ASHFALL-DERIVED VITROCLASTIC TUFFACEOUS SEDIMENTS IN THE PERMIAN OF THE PARANA BASIN AND ITS PROVENANCE.

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Examination of a large number of thin sections taken from drill cores in southern Brazil has disclosed the occurrence of at least one widespread ashfall during late Permian times (240-250 m.y. ago) recorded in sediments of the Paraná Basin.

Thin sections show sparse or concentrated shards within silty and/or carbonate (calcrete?) sediments of Permian formations (Rio Bonito Formation and Tatui Formation, mainly) in five southern Brazilian states.

As expected in buried material, the glass shards are now completely replaced by zeolites (commonly analcime) and, rarely, calcite. Chalcedony is suspected in a few cases. "Bogen" structure in sediments with concentrated shards is still well preserved.

A rhyolitic or trachytic volcanogenic provenance was sought along the margins of the Paraná Basin, in the volcanic Andean Pre-Cordillera and in South Africa. One suitable source area is located in the Provincia de La Pampa, Central Argentina, where a swarm of upper Permian rhyolitic centers have been described. Ash apparently formed there by violent explosions related to acid volcanism and travelled NE at least 2.500 km before finally settling in deltaic and shallow marine environments. The same type of Permian tuffaceous sediments should be expected in parts of Africa that would have been reached by the cloud. If found, such sediments should provide an excellent stratigraphic marker.

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