

New Paleomagnetic and Geochronologic Data from the Middle-Atlas, Morocco

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Here we report the results of a paleomagnetic study near the western margin of the North-Middle Atlas Fault. 16 volcanic sites (130 specimens) from the Middle Atlas were sampled along a 50 km transect. In addition, 40Ar-39Ar dating has been performed in one site that was located in the central part of this transect and yielded a mean age of (200 ± 100) Ka. The main goals of this palaeomagnetic study were: (i) to constrain, both spatially and temporally, the occurrence of block rotations in this complex geodynamic area; (ii) and to contribute to the (Brunhes age) generalised database of Palaeosecular Variation from Lavas (PSVL) in this scarcely covered continent. Rockmagnetic properties are fairly uniform across the sampled transect. Two magnetic phases dominate throughout, a low Ti titanomagnetite and an intermediate Ti titanomagnetite. AF demagnetisation of NRM shows a unidirectional behaviour, isolating a well-defined ChRM that always exhibits normal polarity. Site-mean directions do not support any vertical-axis rotation in this part of the volcanic province. The Virtual Geomagnetic Poles show a far-sided effect (shallowing of inclination of 10 degrees) whose scatter is close to that expected from consideration of the PSVL generalized database.

Key words: paleomagnetism, geochronology, Middle-Atlas, Morocco, Quaternary