# ABSTRACTS

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and qualitative transformations of the Earth structure. Destruction of the primary granite-metamorphic crust was sharply gained in the Late Paleozoic at the Earth's relative expansion, resulting in the Late Cenozoic continentalization and oceanization of the Earth. Early in the Alpine geotectonic cycle, such differentiation caused the continental deformational belt to divide the Earth's crust into the north-hemispheric and south-hemispheric suboceanic segments — Laurasia and Gondwana. A prototype of the oceanic deformational belt further divided them into continents and oceans providing symmetry of continental contours.

Oceans have been formed stage-by-stage by step-wise submersion of peripheral blocks of the overcompacted cratons, following the areal reduction of their plateau-basaltic volcanism, the areas being moved toward their axial zones — mid-oceanic ridges. Spreading anomalies fix displacement of marginal zones of volcanic areas during the final (Late Cretaceous to Neogene) stage in the Alpine oceanization cycle. This provides disguise of volcanism's areal expansion in the primary (Jurassic to Late Cretaceous) stage and creates illusion of oceanic plates' movement from mid-oceanic ridges downward beneath continents.

The Earth's crust division into supercontinents — Laurasia and Gondwana demonstrates qualitative difference in the deep structure of the Northern and Southern hemispheres, that provides peculiarity in their continents' structure, fauna and flora. Fragmentation of supercontinents with partial oceanization shows a process of the Earth-aging and its assumption of the Moon appearance.

## GEOLOGICAL EVIDENCES FOR THE BREAK-UP OF RODINIA SUPERCONTINENT IN THE BORBOREMA PROVINCE, NORTHEAST BRAZIL

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The first evidences for the 1.0 Ga tectonic-magmatic event in the Borborema Province were obtained about 20 years ago, by Rb/Sr and K/Ar geochronology reconnaissance studies. However, they were not understood at that time.

Recent tectonic analysis and U/Pb geochronology of the branching system of fold belts north of the Sao Francisco Craton have demonstrated an important taphrogenetic phase of regional expression about 1.0 Ga. This widespread extensional event gave rise to the sedimentary basins of the Brasiliano fold belts.

At the outer side of these fold belts (as well as in their basement) some Archaean/Early Proterozoic blocks of high grade metamorphic rocks occur. They seem to have been disconnected from the major cratonic landmass during that 1.0 Ga extensional event. In

the end of the Neoproterozoic era, during the closure of the fold belts, these ancient blocks have played as backlands, with microcollisional processes, while Western Gondwana was being agglutinated.

U/Pb analyses of zircons extracted from orthogneisses, felsic metavolcanics, rhyolitic and dacitic rocks and granodioritic sheets were done. Also, basement rocks of both fold belts and backland blocks were dated.

The 1.0 Ga magmatic event displays bi-modal characteristics and close association with crustal extension and related sedimentary processes. The Proterozoic lithological assemblages, QPC and BVAC types, as well as the magmatic rocks, are exhibiting the regional tectonic fabric.

Mafic co-magmatic rocks show tholeiitic affinity, and in some cases, they suggest that the extensional processes have locally reached proto-oceanic conditions.

Such a tectonic scenery is indicating polygonal rifting of a former and larger crustal landmass, from which the Sao Francisco Craton remained as the major segment.

More than 35 U/Pb analyses of zircons from felsic meta-volcanic rocks of four fold belts north of the Sao Francisco Craton, show consistent ages around 1.0 Ga. This shows the regional character of the extensional event and its related magmatism, which involves an area of over 200, 000 $km^2$, only in Brazilian territory.

These geochronological data and tectonic setting of Northeast Brazil are somehow complementing similar conditions outlined by Porada in Southern to Equatorial Africa (Precambrian Res., 44 : 103-136, 1989), so far indicating a global rifting phenomenon of a Mesoproterozoic supercontinent - Rodinia. These data are being interpreted as initial steps for the Brasiliano/Pan-African cycle, according to Wilson's concept.

## GONDWANA COAL-BEARING FAN OF THE EAST-CENTRAL GONDWANALAND PLATFORM DISRUPTED BY LATE TRIASSIC-JURASSIC RIFTING

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During the Permian and Traiassic, the Gondwana sequence of India, lateral equivalents in southern Australia and southeastern Africa, and an upslope equivalent in coastal East Antarctica were deposited in a 7,500 km-wide alluvial fan that radiated through 180° of