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Miocene structural evolution and exhumation of the Ximeng dome in Yunnan,
Southeastern Tibet: implication for intraplate deformation during extrusion of the
Sundaland block

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Abstract

The Ximeng complex is located in the eastern Shai Thai block, a part of the extruding Sundaland block in southeastern Tibet. The complex is mainly composed of Neoproterozoic medium-grade metamorphic rocks and Early Paleozoic granite in the core surrounded by Paleozoic low-grade metamorphic rocks as a cover. The two structural units are separated by a tectonic contact (TDC). Detailed structural analysis reveals that the structural framework of the Ximeng complex is a dome structure and the complex experienced a primary and progressive shearing during doming. The rheological stratification led to the differential behavior of rocks from different stratigraphic and crustal levels during shearing. Zircon U-Pb ages of the Laojiezi granites in the core range from 465.50 ± 2.70 to 430.37 ± 0.93 Ma. The cooling path from ^{40}Ar - ^{39}Ar and apatite fission track data indicates that the complex experienced two stages of Cenozoic cooling, i.e., an early rapid cooling and a subsequent slow cooling. The early rapid cooling and exhumation of the complex are attributed to doming and accompanied by middle to upper crustal flow from ca. 23 to 20 Ma.

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