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18-1 BTH 1 Pauls, Kathryn N.

A GRAIN-COUNT ANALYSIS OF THE LATE PALEOZOIC GLACIAL DEPOSITS OF THE PARANÁ BASIN, WITMARSUM, PARANÁ STATE BRAZIL

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Outcrops near Witmarsum, Paraná State, Brazil, expose sedimentary units of the Southern Paraná Basin, which range in age from Devonian (Furnas Formation) to early Permian (Itararé Formation). The Furnas Fm. Consists of cross-bedded predominantly quartz sandstones which formed as a fluvial or deltaic/shallow marine unit. During the Permian, the São Paulo lobe of the Gondwana ice sheet overrode the Furnas formation, leaving behind an alternating sequence of sandstone and diamictite, which is now collectively called the Itararé Subgroup. With the breakup of Gondwana, the Paraná region experienced faulting. The extent of the faults within the field area is still in the process of being documented. As such, the stratigraphic sequences are no longer in geochronological order. In the field, it is difficult to distinguish the sandstones of the Itararé Subgroup from the Furnas Formation. Samples were taken from the field, both hard rock and soft sediment, with the goal of stratigraphic identification. Eleven Furnas samples were taken from two drill cores, which reach a depth of 200 meters and divided into six meter intervals. The Itararé samples were five hard rock specimens taken from spots around the field area. All samples were disaggregated and separated according to phi-size. Grain counts of the 3-phi fraction were undertaken to determine the percentage of quartz, feldspar and lithic fragments in each. The data were then plotted on a ternary diagram in order to compare the two formations. All Furnas samples, except one, plotted at 100% quartz. In contrast, the Itararé samples, while still having a high percentage of quartz, plotted in different areas of the diagram. The two units can be lithologically distinguished by this method. Furnas samples are almost invariable quartz arenites, while the Itararé sandstones have higher percentages of feldspars and lithics. Research for this study was funded by a grant from the N.S.F.-R.E.U Program (NSF-EAR 0640575).

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