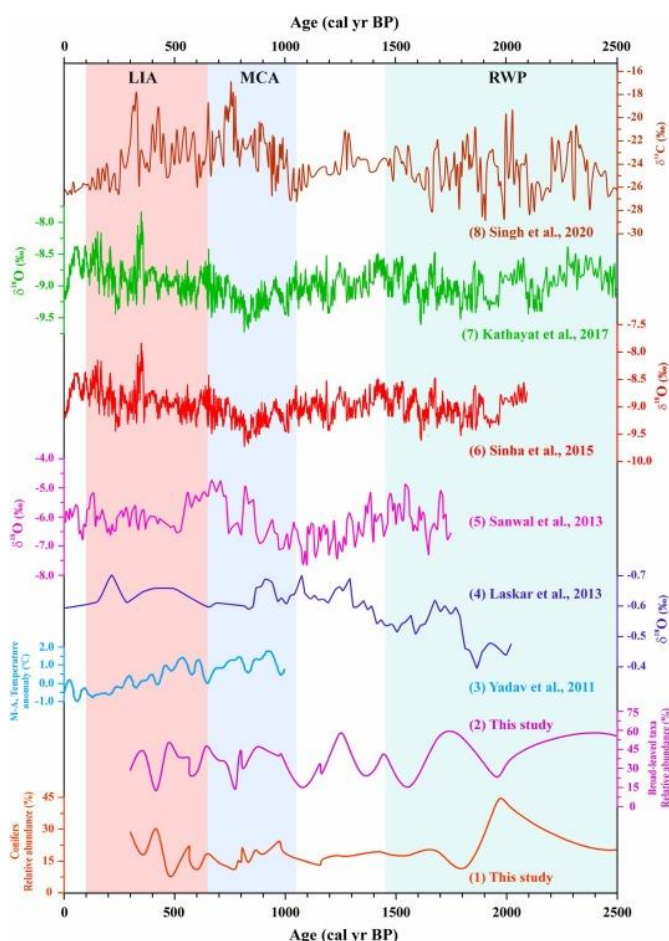


**Monthly Summary Report- April 2026**  
**Birbal Sahni Institute of Palaeosciences**

**Any significant development/achievement that you feel warrants being brought to Cabinet Secretary's notice:**

Scientists studied pollen preserved in a 3.8-meter-long sediment core from Deoria Tal in the Garhwal Himalaya. By examining 55 samples, they reconstructed changes in vegetation and the strength of the Indian Summer Monsoon (ISM) over the last 5,200 years. From about 5200 to 4000 years ago, the area was covered mainly by pine forests mixed with some broad-leaved trees. This suggests the climate was relatively cool and dry, with a moderate monsoon. However, between about 4400 and 4000 years ago, the climate became unstable, with noticeable fluctuations in rainfall and vegetation. Around 4250 years ago, there was a sudden increase in oak trees compared to pine. This change matches evidence from other studies showing a short but significant climate event around 4200 years ago. Between about 4000 and 2650 years ago, forests became denser, indicating a shift to warmer and wetter conditions, especially between 4000 and 3200 years ago. Later, from about 2600 to 1000 years ago, mixed forests of broad-leaved and conifer trees expanded, suggesting a strong and sustained monsoon with warm and moist conditions. From about 1000 to 600 years ago (roughly 950–1350 CE), forest density fluctuated, pointing to a moderately strong monsoon that gradually weakened after about 800 years ago. This period broadly matches the Medieval Climate Anomaly. Finally, between about 600 and 300 years ago (roughly 1350–1650 CE), pine forests became dominant again, indicating drier and cooler conditions. This period corresponds to the Little Ice Age, when the monsoon was weaker. (Porinchu et al 2026; Palaeogeography, Palaeoclimatology, Palaeoecology).



Later, from about 2600 to 1000 years ago, mixed forests of broad-leaved and conifer trees expanded, suggesting a strong and sustained monsoon with warm and moist conditions. From about 1000 to 600 years ago (roughly 950–1350 CE), forest density fluctuated, pointing to a moderately strong monsoon that gradually weakened after about 800 years ago. This period broadly matches the Medieval Climate Anomaly. Finally, between about 600 and 300 years ago (roughly 1350–1650 CE), pine forests became dominant again, indicating drier and cooler conditions. This period corresponds to the Little Ice Age, when the monsoon was weaker. (Porinchu et al 2026; Palaeogeography, Palaeoclimatology, Palaeoecology).

**Figure 1:** Correlation of the Deoria Tal pollen record with the existing palaeoclimate records, with reference to the global climate events, such as Roman Warm Period (RWP), Medieval Climate Anomaly (MCA) and Little Ice Age (LIA). (1 and 2: This study); (3). Yadav et al. (2011) from Himachal Pradesh; (4). Laskar et al. (2013) from the Andman and Nicobar Islands; (5). Sanwal et al. (2013) from Kumaun; Lesser Himalaya; (6). Sinha et al. (2015) speleothem  $\delta^{18}\text{O}$  record of the Sahiya Cave; Uttarakhand; Lesser Himalaya; (7). Kathayat et al. (2017) speleothem  $\delta^{18}\text{O}$  record of the Sahiya Cave; Uttarakhand; (8). Singh et al. (2020) from Rewalsar Lake, Himachal Pradesh, NW Himalaya.

### **Events during April 2026:**

1. Dr. Ratan Kar, Scientist-F, BSIP, delivered a lecture on the topic “Basics of Quaternary Palynology and its Application from the Higher and Trans Himalaya” on 17th April 2026.
2. Dr. Sudhir Shukla, Ex-CGM Geology and Unconventional Resources, KDMIPE, ONGC delivered the Friday colloquium on the subject titled “Current Energy Perspectives vis-a-vis geosciences” on 24th April 2026.
3. The Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, observed World Earth Day on 22 April 2026 in alignment with the global theme “Our Power – Our Planet,” emphasizing environmental responsibility and collective action.
4. Three Episodes of BSIP exclusive radio Podcast program “**BSIP** **Podcast** **Program**” has been released during this month in which BSIP scientists have narrated the various scientific stories about the Mother Earth. This program can be listened on KGMU Goonj App and Fm Radio station (89.6 MHz).
5. A total of 7 outreach educational visits by Schools and Colleges took place during the April 2026 in which students visited museum, laboratories and interacted with scientists.
6. Dr. Runcie Paul Mathews, Scientist ‘D’, delivered a lecture titled “Origin, Evolution, and Significance of Coal: A Scientific Perspective” and conducted a laboratory session on Organic Petrography as part of the CSIR Skill Training Program on “Fossil Fuel and Paleoclimate,” held at CSIR–National Geophysical Research Institute (NGRI), Hyderabad, during 23–28 March 2026.
7. Prof. M. G. Thakkar, Director, Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, delivered two invited lectures at the International Conference “Himalayan Horizons: Tectonics, Sustainability, Resilience from the 1905 Kangra Earthquake to Today (HTSR-2026)”, held at the Central University of Himachal Pradesh, Dharamshala, during 4–6 April 2026.
8. Dr. Mohammad Firoze Quamar, Scientist ‘E’, Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, delivered an invited lecture titled “Vegetation Dynamics, Climate Change and Indian Summer Monsoon Variability since the Last 5200 Years from the Garhwal Himalaya, India” at the International Conference “Himalayan Horizons: Tectonics, Sustainability, and Resilience from the 1905 Kangra Earthquake to Today (HTSR–2026)”, held during 4–7 April 2026 at the Central University of Himachal Pradesh (CUHP), Dharamshala, Himachal Pradesh, India.

**Total 07 Research Papers published in high impact international journals during this month.**

