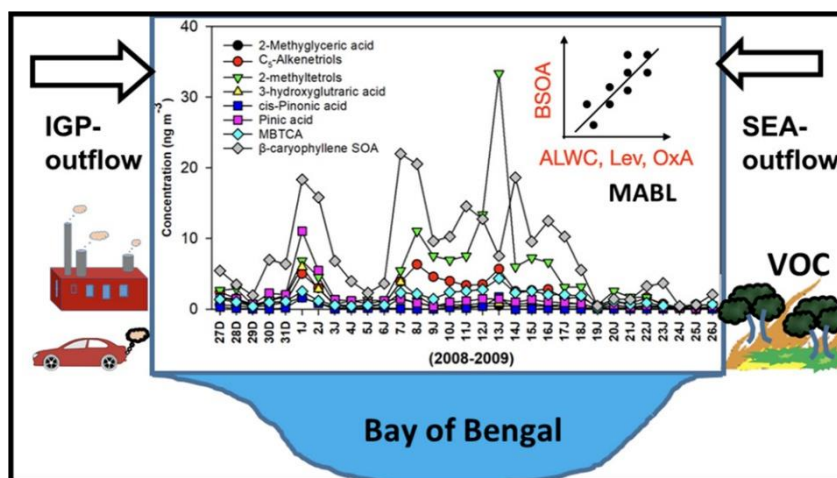


## Monthly Summary Report- May 2026 Birbal Sahni Institute of Palaeosciences

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

This study examines how organic particles in the atmosphere, called secondary organic aerosols (SOA), form over the Bay of Bengal during winter. These particles are important because they affect climate, but their formation processes are still not fully understood. The researchers focused on aerosols produced from



natural plant emissions, known as biogenic SOA (BSOA), and studied air masses coming from the Indo-Gangetic Plain (IGP) and Southeast Asia (SEA). By analyzing fine airborne particles (PM<sub>2.5</sub>), the study found that aerosols formed from  $\beta$ -caryophyllene oxidation were the most abundant type of BSOA. The concentrations of BSOA were strongly linked with levoglucosan, a marker of biomass burning, suggesting that forest fires or crop burning may release compounds that later form these aerosols. The study also observed that BSOA formation was closely related to sulfate particles and water present in aerosols, especially in air masses from Southeast Asia. This indicates that acidic and water-rich atmospheric conditions over the ocean may help chemical reactions that produce BSOA. Overall, the research highlights how pollution and biomass-burning emissions from different continental regions influence aerosol formation and evolution over marine environments. (Bikkina et al 2026; ACS Environmental Science & Technology Air; Figure caption: Graphical abstract showing the formation and evolution of biogenic secondary organic aerosols (BSOA) over the Bay of Bengal during wintertime).

- ✓ **Total 12 Research Papers published in high impact international journals during this month.**

#### **Event Highlights during May 2026:**

1. Mr. Faizan Ahmed Khan, Research Scholar, BSIP, Lucknow, delivered a Lecture in Seekers Interaction Forum (SIF), BSIP on 07th May 2026 on the subject titled "The Statistical Approaches to Geochemical Data Analysis".
2. Swachhta Pakhwada observed and celebrated at BSIP from 1-15 May 2026 as per the directives of the Department of Drinking Water and Sanitation, Government of India, in association with DST.
3. One Day Brainstorming Session titled "From Deep Time to Deep Learning: Unlocking Palaeosciences through Palaeobiological Data and AI Innovation" was organized at Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, on 12 May 2026. The programme focused on the integration of Artificial Intelligence, Machine Learning, and palaeobiological data for advancing research in Palaeosciences.
4. Three Episodes of BSIP exclusive radio Podcast program "कहानी धरती की" 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. Dr Neraj Rai, Scientist BSIP, undertook three collaborative visits to Nagaland University, Kohima, State Archaeology Department, Leh, Laddakh and Aizawl, Mizoram.
6. The Ph.D. viva-voce examination of Mr. Arvind Tiwari, AcSIR Ph.D. Scholar, was conducted on 15 April 2026. He successfully defended his thesis work and has been awarded PhD degree titled "Variability of Indian Monsoon during Late Quaternary in Central Ganga Plain" from AcSIR has been awarded on 6th May 2026.
7. The Ph.D. viva-voce examination of Ms. Aparna Dwivedi, AcSIR Ph.D. Scholar, was conducted on 27 April 2026. She successfully defended her thesis work and has been awarded PhD degree titled "Reconstructing Neolithic and Megalithic Population histories of South Asia using Ancient DNA and Stable Isotope Analysis" from AcSIR has been awarded on 10th May 2026.
8. A productive academic interaction and MoU exchange meeting was organized and signed between Birbal Sahni Institute of Palaeosciences, Lucknow and Indian Institute of Forest Management on 21 May 2026 at Bhopal. The meeting was led by Prof. M. G. Thakkar, Director, BSIP and Dr. Ravichandran, Director, IIFM.
9. A total of 11 manpower trained through internships and dissertation in research domain of Earth Sciences during this month.

**Photographs showing important highlights of major programs/research activities organized during May 2026:**

