

THE 1.0 GA GIANT RADIAL THOLEIITE MAFIC DYKE SWARMS OF EASTERN BRAZIL AND WESTERN CONGO AND CAMEROON (AFRICA): IMPLICATIONS FOR THE INITIAL BREAK-UP OF RODINIA

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Several mafic dyke swarms crop out along the coastline of the Bahia State, eastern Brazil, and Congo and Cameroon, western Africa. They have the following features in common: tholeiite composition, branching propagation mode and ages about 1.0 Ga. When both continents are reassembled to their Mesozoic pre-drift position, those swarms display a giant radial pattern at least 1,200 km long (N-S direction) and 800 km wide (E-W direction). Their kinematic markers of fracture-conduits propagation (e.g. branching, step- and en échelon shapes) and magmatic flow (e.g. internal crystal alignment, s and d crystal shape at dyke margins and rheomorphic fold) suggest that they may have propagated from a common source located in the central part of the Meso-NeoProterozoic Mayombian Belt (MB) in Congo, where basal unit of MORB-type metabasalts have been described in the literature. The model is supported also by geochronological data, that indicate older dyke ages (1.1-1.0 Ga) close to the MB centre and younger ones (0.95-0.90 Ga) farther away. It is suggested that an important rifting event took place around 1.0 Ga ago in that region of the Rodinia Supercontinent, possibly related with its initial break-up. The mechanism of magma generation, whether triggered by a mantle plume as suggested for large-scale radial dyke swarms elsewhere, or not, remains to be investigated.