

## **AMS and Paleomagnetic variations along sections cross-cutting Fom Zguid dykes and sedimentary host rocks: implications for the flow and propagation of magma**

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Understanding the flow and propagation of magma using rock magnetic analyses along planar and sub-vertical intrusive bodies as function of its thicknesses is the aim of this study. Rock magnetism, anisotropy of magnetic susceptibility and paleomagnetism studies were applied to samples collected along several sections cross-cutting the Jurassic dykes of Fom-Zguid and sedimentary host rocks (Southern Morocco). For the igneous rocks, titanomagnetite Ti-low is the main magnetic carrier. Petrographic analysis show that the main Ti phase (ilmenite) occurs either as lamellae within spinel (center of the dyke) or as isolated grains (dyke margin). For sedimentary host rocks the magnetic signal is mainly carried by hematite for domains near the contact and by hematite and magnetite for domains farther located. Hematite content reflects the Fe-metasomatism intensity experienced by the sedimentary rocks, traduced by a decrease of the hematite dissemination intensity with distance from the dykes margins.

The magnetic fabric of the dykes and host-rocks shows different magnetic fabrics patterns according to the contact distance. For samples of the dykes nearest the margins the magnetic foliation systematically shows a direction sub-parallel to the dykes plane, plunging sub-vertical or towards the core of the dyke. As the distance to the margins increase, the magnetic foliation systematically displays: i) increase of the imbrication angle, with clockwise rotation at the NW margins and anti-clockwise rotation at the SE margins; and, ii) inversion of the plunge direction, now, dipping towards the respective margins. Concerning the sedimentary host rocks, with the approach to the dykes margins, we verify a transition from a sub-horizontal magnetic foliation to one plunging towards the contact margins. This transition is accompanied by the paleomagnetic results, changing progressively along a direction perpendicular to the dykes trend.