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# Zircon U–Pb ages, geochemistry and Sr-Nd isotopes of sanukitoids, two mica and hybrid granites of Bas Draa inlier, Western Anti-Atlas, Morocco

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On the northwestern edge of the West African Craton (WAC), the Anti-Atlas belt provides excellent outcrops that constitute a key to the understanding of the Precambrian history of the WAC. In the southwestern domain of the Anti-Atlas, voluminous Paleoproterozoic granites intrude the siliciclasitic basement; the sources of magmas and the tectonic regime responsible for their genesis are unclear. This contribution brings new geochemical, isotope and geochronological data on the granitoids of the Bas Draa inlier to elucidate their origin. Three suites of Paleoproterozoic granitoids have been recognized: (1) mantle-derived, incompatible element-rich sanukitoids at 2059 Ma; (2) crustally-derived two-mica granites at 2051 Ma; and, (3) hybrid granitoids sharing sources of the two first groups at 2022 Ma. The nearly coeval sanukitoid and hybrid plutons share common geochemical characteristics with late-Archean granites world-wide.

The discovery of two episodes of sanukitoid, two micas and hybrid granites magmatism, during both the Neoarchean in south edge of the WAC and during the Paleoproterozoic in the Anti Atlas belt, challenges the onset of plate tectonic in the West African craton (WAC). Subsequently, the identification of such trilogy and the large differences between the Paleoproterozoic and Neoproterozoic terrain exclude that the Paleoproterozoic granitoids of the Anti-Atlas are convergent arc-type magmas and raises the possibility that a non-plate tectonic scenario prevailed during the early Proterozoic in Anti Atlas belt.

**Keyword**: Whole rock Nd-Sr isotopes, U–Pb geochronology, Anti-Atlas belt, Sanukitoids, Two-mica granite, Hybrid granite, geodynamic, WAC.