

# Supplementary material: Exhumation, crustal deformation and thermal structure of the Nepal Himalaya derived from the inversion of thermochronological and thermobarometric data and modeling of the topography: STRUCTURAL DATA

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## Structural data

To further constrain the area of study, we have collected over 2000 measurements of the orientation of metamorphic foliation of both the HHC and the LHS from within the study area (Figure S1). The Gosainkund nappe displays broad open folds. At its northern end in the Langtang area (Figure S1A), the foliation defines an northeast-southwest trending antiform that passes into a broad east-west trending synform in the central part of the nappe. In the southern part of the Gosainkund nappe the foliation defines an antiform (Figure S1B). We interpret this structure to be a ramp anticline formed during displacement on the underlying MCT. To the south, the large-scale structure of the Kathmandu nappe is an east-west trending synform [Stöcklin(1980), Stöcklin and Bhattarai(1977)] and the 540 measurements of foliation summarized in Figure S1C and SD show the synform is asymmetric with its northern limb dipping steeply to the south and its southern limb dipping moderately to the north. Finally, 376 measurements within the LHS (Figure S1E) define an antiform similar to the southern end of the Gosainkund nappe.

## References

- [Stöcklin(1980)] Stöcklin, J. (1980), Geology of nepal and its regional frame: Geological society, [London] *Journal*, 137, 1–34.
- [Stöcklin and Bhattarai(1977)] Stöcklin, J., and K. D. Bhattarai (1977), Geology of the kathmandu area and central mahabharat range, nepal, *Tech. Rep. Report 86*, Nepal Department of Mines and Geology.

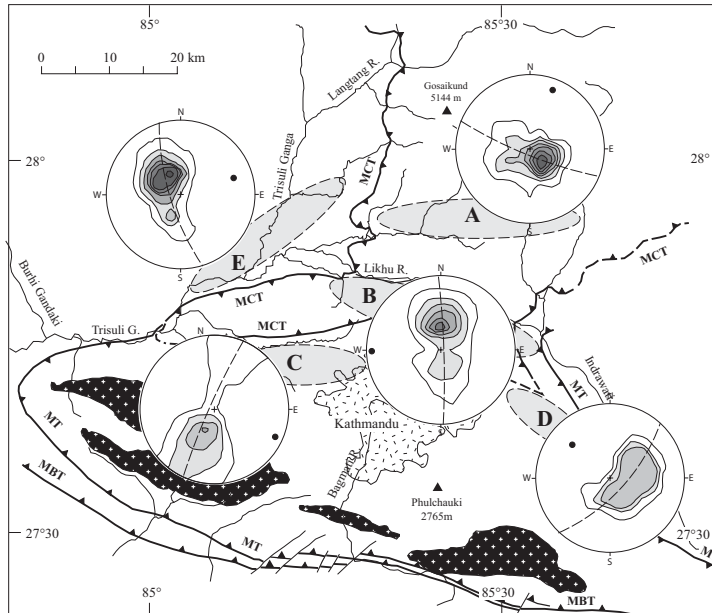


Figure 1: Figure S1: Structural map of the study area, including stereonet diagrams of metamorphic foliation. MCT : Main Central Thrust (base of the Higher Himalaya Crystallines, or Gosaikund Nappe). MT : Mahabharat Thrust (base of the Kathmandu Nappe). MBT : Main Boundary Thrust. Highlighted : Cambro-Ordovician granites of the Kathmandu nappe, and Quaternary lacustrine deposits of the Kathmandu basin. In grey are the area (A to E) from where the foliation data were collected: (A) Gosaikund nappe, central part. 461 measurements. Pole of the best fitted great circle : 10/022 (plunge/plunge direction). (B) Gosaikund Nappe, southern part, South of the Likhu River, 689 measurements. Pole of the best great circle : 05/268. (C) Kathmandu Nappe, South of the MCT, western part, 355 measurements. Pole of the best great circle : 06/114. (D) Kathmandu Nappe, eastern part, 185 measurements. Pole of the best great circle : 23/313. (E) Lesser Himalaya sequences, 376 measurements. Pole of the best great circle: 17/073. Equal angle projection (Wulff net, lower hemisphere). Isodensity contours correspond to 1 to 6 times the uniform distribution density value.