

Large latitudinal drift variation of the Gondwana during the Lower Devonian? Enigmatic remanent magnetization of cherts-like rocks from the Tadrart area (Murzuq basin, SE Algeria)

Mohamed El-M. Derder (1), Bernard B. Henry (2), Said Maouche (1), Mohamed Amenna (1), Aziouz Ouabadi (3), Boualem Bayou (1), Rafik Bestandji (1), and Hamza Bouabdallah (4)

(1) C.R.A.A.G. - Centre de Recherche, Geophysics, Bouzareah, Algiers, Algeria (mderder58@yahoo.fr), (2) Paléomagnétisme, Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Univ. Paris Diderot and UMR 7154 CNRS, 4 avenue de Neptune, 94107 Saint-Maur cedex, France., (3) Laboratoire "Géodynamique, Géologie de l'Ingénieur et Planétologie", FSTGAT / USTHB, BP 32, El-Alia Bab Ezzouar, 16111 Alger, Algeria., (4) Geoexplo, Les dunes, Algiers, Algeria

In order to improve the poor Gondwana paleomagnetic database for Devonian times, a detailed paleomagnetic data were determined from cherts and silicified paleosols within the Lower Devonian Iknioen level of the Tadrart Formation. They point out a Characteristic Remanent Magnetization (ChRM) with a very well-defined mean direction and a positive reversal test. These results should have major geodynamical implications for Gondwana supercontinent. In fact, ChRM acquired in this level during or shortly after depositions implies a very fast latitudinal continental drift of the Gondwana plate during the Lower Devonian, and with a reversal of the drift direction from a much more southern extreme location than presently assumed. The only alternative interpretation should have been a chemical remagnetization acquired during the Late Cretaceous - Early Paleocene times. However, the characteristics of this ChRM are different from those of the presently known magnetic overprints in the Saharan platform for the Cenozoic. Therefore, it appears that the chemical remagnetization hypothesis has a low reliability.