

THE 150-70 MA APW FOR STABLE ADRIA FROM DIRECT PALAEOMAGNETIC DATA OBTAINED FROM BIOSTRATIGRAPHICALLY CONTROLLED AND CORRELATED BASIN (ADIGE EMBAYMENT) AND PLATFORM (ISTRIA) CARBONATES

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During recent years, a systematic paleomagnetic study was carried out on a total of 54 geographically distributed localities from the stable foreland of the Southern Alps (Adige embayment) and from stable Istria, respectively. The exact biostratigraphic ages were assigned to the localities by checking the microfossil for each sampled bed under the microscope and eventually groups of coeval localities from the basin and the platform were defined. These groups are characterized by well-clustered paleomagnetic directions up to the Turonian. With the onset of the Scaglia Rossa deposition paleomagnetic declinations remain remarkably consistent, but the inclinations are significantly shallower in the basin (due to compaction) than in the platform. Comparison between the inclinations for hard-ground and compacted Scaglia from the same section as well as estimation of inclination shallowing from measurements of the anisotropy of the remanence suggested that a factor of 1.18 should be applied to the Scaglia localities.

The new APW based on the combination of 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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