

Voluminous Permian-Triassic felsic volcanic activity in the West Siberian basin: Evidence for the buried Silicic LIP

ANTON LATYSHEV^{1,2}, IVAN PANCHENKO³, MARIA SMIRNOVA³, PETR KULIKOV³ AND YULIA TRUSHKOVA³

¹Institute of the Physics of the Earth

²Lomonosov Moscow State University, Faculty of Geology

³Closed Joint Stock Company “Modeling and Monitoring of Geological Objects”,

Presenting Author: anton.latyshev@gmail.com

The Permian-Triassic boundary is one of the most important time intervals in the Phanerozoic, encompassing the terminal stage of Pangea amalgamation, hazardous magmatic activity in the Northern Eurasia, and severe environmental crisis and mass extinction. Voluminous Siberian Traps Large Igneous province was emplaced within and outside the Siberian platform. Thick basaltic sequences and Cu-Ni-PGE-bearing layered intrusions of the Norilsk region are well-known. In addition to mafic volcanic rocks, felsic lavas and tuffs have been found in drill cores from many deep boreholes of the West Siberian basin. Volume of silicic rocks, their age and structural relationships with basalts are poorly constrained. Here we present the first detailed results of the comprehensive investigation of the Permian-Triassic silicic volcanic rocks from the central part of West Siberia. Petrographic and geochemical data show the predominance of rhyolite-dacitic lavas of the high potassium series. Trace element spectra of the studied volcanics demonstrate features typical of the post-collisional rift setting. U-Pb ages of lavas from different areas are close to the Permian-Triassic boundary and to the main volume of the Siberian Traps. Felsic volcanic rocks of similar composition, age and structural position are identified in several Permian-Triassic rifts of the West Siberian platform. The huge area of synchronous manifestation of the acidic volcanic activity (more than 50 000 km²) shows that the Silicic LIP coeval to the Siberian Traps is possibly buried under the sedimentary cover of the West Siberian basin.