

2003 Seattle Annual Meeting (November 2–5, 2003)

Paper No. 262-23

Presentation Time: 1:30 PM-5:30 PM

U-PB ZIRCON CONSTRAINTS ON THE TECTONIC EVOLUTION OF SOUTHEASTERN TIBET

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The eastern syntaxis of the Himalayas is expressed in the crust as a rotation of topographic, structural, and lithologic features from dominantly east-west to approximately north-south trends. The axis of rotation of geologic features is coincidental with the high topography of the Namche Barwa region, the exposure of granulite-grade metamorphic rocks, and a major bend in the Tsangpo river. Within the Namche Barwa and subjacent terranes are numerous granitoids that are associated with various events contributing to the tectonic development of southeastern Tibet. Our combined geochronologic and geochemical investigation provides insight into mechanisms of granite formation and helps to constrain the distribution of terranes, timing of assembly, and magmatic processes operative in each. U-Pb SHRIMP ages establish a complex tectonic history for southeastern Tibet, with the presence of at least five magmatic episodes: ~250 Ma, ~120 Ma, 40-70 Ma, 18-25 Ma, and 3-10 Ma. Two lines of evidence suggest that the Namche Barwa massif is a product of local feedbacks between tectonic and surficial processes: 1) exceptionally young zircon ages (~2.8 - 9.5 Ma) for samples collected from the Tsangpo river gorge correspond to a period of rapid denudation; 2) granitoids within the massif core exhibit high Rb/Sr ratios (>1.4), suggesting a fluid-absent (decompression) melting regime dominates near the core of Namche Barwa.

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[Phase Relations, High P-T Terrains, P-T-ometry and Plate Pushing \(Posters\): A Tribute to W.G. Ernst](#)

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1:30 PM-5:30 PM, Wednesday, November 5, 2003

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