

Report on

Post-conference IAG-EGU Intensive Course for Young Geomorphologists 'Geomorphology Field Training in tectonically active mountain regions'

12-16 November 2017

Dehradun-Mussourie-Paonta-Sataun (Lesser Himalaya Region)



As part of the programme of the 9th International Conference on Geomorphology, the post-conference *IAG-EGU Intensive Course for Young Geomorphologists* has been organized during 12-16 November 2017, with an itinerary in the Lesser Himalaya Region (visit <http://www.icg2017.com/fpyg.php> for organization details). The event was part of the IAG Training Programme, which encourages and promotes Early Career Geomorphologists worldwide by offering grants (allocation of **18,000 €**) and bringing them to interact with renowned Geomorphologists and Geoscientists regarding their research activities. The event was for the first time organized in collaboration with the *EGU Geomorphology Division*, based on a Memorandum of Understanding recently signed between the aforementioned and the IAG. EGU co-financed the initiative with **3,000 €**, which have been allocated to cover part of the course expenses for 23 Early Career Geomorphologists from Brazil, Cameroon, China, Costa Rica, Ethiopia, India, Indonesia, Iran, Iraq and Mexico.

The Intensive Course was intended to be an occasion to: i) increase their knowledge and experience in geomorphological research; ii) discuss their learning and research experience with young colleagues from different countries; iii) meet experienced scientists and early career researchers in an informal setting, which favours scientific discussion.

The Intensive Course has been focused on pioneering techniques, innovative and multidisciplinary approaches to the geomorphology field work in tectonically active regions and included:

- 8 lectures by members of the Programme Committee (1 day): *Prof. Peter van der Beek* (University Grenoble Alpes, France), *Prof. P. K. Champati Ray* (Indian Institute of Remote Sensing, India), *Prof. Mauro Soldati* (University of Modena and Reggio Emilia, Italy), *Prof. Deepak Chandra Srivastava* (Indian Institute of Technology Roorkee, India), *Prof. Giuseppe Mastronuzzi* (University of Bari, Italy), *Prof. Irasema Alcantara Ayala* (Universidad Nacional Autónoma de México), *Prof. V. S. Kale* (University of Pune, India), *Dr. George Philip* (Wadia Institute of Himalayan Geology, India)
- field activities (2 days) in the Lesser Himalaya region.

The lectures covered topics related to the geomorphic response to active tectonic deformations and climate at different space and time scales. In particular, they encompassed: i) geomorphic and chronological methods for calculating deformation rates from the orogen scale (thermochronology, dynamic topography) to the single structure scale (detecting, sampling and dating of geomorphic markers); ii) field and geomorphometric analyses of transient landscapes, with focus on the interactions among tectonics, climate, drainage network dynamics, landslides and sea-level change.

The two-day field-trip was chaired by *Prof. Champati Ray* who organized a route crossing the Main Boundary Thrust, one of the most important active fault of the Himalayan mountain belt (Figure 1).

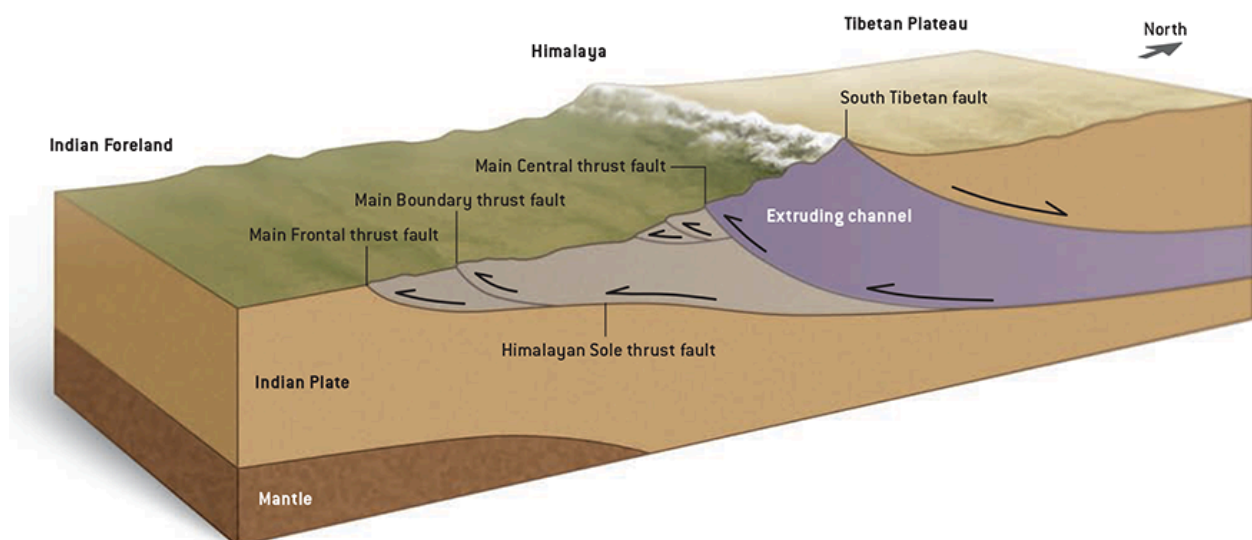


Figure 1: Deep structure and major regional faults of the Himalaya.

The surface signature of such a regional fault has been observed along with the geological contact between the Krol Group (part of a Neoproterozoic and Lower Cambrian 12 km-thick succession of quartzite, sandstone, argillite, carbonate rocks, and minor mafic volcanic rocks, in the lower part, and of diamictite, siltstone, and sandstone of glacial and glacial-marine origin, in the upper part) and Tal Formation (Cambrian succession including purple grey siltstone and channel sandstone, orthoquartzite of fluvio-deltaic and marine shelf facies at the top). The route continued crossing some great tributaries of the Yamuna river and the Yamuna river itself (Figure 2). The Main Boundary Thrust was crossed again and minor fault crossing young fluvial terraces observed in the region of Sataun (Figures 2 and 3).

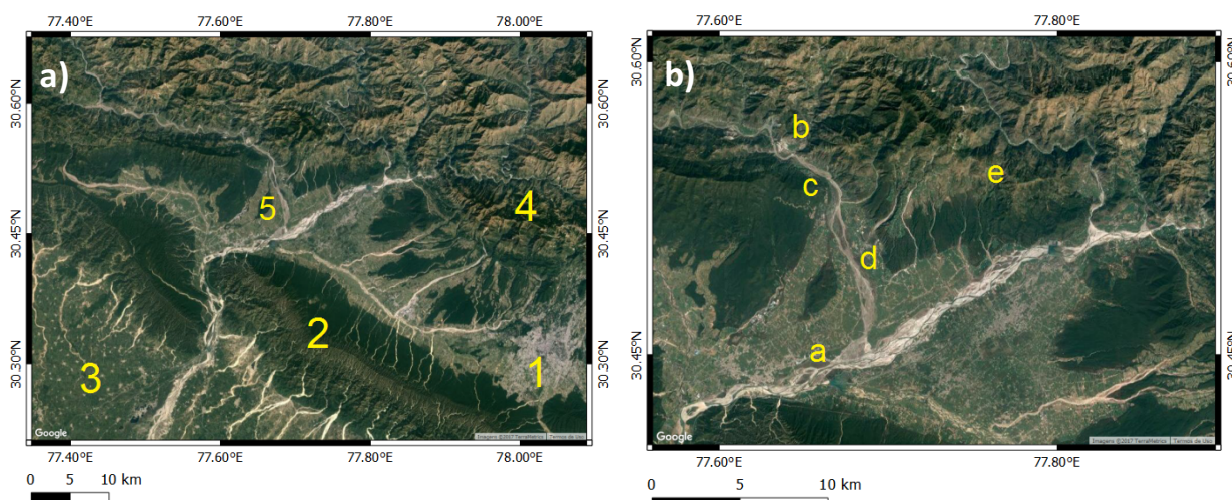


Figure 2: a) Main features visited along the route across the Doon Valley. 1: Dehradun; 2: Siwaliks; 3: Great plain; 4: Lesser Himalayas; 5: Yamuna river. b) Some detailed stop at the Yamuna river. a: Yamuna river channel dynamics; b: Main Boundary Thrust and minor faults at Sataun; c, d and e: minor faults cutting fluvial terraces.

The participants in the Intensive Course sent positive feedbacks about their experience (<http://www.geomorph.org/2017/02/iag-grants-9th-international-conference-geomorphology-new-delhi-india-6-11-november-2017/>), outlining how young geomorphologists from various part of the world gelled together very well with the opportunity of establishing collaborative relationships. All of them appreciated the scientific inputs coming from the renown lecturers and filed leaders, as well as the financial support by IAG and EGU.

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