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# Evolution of fabric in Magba granite (Western-Cameroon domain) - microstructure, anisotropy of magnetic susceptibility (AMS) and vorticity approach

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## Résumé

Kinematic investigations are emphasis using rock fabric analysis such as anisotropy of magnetic susceptibility (AMS). AMS is very good tool which gives nice information concerning the fabric in rocks macroscopically isotropic like granite. The present work present microstructure, AMS and vorticity analysis to investigate the tectonic evolution of fabrics in Magba granite. 32 oriented drill cores of about 5-6cm length from 16 sampling stations along the main body of the pluton were collected for this study. AMS and magnetic mineralogy measurements were performed respectively in Laboratory of Petro-Physics of University of Burkina-Faso using a Kappabridge susceptometer KLY-3, Agico and MFK1-FA and in CEREGE (Aix-Marseille-University-France). The Magba granite, elongated in NE-SW direction, is adjacent to NE-SW branch of Central Cameroon Shear zone (CCSZ) in the west Cameroon-domain. It is a Pan-African pluton made up of biotite-granite and granodiorite. The magnetic susceptibility of the pluton is dominantly controlled by ferromagnetic minerals such as magnetite multi-domain as shown by thermomagnetic and hysteresis curves. The degree of magnetic anisotropy ( $P_j$ ) have most values 1.15 consistent with submagmatic to solid state microstructures developed in the pluton. The magnetic fabrics display low plunges and dips implying that transpression was important during its emplacement. The magnetic foliation shows various directions with the mean orientation N-S ( $275^\circ/15^\circ$ ). The magnetic lineation plunge towards the south and the north with mean value  $193^\circ/07^\circ$ . The magnetic fabric developed in the pluton is the manifestation of D3 regional deformation. The mean strike of the magnetic foliation ( $N05^\circ E$ ) of the granite is oblique to the orientation of the CCSZ ( $N48^\circ E$ ). The relationship between both orientation gives kinematic vorticity number of  $\approx 0.99$ . This value indicates dominantly simple shear as show by the dominance of prolate ellipsoid despite the scarcity of kinematic markers.

**Mots-Clés:** Granite, microstructures, AMS, shear zone, Cameroon

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