



Abstract Book

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Plate Tectonics at 50

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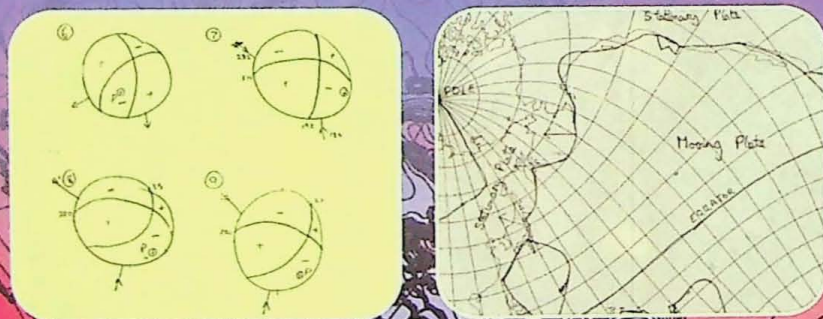
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Tectonic roles of South America Tectonostratigraphic Terranes in the Brasiliano Collage

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The Brazilian structural provinces were consolidated in several stages during the Neoproterozoic and Cambrian (ca. 800 Ma, ca. 750 Ma, 640-610 Ma, 590-560 Ma, 540-480 Ma). Distinct time intervals are recorded in the different provinces. In all the provinces, participation of pre-Brasiliano basement inliers (Archaean, Paleoproterozoic, Mesoproterozoic and Early Neoproterozoic in age) is remarkable. Simple plate interaction models are unable to explain the structure of the distinct fold belts. The tectonic organization of the provinces is generally complex, mosaic-like, where basement inliers interference was very important. Participation of these older "terranes"/"massifs" (as they are usually labelled) in the tectonic evolution of the Neoproterozoic orogens is outstanding.

Pre-800 Ma paleogeographic reconstruction is possible, and involves precursor oceanic domains and interacting continental blocks. Among the latter are the major continental plates (Amazonian, São Luís-West Africa, Parnaíba, São Francisco-Congo, Paranapanema, Luís Alves, Rio de La Plata), representing the sin-Brasiliano cratons. In addition, there are a number of smaller continental blocks, usually labelled as "massifs" and/or "terranes", the origin of which is varied. Although these smaller blocks where variably reworked during the Brasiliano collage orogenic processes it is possible to recognize their role during the Neoproterozoic orogenic events.

In the three largest Brasiliano structural provinces, the northeastern Borborema Province, the southeastern Mantiqueira Province, and the central-western Tocantins Province, the identified "massifs"/"terranes" bear diverse tectonic histories. A look at the geologic maps of these provinces reveals an elevated number of actors in the process of tectogenesis, among which, terranes stand out in particular. These terranes have been interpreted as former micro plates, former microcontinents or simple (erosional) exposures of the older sialic basement. Aside from these cases, some basement inliers could just be thermo-tectonically reworked marginal parts of former major plates. Some other basement inliers were former antiformal cores or alike, developed during post-orogenic exhumation. In the latter case, the "massifs" expose Archaean and/or Paleoproterozoic basement cores surrounded by Neoproterozoic metavolcanic-sedimentary belts.

Diversity of the significance and of exposure of the basement inliers is remarkable in Neoproterozoic belts of South America, and not too frequently found in usual models proposed for Precambrian mobile belts. In our view, using the "meta-craton" term is inadequate, and not advisable for several reasons of concept, semantics and the tectonic histories of these pre-Brasiliano segments.