

# **Late Mesozoic stratigraphic framework of the Great Xing'an Range, NE China, and overprinting by the Mongol–Okhotsk and Paleo-Pacific tectonic regimes**

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We present new zircon U–Pb–Hf and whole-rock geochemical data for Late Jurassic–Early Cretaceous volcanic rocks of the Great Xing'an Range, NE China, to constrain the influence of overprinting by the Mongol–Okhotsk and Paleo-Pacific tectonic regimes on NE Asia. The results of SIMS and LA–ICP–MS zircon U–Pb dating indicate that the late Mesozoic volcanism in the Great Xing'an Range occurred in three stages: Late Jurassic (158–153 Ma), early Early Cretaceous (ca. 141 Ma), and late Early Cretaceous (131–130 Ma). Based on our results and data from the literature, we revise the late Mesozoic stratigraphic framework of the Great Xing'an Range. The Middle Jurassic hiatus in the northern part of the range suggests crustal thickening related to the closure of the Mongol–Okhotsk Ocean. Late Jurassic andesites are geochemically similar to adakites generated by partial melting of delaminated lower crust. The early Early Cretaceous volcanic rocks are dominated by A-type rhyolites with zircon  $\epsilon\text{Hf}(t)$  values of + 5.3 to + 10.1 and  $\text{TDM}_2$  ages of 857–498 Ma, which suggest that the primary magma was derived via partial melting of newly accreted crust. The Late Jurassic–early Early Cretaceous volcanic rocks were formed in an extensional environment related to the collapse of thickened lithosphere after the closure of the Mongol–Okhotsk Ocean. The late Early Cretaceous A-type rhyolites, bimodal volcanic rocks, and coeval rift basins were formed in an extensional setting related to westward subduction of the Paleo-Pacific Plate.