



Initiation and Impact of Siberian Traps Volcanism: What is the extent of explosive volcanism?

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The Siberian Traps Large Igneous Province was formed during the end-Permian, about 251 million years ago. Basaltic melt was injected into the organic and salt rich Tunguska sedimentary basin, forming interconnected sill complexes and associated hydrothermal vent complexes. We have conducted field work in Siberia during 2004 to 2010 to study the formation and implications of the SiberianTraps volcanism. Thick deposits of basaltic tuff and tephra have been reported as widespread in the lower succession of the Siberian Traps, commonly taken as direct evidence for the explosive nature of the initial phase of volcanism. The field work in this study revealed that tuffs are virtually absent along a 125 km long transect along the Dyupkun lake, even though tuff is shown on available geological maps. Towards the south and west, the transition between the end-Permian sediments and the flood basalts is either characterized by minor (<2 meters) to no tephra deposits (Khantaika area), hyaloclastites and associated lake-deposited tephra (Kureika area), or massive tephra deposits from local eruptive centers (Severnaya area). The new results questions the notion of province-scale explosive volcanism in Siberia during the onset of flood volcanism. Discussion is aimed at the distribution of explosive deposits within the Siberian Trapps and the changes in volcanic facies up through the eruptive sequence.