Characterization of the Southern Maradi Basement deformation in the Maraka-Chirgué area (northeastern edge of Benin-Nigeria Shield)

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The southern Maradi basement represents the northern border of the Benin-Nigeria Shield belonging to the Pan-African mobile belt, which is located on the eastern part of the West African Craton (Fig. 1). The Benin-Nigeria Shield consists mainly of migmatites, gneisses, metavolcano-sediments and granitoids which ages range from Birimian to Pan-African (Turner, 1983; Dada, 1998; Caby et al., 2001). However, in the South Maradi area, Birimian formation has not yet been highlighted. Petrofabrics analysis highlights the existence of at least two deformation phases called D₁ and D₂. The first one (D₁) is ductile to semi-ductile and the second one (D₂) is brittle. The first deformation phase D₁ is reported in gneisses, migmatites, schists and granitoids. It includes three stages (D₁a, D₁b and D₁c). The first stage D₁a is related to a migmatization period marked by the formation of anisopachous folds more or less affected by ductile shearing. The D₁b stage is characterized by a ductile coaxial deformation characterized by the regional schistosity or foliation S₁ with N20° to N50° trending plane. The D₁c stage is a mylonitization period. It is characterized by a semi-ductile non coaxial deformation. Structural objects show the transition to sinistral or dextral sigmoid S/C fabrics. The D₂ deformation phase, essentially brittle is marked by two types of fracture cleavage with N35° and N120° trending planes.

Key words: Pan-African mobile zone, Benin-Nigeria Shield, migmatization, mylonitization.

References