

Birbal Sahni Institute of Palaeosciences
Monthly Summary of Research Activities
(October 2024)

1. Area of Focus

The institute carries out research on fundamental as well as applied aspects of Palaeosciences that includes Evolutionary history of biota, Paleoclimate, studies of past civilization, Human history and contemporary Climate Change issues, following an integrated and multi-disciplinary approach.

Key research activities under following objectives:

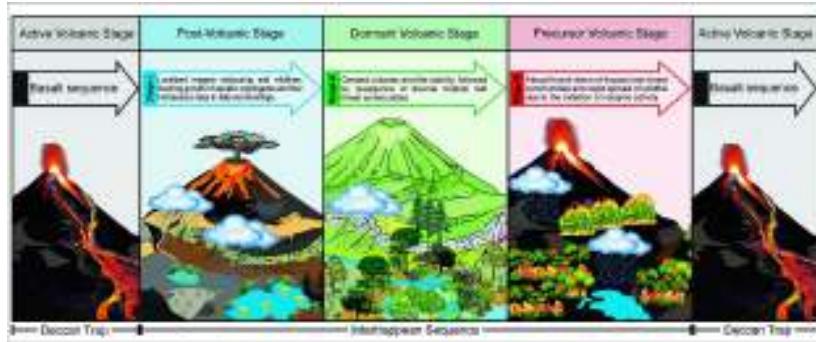
- Understanding origin and evolution of life through time and space.
- Understanding climate change in recent and deep geological times.
- Understanding past civilization and human history.
- Application of Palaeosciences in exploration of fossil fuel and coal industry.

1. Important Highlights of Major Research Activity

a. Key Scientific Findings of the Month (October 2024)

The Deccan-associated sediments (Lameta and intertrappean deposits) hold great potential for understanding the role of Deccan Volcanism in the late Maastrichtian ecological upheaval. We provide a thorough palaeobotanical, palaeoclimatic and palaeobiogeographic review of the pre-Deccan (Lameta deposits) and syn-Deccan (intertrappean deposits) sequences. We present a detailed palynological analysis of C29R magnetochron intertrappean section from Yeotmal, central India, depicting episodic regional floral responses to volcanism. Below are major highlights of the study (Mishra et al., 2024):

1. Episodic floral development relating to the Deccan Volcanism during the late Maastrichtian.
2. Rapid resurgence of lowland tropical rainforest flora during quiescent phase of volcanism.
3. A tropical, warm and humid climate existed with well-marked seasonally wet climate during the late Maastrichtian.
4. Plate tectonics and Deccan Volcanism both shaped the vegetation, climate and floristic diversity during late Maastrichtian.



b. Student Interaction Forum (SIF) Lecture (October 2024)

Faizan Ahmad Khan, research scholar, BSIP, delivered a talk on “Quantification of relative contributions from different sediment sources using forward modelling” on 17th October 2024 in BSIP auditorium under SIF. The SIF is a forum for discussion on various aspects of science, completely managed by PhD students with faculty coordinator. The lecture was attended by institute scientists, post-doctoral fellows and research scholars.

c. National Learning Week (Karmayogi Saptah; 19 Oct -27 Oct 2024)

All the BSIP staff including scientific, administrative and technical staffs observed National Learning Week (कर्मयोगी सप्ताह) from 19 – 25 October, 2024 and learned through various courses provided on iGOT Karmayogi Portal.

d. Governing Body Meeting (22 Oct 2024)

Professor Mahesh G. Thakkar, Director BSIP, welcomed the newly formed Governing Body of the institute and conducted its first proceedings on the institute premises on 22 Oct 2024. All the Gb members along with Registrar, BSIP attended the meeting.

e. Special Campaign 4.0 (Oct 2024)

Under SpecialCampaign4.0, BSIP organized several events including Swachhata Outreach program at Kalicharan college under the scheme Swachhata special campaign 4.0 on 16-010-2024 to spread the awareness about cleanliness drive with the message of 'स्वच्छता ही सेवा'. Documentary film on Swachhata was also telecasted to students of Shia PG college, Lucknow along with Health Campaign was also organized within BSIP for health awareness. Under Special Campaign4.0, Talk on "Health & Hygiene was delivered by Dr Pankaj Bharti for a Successful and Productive Life".

f. Campus Outreach Activity

S. No.	University/College	Standard/Course	Number of Students	Details of Visit
01	Kirti Public School	10 th – 12 th Standard	50	Museum and scientific Laboratories (16 Oct 2024)
02	Kunskapsskolan School	03 rd Standard	40	Museum and scientific Laboratories (23 Oct 2024)
03	Babasaheb Bhimrao Ambedkar University	MSc Geology	40	Museum and scientific Laboratories (23 Oct 2024)

g. Dr. Gaurav Srivastava and Dr. Ranveer Singh Negi inspired young minds at Greenland Public School, Lucknow, on 27th September 2024. Students from classes VI to XII showcased their innovation and creativity through exciting competitions like Inventia, EraArt, and GeoMorph under the theme 'Inno Vistas: Exploring Horizons.' From working models to artistic exhibits, the students impressed and engaged with the visiting scientists!

h. Man Power Trained (Internship/Dissertation)

S.No.	Name of Students	Supervisor/Co-supervisor	Broad Area of Training	Duration
01	Kajal Kumari	Dr. Anju Saxena	Floral diversity and environment during Early Permian: Evidence from Chirimiri Coalfield, Son Basin India.	Sept-Oct 2024 (01 Month)
02	Shaikh Luviza	Dr. Shreya Mishra	Palaeo-vegetation, Palaeoenvironment and age implication of the Deccan Intertrappean beds of the Jabalpur District, Madhya Pradesh, India.	Oct 2024 (01 Month)

03	Ananya Pandey & Miss Mudita Tiwari	Dr. Arif Hussain Ansari	Estimation of quality of commercially available paracetamol of various pharmaceutical brands using Raman Spectroscopy	Sept-Oct 2024 (01 Month)
04	Anamika Verma	Dr. S. Suresh Kumar Pillai	Biostratigraphy Evaluation to determining the age of the Sediments from Nayabazar-Legship Road Section of South Sikkim India: based on megafossils and palynological studies	Sept-Oct 2024 (01 Month)
05	Tanya Gaur	Dr. Neraj Rai	Molecular Biology Techniques in Human Genomics	Sept-Oct 2024 (01 Month)
	Avinash Jha	Dr. Neraj Rai	Understanding Human Genetic Diversity using Mitochondrial Sequencing Data	Sept-Oct 2024 (01 Month)

i. Participation in National/International conferences/workshops/Symposium

Prof. M.G. Thakkar Visited in International Geodiversity Day 2024 in Department of Geology, Bangalore University.

Dr. Santosh Kumar Pandey (Scientist-D) presented a talk entitled ' Co-Evolution of life and environment and the role of large seaweed for the emergence of Ediacara biota' on Oct 17th at 29th Indian Colloquium on Micropaleontology and Stratigraphy

Dr. Neha Aggarwal presented a talk entitled 'Palaeoenvironmental settings of Artinskian sediments in the Sattupalli area of the Chintalapudi sub-basin, Godavari Valley Coalfield' in the 29th ICMS at University of Delhi.

Dr. Mohd. Firoze Quamar presented an overview of the pollen-based hydroclimatic changes since the Last Glacial Maximum from the Core Monsoon Zone of India at 29th ICMS, New Delhi.

Dr. Jyoti Srivastava, Scientist BSIP participated in a beach cleaning campaign around Mangalore with students from various schools and colleges who joined the beach clean-up drive post-conference. Nearly 120 students along with all the delegates and organizers cleared the non-biodegradable wastes from 1 km stretch of the beach along the

Mangalore coast.

Dr. Jyoti Srivastava, Scientist BSIP delivered an invited talk on "Predictive models for climate change impact on tropical deciduous and evergreen forests of India" in the 14th Biennial Lake Conference (LAKE-2024: Wetlands for Human Well-being) from 17-20th October 2024 at Moodubidire.

Dr. Anju Saxena delivered a talk entitled 'Palynofloral records from the Devonian and Carboniferous sequences of Spiti basin, Tethyan Himalaya and their Biostratigraphic Implications' at 29th ICMS, New Delhi

Mr. Nagendra Prasad presented a talk in the 29th ICMS, Delhi, on the title of "Weakening of the Indian Summer Monsoon at the 8.2 k yr BP: Vegetation dynamics and Hydro-climatic changes in the core monsoon zone of India"

Dr. Swati Tripathi presented the research finding entitled 'Micro-Morphometry of Cereal and non-cereal pollen using LM, CLSM and FESEM: Implications to decipher past anthropogenic activities in the Central Ganga Plain' in 29th ICMS 17-19 Oct, 2024

Dr. Veeru Kant Singh presented a talk entitled 'Laser Raman Micro-Spectroscopy based Kerogenous characterization of chert hosted permineralized microbiota of the Chattisgarh supergroup, India in 29th ICMS at University of Delhi

Dr. Ansuya Bhandari delivered a talk entitled 'A new murid rodent from the Siwalik Group of Mohand (NW Himalaya) and Palaeontological implications ' at 29th ICMS, New Delhi, Department of Geology

Mr. Brijesh Kumar delivered a talk entitled 'Long term variability in the mixed layer and thermocline in the Equatorial Eastern Indian Ocean: Influence of wind and ocean circulation' at 29th ICMS, New Delhi, Department of Geology

Dr. Pauline Sabina K. delivered a talk 'Revision of the Age of the oldest palynozone of Talchir formation based on guide palynomorphs present in radiometrically dated palynozonations in coeval pan Gondwana Basins' 29th ICMS, New Delhi.

List of Research Publications (October 2024)

Original Articles/Reviews/Book Chapters

1. Mishra, S., Bansal, M., Prasad, V., Singh, V. P., Murthy, S., Parmar, S., & Khangar, R. (2024). Did the Deccan Volcanism impact the Indian flora during the Maastrichtian? *Earth-Science Reviews*, 104950. (IF: 10.8)
2. Saxena, A., Cleal, C. J., and Singh, K. J. (2024). The Permian–Triassic boundary in peninsular India and the extinction of the Glossopteridales. *Gondwana Research*. (IF: 7.2)
3. Trivedi, A., Nag, A., & Farooqui, A. (2024). Modern Pollen Signatures and Vegetation Dynamics in Northwestern Himalaya, India. *Palynology*, 2415913. (IF: 1.4)
4. Trivedi, A., Ali, S. N., Manoj, M. C., Agrawal, S., Sharma, A., Phartiyal, B., & Tiwari, P. (2024). Characterization of biotic and abiotic signatures of modern lake sediments of western India, and its palaeo-environmental implications. *Quaternary International*, 708, 36-57. (IF: 1.9)
5. Trivedi, A., Agrawal, S., Sharma, A., Ali, S. N., Manoj, M. C., Nag, A., & Kawsar, M. (2024). Climatic Oscillations and Dynastic Trends: A Multiproxy analysis of the past two millennia in the Indian Subcontinent. *Catena*, 246, 108424. (IF: 5.4)
6. Sharma, S., Pokharia, Anil K., Gahlaud, S. K. S., Patel, N., Manjul, S. K., Yadav, Ruchita, & Agnihotri, R. (2024). Royal burials and chariots from Sinauli (Uttar Pradesh, India): Radiocarbon dating and isotopic analysis-based inferences. *Radiocarbon*, 1-9. (IF: 2.0)
7. Kapur VV*, Sagar R, Kumar K, Chaddha AS, Lourembam RS, Mishra A & Sharma A. (2024). Palaeobiological and geochemical aspects of reptilian coprolites from a Maastrichtian Deccan volcano-sedimentary intertrappean deposit of central India. *Ichnos*, 1–24. <https://doi.org/10.1080/10420940.2024.2415153>. (IF: 0.8).
8. Singh P, Sarangi V, Bhushan R, Ali SN, Agrawal S, Tiwari P, Kawsar M, Agnihotri R, Sanyal P, Kumar K, Thakur B. Presence and implications of petrogenic organic carbon in High Himalayan Crystalline Lake sediment. *Radiocarbon*. 2024 Sep 26:1-23.

Photographs showing important highlights of major programs/research activities organized during October 2024:



स्वच्छता ही सेवा
Swachhata 4.0 - Lecture on Health and Hygiene [09-10-2024]



16 अक्टूबर 2024 को बीरसआईपी संस्कारण और इच्छेनालोग द्वारा उपर्युक्त विद्यालय शैक्षणिक संस्थान, बारातानी के छार्कों और विद्यार्थी व बीरसआईपी विद्यालिंग के साथ पुराविज्ञान के वर्षावारी की यात्री पर एक वायवार अनुसूत।

A memorable hands-on experience for the students and faculty of Kirti Public School, Baratani, as they explore the wonders of Palaeosciences with BSIP scientists during their BSIP Museum and Laboratory visit on 16th October 2024.



BSIP GB meeting 2024 बीरसआईपी जीवी बैठक-2024





