

The new Tithonian-Maastrichtian polar wander path for stable Adria based on direct paleomagnetic results from the foreland of the Southern Alps and from autochthonous Istria

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During recent years we carried out a systematic paleomagnetic study on Late Jurassic-Cretaceous pelagic sediments from the Lessini and Berici Mountains and from the Euganei hills on one hand and on the platform carbonates of similar ages from autochthonous Istria, on the other hand.

The exact ages of the paleomagnetically studied localities were assigned by checking the microfossils for each sampled bed and eventually the basin and platform facies were correlated. Overall, paleomagnetic directions were calculated for several age groups, some of them representing either the basin or the platform, but most of them a combination of the two.

The new APW based on the paleomagnetic directions from the Adige embayment (corrected for inclination shallowing for Turonian and younger Cretaceous) and stable Istria comprises paleomagnetic poles for eight time intervals. Its length is comparable to that of the synthetic APW for Africa for the investigated time interval. However, the direct observations for stable Adria reveal that the best part of the Cretaceous CCW rotation took place during Late Aptian–Early Albian which is the time of emergence for Istria and submarine erosion in the basin. After this quite fast and important displacement, stable Adria rotates slightly but steadily in the CCW sense till the Maastrichtian, without any indication for a short term CW rotation around 80Ma which is evident in the synthetic APW for Africa.

Declinations for stable Adria are systematically more westerly than those derived from the African APW. Nevertheless, this is not the consequence of a small post-Cretaceous CCW rotation of stable Adria with respect to Africa, but the resultant of an about 30° post-Eocene CCW and a smaller CW rotation which took place with respect to Africa during the time interval of 70–40Ma.

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