PATTERNS OF INTERACTION BETWEEN LATE PALEOZOIC GLACIERS AND DEFORMABLE BEDS, PARANÁ BASIN, BRAZIL

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Detailed examination of sections of the glaciogenic Itararé Subgroup (late Paleozoic) in the Paraná Basin revealed sets of features of micro to mega-scale indicative of different patterns of interactions between the glacier and deformable subglacial sediments. Three main patterns have been recognized: a) micro to meso-scale recumbent folds and shear fractures affecting top of sandstones and base of unconformably overlying “massive”, relatively thin (meters) diamictites; b) glaciotectonic deformation of coarse to fine sediments showing upward progressive intensity of deformation (folds, drag folds, faults passing upward to anastomosing fractures and sheared zones). Deformation is overlain along a shear surface by massive diamictite showing evidence of pervasive shearing; c) striae, ridges, furrows and clast ploughing on extensive soft sediment surfaces formed on top of diamicts or sands. Features are similar to structures found in Recent and Pleistocene subglacially deformed beds. Presence of compressive and extensional features in a and b indicate proglacial and subglacial deformation of late Paleozoic glaciogenic sediments. Absence of evidence of shearing points to ploughing as the main subglacial process in c. Different interactions between glacier and deformable beds suggested by the patterns above can be related to hydrologic conditions of the glacier bed. Presence of subglacial deformable beds may indicate fast flowing of late Paleozoic glaciers.