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New geological and paleomagnetic data from Siberian Craton and implications for the post 2 Ga global paleogeography

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Siberian Craton is generally recognised as one of the building blocks of two supercontinents: Mesoproterozoic Nuna (Columbia) and Neoproterozoic Rodinia. Although the exact Siberian positions in Nuna and Rodinia are debated, most workers agree that the southern part of Siberia (hereafter in present day coordinates) has been located not too far from the northern margin of Laurentia (cratonic part of North America) between ca. 1600 Ma and ca. 700 Ma. New geochronological, paleomagnetic and geochemical data from the Siberian craton obtained in recent years improved our understanding of Siberian geological history comparing to previous reviews. The progress in global Precambrian paleogeography also contributed to a re-evaluation of the Siberian tectonic history. The compilation of Siberian paleomagnetic data suggests that after the final assembly of Siberian Craton and until Ediacaran time the craton mostly occupied the low-to moderate latitudes. Most of this time western, northern and eastern Siberian edges have been passive or active oceanic margins. The southern margin Siberian margin has been probably connected with some other continent. Using new geological and paleomagnetic data, in particular recent results of the detrital zircons distributions in Siberia, Laurentia and other ancient continents, we tested several paleogeographic reconstructions of this connection. We also propose a new model of the breakup of Siberia from the remnants of Rodinia and consequent opening of the Paleo-Asian Ocean.