A total of 367 samples from 46 sites was subjected to stepwise thermal and AF demagnetization experiments, yielding well defined characteristic directions of magnetization. The primary character of this magnetization is supported by positive fold and reversal tests. The resulting mean direction, based on 31 sites ($\alpha_{95}=8.4°$) is D = 273.6° and I=+43.0° (Sardinian coordinates) is in very good agreement with the older data published by Horner and Lowrie (1981). Furthermore it indicates that no internal rotation of post-Jurassic age affected the island. This result has important implications for the interpretation of the paleomagnetically identified rotations for Permian basins and Permo- Carboniferous dyke swarms of Sardinia.

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