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Paleomagnetic timing of Mesozoic Mongol-Okhotsk Ocean closure

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We present reconstructions of the Mongol-Okhotsk (MO) Ocean, based on a review of paleomagnetic results from Transbaikalia and Amuria terranes. In the late Permian, localities situated on each side of the MO suture, at the present-day longitude of 110°E, exhibit a very large paleolatitudinal difference, which we interpret as an evidence for a widely open ocean, the width of which could reach 3500-5300 km. More surprisingly, this ocean might still be largely open in the middle-late Jurassic, with paleolatitude difference between Siberia south margin and Amuria north margin amounting to 26.2° ± 11.8°. This somewhat contradicts geological evidence such as the lack of any marine sediments of this age in Transbaikalia. In contrast, early Cretaceous paleomagnetic data from both sides of the suture at ∼110°-120°E reveal a paleolatitude consistency, implying a final closure of the ocean at 130 ± 5 Ma, at an average speed of ∼13-15 cm.yr-1. We finally show that this timing of the MO closure history is corroborated by paleomagnetic results from more remote regions to the south, in North and South China blocks. Importantly, we underline that very short time delay is allowed between the end of converging plate margins episode and late Jurassic / early Cretaceous ∼N-S intracontinental extension, as demonstrated by recent field studies in Mongolia and Transbaikalia. This rapid change in tectonic regime from converging to diverging continental plates motion could be linked to the jump of Izanagi plate kinematics at that time, preventing from convergence-induced high topography construction in the region, as suggested by some authors.