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

HR: 1340h
AN: **T23B-0480**
TI: Structural and Tectonic Geology of the Namche Barwa-Gyala Peri Antiform, Southeastern Tibet
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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

Session Information

Tectonophysics

2006 Fall Meeting

Tuesday Afternoon 1			
Time	**Session**	**Location**	**Title**
1340	**T23B**	**MCW Level 1**	**Geodynamics of Indentor Corners I Posters** **(joint with S)** ***Presiding: P Zeitler, Lehigh University*** *Print-friendly session details*
1340	T23B-0477	MCW Level 1	The lithospheric architecture of the eastern Himalayan syntaxis from 3-D teleseismic receiver function imaging *B Zurek, A Meltzer, S Sol, P Zeitler, X Zhang, J Zhang POSTER Abstract
1340	T23B-0478	MCW Level 1	GPS Monitoring of Crustal Deformation Around the Eastern Himalayan Syntaxis *Y Liu, W Tang, Q Zhang, J Zhao, Z Chen, P O Koons POSTER Abstract
1340	T23B-0479	MCW Level 1	Seismicity and Active Deformation in Southeastern Tibet *S Sol, A Meltzer, B Zurek, P Zeitler, X Zhang, J Zhang POSTER Abstract
1340	T23B-0480	MCW Level 1	Structural and Tectonic Geology of the Namche Barwa-Gyala Peri Antiform, Southeastern Tibet *W S Kidd, C Lim, P K Zeitler, E Enkelmann, A L Booth, C P Chamberlain, W Tang, Y Liu, D Craw POSTER Abstract
1340	T23B-0481	MCW Level 1	Rivers Draining Eastern Tibet: Geomorphologic Description and Inferences *A L Ault, A S Meltzer POSTER Abstract
1340	T23B-0482	MCW Level 1	Active uplift and erosion of the Namche Barwa-Gyala Peri massif *N J Finnegan, P K Zeitler, B Hallet, D R Montgomery, W S Kidd, L Yuping POSTER Abstract
1340	T23B-0483	MCW Level 1	Fission-track Evidence for the Source of Brahmaputra River Sands Within the Eastern Himalayan Syntaxis: a Large Flux from a Tiny Source R J Stewart, *B Hallet, P K Zeitler POSTER Abstract
1340	T23B-0484	MCW Level 1	A misleading(?) similarity of indentor corners; Aegean-Anatolia versus the Himalaya syntaxes *m edwards, D Schneider, b GRASEMANN, T ACCEL POSTER Abstract
1340	T23B-0485	MCW Level 1	Tectonics of the Northern Tien Shan in Kazakhstan: New Fission-Track Ages and Open Questions R Freitag, *J Kley, N Seib, T Voigt POSTER Abstract
1340	T23B-0486	MCW Level 1	Regional Gradients in Shortening and Rates in a Foreland Basin due to Oblique Collision: Late Cenozoic Evolution of the Northwest Tarim Basin, Western China *R V Heermance, J Chen, D W Burbank, K Scharer

			POSTER Abstract
1340	T23B-0487	MCW Level 1	Late Cenozoic Extension in the Eastern Anatolian Corner: New Constraints on the Tectonic Escape Model *D Dhont, J Chorowicz, P Luxey POSTER Abstract
1340	T23B-0488	MCW Level 1	Causes of Extensional Deformation in Front of the Corner of the South Alpine Indentor: an Experimental Study *C L Rosenberg, J Brun, F Cagnard, D Gapais POSTER Abstract
1340	T23B-0489	MCW Level 1	Thermal Softening of the Hinterlands During Variscan Collision in Western Iberia A Marcos, *S Llana-Funez POSTER Abstract
1340	T23B-0490	MCW Level 1	A Model for the Termination of the Ryukyu Subduction Zone against Taiwan – A Triple Junction of Collision, Subduction/Separation and Subduction Boundaries *F T Wu, W Liang, J C Lee POSTER Abstract
1340	T23B-0491	MCW Level 1	Influence of Slab Geometry on Diffuse Plate Boundary Deformation: 3D Numerical Models of the Plate Boundary Corner in Southern Alaska *M A Jadamec, M I Billen POSTER Abstract
1340	T23B-0492	MCW Level 1	Localized deformation zones in the offshore leading edge of the Yakutat microplate, Gulf of Alaska *L A Lowe, S P Gulick, T Pavlis, R L Bruhn, P Mann POSTER Abstract
1340	T23B-0493	MCW Level 1	3D Modeling of the transition from oblique lateral to normal convergence at the plate corner of Southeast Alaska *A D Barker, P O Koons, T L Pavlis, J B Chapman, P Upton, S E Johnson POSTER Abstract
1340	T23B-0494	MCW Level 1	Cocos Ridge Collision: Tectonic Escape and Mountain Building in Central America *P C LaFemina, T H Dixon, R Govers POSTER Abstract
1340	T23B-0495	MCW Level 1	Heterogeneous Flow of an Extruded granitic dome in the Bronson Hill Terrane, Massachusetts, USA: Evidence for Oblique Convergence and Indentation, and the Alleghanian Orogeny *M A Massey, D P Moecher POSTER Abstract
1340	T23B-0496	MCW Level 1	Impact of indentor geometry on lithosphere deformation - insights from analogue vice models *K Schemmann, D Boutelier, A R Cruden, O Oncken POSTER Abstract
1340	T23B-0497	MCW Level 1	What's the effect of a subduction/collision indentor on the upper plate partitioning? *N Bergeot, M Bouin, M Regnier, M Diament POSTER Abstract

2006 AGU Fall Meeting
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WELCOME!

Pickup your preregistration materials or register on-site at Moscone West, located at 800 Howard Street starting at 3:00 p.m. on Sunday, December 10. AGU members that must register at the meeting, please bring your AGU membership number to on-site registration.

Make Plans to Attend the Following Union Activities

- **The Earth's Radiation Belt presented by Dan N. Baker, UC, Boulder**
  Sunday, 1600h, Marriott, Salon 7
- **Atlantic Ocean Circulation and Climate: The Current View From the Geological Record presented by William Curry, WHOI**
  Wednesday, 1815h, Marriott, Salon 7
- **Climate Change: The Role of Science and the Media in Policy Making, Presented by the Honorable Al Gore**
  Thursday, 1230h, Marriott, Salon 8, 1230h - 1330h
- **AGU Honors Ceremony and Banquet**
  Wednesday, 1915h, Marriott
  The Ceremony is free. A ticket is required for the banquet.

Visas

Visa applicants from many countries must now apply at least 3 months in advance of their travel date. See Visa Information for details.

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