

NEW DEPOSITIONAL ASPECTS ON THE LATE ORDOVICIAN / EARLY SILURIAN GONDWANIC GLACIAL FACIES IN THE PARANÁ BASIN, BRAZIL

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The Late Ordovician / Early Silurian glacial deposits in the Paraná Basin – a large Gondwanic intracratonic basin in the south-central Brazil – are represented by many diamictite facies of the Iapó and the lower Vila Maria formations. Diamictites cropping out along the basin's eastern border (Iapó Fm.) differ texturally and compositionally in their matrix from those exposed in the northwestern border (lower Vila Maria Fm.). The former presents a mature quartzose sandy matrix and the latter, a highly immature matrix, characterized by feldspathic-lithic sands and kaolinitic clayey muds. However the grain size of the sand fraction of all the diamictites' matrix is usually medium to coarse, well to moderately sorted. Differences in the maturity can be attributed to distinct source-areas and subsequent diagenetic history of these diamictites. They have strong influence on the interpretation of depositional processes, from the sedimentologic viewpoint. Based on petrographic aspects, most of these diamictites could be interpreted as sandy debris-flow deposits (high density turbiditic flows), which produced many stratified and some massive diamictite facies observed in field. These diamictites differ from rain-out deposits in the clear planar fabric noted in the larger floating clasts. They also differ from cohesive debris-flow deposits in the diagenetic origin of the muddy matrix particularly present in the Iapó Fm. (very low content of depositional matrix). We also interpreted the sandy debris-flows as generated during transgressive times (deglaciation), instead of during lowstand sea level times (according to the present literature), related to short glaciation events.