Geochemical Monitoring of Rivers – Theory, Practice, and Data Interpretation

Overview

Geochemical Monitoring of Rivers – Theory, Practice, and Data Interpretation will focus on the fundamental principles and processes that govern river water chemistry and how river water chemistry can be used to understand the impact of climate change and anthropogenic interventions on river flow and water composition. In addition, the course will have strong laboratory- and field-based components. We will introduce important parameters of river monitoring such as river discharge measurements, suspended sediment and bed load sampling, as well as basic field measurements of physical and chemical parameters. This course will also provide hands-on training on several state-of-the-art analytical instruments such as Quadrupole Inductively Coupled Plasma Mass Spectrometer (Q-ICPMS) and will teach participants the skills of measuring dissolved major and trace element concentrations. Successful completion of the course will enable participants to understand the fundamental principles of river geochemistry, and equip them with knowledge of sediment and water sampling techniques. The focus on taking appropriate samples, making sound field and laboratory analyses, as well as interpreting geochemical data will enable participants to integrate geochemical information with the goal of understanding watershed processes.

The primary objectives of the course are as follows:

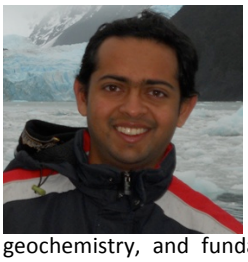
- Exposing participants to the fundamentals of river biogeochemistry
- Teach various river sampling and in-situ sensing techniques (field based)
- Hands-on introduction to analytical instrumentation that can be used to measure chemical composition of river water (laboratory based)
- Teach participants on how to use river water chemistry to understand watershed processes
- Provide exposure on how to study a problem and devise solutions through case study and live project

Modules	**A: Duration 22nd November 2018 – 27th November 2018** **B: Venue: Indian Institute of Technology Kanpur, Department of Earth Sciences, WLE 201, Kanpur, UP-208016** **Number of participants for the course will be limited to forty.**
You Should Attend If…	• you are interested in geology and chemistry of rivers
Fees	The participation fees for taking the course is as follows: **Participants from outside India: US $100; Industry/ Research Organizations within India: Rs. 1,500; Academic Institutions within India: 1000** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.
	All prospective participants need to do web registration for the course on GIAN (http://www.gian.iitkgp.ac.in/GREGN/Index) portal by making onetime non-refundable payment of Rs. 500/. After the mandatory web registration, only the shortlisted participants will be informed by email to register for the course by making full payment of the course registration fee either by NEFT (Account holder name: **The Registrar, IIT Kanpur**, Account No.36880589812; IFSC Code:SBIN0001161; Bank: State Bank of India; Branch: Name: IIT Kanpur) or by sending a demand draft in favour of "Registrar, IIT Kanpur" before the last date of registration. Please send an email to course coordinator in case of any question: isen@iitk.ac.in

Foreign Faculty

Dr. Bernhard Peucker-Ehrenbrink is the co-Director of the *Global Rivers Observatory* (globalrivers.org), a global collaborative network of time-series observatories on large rivers. The *Global Rivers Observatory* is presently observing 15 large rivers on 5 different continents and is studying how climate change, deforestation, and other disturbances are impacting river chemistry and land-ocean linkages. Dr. Peucker-Ehrenbrink received his PhD in geochemistry in 1994 from the Max-Planck Institute for Chemistry and the Johannes Gutenberg-University in Mainz, Germany, before joining the Woods Hole Oceanographic Institution (WHOI) as a postdoctoral scholar. He is currently a Senior Scientist and Department Chair (Marine Chemistry and Geochemistry) at the Woods Hole Oceanographic Institution (WHOI), USA. Peucker-Ehrenbrink has been teaching *Marine Isotope Geochemistry* in the MIT/WHOI Joint Program in Oceanography and Ocean Engineering since 1998. His research interests in geology and geochemistry are broad, and for the past decade have focused on the biogeochemistry and sediment transport of global river systems and their relation to the changing chemistry of seawater. He has published 82 peer-reviewed articles, including multiple papers in high-impact *Science* and *Nature* journals, and over 200 conference abstracts.

Host Faculty



Dr. Indra Sekhar Sen obtained his PhD degree from Florida International University (USA) in 2010, and completed his postdoctoral training (2010-2013) at the Woods Hole Oceanographic Institution (WHOI), USA. Dr. Sen is an Assistant Professor in the Department of Earth Sciences at the Indian Institute of Technology-Kanpur. He teaches geochemistry, aqueous geochemistry, and fundamental of Earth Sciences, and was recognized by IIT-Kanpur Academic Senate for his excellent performance as an instructor for the Geochemistry and Fundamental of Earth Sciences courses. His primary research interests are related to geochemistry of rivers.

Course Coordinator

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