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Morocco, North Africa: a Dyke Swarm Bonanza

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Morocco hosts a Dyke Swarm Bonanza! Remarkable mafic dyke and sill swarms (plumbing system of Large Igneous Provinces, LIPs) have been recognized in the Sahara and in most inliers in the Anti-Atlas of southern Morocco. In the Sahara, numerous mafic dyke swarms with various trends are found in the southwestern and oldest portion of the Reguibat Shield, of the West African craton (WAC). An Archean age of 2688 ± 3 Ma (U-Pb baddeleyite) was obtained for a member of the plagioclase phenocryst-bearing, NW-trending Aousserd-Tichla swarm (Söderlund et al., 2014). In the Anti-Atlas, the Paleoproterozoic basement is composed of metasedimentary schists, granites, paragneisses, migmatites, with U-Pb zircons ages ranging from 2200 to 2030 and cut by dolerite dyke swarms, mostly with unknown age. The ages of the dolerite dyke swarms were poorly constrained by an old Rb-Sr isochron date of 787 ± 10 Ma (Cahen et al., 1984), and Walsh et al. (2002) obtained a U-Pb age of 2040 Ma for a dyke in the Tagragra of Tata Inlier. More recently, our group (Youbi et al., 2013 and references therein) obtained 5 clusters of ages in Zenaga, Agadir Melloul Iguerda-Taïfast, Tagragra of Akka, Kerdous and Bas Drâa inliers: 2040 Ma, 1380-1416 Ma, 1750 Ma, 1650 Ma and 885 Ma. These results combined with the U-Pb geochronology in the literature are used to provide new interpretations of the regional lithostratigraphy and constraints on several periods of tectonic and magmatic activities in the central and western Anti-Atlas, particularly during the Paleoproterozoic and the

Mesoproterozoic. Essentially, a new magmatic (LIP) barcode can be defined for the West African craton.

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