



Evidences for multiple remagnetization of Proterozoic dykes from Iguerda inlier (Anti-Atlas Belt, Southern Morocco)

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Paleomagnetic data able to constrain the paleoposition of the West African Craton (WAC) during Paleo-Mesoproterozoic are absent, mainly due to gaps on the sedimentary record and intense remagnetizations. Dykes that intrude several Proterozoic inliers of WAC in the Anti-Atlas Belt (southern Morocco) have recently been subjected to geochronological studies, which revealed ages between Paleoproterozoic and early Neoproterozoic. Therefore, these dykes represent a window of opportunity for paleomagnetic studies aiming to infer about the paleoposition of WAC during Proterozoic. On this scope we conducted a paleomagnetic study on seven Proterozoic dykes of the Iguerda inlier. We determined the paleomagnetic directions and evaluated their meaning by rock magnetic and mineral analyses, complemented by petrographic observations. Results revealed that these rocks record the presence of a complex history of remagnetization events, mostly assigned to several Phanerozoic thermal/chemical events. In particular, we found components assigned to the late stages of Pan African orogeny (s.l.), to the Late Carboniferous Variscan orogeny, and to more recent events. The recognized remagnetization processes are related to widespread metamorphic events under greenschist facies followed by low-temperature oxidation, both responsible for the formation of new magnetic phases (magnetite and hematite). The primary (magmatic) thermo-remanent magnetization of the dykes was obliterated during these events through multiple thermal and chemical remagnetizations. For only one dyke the presence of primary magnetization is possible to infer, though not to confirm, and would place WAC at an equatorial position around 1750 Ma.

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