

Rheological context of emplacement of the Dori and Gorom-Gorom plutons (northeast of Burkina Faso)

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The present study, carried out in the North-East of Burkina Faso, is interested in the granites of Dori and Gorom-Gorom which are arranged on both sides of the Tiébélé-Dori-Markoye transcurrent shear zone whose involvement in gold mineralization is demonstrated by previous works (Nikiéma, 1992; Tshibubudze et al., 2016).

Granitoids being good markers of crustal deformation, the ultimate aim is to reconstruct the mechanisms of emplacement of these plutons by deducing their fabrics using anisotropy of magnetic susceptibility (AMS). This AMS study coupled with the examination of microstructures makes it possible to know the rheological context of the acquisition of fabrics.

Through all this information we propose the space-time relationships between the plutons emplacement and the transcurrent shear below:

- The emplacement of the Dori pluton and the central and southern part of the Gorom-Gorom pluton occurs in a context of interference between the diapiric thrust and an EW regional shortening (phase D₁).
- The northern part of the Gorom-Gorom pluton is emplaced in mega-shears EW oriented, consistent with the shortening phase.
- The activity of the Tiébélé-Dori-Markoye fault (phase D₂) began at the end of these plutons emplacement, probably in a continuum of deformation.

These results show the quite contrasting rheological behavior of the crust at the time of the plutons emplacement, authorizing at the same time the emplacement by the diapirism and along mega-shears.

Keywords: Northeast Burkina Faso, granitoids, AMS, microstructures, shear zone, gold mineralization

References

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