



**Divecha Centre for Climate Change**  
**Indian Institute of Science**  
**BANGALORE - 560012**  
**Phone: 91-80 22933425/2075**

## **DCCC Seminar**

**Title:** "Recent Advances on Cambrian and Ordovician Geology of Northwest Himalaya and Prospects". **(Hybrid mode)**

**Speaker: Dr. Birendra P. Singh**

Associate Professor Department of Geology (Center of Advanced Study in Geology)  
Panjab University, Chandigarh-160014

**Date:** 19<sup>th</sup> June 2025 (Thursday)

**Time:** 3:00 PM to 4:00 PM

**Venue:** DCCC Auditorium, 2nd Floor, D314.

**Coffee/Tea:** 4 to 4:30 PM

### **Speaker Bio:**

Dr. Birendra P Singh, is currently the Associate Professor, Dept of Geology (Centre for Advanced Study in Geology) at Panjab University. He completed his PhD (Geology) in the year 2007 in Paleontology and Biostratigraphy. Dr Birendra Singh research Interest include Lower Paleozoic successions of the Himalaya; Cambrian of Peninsular India; Spatial and temporal distribution of the ichnofabric and ichnofacies (Cambrian-Recent), Himalayan tectonic evolution and Quaternary Climate. Dr Singh has close to 25 years of research experience.

Dr. Singh is Elected Fellow Geological Society of India 2024 Elected Fellow Palaeontological Society of India. He has received several honors and awards, notably among them are Tethys Fossil Award 2025, Prof. S.K.Singh Memorial Gold Medal (Paleontological Society of India) PUTA Recognition award; Sepkoski Award (Paleontological Society International Research Program (PalSIRP), USA. He is the reviewer of several journals, notably among them are PlosOne, Geological Journal, Iranian Journal of Earth Sciences, Journal Earth System Sciences; Journal Paleontological Society of India, Journal of Palaeosciences; Proceeding Indian National Science Academy.

### **Abstract:**

In the Indian Himalaya, the Cambrian (540-485 Ma) and Ordovician (485-445 Ma) sequences are partially known from the Lesser and Tethyan Himalayan zones (LHZ and THZ). Recent discoveries of new fossils bearing horizons, revision of previous fossil collections and detailed biostratigraphic work in the last two decades have led to significant change in the existing concepts of Cambrian and

Ordovician sequences of the Himalaya. Previously, it was presumed that the Cambrian and Ordovician sequences in the THZ extend uninterruptedly along the strike from Zaskar to Spiti regions. Moreover, it was also suggested that the biozonation available in the Spiti region is implacable all over the Himalayan section. The relation between the Cambrian and Ordovician deposits is identified as the angular discordance but it was not analyzed how much of Cambrian in different sections remains preserved before the Cambro-Ordovician angular discordance. Moreover, Cambrian Kashmir fauna remains as unique as it shares a very low faunal element with Zaskar and Spiti regions and because of this, it was presumed that Kashmir fauna is endemic. In the last two decades work on the Cambrian of the Himalayas has led to the successfully resolved these aspects. It is now established that (i) Cambrian and Ordovician sequences in the THZ are cut by several faults systems in the THZ i.e. Tanso (TF), Lingti-Sarchu (LSF), and North Lahaul faults (NLF), which have disrupted the continuity of Cambrian sequences between Zaskar and Spiti. As a consequence, different stratigraphic levels of the Cambrian deposits are exposed along the strike from Zaskar to Spiti regions, (ii) Cambrian biozonation exists broadly at two stratigraphic intervals, i.e., ~514-505 Ma (in the Spiti region and partially in the Kashmir region) and ~505-498 Ma (in the Zaskar region and partially in the Kashmir region); (iii) Before Cambro-Ordovician angular discordance the Cambrian deposits shows progressive down cutting from NW to SE direction; (iv) discoveries of faunal level in Spiti helps in straightforward correlation between the Cambrian of Kashmir and Spiti region, (v) Recent work constraint the Cambrian deposits of the LHZ and it suggests that the Cambrian biozonation is available at four stratigraphic intervals, i.e., at ~542-535 Ma, ~524-513 Ma, ~516 Ma, and ~512 Ma. Similarly, the Ordovician of the Himalayas was poorly known from only the THZ, but in recent years the Ordovician trace fossils have also been recorded from the Lesser Himalayas and this discovery was validated by the geochronological data (Zircon analysis). Moreover, recent work led to the revision of the Ordovician deposits of the THZ which included reclassification of the Sanugba Group.

**// ALL ARE WELCOME //**