

**Speaker: Dr. Kiran Kumar Reddy, CSIR-NIO**

**Time: 11 AM, 5 Sept (Sunday)**

**Link: <https://iitroorkee.webex.com/iitroorkee/j.php?MTID=me7aa0c3b18f72f0fa527d43ed247eca1>**

**Title: Earth Surface Processes and Climate Moderation - Insight from Riverine Processes**

### **Abstract**

Earth surface processes shape not only the earth surface but also moderate the earth's climate. These processes operate at various time scales and are regulated by natural and anthropogenic factors. Large and coastal tropical rivers have gained scientific attention due to intense, physical, chemical and biogeochemical processes and their role in carbon sequestration. The study of rivers provide insight into transformational processes, elemental pathways and the fate of various materials of terrestrial origin. In natural conditions, the transformation processes take place in a shorter time period, where the studies on large scale rivers may not provide a detailed understanding. In contrast, the small scale rivers act as natural labs due to their shorter flowing lengths and quick transportation mechanism. For instance, in large rivers much of the young organic carbon (OC) is degraded during transport, leaving the export of older/refractory OC to the coastal oceans. To date, there are limited studies focusing on mechanistic understanding of transformation processes and role of climate and human perturbations, particularly for Indian rivers and coastal Indian rivers are best fit for this kind of research.

### **About the Speaker**

Dr Reddy have done MSc in Geochemistry (Gold Medalist) from Dept. of Applied Geochemistry, Osmania University, Hyderabad. He completed my PhD from CSIR-NGRI (degree awarded by Osmania University, Hyderabad) and presently working as a National Postdoctoral Fellow in CSIR-NIO. Considering the importance of tropical rivers in material transport, particularly those draining humid tropics, he focused on the Western Ghats coastal rivers for his PhD research. Taking a clue from findings of my PhD work, now he is focusing on the source to sink study of a few selected coastal Indian rivers. Here, his focus is to develop an in-depth understanding and model the transformation processes in different environmental conditions. For this purpose, he is using  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  isotope proxies to trace the sources and sink of nutrients and carbon species. His long-term interest is to develop and optimise the analytical methods for investigating transformation process regulating the flux of carbon, nutrients, major & trace elements. He strongly wish to establish a state-of-the-art laboratory equipped with instruments and tools for his future research work.