

Monthly Summary Report- February 2026
Birbal Sahni Institute of Palaeosciences

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

This study evaluates water quality and human health risks at the Betwa–Yamuna confluence in Hamirpur District, India, using monthly data collected from June 2023 to May 2024. Physicochemical parameters (pH, EC, TDS, temperature) and trace metals (As, Pb, Cd, Cu, Fe, Mn, Mo, Ni, Zn) were assessed against WHO and USEPA standards. Arsenic ranged from 0.001–0.011 mg/L and exceeded the WHO limit (0.01 mg/L) in several samples, while Pb (0.0004–0.012 mg/L) occasionally exceeded its guideline. EC exceeded 1200 $\mu\text{S}/\text{cm}$ and TDS surpassed 500 mg/L during pre-monsoon months, indicating strong solute enrichment under low-flow conditions. Non-carcinogenic risk assessment showed median HQ values for arsenic of 0.98 for children and 0.42 for adults, with 95th percentiles reaching 2.28 and 0.97, respectively. Children's HI values exceeded 1.0 in all seasons and surpassed 2.0 during pre-monsoon. Carcinogenic risk for arsenic exceeded the USEPA threshold (1×10^{-4}) in 38% of adult and 9% of child Monte Carlo simulations. Probabilistic analysis (10,000 iterations) indicated $\text{HI} > 1$ in 67% of child runs and 23% of adult runs. The results demonstrate substantial health risks, particularly for children, and highlight the urgent need for arsenic and lead source control, seasonal water quality monitoring, and community-level drinking water treatment, with priority given to child focused risk protection (Prasanna et al 2026; *Nature Scientific reports*).

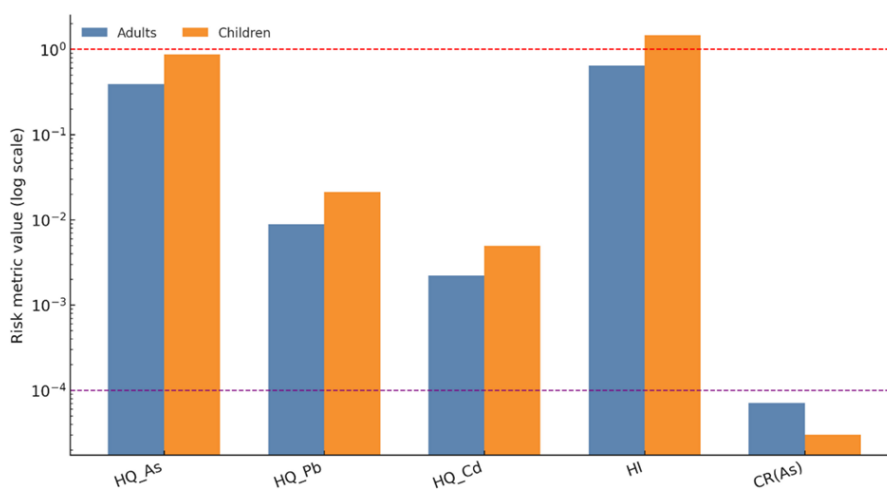


Figure 1: Grouped bars of median HQ (As, Pb, Cd), HI and CR (As) for adults and children (Monte Carlo medians; N = 10 000).

Events during February 2026:

1. Capacity Building Workshop on Rock Magnetism in Earth Sciences (RMES-2026)
2. Visit of INQUA Executive Committee delegation (19 Feb 2026)
3. Prof. Kaushik Bhattacharya, Department of Physics, Indian Institute of Technology (IIT) Kanpur, delivered a Colloquium lecture at BSIP on 13 February 2026. His talk, titled "From Blackbody Radiation to Bell's Inequality: The Story of Quantum Mechanics," explored the conceptual evolution of quantum mechanics from its foundational crises to the profound implications of Bell's inequality and quantum non-locality.
4. Dr. Sudhira Ranjan Bhadra, Centre for Earth Sciences, Indian Institute of Science (IISc), Bengaluru, delivered the Friday Lecture at BSIP on 20 February 2026. His presentation provided valuable insights into the orbital-scale controls on Indian

Monsoon variability and its oceanographic and biogeochemical linkages in the North Indian Ocean.

5. Mr. Prashant Mohan Trivedi, AcSIR Ph.D. Scholar, presented his viva-voce presentation on 11 Feb 2026.
6. Ms. Sneha Mary Mathew, Mr. Pawan Kumar Singh and Mr. Katange Kishor Vasant, AcSIR PhD Students presented their Pre-Thesis Open Colloquium (PTOC) seminar during this month.
7. Ms. Sneha Santhosh delivered a talk on “Reconstructing a fire landscape in deeper time” under SIF lecture series on 26 Feb 2026.
8. BSIP showcased its rich fossil heritage and ongoing research at Science Expo–2026, inaugurated by Brajesh Pathak, Hon’ble Deputy Chief Minister, Uttar Pradesh, at Regional Science City, Lucknow.
9. During the 37th Gujarat Science Congress, Gujarat University, Prof. M. G. Thakkar, Director BSIP, delivered a keynote lecture on “From Geological Archives to Human Futures: Learning from Earth’s Record of Disasters”.
10. Dr. Anupam Sharma, Scientist ‘G, BSIP, delivered the 5th Prof. I.B. Singh Memorial Lecture in the Department of Geology, University of Lucknow on “Geochemical Characterization of Quaternary Sediments: Implications for Weathering, Provenance and Climate–Tectonic Interactions.”
11. Dr. Kamlesh Kumar (CVO, BSIP) attended the 3-day DST Administrative Vigilance Training Programme from 4-6 Feb. 2026 at INSA, New Delhi.
12. Dr. Shilpa Pandey, Scientist-E, delivered an invited lecture on “Andaman Island Mangroves as Archives of Palaeoclimate and Climate Crisis” on 30 January 2026 at the Department of Coastal Disaster Management, Pondicherry University, Shri Vijay Puram (Port Blair).
13. Prof. M. G. Thakkar, Director, BSIP, delivered a Keynote lecture titled “Understanding Environmental Stress and Recovery through Geological Time: Implications for Modern Life Sciences” at a conference on “Biological Tools for Sustainable Environment” at Department of Biosciences at Veer Narmad South Gujarat University (VNSGU), Surat.
14. Dr. Shilpa Pandey, Scientist-E, BSIP, delivered a talk on Mangroves as Natural Capital: Insights for a Sustainable Blue Economy to senior IFS officers during the IFS Training Officers Workshop at IIT Gandhinagar.
15. Mr. Anand Rajoriya, Senior Research Fellow (BSIP), Lucknow, presented his research work titled “Biogeochemical Investigation of Mangrove Ecosystem to Gauge Coastal Anoxia and Ecosystem Processes of the Last 7800 Cal. Year BP” and was awarded the Best Poster Presentation Award at the 12th International Conference on Isotopes (12ICI) held in Florence, Italy (15–19 February 2026).

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

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

