

The Himalayan metamorphic core along the Alaknanda-Dhauliganga valley (Garhwal Himalaya, India)

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In the Alaknanda-Dhauliganga valleys (Garhwal Himalaya, NW India) a quite complete and well-exposed structural section of the Himalayan belt is present (Jain et al., 2014) starting from the Lesser Himalayan Sequences up to the Tethyan Himalayan Sequence. In this contribution a detailed geological, meso- & micro-structural and petrographic reappraisal is presented, focusing on: (i) the distribution of index-minerals, (ii) the relationships between blastesis/deformation and (iii) the switch of main minerals recrystallization mechanism along the study transect.

Metamorphic evolution of selected samples, from the Main Central Thrust zone (MCTz) and the up to ductile sheared portion of the South Tibetan Detachment System (STDS), has been reconstructed with the aid of equilibrium assemblage diagrams, coupled with multi-equilibrium & trace-element based thermobarometry, after a careful electron microprobe analytical work.

U-Th-Pb *in situ* monazite geochronology, from selected samples of key-structural positions (MCTZ up to STDS), allowed us to put an absolute temporal constraint both on the prograde metamorphic history and on the exhumation-related metamorphic overprint. These data, joined with the ones from the geological literature (e.g. Thakur et al., 2015; Hunter et al., 2018) shed new insights on the tectono-metamorphic evolution of the Himalayan metamorphic core in this portion of the belt.

References:

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