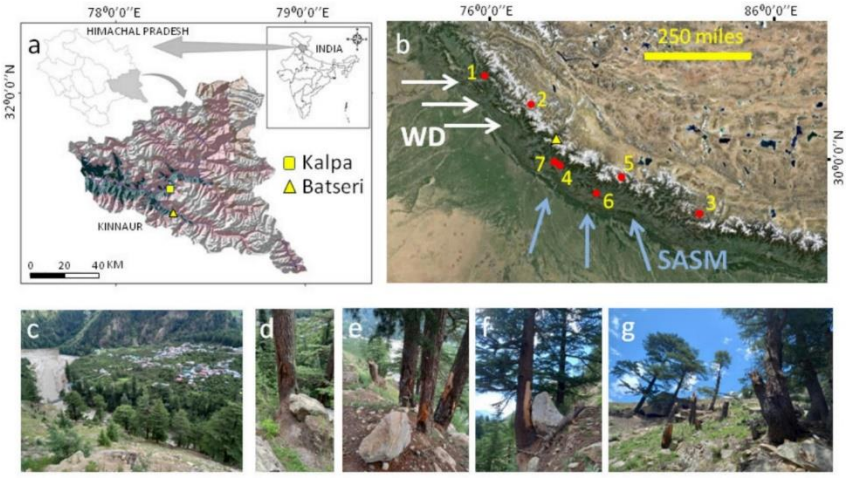
Birbal Sahni Institute of Palaeosciences
Monthly Summary of Research Activities (July 2025)

1. Important Highlights of Major Research Activity

Key Scientific Findings of the Month (July 2025)



Moisture variability driven by climate change impacts soil moisture, affecting vegetation growth and cover, and enhances the morphodynamics, potentially increasing geohazard risks. Dendroclimatology and dendrogeomorphology techniques effectively quantifying the past moisture variability and geohazard episodes can be used to understand the climate-induced geohazard mechanisms in long-term. We reconstructed moisture variability and geohazard (rockfall) activity from the Kinnaur region in the Indian western Himalayas. The Western Disturbances (WDs) driven winter precipitation provides moisture crucial for tree growth during the spring and summer months. We developed a 463 year-long (1558–2021 CE) tree-ring width chronology (TRWC) of Cedrus deodara and performed correlation analysis with various climate variables. The significant positive correlation between TRWC and standardized precipitation evapotranspiration index (SPEI04) for the February-March-April months revealed the combined effect of winter and spring month's water balance on tree growth. The SPEI04 reconstruction for the past 356 years showed that the study region experienced moderate to severe wet spring years between 1725 and 1757 CE, teleconnected to westerly circulation patterns, falling in the Little Ice Age (LIA) time frame. The dry spring phase after 1757 CE significantly teleconnects with a tropical ocean warming during late 19th and 20th centuries. We assessed the impact of moisture changes on the geohazard frequency and found good correspondence between years with dry spring months and rockfall activity. We observed an increase in geohazard activity since the mid-20th century, indicating an increasing vulnerability of slopes to ground failure. The spring and summer months are becoming more critical for tree growth and ground stability due to unprecedented temperature rise during the last century. Our findings provide a suitable baseline for adapted forest management, sustainability and ground stability measures under ongoing climate warming. (Chinthala et al., 2025).

2. **Hybrid Training Session on Enhanced Features of the iThenticate Platform 30 June 2025**
3. As part of the **SCoPE Lecture Series** — an initiative under the Science Communication for Public Engagement and Partnership (SCoPE) programme of BSIP's media project, A popular Science lecture was delivered by Dr. Pradeep Kumar Srivastava, Former Deputy Director, CDRI and Renowned Science Cartoonists on the topic "Visualising Science: The Power of Scientoons in Science Communication" on 1st July 2025.
4. **INQUA INDIA 2027 International conference Talk Series:** Prof. Jeffery R Stone, Indiana State University, USA delivered an online talk on the topic "Influence of Holocene marine flooding events on the coastal and freshwater ecosystems of lake Izabal, Guatemala" on 26th July 2025 as a part of INQUA INDIA 2027 International conference Talk series.
5. **Organised a Lecture Under Mission Karmayogi for** Scientific staff, along with administrative and technical and research scholars participated the said event on the 22nd July 2025.

Total 10 Research Papers were published during the month in High Impact Factor Journals

Photographs showing important highlights of major programs / research activities organized during July 2025:

स्कोप व्याख्यान श्रृंखला के अंतर्गत आयोजित 1 जुलाई 2025 को डॉ. प्रदीप कुमार श्रीवास्तव, पूर्व उपनिदेशक, सीएसआईआर–सीडीआरआई एवं प्रख्यात साइंटूनिस्ट द्वारा एक लोकप्रिय विज्ञान व्याख्यान
A popular science lecture by Dr. Pradeep Kumar Srivastava, Former Deputy Director, CSIR–CDRI and renowned scientoonist was organised on 1st July 2025 under the SCoPE Lecture Series