

Abstract submitted in the Annual Meeting of the “Tectonic Studies Group”, Durham, UK, 05-07 January 2011.

## **Tectonic Problems the Higher Himalayan Shear Zone, Bhagirathi Section, Indian Himalaya**

Soumyajit Mukherjee\*<sup>1</sup>  
\*soumyajitm@gmail.com

<sup>1</sup>Department of Earth Sciences, Indian Institute of Technology Bombay, INDIA

Channel flow in combination with other flow types have been postulated to be the extrusion mechanisms of the Higher Himalayan Shear Zone (HHSZ) in different sections. A review of these mechanisms reveal that none of them fit with that of the Bhagirathi section of the HHSZ in the Garhwal Indian Himalaya. The Garhwal Himalaya is characterized by (i) the Main Central Thrust (MCT) activated around  $19.8 \pm 2.6$  Ma; (ii) a pressure gradient in the MCT zone of 0.6 to 1.2 kb km<sup>-1</sup>; (iii) three phases of folding in the MCT zone; (iv) a local pure shear to simple shear ratio that so far has remained indeterminate; (v) vigorous chemical weathering; and (vi) the middle of the HHSZ extruded at a rate of  $\sim 0.67 \pm 0.13$  mm yr<sup>-1</sup>. Gaps in knowledge include (i) the lower boundary of the extensional Malari Fault has not yet been demarcated; and (ii) the tectonic status of the Jhala Fault remained equivocal- is it a thrust or thrust followed by a normal fault? Few of the open questions are: (i) what is the spatial extent of extensional shearing in this section of the HHSZ? (ii) Where are the South Tibetan Detachment System-Upper (STDS<sub>U</sub>) and the South Tibetan Detachment System-Lower (STDS<sub>L</sub>) of Godin et al. (2006)? (iii) And finally, can channel flow be a suitable extrusion model for the HHSZ in the Garhwal Himalaya?

---

Poster Presentation requested.

SESSION: RESEARCH IN PROGRESS CONTRIBUTION