

Eos Trans. AGU, 84(46), Fall Meet. Suppl., Abstract GP11D-0285, 2003

MAGNETIC PROPERTIES OF THE FOUM-ZGUID DYKE (SOUTH MOROCCO)

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Abstract

This work focuses on the study of magma flow and propagation, using rock magnetic methods on a group of cross sections of the Fourn-Zguid Jurassic dyke in Southern Morocco. Thermomagnetic analysis show that Ti-poor titanomagnetite is the main magnetic carrier and petrographic analysis shows that the main Ti phase (ilmenite) can be either as exsolution within magnetite (core of the dyke) or as isolated grains (dyke rim). Bulk magnetic properties display distinct behavior according to distance to the dyke rim; grain size of the main magnetic carrier decreases towards the core of the dyke, while the natural remanent magnetization and the bulk magnetic susceptibility increase. Only the magnetic susceptibility ellipsoid close to the dyke rim corresponds to that usually found in thin dykes, with the magnetic foliation parallel to dyke borders. Maximum principal axis is in most cases either parallel or perpendicular to the intersection between the planes of magnetic foliation and dyke wall. Moreover, when this axis is perpendicular to the intersection it is associated with a more oblate magnetic susceptibility ellipsoid shape, indicating the presence of complex magnetic fabrics. Magnetic properties show that flow structures related with dyke propagation are only preserved close to the fast cooled dyke rims.