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NEWS AND NOTES

Report on 7th Rock Deformation and Structures (RDS 7) Conference and Field Workshop held at the Department of Geology, Banaras Hindu University, Varanasi

Sayandeep Banerjee[1*] and Arkoprovo Biswas[2]
[1]Department of Geology, Institute of Science, Banaras Hindu University, Varanasi - 221 005, India
[2]Department of Geology, Banaras Hindu University, Varanasi - 221 005, India
E-mail: sayandeep87.geo@bhu.ac.in

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The Rock Deformation and Structures (RDS) conference series was initiated in 2010 and is since been held biennially, to provide a forum for interaction between research students, teachers and professional research scientists working in the subject area of structural geology and tectonics across the country for exchanging ideas and for introducing young researchers and students to the emerging frontiers of this research discipline through small thematic workshops. The 7th Rock Deformation and Structures Conference and Field workshop was held in October (13-18 October 2022) at the Department of Geology, Banaras Hindu University, Varanasi. The convener and organizing secretary of RDS7 were Dr. Sayandeep Banerjee and Dr. Arkoprovo Biswas (both from Department of Geology, BHU) respectively. The participants were welcomed by the Head of the Department of Geology, BHU, Prof. B. P. Singh. Prof. Dhrubajyoti Mukhopadhyay, the President of the Structural Geology and Tectonic Studies Group of India (SGTSGI) and Prof. Santanu Bose, Secretary, SGTSGI addressed the participants across the country. The Director, Institute of Science, BHU, Prof. Anil Kumar Tripathi presided over the Inaugural function and addressed all the participants of RDS7 conference. Eminent geoscientists like Dr. Sumit K Ray (NASI & GSI, retd.), Dr. Abhinaba Roy (GSI, retd.), Prof. TRK Chetty (CSIR-NGRI), Prof. Hari B. Srivastava (V.C., Siddharth University), Prof. Nibir Mandal (Jadavpur University), Prof. Anupam Chattopadhyay (Delhi University) were also welcomed by the organizers. Prof. Sudipta Sengupta (Jadavpur University), Prof. Dilip Saha (Indian Statistical Institute, Kolkata) and other executive council members of the SGTSGI also sent their messages virtually. An abstract volume (conference) and a field guide book (field workshop) were released at the end of the Inaugural session.

The event was financially supported by the Institute of Eminence, Banaras Hindu University, and by various government agencies e.g. Science and Engineering Research Board (SERB), Ministry of Earth Sciences (MoES), Council of Scientific and Industrial Research (CSIR), the Indian National Science Academy (INSA). The conference was also financially supported by various major Industries such as Oil and Natural Gas Corporation (ONGC), Oil India Limited (OIL), National Thermal Power Corporation (NTPC), Leica, and DMT group India. Institute of Science, BHU, and CSIR-National Geophysical Research Institute (NGRI) also provided partial supports. Other sponsors include EDAX, Planet Geology, Bharat Engineering, Hindustan Minerals, Geology Concepts, and Sharma Nand and Sons. Several executives from sponsoring agencies also participated in the three day conference. The organizers acknowledged the contributions from all the participants and the sponsors during the meeting and the valedictory session.

Keeping in view the fast growth in several specialized research areas of structural geology and tectonics, the RDS 7 was planned to hold several thematic sessions viz. 1) Brittle deformation, 2) Ductile

Group photo of the participants in RDS7 conference

deformation, 3) Large scale structures, 4) Modeling in Structural Geology and Tectonic studies and Rock mechanics, 5) Planetary tectonics and applications in natural resource potential and exploration, and a special session on field workshop: 6) Field orientation session were conducted. All the sessions were a mixture of keynote lectures, oral and poster presentations. A total of 93 abstracts were submitted which were reviewed, got revised, and then published in the conference abstract volume. Around 120 geoscientists, authoring or co-authoring the abstracts, (including retired scientists, working scientists/teaching faculty, research scholars, and some M.Sc. level students) participated in the three-day long conference and exchanged scientific ideas through oral and poster presentations. The poster sessions were vibrant, and allowed interaction between earth scientists using a variety of methods in their structural geology research – field, microstructures, numerical modeling, CSD, EBSD, AMS, experimental (analogue), fractals, etc. Thus, RDS7 conference fulfilled the primary objective of SGTSGI, which is to provide a forum to structural geologists within India to meet, interact and discuss academically. Broadly, the topic of the abstracts range from the Theoretical to experimental to modelling approaches in Tectonic studies; Field based studies on the evolution of cratons and mobile belts; Origin and evolution of Proterozoic Basins; Himalayan Orogenesis and evolution of thrust systems; Magmatism; Metamorphism; Mineralization & Exploration; Geophysics; Planetary Tectonics and even remote sensing & GIS; hydrology and coal petrology.

Two parallel pre-conference workshops were also conducted on 12th October 2022 in relation to RDS7 conference– Workshop 1 on "Deformation Analysis from reflection Seismic Data" and Workshop 2 on "Monitoring Crustal Deformation using RADAR Interferometry", for young students and research scholars. A total of 35 and 45 young participants were accommodated in workshops 1 & 2 respectively.

The "*Field orientation session*" was introduced by Prof. Dhrubajyoti Mukhopadhyay, in which he suggested ideas to improve the quality of education provided to students in the field of Earth Sciences and appealed to make earth sciences an important subject at school level. He also emphasized the importance of fieldwork for the students. Prof. Anupam Chattopadhyay (Geology, Delhi University) discussed on "High heat flow, fault reactivation and seismicity in the SONATA zone, Central Indian craton: facts and fiction". Prof. Vaibhava Srivastava (Geology, BHU) shared his views on "Active tectonics around Son-Narmada-South Fault as major challenge to dams in Son valley region of southern Uttar Pradesh". Finally, Dr. Abhinaba Roy (Geological Survey of India, Retd.) delivered a talk on "Tectonothermal evolution of Proterozoic Mahakoshal Belt of the Central Indian Tectonic Zone", in which he discussed the ENE-WSW to E-W trending Mahakoshal belt, bounded between Son Narmada South Fault and Son Narmada North Fault, which represents the northernmost supracrustal belt of the CITZ.

The Post Conference Field Workshop for three days (16-10-22 to 18-10-22) was conducted under the aegis of 7th Rock Deformation and Structures (RDS-7) Conference & Structural Geology and Tectonic Studies Group (SGTSGI), in the Multiply Deformed Precambrian Terrains across Son-Narmada-North and Son-Narmada-South Faults in Sonbhadra District, Uttar Pradesh, by Prof. Vaibhava Srivastava and Dr. Sayandeep Banerjee (Geology, BHU). Eminent geoscientists Prof. Dhrubajyoti Mukhopadhyay (INSA), Dr. Sumit K Ray (NASI & GSI, retd.), Dr. Abhinaba Roy (GSI, retd.), Prof. Nibir Mandal (Jadavpur University), Prof. Anupam Chattopadhyay (Delhi University), Prof. Santanu Bose (Presidency University) and several others acted as the resource persons during the field workshop. The focal areas of this field workshop fall in the Sonbhadra district which is located in the southwestern part of Uttar Pradesh. The field workshop was accompanied by eminent scholars of the Country and provided some rare opportunities for the participants to interact with them in the field itself. It also provided an excellent opportunity for studying fundamental aspects of field geology for the young earth scientists working in the field of structural geology and tectonics. In this workshop, several field visits in the entire Sonbhadra area were designed spot by spot in such a way that maximum important information was introduced to the participants in the shortest possible time. Field observations during the field workshop, showed the presence of fault rocks related to Son Narmada South Fault and Son Narmada North Fault. The team saw evidence of the fault being repeatedly reactivated and resultant high-magnitude earthquakes have been reported in the past as well. The team discussed and warned the local inhabitants of the Sonbhadra district, U.P. to be careful regarding the probability of future earthquakes in the area.

Several geoscientists from sponsoring industries also participated in the three day conference and shared their views to provide more opportunity for greater industry-academia cooperation. At the end of the main conference event, the general body meeting was taken over by the president of SGTSGI, Prof. Dhrubajyoti Mukhopadhyay and the secretary of SGTSGI, Prof. Santanu Bose. Dr. Jyotirmoy Mallick kept forward the proposal for hosting RDS 8 at IISER, Bhopal and the house approved the proposal unanimously and RDS-8 was decided to take place at IISER, Bhopal in 2024. Finally, an appreciation board, signed by the participants was presented to the Convener of RDS 7, Dr. Sayandeep Bannerjee, and the Organizing Secretary of RDS 7, Dr. Arkoprovo Biswas. The conference ended with a vote of thanks.