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Mesozoic denudation and cooling events of the Yinshan Mountains, southern Mongolian Plateau

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ABASTRACT

The Yinshan Mountains are south boundary of the Mongolian Plateau, occupying the north part of North China Craton. 18 granitoid samples were conducted by apatite fission track method in order to unravel its Mesozoic denudation and cooling history and relationship with the Mongolian Plateau. They obtain Jurassic to Cretaceous AFT ages. 3 main phases of rapid cooling events during Mesozoic are recognized and could probably be caused by denudation. Combined with local geological conditions, denudations are more likely controlled by the local thrust faulting. The Early Jurassic denudation event occurred in the transition area to the Mongolian Plateau. The Late Jurassic to Early Cretaceous denudation events occurred in the interior mountains and are more likely provoked by the distant effect of the Mongol-Okhotsk Orogeny based on their propagation directions. The Late Cretaceous denudation event occurred in the southeastern flank of the mountain. Finally, the activity time of thrust faults are constrained by 130–90 Ma according to the uplift and denudation relationship in the thrust system and their modeling T-t paths.

Key words

Apatite Fission track; Uplift and denudation; Mesozoic reactivation; Mountain Langshan