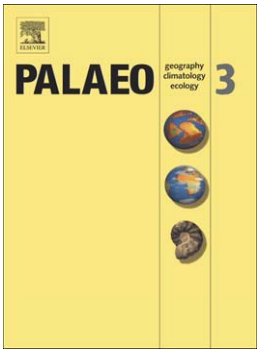

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Formation and evolution of the end-Permian Oktyabrsk volcanic crater in the Tunguska Basin, Eastern Siberia

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Abstract

The Siberian Traps large igneous province comprises lava flows, volcaniclastic and hyaloclastite deposits, and a network of sills and dikes that were emplaced into the sediments beneath the volcanics. Spectacular examples of these intrusions are found in the Tunguska Basin sediments in Eastern Siberia. Hundreds of diatremes have been identified, rooted above sill intrusions, linking the contact metamorphic aureoles around the intrusive complexes in the Tunguska Basin with the paleo-surface. The diatremes in the southern part of the basin have been proposed as the main conduits for metamorphic gas release to the atmosphere, and thus a trigger leading to the end-Permian terrestrial mass extinction. The content of these diatremes has yet to be presented in detail in English-language literature, and fundamental questions remain regarding the content and formation history of these structures. This study examines the geochemistry and petrography of crater sediments within the uppermost portion of the Oktyabrsk diatreme complex in the southern Tunguska Basin, Eastern Siberia. We focus primarily on 505 m of lacustrine sediments