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Constraints on the Ediacaran Inertial Interchange True Polar Wander Hypothesis: a New Paleomagnetic Study in Morocco (West African Craton) submitted to: *Precambrian Research*

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Constraints on the Ediacaran Inertial Interchange True Polar Wander Hypothesis: a New
Paleomagnetic Study in Morocco (West African Craton)

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Abstract

We conducted a paleomagnetic study on late Ediacaran and early Cambrian volcanic deposits and lava flows from the Ouarzazate and Taroudannt groups in the Anti-Atlas, Morocco. Four stable magnetic components have been isolated using thermal demagnetization technique. A first component “A” is most probably a remagnetization acquired during the Hercynian related tectonic phases, and yields a paleomagnetic pole ($\lambda=-29.3^\circ$ N, $\phi=56.6^\circ$ E, $A95=4.1^\circ$) indistinguishable from the 330-300 Ma segment of the Gondwana apparent polar wander path (APWP). The Cambrian Djebel Boho formation of the Taroudannt group and the Ediacaran Tadoughast and Fajjoud formations of the Ouarzazate group yield two poles of similar directions respectively “B1” ($\lambda=21.9^\circ$ N, $\phi=31.0^\circ$ E, $A95=15.6^\circ$) and “B2” ($\lambda=27.3^\circ$ N, $\phi=27.1^\circ$ E, $A95=14.9^\circ$). In the Adrar-n-Takoucht formation (oldest part of the Ouarzazate group), an other component is observed, yielding a paleomagnetic pole “C” ($\lambda=-57.6^\circ$ N, $\phi=295.6^\circ$ E, $A95=15.7^\circ$). The primary nature of these last three components are supported by paleomagnetic tests and we interpret them as magnetizations acquired during or shortly after the deposit of volcanoclastics

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