

A MAFIC VOLCANICLASTIC DEPOSIT (MVD) OF THE SERRA GERAL GROUP, SERTANÓPOLIS, STATE OF PARANÁ

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A complex sequence of basaltic flows and lobes interleaved with basaltic breccias and tuffs (mafic volcaniclastic deposits – MVDs) composing a 35 m thick section located in the vicinity of Sertanópolis, State of Paraná (with central point 22°59'30.41"S / 51°5'21.19"W) was described in detail. This volcanic-volcaniclastic sequence, described from bottom to top, begins at an altitude of 485m with an aphanitic, gray basalt flow showing concentric structures similar to filled up tubular conduits. Its upper vesicular zone culminates, at 491 m, in a 50 cm thick autoclastic breccia composed by a framework made of blocks, bombs and coarse lapilli composing a jigsaw-fit mosaic, with poor interstitial argillaceous and massive bedded matrix. This flow is abruptly overlapped by an 80 cm thick volcaniclastic set (V1) with a 20 cm thick red lapillic tuff (V1a) at its base. The lapillic portion is composed by cusped, vesicular to scoriaceous red basalt (possibly spatter) with a few centimeters thick and also fine, non vesicular lapilli. The tuff (V1a) transitions upwards into a normally graded, poorly sorted red basaltic breccia (V1b), grain supported, with a framework made of fine to coarse lapilli, subordinately blocks and bombs up to 25cm (mostly vesicular basalt, fewer non vesicular clasts) of round to cusped vesicular basaltic fragments. The breccia layer's nucleus contains minor interstitial matrix, which is wavy/undulated and sub-horizontally layered. At 492 m, V1b is superimposed by a fractured basaltic flow (B2), which most fractures are filled by a red, hardened, siliciclastic material similar to the underlying breccia's matrix. At 501 m, B2 flow core shows a fine to aphanitic texture, being associated to frontal, p-type pahoehoe lobes, characterized by the presence of pipes vesicles, polygonal fractures on the lobes surface and also convex, parallel fracturing suggesting flow direction towards SE. From 502 to 508 m, S-type pahoehoe lobes are interspersed; each individual tabular lobe ranges from 5 to 10cm thick, being composed by a spongy zone and a massive 1 to 2 cm thick core. At 508m, B2 is overlapped by a 12m thick set composed by two breccia beds. Both are polymictic, normally graded, very poorly sorted, grain-supported, with a framework of round to cusped basaltic fragments ranging from blocks to fine lapilli. The lowest breccia bed (V2) shows mainly blocks of vesicular (very few massive) basalt of decimeters to a meter in diameter, and an interstitial argillaceous layered matrix (285°/25°). The boundary between both breccia beds dips at 095°/45°. The overlying breccia bed (V3) differs from V2 for its smaller blocks (averaging 15-20 cm), while remaining grain-supported, with 60% framework. At 520m, the top of the breccia bed (V3) grades into a 5 to 6m wide tuff lense (at least 1 m thick). The V3 breccia and tuff are capped by a third basaltic flow B3, in a staggered boundary cut by normal faults. This finding expands the area in which MVDs are found in the Serra Geral Group, in the State of Paraná, now including the sector situated north to the Ponta Grossa Arch.

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