Report on the Second Rock Deformation & Structures (RDS-II) Conference – Manish A. Mamtani

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The second “Rock Deformation & Structures” (RDS-II) conference was held at the Centre of Advanced Study in Geology, University of Lucknow (Uttar Pradesh) from 1-3 October 2012. It was held under the aegis of the *Structural Geology & Tectonic Studies Group – India (SGTSGI)*, which, is a part of the *IUGS Commission on Tectonics & Structural Geology (TecTask)*. The convenors were K.K. Agarwal and R. Bali (both from University of Lucknow), A.K. Dubey (Wadia Institute of Himalayan Geology, Dehradun) and H.B. Srivastava (BHU, Varanasi). It was financially supported by Ministry of Earth Sciences, Department of Science & Technology, Atomic Minerals Directorate for Exploration & Research, and Council of Scientific & Industrial Research, and a few private companies – Censico International (P) Ltd., Encardio-Rite Electronics Pvt. Ltd. and Leica Micro-systems. A total of 126 earth scientists from different parts of India participated in the conference.

RDS-II had four focal themes (1) Fluid rock interaction and geological deformation, (2) Shear zones, microstructures and kinematics, (3) Tectonic modeling of exhumation processes in the Himalay and (4) Neotectonics and crustal uplift. A total of 30 oral presentations were made during the first two days of the conference. The presentations dealt with various aspects of structural geology and deformation processes. Amongst others, these included (a) structural control on uranium mineralization in India, (b) recrystallization

behaviour of polymineralic aggregates in high strain zones, (c) analysis of tectonic clasts from mylonites, (d) deformation style within damage zone of MCT, (e) microstructures and seismic implications of pseudotachylytes, (f) kinematic analysis using magnetic fabric data, (g) deformation of highly porous sediments by development of structures such as cataclastic slip bands, (h) problems with approximations in strain analysis, (i) analogue experiments on understanding subduction earthquakes by varying frictional strength of plate boundary interface in accretionary wedges, (j) application of critically tapered wedge model to investigate relationship between sedimentary basin taper, styles of deformation and magnitude of internal deformation in Sub-Himalayan zone, (k) geometry, balanced cross-sections and structural implications in parts of MFT and Lesser Himalayan Fold-Thrust belt, (l) tectonic versus climate in the MCT zone, (m) active tectonics in the HFF, (n) evaluation of tectonics of eastern Indian ocean from GPS data, (o) compressed meandering of the frontal Himalayan rivers due to tectonic activities of Arunachal Himalaya, and (p) tectonics of the Ganga Plain Foreland basin. Moving away from tradition, the researchers were encouraged to project the image of their poster and make a 5 minute presentation. This move was well appreciated by the participants, and is expected to motivate young scientists in their future research activities.

At the end of the second day of RDS-II, a Group Discussion was held with the aim to discuss some of the areas of structural geology research that need attention. Some of the topics of scientific discussion were (a) the problems and intricacies of preparing balanced cross-sections, (b) the problem of uniformity of lineations in maps of the Himalaya, when the deformation patterns observed in the field are quite complex and (c) importance of geostatistics in structural geology. It was agreed that under the aegis of SGTSGI, field workshops must be conducted to discuss some of the above issues. Also, it was decided that training programmes must be conducted for young researchers and scientists to familiarize them with various techniques that can be useful in solving structural geology problems such as cross section balancing, fabric quantification, analogue modeling, numerical modeling etc.

The third day of RDS-II was devoted to a field trip to Kalpi located on the banks of the river Yamuna. 70 scientists participated in the field trip and it was conducted by I.B. Singh, K.K. Agarwal, R. Bali and D.S. Singh. Interesting features such as linear ridges, cliffs showing anthropogenic activity and sand dikes were noted, all of which have implications to understand the role of tectonics and climate in the region.

It was decided that the third Rock Deformation & Structures (RDS-III) Conference will be held in Dibrugarh University (Assam) in 2014.