



## Structural Organization and Tectono-Metamorphic Evolution of the Pan-African Suture Zone: Case of the Kabye and Kpaza Massifs in the Dahomeyide Orogen in Northern Togo (West Africa)

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### ABSTRACT

The Kabye and Kpaza Massifs correspond to two main granulitic suites in the suture zone of the Pan-African Dahomeyide orogenic belt, in northern Togo. The Kabye Massif is composed of an important west verging nappe pile subdivided into two petrographic units. The nappes in its western petrographic unit are made up of leucocratic garnetbearing granulites defined as the "Lassa-Soumdina Granulites" (GLS). The eastern petrographic unit consists of mela-nocratic granulites, with metagabbroic structures, called the "Ketao-Sirka Granulites" (GKS). These two petrographic units are separated by the Panalo Mylonitic Zone (ZMP). This major west verging zone includes a syn-Dn + 2 dextral shear contact. The Kpaza Massif comprises nappes of melanocratic granulites (GKM), comparable to the GKS of the Kabye Massif. All these granulitic nappes include boudins of pyroxenites or meta-anorthosites, and ultramafic rocks represented by serpentinites, talcschists, actinolite- and chlorite-schists which generally mark thrust soles. The GLS nappes are thrust over the Kara-Niamtougou orthogneissic unit (UKN) which is considered as the easternmost structural unit of the Dahomeyide external zone. On the other hand, the GKS nappes underlie those of the Binah meta-volcano sedimentary Complex (CB) which belongs to the Dahomeyide internal zone. As regards the Kpaza Massif, it occurs as a geologic window tectonically enclosed in the Mono Complex nappes (CM) corresponding to the southern part of the CB. The organization of the Kabye and Kpaza Massifs, as west verging nappe piles, and their relationships with the surrounding structural units express the tangential and folding tectonics that structured the Pan-African belt in northern Togo. The microstructures and mineral parageneses of the granulites and associated rocks in these two massifs indicate a polyphase tectono-metamorphic evolution: a syn-Dn granulitization (collision phase); a syn-Dn + 1 amphibolitization (obduction or tangential phase); and a syn- to post-Dn + 2 greenschist facies retrogressive metamorphism (post-nappe folding phase).

### KEYWORDS

Togo; Pan-African; Dahomeyide; Suture Zone; Microstructures; Tectono-Metamorphic Evolution

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