
DEPARTMENT OF EARTH SCIENCES
INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH KOLKATA, INDIA
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MELINDA KUMAR BERA

PERSONAL INFORMATION

Nationality: Indian

Date of Birth: 29th December, 1979

Father's Name: ASIM KUMAR BERA

Permanent address: 42/4 BRINDABON MULLICK LANE, KADAMTALA, HOWRAH-711101

AREA OF SPECIALIZATION

Sedimentology, Sequence stratigraphy, Stable isotope geochemistry, Palaeo-climate, Basin evolution in collisional tectonic settings with special emphasis on early Himalayan tectonic evolution and Cenozoic tectonic-climate connection

PROFESSIONAL AMBITIONS

As, I am actively involved in doing sedimentology, sequence stratigraphy, and stable isotope geochemistry of Palaeogene foreland sediments of Himalaya to understand the tectonic forcing hypothesis on Cenozoic climate. Since 2005, so in the next few years I would like to continue my research in the areas mentioned above. Sequence stratigraphic analysis, in this connection, were performed on both marine and continental depositional environment to understand the tectonic forcing mechanism and stable isotopic analysis were carried out on various kinds of samples (organic matter, carbonate, sulphate and most importantly bio-apatite) to establish a meaningful palaeo-climatic proxy record for the Cenozoic climate.

HIGHER EDUCATION

Doctoral Research **2005-2010**

Indian Institute of Technology, Kharagpur

Supervisor: Prof. Anindya Sarkar (Indian Institute of Technology, Kharagpur, India)

Thesis Title:

Sequence Stratigraphy and Stable Isotopes of Palaeogene Sediments, Subathu Sub-Basin, India: Implications to Evolution of the Himalayan Foreland

Sedimentology/sequence stratigraphy of the Palaeogene Himalayan foreland deposits and palaeo-climatic reconstruction during this early phase of mountain building and basin filling history will understand the Cenozoic Tectonic and Climate connection and their forcing on other.

Master of Science: **2002-2004**

University of Delhi, India

Supervisor: Prof. S. K. Tandon (University of Delhi, Delhi, India) (University of Delhi, India).

Thesis Title:

Sedimentary facies and depositional environment of Subathu and Dagshai Formations in a part of the Koshalia River section, Punjab Sub-Himalaya, India.

Courses Taken: Sedimentology, Geochemistry, Geomorphology,

(Marks obtained: 67.89%)

**Bachelor of Science:
Presidency College, University of Calcutta****1998-2002**

Courses Taken: Structural Geology, Sedimentary, Igneous and metamorphic petrology, Paleontology.

(Marks Obtained: 58.88%)

TECHNICAL EXPERTISES

Geological Field experience

Extensive sedimentological and sequence stratigraphic field work carried out in structurally complex Sub-Himalayan region of Simla Himalaya during my doctoral research. Apart from my thesis related work few other field work in various geological setup in and around Punjab Sub-Himalaya (2004), Mysore and Ooti (2002), Ghatsila, Jharkhand (2002) and Mihar and Jabalpur (1998).

Stable Isotope Ratio Mass Spectrometry:

Working on stable isotope geochemistry since 2005; was actively involved in the installation, calibration and standardization of the mass spectrometer system (Finnigan Delta Plus XP continuous flow Isotope ratio mass spectrometer) and peripherals like (a) Gas Bench (GB) II, an automated equilibration system for measurement of hydrogen and oxygen isotopes of water samples and online CO₂ extraction system for measurement of carbon isotope of carbonate samples. and (b) Elemental Analyzer (EA), an automated system for online extraction of CO₂, N₂, SO₂ and H₂ gases for measurement of Carbon and Oxygen, Nitrogen, Sulphur and hydrogen isotopes of sediment samples respectively in the new National Stable Isotope facility of IIT Kharagpur.

PUBLICATIONS

Published:

Bera, M.K., Sarkar, A., Chakrabarty, P.P., Loyal, R. and Sanyal, P., 2008. Marine to continental transition in Himalayan foreland, *Bulletin Geological Society of America*, v. 120 (9-10), p. 1214-1232.

Sanyal, P., Acharya, B.C., Bhattacharya, S.K., Sarkar, A., Agrawal, S. and **Bera, M.K.**, 2009. Origin of graphite, and temperature of metamorphism in Precambrian Eastern Ghats Mobile Belt, Orissa, India: a carbon isotope approach, *Journal of Asian Earth Science*, v. 36 (2-3), p. 252-260.

Sarkar, A., Sengupta, S., McArthur, J.M., Ravenscoft, P., **Bera, M.K.**, Bhushan, R., Samanta, A. and Agrawal, S., 2009. Evolution of Ganges-Brahmaputra western delta plain: Clues from sedimentology and carbon isotope, *Quaternary Science Reviews*, v. 28, p. 2564-2581.

Sarkar, A., Chakraborty, P.P., Mishra, B., **Bera, M.K.**, Sanyal, P. and Paul, S., 2010. Mesoproterozoic sulphidic ocean, delayed oxygenation and evolution of early life: sulphur isotope clues from Indian Proterozoic basins, *Geological Magazine*, v. 147(2), p. 206-218. doi:10.1017/S0016756809990380.

Bera, M.K., Sarkar, A., Chakrabarty, P.P., Loyal, R. and Sanyal, P., 2010. "Reply to comments of Singh, B. P. on Marine to continental transition in Himalayan foreland", *Bulletin Geological Society of America*, v. 122 (5-6), p. 956-959.

Bera, M.K., Sarkar, A., Chakrabarty, P.P., Ravikant, V. and Choudhury, A.K., 2010a. Forced regressive shoreface sandstone from Himalayan foreland: implications to early Himalayan tectonic evolution. *Sedimentary Geology*, v. 229 (4), p. 268-281. doi: 10.1016/j.sedgeo.2010.06.013.

Bera, M.K., Sarkar, A., Tandon, S.K., Samanta, A. and Sanyal, P., 2010b. Does burial diagenesis reset pristine isotopic compositions in paleosol carbonates? *Earth and Planetary Science Letters*, v. 300, p. 85-100.

Bera, M.K., Bhattacharya, K., Sarkar, A., Samanta, A., Kumar, K. and Sahni, A., 2010c. Oxygen isotope analysis of bone and tooth enamel phosphate from Palaeogene sediments: experimental techniques and initial results, *Journal of the Geological Society of India*, v. 76, p. 275-282.

Bera, M.K., Sarkar, A. and Chakrabarty, P.P., 2011. Discussion on "Storm Activities during the Sedimentation of Late Paleocene-Middle Eocene Subathu Formation, Western Himalayan Foreland Basin" by B.P. Singh & A.K. Srivastava, *Journal of the Geological Society of India*, v. 78, p. 185-186.

Conference abstracts:

Sarkar, A., Gupta, S., Sengupta, D., Sengupta, S. and **Bera, M.K., 2006.** National Facility of Stable Isotope Geochemistry at IIT, Kharagpur – New Data on Palaeogene Himalayan Foreland Sediments. 10th ISMAS Triennial Symposium on Mass Spectrometry, January 28 to February 1, Tea County, Munnar, Kerala, p. 122-123.

Gupta, S., Sarkar, A., **Bera, M.K.** and Chatterjee, N., 2006. Thrust evolution and fluid movement in foreland Subathu/Dagshai rocks of the Koti area, Himachal Pradesh: constraints from structure and stable isotopes, *Journal of Asian Earth Sciences*, v. 26, p. 139.

Sarkar, A., Gupta, S. and **Bera, M.K., 2006.** Facies and stable isotopes in Subathu/Dagshai rocks from Himalayan foreland basin: implications to stratigraphy and Palaeogene climate. *Journal of Asian Earth Sciences*, v. 26, p. 160.

Bera, M.K., Sarkar, A., Chakrabarty, P.P., Tandon, S.K. and Sanyal, P., 2008. Carbon isotopes in foreland calcretes: Implications to Himalayan tectonics, sedimentation and pCO₂ change during the Oligocene. International Conference on "Terrestrial Planets: Evolution through Time", 22-25 Jan., PRL, Ahmedabad.

Samanta, A., Sarkar, A. and **Bera, M.K., 2008.** Sedimentology and carbon isotopes in lignite beds of Rajasthan: Implications to Paleocene/Eocene thermal maximum events. International Conference on "Terrestrial Planets: Evolution through Time", 22-25 Jan., PRL, Ahmedabad.

Bera, M.K., Sarkar, A. and Chakrabarty, P.P., 2008. White Sandstone in Subathu Sub-Basin: an example of tectonically driven forced regressive wedge. Extended Abstracts: 23rd Himalayan-Karakoram-Tibet Workshop, India. *Himalayan Journal of Sciences*, v. 5 (7; SPECIAL ISSUE), p. 24-25.

AWARDS AND RECOGNITIONS

Awarded Junior Research Fellowship (NET, 2004) of India University Grant Commission

TRAINING/COURSES/CONFERENCES ATTENDED.

Training workshop on Isotope Ratio Mass Spectrometry from 3 to 5 October 2005 at **NIO, GOA.**
Terrestrial Planets: Evolution through Time", 22-25 Jan. 2008, **PRL, Ahmedabad.**
23rd annual Himalaya-Karakoram-Tibet (**HKT**) workshop, August, 2008 **Leh, India.**