2006 Fall Meeting
Search Results

Cite abstracts as **Author(s) (2006), Title, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract xxxxx-xx**

Your query was:
zeitler

You've chosen **one** document:

HR: 1340h
AN: **T23B-0480**
TI: Structural and Tectonic Geology of the Namche Barwa-Gyala Peri Antiform, Southeastern Tibet
AU: ***Kidd, W S**
EM: *wkidd@atmos.albany.edu*
AF: *University at Albany, Earth and Atmospheric Sciences ES351, Albany, NY 12222 United States*
AU: **Lim, C**
AF: *University at Albany, Earth and Atmospheric Sciences ES351, Albany, NY 12222 United States*
AU: **Zeitler, P K**
AF: *Lehigh University, Earth & Environmental Sciences, Bethlehem, PA 18015 United States*
AU: **Enkelmann, E**
AF: *Lehigh University, Earth & Environmental Sciences, Bethlehem, PA 18015 United States*
AU: **Booth, A L**
AF: *Stanford University, Geological Sciences, Stanford, CA 94305 United States*
AU: **Chamberlain, C P**
AF: *Stanford University, Geological Sciences, Stanford, CA 94305 United States*
AU: **Tang, W**
AF: *Chengdu Institute of Geology and Mineral Resources, 3/82 No1 Ring Road N, Chengdu, 610082 China*
AU: **Liu, Y**
AF: *Chengdu Institute of Geology and Mineral Resources, 3/82 No1 Ring Road N, Chengdu, 610082 China*
AU: **Craw, D**
AF: *University of Otago, Geology Department, PO Box56, Dunedin, x New Zealand*
AB: The Namche Barwa-Gyala Peri antiform is shown by our field mapping and lab results to have two parts, separated by a major north-dipping crustal-scale shear zone and fault, the Nam-la thrust zone. The oldest detected parts of this thrust zone are amphibolite-grade ductile shear involved with abundant dioritic migmatites; it later progressed through s/c mylonites, and into brittle faulting localised on the northern side of the zone. Cooling ages show that the northern part of the NB-GP antiform was very recently and rapidly exhumed, suggesting that the thrust is linked to this exhumation and still active. South and southwest of the Nam-la thrust and migmatite zone, biotite cooling ages of 4-10Ma show that growth of this extension of the Namche Barwa antiformal structure was minimal after the latest Miocene. The Nam-la thrust crosses the Tsangpo at the first major knickpoint and passes

northwest into the marginal thrust fault and shear zone bounding the Gyala Peri massif. Older ductile shear is expressed in the steeply-dipping bordering zones of both sides of the NB-GP antiform and we interpret this largely to be from the original Himalayan underthrusting fabrics, reoriented by the antiform. Most ductile shear indicators seen in Lhasa block gneisses and the Himalayan Tethyan metasediments near the attenuated Indus-Tsangpo ophiolitic suture southwest of the NB- GP massif are thrust sense, either related to the early-Miocene Gangdese thrust, or to earlier Himalayan thrusting. The hypothesis of an extensional detachment fault within the Lhasa block between basement gneisses and amphibolite-grade metasediments is rejected on the basis of our observations in the field. Evidence for north-down normal sense shear associated with amphibolite-greenschist facies rocks along the attenuated Indus-Tsangpo ophiolitic suture has been seen in a few places, possibly evidence of mid-Miocene STDS-related extension. Within the western side of the overall Namche Barwa antiform, a belt of variably retrograded high-pressure gneisses forms the upper part of the apparent Indian basement. This belt has a narrow thrust-sense mylonite zone along its southeastern (lower) contact, with amphibolite facies clastic metasediments below. Its northwestern contact with Tethyan quartzose, pelitic and calcsilicate amphibolite facies schists is a normal-sense ductile shear zone. We interpret this belt as a crustal slice deeply-subducted and returned quickly to within the crust during the earliest stages of the Himalyan collision, its shear zone contacts probably related to this upward return. The northern end of the NB-GP antiform plunges steeply north, producing a large-scale monoclinal fold in the Lhasa block basement and metasedimentary cover schists and gneisses; the steep part of this fold is within the Jiali Fault Zone, and here right-lateral strike-slip brittle faulting is locally prominent. Surface structural constraints require detachment of the NB-GP rocks from at least mid-crustal depths, but by themselves do not necessarily require that the Nam-la shear zone extend to the base of the present double-thickness crust.

DE: 8012 High strain deformation zones
DE: 8015 Local crustal structure
DE: 8038 Regional crustal structure
DE: 8102 Continental contractional orogenic belts and inversion tectonics
SC: Tectonophysics [T]
MN: 2006 Fall Meeting

New Search