Neoproterozoic orogenic systems in eastern, central and northeastern Brazil, and the evolution of Gondwana

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The focused orogenic systems are the expression of the West Gondwana assembly, and resulted from diachronic convergent interactions involving the São Francisco-Congo, West Africa, Amazônia and Paraná-Rio de La Plata paleocontinents. Evidences of all stages of a Wilson Cycle have been found in those Neoproterozoic orogenic systems. The Borborema system (northeastern Brazil) records a 1000-970 Ma continental collision episode, a post-Rodinia rift stage (775 Ma) with the generation of volcanic-sedimentary sequences, followed by arc-related sedimentation (640 Ma), collision (600-580 Ma), and late-tectonic evolution at about 550-500 Ma. The Brasília system (central Brazil) records generation of an intraoceanic arc at about 900 Ma, collision of this arc against the Goiás microcontinent around 760 Ma, and collision with the São Francisco passive margin at about 630-600 Ma. The Araçuaí-Ribeira system (eastern Brazil) records an initial rift phase around 950-900 Ma, sedimentation of passive margin sequences (820 Ma to >640 Ma), B-subduction (>640 Ma to 600 Ma), collision and docking (600-530 Ma), and orogenic collapse accompanied by widespread granitogenesis (530-480 Ma). Basement inliers, mainly of Paleoproterozoic age, are common in all those orogenic systems. From this diachronic plate amalgamation resulted the South American Platform, the region of West Gondwana where large ensialic basins developed from Ordovician time to the onset of South Atlantic Ocean spreading.