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The Pan-African evolution of NW Angola and peri-atlantic correlations

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At the end of Neoproterozoic times, assembly of the Gondwana supercontinent resulted in the closure of several oceanic domains and accretion of large cratons. Various tectono-metamorphic belts developed at the margins of these cratons during the Panafrican orogeny. During this work, we conducted a study combining petro-structural and geochronological investigations on the West Congolian belt (NW Angola) resulting from the collision between the Congo and Sao Francisco cratons. U-Pb zircon/monazite and Ar-Ar amphibole/biotite ages from high-grade metamorphic rocks, migmatites and metagranites indicate that this area underwent two main deformation events at c. 540 and 490 Ma, which were followed by tectonically assisted exhumation during eastward thrusting of the hinterland domain onto the foreland domain. High grade conditions in the West Congo Belt are 20 to 40 Ma younger than in the Ribeira-Araçuai belt of Brazil, its South-American counterpart, or in the westernmost Kaoko belt of Namibia, its African correlative. In the present state of knowledge, a more appropriate counterpart to the West Congo Belt may be restricted to the Cabo Frio Terrane in the eastern Ribeira belt, which yields a broadly similar evolution.