

FLOW DIRECTION OF PAHOEHOE BASALTS AND THEIR INTERACTION WITH SALT LAKE SEDIMENTS, SERRA GERAL GROUP - BANDEIRANTES, STATE OF PARANÁ.

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In the quarry of the Municipality of Bandeirantes, basalt lava flows of the Serra Geral Group are exposed along with features such as sharp contacts, interaction with sediments and peperites. The quarry has an elliptical shape (320 m x 170 m), N10°-15°E oriented, with its center point at 23°6'34.70"S; 50°24'42.46"W. The volcanic rocks set comprises three lithological units A, B and C, being the lowermost divided into subunits A1 and A2. All units show typical pahoehoe flow morphology. The base of the unit A hasn't been observed, being impossible to measure its thickness. After a neighboring quarry located 480m SE, at the altitude of 495m, it is possible to estimate the thickness of Unit B at 9 m. In this quarry, Unit B is overlaid by another flow (Unit C). Mining activity directed at the massive core of the middle flow (unit B) (mostly in the Northern and Southwestern sectors) exposed the top ropy surface of the lower subunit (A). The top vesicular zone shows empty vesicles or with minor silica fillings in the Northern sector, whilst well developed amygdaloids in the Southern. To characterize the flow direction of Unit A, as well as its local variations, 164 GPS located points had the azimuth of each ropy structure's average bisector measured with a compass. Statistical handling of the azimuth measures showed that the general flow direction (median of the azimuths) of the unit is not constant: in the quarry's Northeastern sector it flows to 285°, in the Southwestern to 215° and in the Northwestern to 45°. Thus, unit A was divided into A1, which flowed mainly to NW (secondly to SW) and A2, which flowed to NE. It is still unclear whether these units are two different lobes of the same flow or are two separate and practically contemporary flows. In the SW sector, subunit A1 shows brecciated lobes cut by quartz veins and irregular masses of zeolites (green apophyllite, white stilbite and chabazite), quartz and carbonates, showing typical hydraulic fracturing features. The breccia's matrix is sandy-silty and supports angular to sub-angular amygdaloidal clasts of the same basalt flow. In thin section, the matrix is mainly composed by quartz, muscovite, clays and Fe oxides, as well as sideromelane shards with cusped edges and vesicular surfaces. Because of such features, it is possible to conclude that the set was formed by the interaction of basic lava with bottom sediments of a salt lake. The lake must have been formed on the uneven surface of the volcanic landscape, although the water could be meteoric, underground or volcanic. The shards must have originated from a previous hydrovolcanic event and deposited in the lake before the peperite formation. This depositional process of mixed character - that is, pyroclastic fall, wind transportation and sedimentation in water bodies - has been observed and described in various breccia beds and intertrappean sandstones of the Serra Geral Group in the North of the State of Paraná.

KEYWORDS: PAHOEHOE LAVA FLOWS; LAVA – SEDIMENT INTERACTION; SERRA GERAL GROUP; PARANA IGNEOUS PROVINCE