

# FENCING THE MONGOLIAN SCAPEGOAT: CONSTRAINING CLOSURE OF THE MONGOL-OKHOTSK OCEAN BASIN

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## ABSTRACT

The Mongol-Okhotsk suture zone, a paleo-ocean basin, forms the boundary between the stable Siberian craton and accreted Phanerozoic terranes of the Central Asian Orogenic belt. The timing, magnitude, location, and driving mechanisms of this suture zone are unclear. Past studies of geologic data place suture closure at Late Paleozoic-Early Mesozoic time, while paleomagnetic data suggest that the zone closed later than Late Cretaceous time. High levels of uncertainty surrounding this suture zone enable it to be a “scapegoat” for tectonic conundrums throughout Asia. This project seeks to constrain Mongol-Okhotsk ocean basin closure by assessing stratigraphic data in the context of competing hypotheses regarding modes of closure and collision: major oroclinal bending versus scissor-like closure. Non-oroclinal scissor-like closure of the oceanic gateway, progressive from west to east, would require that the suture zone continues far to the west and would result in time-transgressive, distal to proximal (marine to non-marine) facies transitions recorded in the basin strata. The sediment deposited within these units will be mainly derived from the suture zone and may record a progressive exhumation of the older suture zone rocks, or an unroofing sequence, with strong recycled orogen provenance. For the oroclinal ocean basin, we predict similar time-transgressive facies transitions but a larger geographic extent of deposition and longer-term deposition with sediment which records margin sources more emphatically with more first-order deposition (lighter/less stable grain fractions). These findings will inform models of Mongolian sedimentary basins, modes of ocean basin closure, and global Mesozoic tectonic assembly processes.

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