ABSTRACTS

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Basement tectonic heritage on the development of the Brazilian sedimenatry basins

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In Brazil, the large interior cratonic basins ("syneclises"), as well as the smaller ones (interior rifts, aulacogens), present an important degree of dependence from the nature, structural framework and thermal age of its basement during their different stages of evolution and post–sedimentation preservation. The large cratonic basins were deposited either on the syn-Brasiliano cratonic nucleus of the Amazonian Craton (> 1,0Ga), or over the regions activated tectonically by the Neoproterozic folded belts (~ 0.9 – 0.6 Ga).
Over the Amazonian Craton, a series of basins with Paleozoic and Mesozoic sediments were formed over an area of more than 1,2 million km^2. In the eastern part, the Amazonas Basin was deposited over the oldest rocks of the Amazonian craton (> 1,8 Ga) and a very long and wide E-W Neoproterozoic to Cambrian rift was the precursor site for the Paleozoic stages of sedimentation. The basement of its western part, below the Solimões and Pastaza Basins, is formed by fold belts of Mesoproterozic ages (<1,60 Ga). These were deeply affected by the Andean orogenies, and present a complex scenario of shear zones, structural inversions, block uplifts and folds (+basaltic magmatism) of late Jurassic ages.
The Parnaiba basin at the north-northeastern part of the continent (ca. 600,000 km^2) presents a relatively small triangular shaped cratonic core as basement (>1,0 Ga), surrounded by a branching system of orogens of the Brasiliano tectonic cycle (~ 500-600 Ma). Since the earliest depositional phases, the tectonic development of these fold belts was important, and the two main depocenters of the basin are located along these neoproterozoic shear belts. During the entire Paleozoic history, active tectonics produced different kinds of deformation in the basin, especially along the trace of the Transbrasiliano Lineament, which cuts across the basement of the Parnaiba Basin in its southeastern part. In addition, a Mesozoic tectonic reactivation was the cause of a pervasive basaltic magmatism.
The Paraná basin at the S-SE part of the continent (ca. 1,200,000 km^2) presents, as basement, a cratonic nucleus ("Paranapanema", > 1,8 Ga) surrounded by a system of Brasiliano orogens. The influence of the basement structural weaknesses is detected over and along the main shear zones of the Brasiliano folded belts. Moreover, all the orogenic phases of the Andean tectonic chain, during the Paleozoic, present some degree of influence to the development of the cratonic sedimentary sequences of the basin. The small interior basins (interior rifts, aulacogens), which are widespread in northeastern Brazil, may be subdivided in two groups: a) a widespread group occurring within the Borborema Province, which took advantage of the weaknesses of the neoproterozoic branching system of orogens, especially the old shear zones. Actually, they are just remnants of the "Slossian" sequences which covered vast portions of the region, trapped by reactivation events along the neoproterozoic faults. b) The Recôncavo-Tucano-Jatobá basin in Pernambuco and Bahia states, which is a Mesozoic aulacogen that firstly followed the structural trends of the São Francisco Craton and later followed the structural trends of the southern part of the Borborema Province.