

## **A MULTIDICIPLINARY APPROACH FOR THE LOWER PERMIAN SOUTHERN PARANÁ BASIN, BRAZIL**

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The stratigraphic framework of the Lower Permian Succession of the Paraná Basin (Rio Bonito and Palermo formations) in the central-western region of southern Brazil was constructed following Sequence Stratigraphy, Paleontology, Tectonic Analysis and Provenance approaches. The sedimentary succession was subdivided into four third order (2-3Ma) depositional sequences designed A, B, C and D. These sequences, as a whole, include facies associations from transitional depositional systems (lowstand and shelf-margin system tracts) which were progressively overlain by shallow marine systems (transgressive system tract) until stability under deeper marine conditions (highstand system tract). All depositional sequences are bounded by type 1 and 2 unconformities, which are probably related to glacio-eustasy with some local tectonic influence. Third order transgressions were probably superimposed by a second order (3-50Ma) transgressive event responsible for the progressively flooding of basement areas with granitic, gnaissic and volcano-sedimentary rocks. This second order transgressive event was also possibly the major control on the accumulation of the main coal deposits of the studied region. Petrographic and X-ray diffraction studies of conglomerates, sandstones and mudstones have indicated that local source areas were initially dominant but were gradually replaced by distant regional source areas. The diagenetic evolution of the sedimentary succession shows different paragenetic patterns for each depositional sequence. However, hematite coatings, quartz overgrowths, siderite, pyrite and kaolinite occur in all sequences.