

The Brasiliano collage in South America

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The Brasiliano collage contains a history of assembly of several descendants of the break-up of Rodinia, from early Cryogenian to Cambrian times. The continental fragments concerned are of various dimensions – small, intermediate and large, the latter representing the main subsequent cratonic domains. Oceans, oceanic branches, gulfs, aulacogens and even rift systems separated the fragmented blocks before and during their assembly. Four main structural provinces are recognized in the Brasiliano collage: Tocantins (central and central northern part of the continent), Borborema (northeast), Mantiqueira (southeast and south) and Pampean (southwest, in Argentina).

Break-up events and dispersal occurred at various times throughout the Neoproterozoic, but with a significant concentration in the early Cryogenian (850–740 Ma). Initial plate interaction events, including accretion (island arc, magmatic arcs) and collision (high-grade regional metamorphism) also occurred in the early Cryogenian (800–750Ma), in part coeval with taphrogenic processes occurring elsewhere.

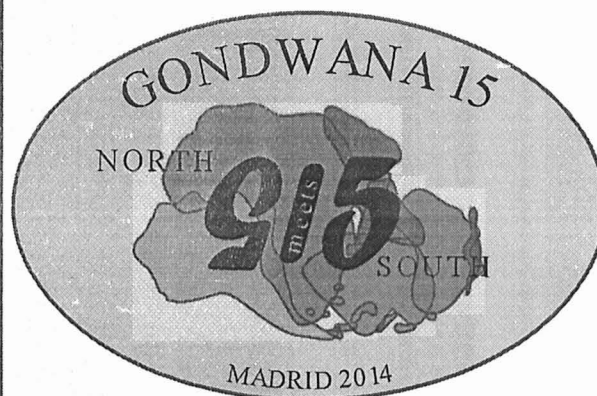
The most important phase of orogeny took place in late Cryogenian–early Ediacaran times (660–620/610Ma). Accretionary and subsequent metamorphic events (~630–600Ma) are recorded in most of the structural provinces.

A third phase of orogeny occurred in Mid-Ediacaran times (~ 590–560Ma), with clear records in most provinces. Structures formed during this episode resulted in both zones of interaction with the previous orogenic domains and the final closure of remnant oceans and other marine basins that previously separated the Rodinian fragments. Thus, the general outlines of West Gondwana were drawn by the end of this orogenic event (in Mid-Ediacaran times).

A last, minor orogenic phase occurred in Cambrian times, exclusively in the eastern central part of the Mantiqueira province (the Búzios orogeny, Rio de Janeiro) and in the Pampean province of Argentina. This last orogenic event might have extended to the southwesternmost part of the Tocantins province in Brazil (along the Paraguay belt), but this needs further investigation. These localized phases of orogeny (“Búzios” and “Pampean”) were in some ways exceptional at that time: they were coeval with the then predominant late and post-tectonic processes (foreland tectonics, molasses, anorogenic volcanism and plutonism, extrusion, etc.) of the two previous orogenic phases.

The structural trends developed by the mosaic-like branching systems of Brasiliano orogens were very important during the evolution of Phanerozoic sedimentary basins, with remarkable records of tectonic heritage in all of them.

GONDWANA 15
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ABSTRACTS
BOOK

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