



IITM NEWSLETTER



Quarterly e-Newsletter of

Indian Institute of Tropical Meteorology

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Achievements

Address by Director, IITM

Dr. A. Suryachandra Rao assumed charge as Director, IITM, on 2 June 2026 and addressed the Institute at Meghdoot Hall, he shared his vision for taking IITM to greater heights and spoke about the ongoing transitions within IITM and the Ministry of Earth Sciences (MoES).

[View Director's Page](#)



Launch of Bharat Forecast System (BharatFS)

India's most advanced short and medium-range weather prediction model, the Bharat Forecast System (BharatFS), was officially dedicated to the Nation on 26 May 2025 at Vigyan Bhawan, New Delhi, by the Hon'ble Minister of Earth Sciences.

- **Developed by IITM and operationalized by IMD**, BharatFS offers global forecasts at an unprecedented 6 km resolution, making India the only country in the world to run such a high-resolution global model in real time.
- **The model runtime has been reduced from 13 hours to 4 hours**, enabling timely 10-day forecasts on HPCS Arka, with improved skill in extreme rainfall prediction and coverage of the monsoon core zone.
- Operational details and real-time outputs are available through the BharatFS portal.

- **BharatFS received wide media coverage, including All India Radio** (Hindi & English science programs, June 2025) and NewsX channel.

YouTube : <https://youtu.be/KdLYrxkuZSw?si=5YL3IZHMVrbBrfhm>



Launch of Bharat Forecast System (BharatFS)

Lightning Location Network Expansion – Installation and integration of three new lightning sensors at Surat, Deesa, and Bikaner into the operational Indian Lightning Location Network (ILLN).

Urban Meteorology Testbed–Delhi – Deployment of a dual-wavelength aerosol lidar system at NCMRWF, Noida, enabling continuous urban boundary layer, aerosol, and cloud monitoring for enhanced pollution event characterisation and urban weather prediction.

Atmospheric Research Testbed (ART) – Installation of a Joss-Waldvogel Disdrometer at NCPOR, Goa (14 May 2025), the first installation in Vasco region, enhancing coastal rainfall microphysics research.

Additional disdrometer installation at K.J. Somaiya Institute of Technology, Sion, Mumbai (17 June 2025) expanded the India-wide network.

IITM–RBI Joint Workshop on Climate Data for Financial Applications (23 April 2025) – Demonstrated IITM’s forecast products; explored collaborative applications for the Reserve Bank of India.



IITM–RBI Joint Workshop on Climate Data for Financial Applications

NT-RADAR 2025 (7–10 April 2025) – National training on weather radar theory, calibration, maintenance, and applications; attended by ~100 participants from IMD and MoES institutes.

ARKA HPC Training Program (3–9 April 2025) – Advanced HPC training on Arka supercomputer; 200 physical and 40 online participants from IMD, NCMRWF, INCOIS, NCPOR.



Glimpses of ARKA HPC Training Program

S2S AccelNet Hydrology Workshop (16–18 June 2025) – organized by the S2S-AccelNet Team in collaboration with IITM Pune and IMD, focused on climate-informed flood prediction, water management, hands-on tools training, and fostering interdisciplinary collaboration.



S2S AccelNet Hydrology Workshop

IAMAS/ICTM Workshop & Panel Discussion

(30 June 2025) – Global experts shared insights on monsoon variability, predictability, and modelling advances. The key speakers discussed on Monsoon teleconnection, internal dynamics of monsoon, Land surface processes and monsoon, Lessons learned from modelling monsoon predictability and prediction. The event reflected a collective effort by the global climate science community to improve understanding and prediction of the Indian Summer Monsoon.



IAMAS/ICTM Workshop & Panel Discussion

Scientific Writing Workshop on ‘Practices in Scientific Writing for High-Impact Journals’ by Dr. Sunaina Singh was arranged on 12-13 June 2025. A total of 63 participants from IITM attended the workshop.



AI and Scientific Writing Workshop on Ethical and Effective Use of AI Tools in Scientific Writing

by Dr. Preeti Mulay was conducted from 23-24 June 2025. A total of 95 participants from IITM/ IMD/ IISER (Earth Sciences) and SPPU (DASS) attended the workshop.



AI and Scientific Writing Workshop

WCSSP–India Project Launch – New research on satellite and reanalysis-based thresholds for thunderstorm and lightning prediction across Indian climate zones. Collaboration between UK Met Office & MoES

MoU with Rajasthan State Pollution Control Board (RSPCB) – Expansion of IITM’s Air Quality Early Warning & Decision Support Systems to Alwar and Bhiwadi, following Jaipur’s success. MoU launched on World Environment Day (5 June 2025) in the presence of the Hon. Chief Minister of Rajasthan.



MoU with Rajasthan State

WiFEX Review Meeting (27 June 2025) – Reviewed operational fog forecasting and planned the next Winter Fog Experiment campaign at IGI and Jewar Airports.

Research Highlights

Climate warming increases global oceanic dimethyl sulfide emissions

This work reduces the current large differences and biases observed in the previous outcomes of the CMIP6 models in terms of the future changes in the seawater dimethyl sulfide (DMS) concentrations and sea-air flux estimates. This not only increases our confidence in predicting future changes in DMS emissions but also addresses the current uncertainty in climate-DMS feedback impacts in the IPCC AR6. The results show that seawater DMS will decrease in the future, but the sea-air emissions will increase. This suggests that DMS will play an increasingly important role as a sulfur source as further air quality measures reduce anthropogenic emissions of sulfur compounds. (Joge S.D., Mansour K., Simó R., Galí M., Steiner N., Saiz-Lopez A., Mahajan A.S., *Climate warming increases global oceanic dimethyl sulfide emissions, Proceedings of the National Academy of Sciences*, 122: e2502077122, June 2025, DOI:10.1073/pnas.2502077122, 1-9)

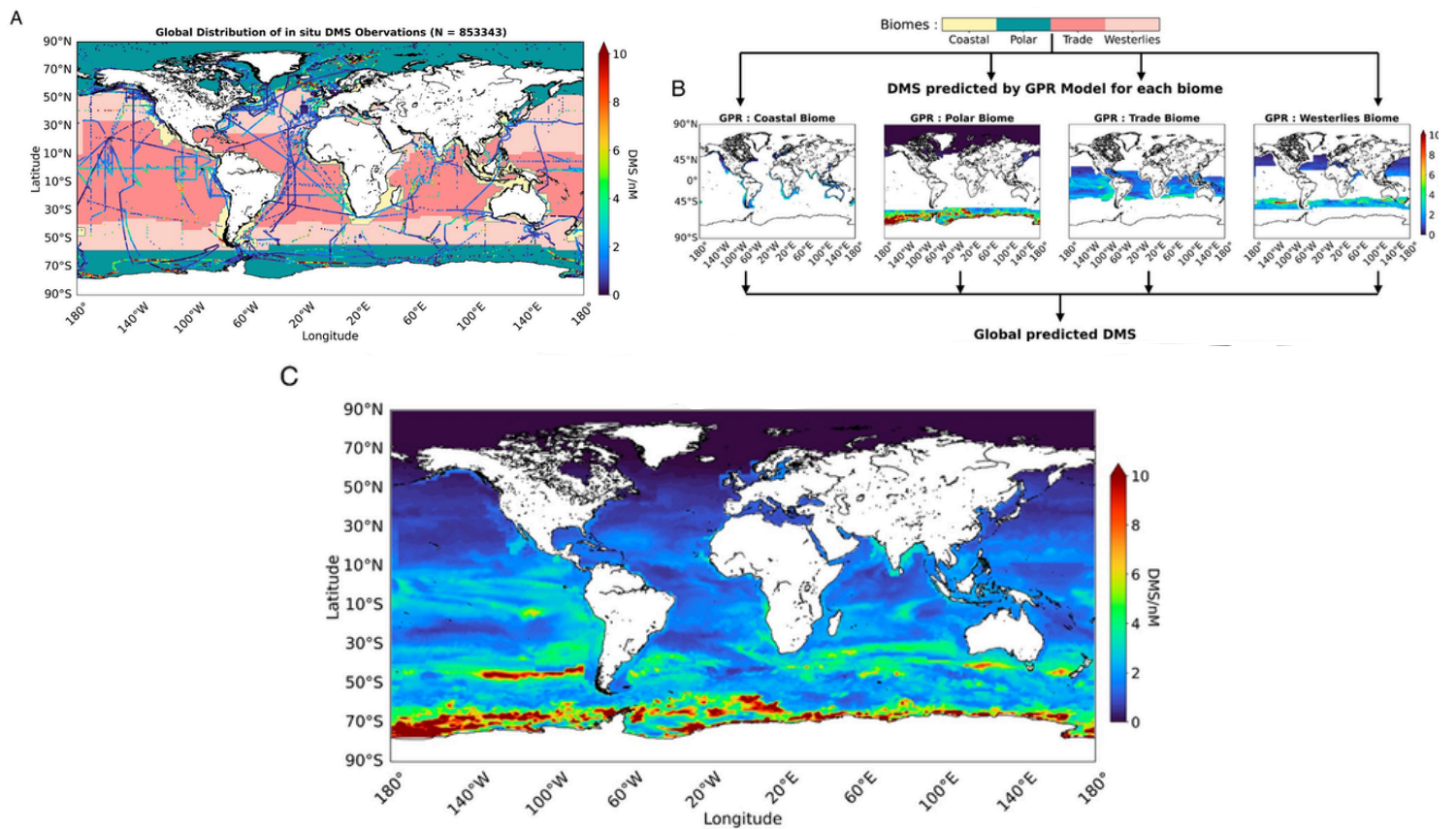


Figure 1: Global seawater DMS concentrations were predicted using GPR models trained with biome-resolved in situ observations and biogeochemical and physical variables from eight CMIP6 models. (A) Global distribution of in situ DMS observations (plotted as colored dots) used for training the GPR models. The data are separated according to oceanic biomes (Coastal, Polar, Trade, and Westerlies; plotted in the background) before training the GPR models. (B) The GPR models are trained for each biome separately and the seawater DMS is predicted for individual biomes using the CMIP6 biogeochemical variables for each month from 1850 to 2100. (C) Finally, the global seawater DMS distribution is obtained by combining the predicted results from each biome for each month as shown in (B). This figure shows an example of the predicted biome-wise and global seawater DMS distribution in December 2000 for the MPI-ESM1-2-HR model.

Deep waters a significant source of Black Carbon aerosols in the Arabian Sea

Atmospheric Black Carbon (BC) measurements over the Arabian Sea during a June research expedition revealed unexpectedly high BC concentrations offshore during the Indian Summer Monsoon. A distinct high-BC zone associated with Cyclone Biparjoy showed nearly two-fold higher median BC levels compared to adjacent regions. While air-mass back-trajectory analysis indicated possible influence from African biomass burning, the absence

of correlation with biomass-burning tracers suggested additional sources. Strong associations between BC and indicators of deep-ocean vertical mixing point to the regurgitation of BC from deep waters, identifying the ocean as a significant and previously under-recognized source of atmospheric BC over the Arabian Sea. (Soni, A., Soyam, P. S., Bankar, S., Prabhakaran, T., Fernando, H. J. S., Gamage, D., Modjeski, G., Bolella, S., Goes, J., Kovach, C., Bera, S., Arvindhavel, A., Zaffoli, M. L., Tandon, A., Konwar, M., Murugavel, P., Safai, P., Decessari, S., Facchini, M. C., Lee, C. M., & Kalarikkal, N. (2025). Deep waters a significant source of black carbon aerosols in the Arabian Sea. *Environmental Research Letters*, 20, 054049. <https://doi.org/10.1088/1748-9326/adc751>

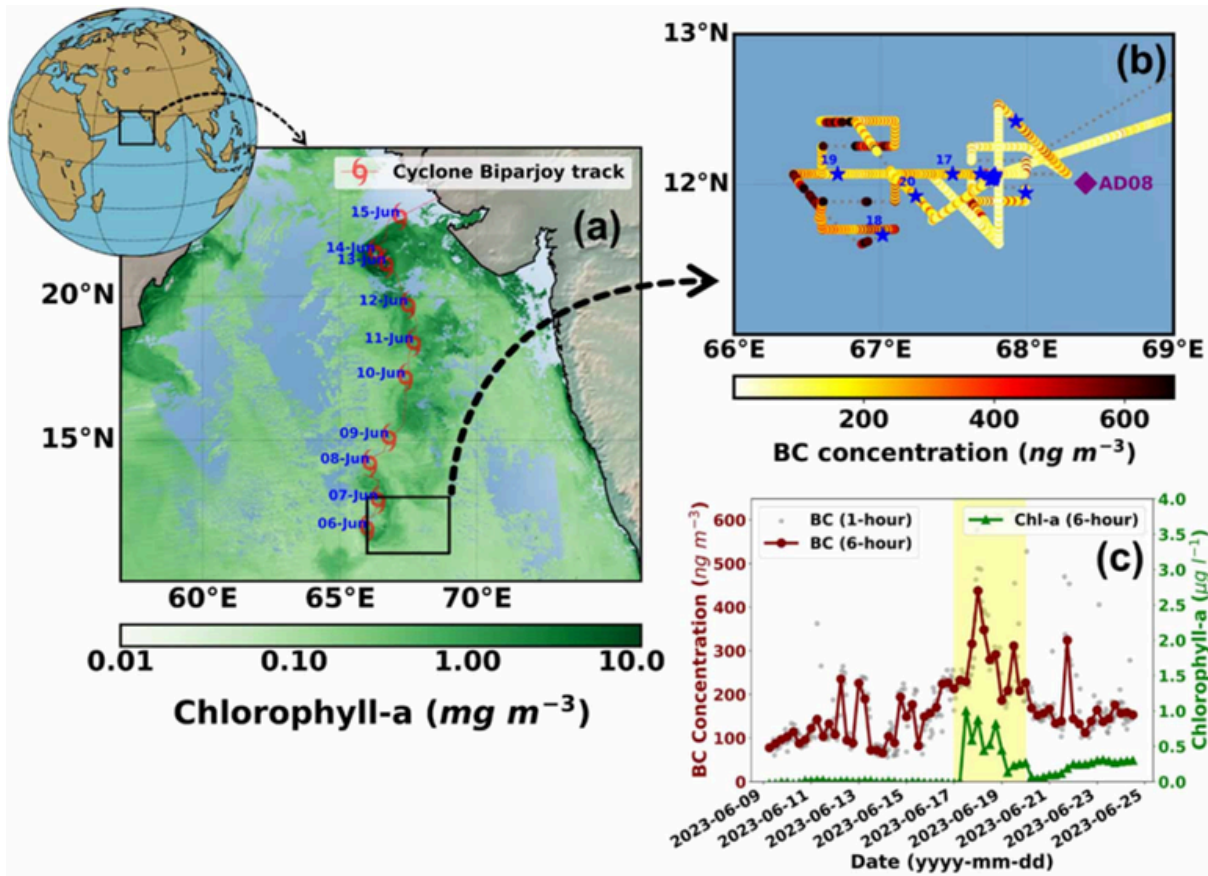


Figure 2. (a) Suomi VIIRS satellite-derived chlorophyll-a concentration (mg m^{-3}) averaged from 15 June to 22 June 2023. The daily Biparjoy cyclone track at 6:00 UTC with dates are also shown. The black rectangle indicates the cruise maneuver region. (b) Cruise track with a grey dashed line, per minute measured BC reported with color points along the track, and the location of AD08 mooring with a purple diamond symbol. The large blue star represents the cruise location at 6:00 UTC. These blue stars with a marked number indicate the dates during which high BC was observed in the algal bloom region. (c) Time-series plot of measured BC and chlorophyll-a concentrations. The yellow-shaded region represents the values observed at the high-BC zone.

Role of Autoconversion Parameterization in Coupled Climate Model for Simulating Monsoon Subseasonal Oscillations

The Indian summer monsoon (ISM) and associated monsoon intraseasonal oscillations (MISOs) influence the billions of people living in the Indian subcontinent. This study explores the role of autoconversion parameterization in microphysical schemes for the simulation of MISO with the coupled climate model, for example, the Climate Forecast System version 2 (CFSv2), by conducting sensitivity experiments in two resolutions (~100 and ~38 km). Results reveal that the modified autoconversion parameterization better simulates the active-break spells of the ISM rainfall. The main improvements include the contrasting features of rainfall over land and ocean and the MISO index, representing MISO periodicity. The improvements are qualitatively and quantitatively more significant in the higher-resolution simulations, particularly regarding rainfall spatial patterns over the Indian subcontinent during active spells. The MISO monitoring index in the revised CFSv2 also shows improvement compared with the control run. This study concludes that proper autoconversion parameterization in the coupled climate model can lead to enhanced representation of active-break spells and sub-seasonal variability of ISM.

(Dutta U., Bhowmik M., Hazra A., Rao Suryachandra A., Chen J. P., Role of autoconversion parameterization in coupled climate model for simulating monsoon subseasonal oscillations, *Journal of Geophysical Research: Atmospheres*, 130: e2024JD042783, May 2025, DOI:10.1029/2024JD042783, 1-24)

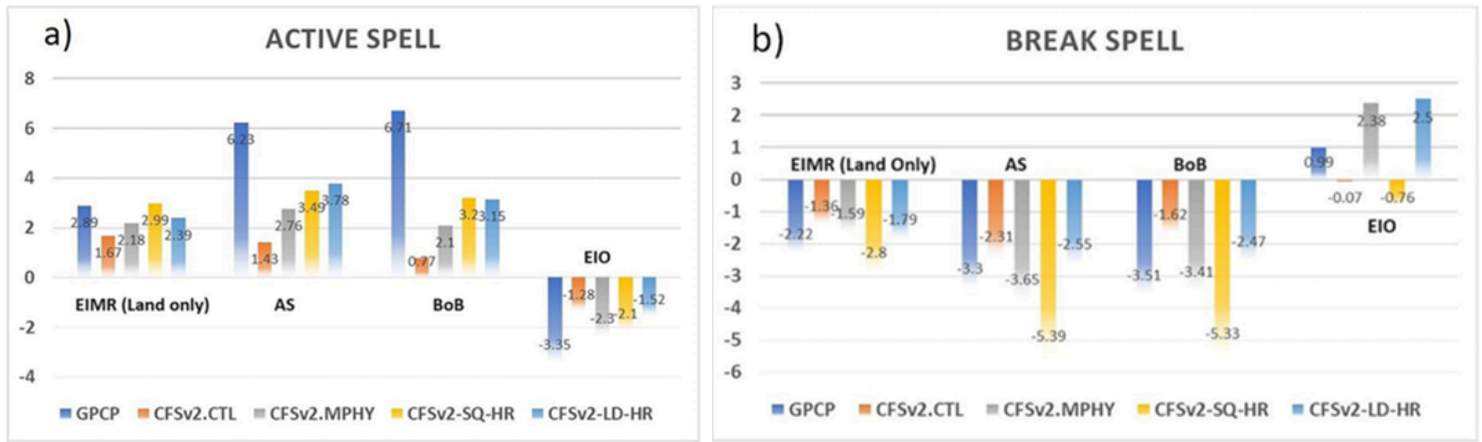


Figure 3: Quantitative estimate of rainfall anomaly over selective regions for (a) active spell and (b) break composite from observation and all sensitivity experiments considered in the study.

Atmospheric drivers of post-monsoon and winter thunderstorms in Central India

The rise in frequency of severe weather events cause significant socio-economic challenges in the Indian sub-continent. Understanding the causative mechanisms driving these heavy rainfall events is still unclear. Using the state-of-the-art C-band Doppler weather radar at Bhopal and reanalysis data, this study explored the storm-scale characteristics and the driving mechanisms of thunderstorms that occurred on 17 October 2021 (post-monsoon thunderstorm) and 06 January 2022 (winter thunderstorm) over Central India. The radar reflectivity exceeds 45 dBZ, indicating intense convection during thunderstorms. The thunderstorm associated with post-monsoon season is deeper (top heights beyond 12 km) compared to winter thunderstorm. The disdrometer observations showed that the winter thunderstorm is very intense reaching upto 158 mm/h with a short duration of about 30-min. Among the two thunderstorms, the post-monsoon thunderstorm is associated with a mesoscale convective system. The atmospheric water vapour transport from the surrounding oceans (Bay of Bengal and Arabian Sea) is a potential contributor to moisture advection. However, the vertical extent of the storm is regulated by the moistening of midtroposphere prior to the thunderstorm. The cyclonic circulation induced by the low-pressure system plays a major role in the vertical development of the thunderstorm during post-monsoon season. In contrast, the horizontal mass convergence between cold air from high latitudes and warm, moist air from the Bay of Bengal is the key to thunderstorm development for the winter case. The present findings would have profound significance in improving the simulations of these heavy rainfall events by the regional climate models. (Murali Krishna U.V., Das Subrata K., Victor J.N., Atmospheric drivers of post-monsoon and winter thunderstorms in Central India, *Science of The Total Environment*, 979: 179432, June 2025, DOI:10.1016/j.scitotenv.2025.179432, 1-13)

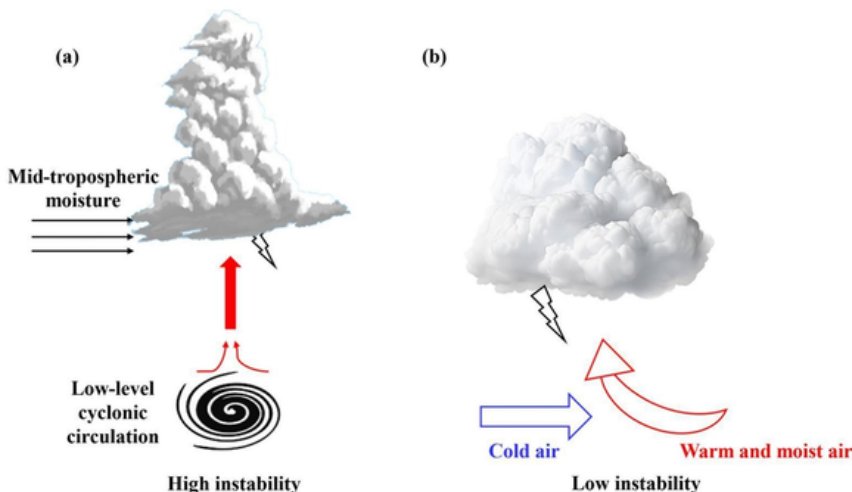


Figure 4: Graphical Abstract - Summary of causative mechanisms for the post-monsoon and winter thunderstorms over Bhopal, Central India.

Seasonal and interannual variability of biogeochemical parameters in the Arabian sea and its relation to extreme climatic events

The seasonal and interannual variability of physicochemical (temperature, salinity, dissolved oxygen, and nutrients) and productivity characteristics of the Arabian Sea (AS) are studied using 30 years (1993–2022) of datasets. Chlorophyll-a (Chl-a) variance at specific depths identified four core variability regions: Western AS (WAS), Eastern AS (EAS), Northern AS (NAS), and Central AS (CAS). The highest Chl-a content was observed in the WAS region during the summer monsoon, followed by the NAS region, where the winter monsoon dominated productivity. Nutrient entrainment from the WAS to the open ocean enhances productivity in the CAS, which lags by over a month compared to other regions. It appears that nitrate and phosphate contribute to productivity in all regions. However, silicate has no contribution in the EAS region, but iron does. Parameters like Chl-a, net primary production, nitrate, and phosphate in all regions have decreased, and on the contrary, iron has increased, but increase of silicate in the EAS region. This study also unveils the El-Niño/Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) effects on biogeochemistry parameters across AS regions. During ENSO/IOD years, Chl-a anomaly reveals a strong correlation between IOD and EAS suggesting more substantial influence on the productivity of this region. (Paul M., Nayak R.R., Gnanaseelan C., Chakraborty A., *Seasonal and interannual variability of biogeochemical parameters in the Arabian sea and its relation to extreme climatic events*, *Journal of Operational Oceanography*, 118, October 2025, DOI:10.1080/1755876X.2025.2581419, 244-262)

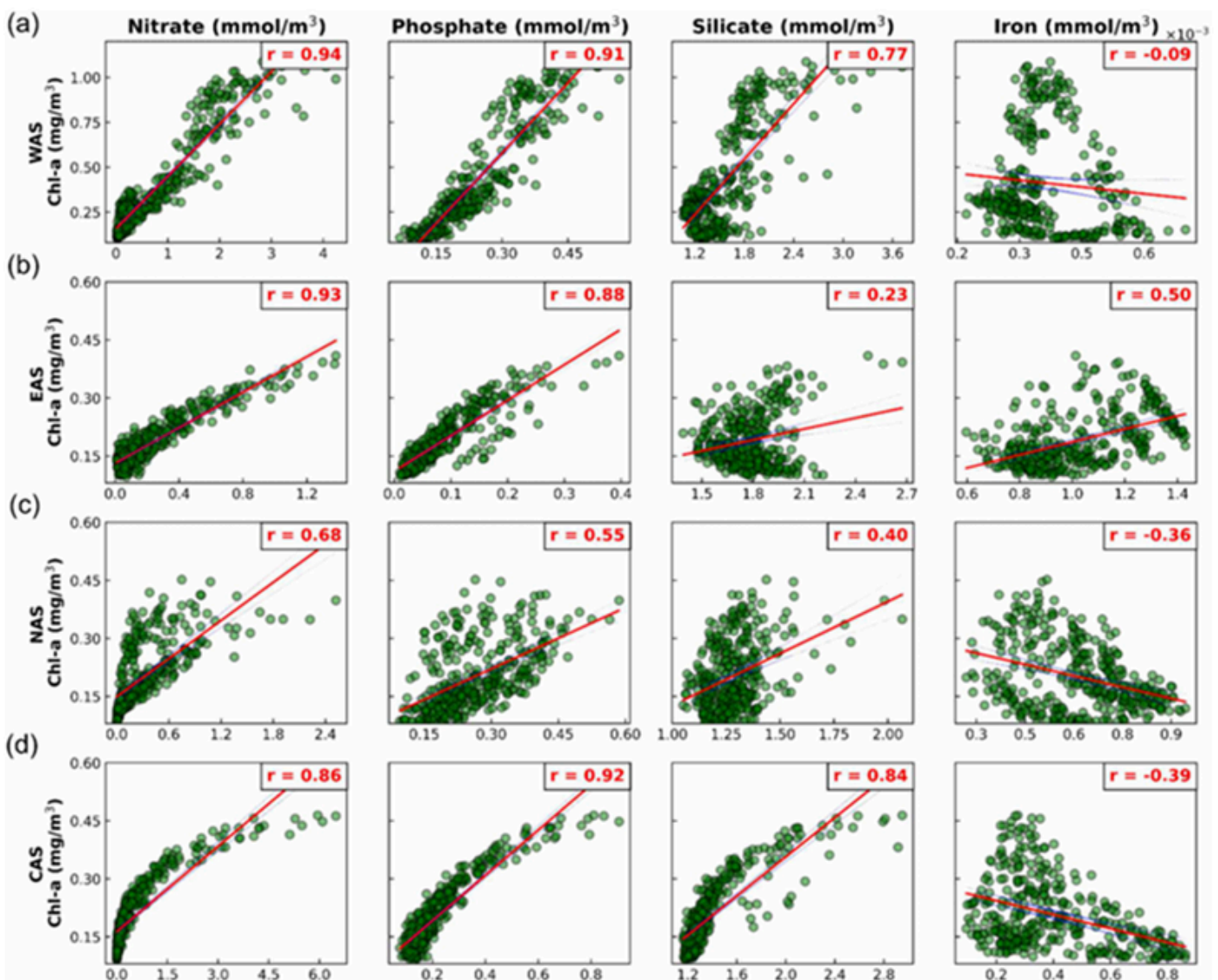


Figure 5: Relationship between monthly Chl-a with nitrate, phosphate, silicate, and iron. The red coloured straight lines indicate the line of regression. The correlation coefficient (*r*) is denoted in the top right corner of each plot.

Bioenergetics modelling approach to evaluate the growth of Indian oil Sardine in the different fishing locations of the Bay of Bengal

Sardine growth and variability along the Indian East coast have been less studied compared to the West coast and seldom attempted in numerical models. Both coasts exhibit significant differences in physical and chemical properties as well as biological productivity. This study realistically simulated sardine growth along the Indian East Coast with seasonal and spatial variability by using a sardine bioenergetics model. The model comprises a lower trophic level model (NEMURO) and a fish bioenergetics component, which utilises prey densities and temperature derived from NEMURO. After hatching, sardine weight showed a consistent increase from June to February and reached 50–80 g and 75–100 g in Tamil Nadu and Andhra Pradesh, aligning with observed ranges of landing data. Fish weight declined during summer (25–40 g) and further gained from June. Optimum water temperature and high phytoplankton abundance (June-January) favoured sardine growth, while temperature beyond the preferred range and minimal phytoplankton availability (March-May) resulted in weight loss in all locations. Key model parameters influencing sardine growth and its seasonality are discussed in detail. The outcome of this numerical model shows a promising step towards numerical predictions of the Indian East Coast pelagic fishery. (Hamza F., Bhavani I.V.G., Valsala V., *Bioenergetics modelling approach to evaluate the growth of Indian oil Sardine in the different fishing locations of the Bay of Bengal, Journal of Operational Oceanography, 18, March 2025, DOI:10.1080/1755876X.2025.2481683, 91-104*)

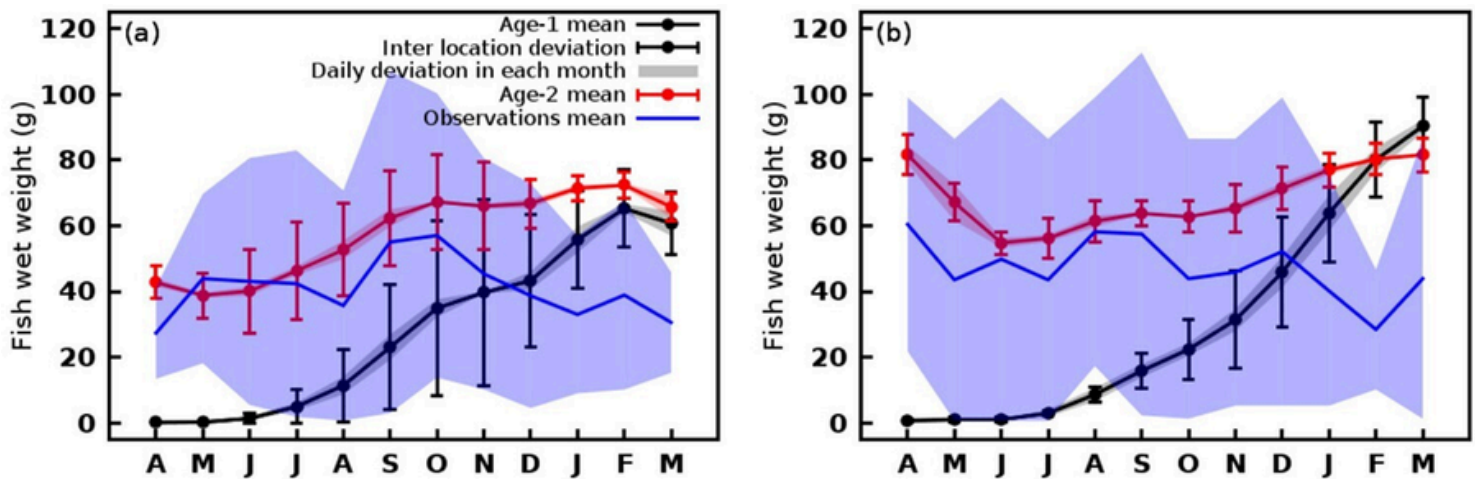


Figure 6: Represents monthly mean wet weight in gram (g) of simulated oil sardine by bioenergetics model in all the study locations of (a) Tamil Nadu and (b) Andhra Pradesh with observed weight. The black and red line represents the monthly mean wet weight with spatial and daily standard deviations for each month, respectively; blue shade represents observed monthly minimum and maximum weight, blue line represents observed mean wet weight of sardine captured from these locations.

Can a 12 Km GFS model simulate the observed relationship between cloud optical properties and extreme rainfall of Indian Summer monsoon?

The increase in the frequency of extreme precipitation in different parts of the world is well documented and cause for concern in terms of global climate change. Although clouds are the only source of precipitation, there is a lack of knowledge about the type of clouds involved in extreme precipitation events. Satellite- and ground-based observations show that over the central Indian region (198–268N, 758–858E), about 60% of the extreme precipitation comes from deep convective clouds (DCCs), which have a cloud-top pressure (CTP) of less than 440 hPa and a cloud optical thickness (COT) of over 23. It was also observed that cloud liquid water (CLW) and COT show the highest correlation with extreme precipitation. Furthermore, CLW and COT show the highest contrast between extreme and nonextreme precipitation events. Simulations by a 12-km Global Forecast System (GFS, spectral) model show that the model underestimates the extreme precipitation threshold with increased forecast lead time. The simulation of associated cloud optical parameters is also poor at all lead times in different parts of India. The model also fails to capture the observed relationship between the frequency of extreme precipitation and deep convective clouds without showing any correlation between them at all lead times.

This is possibly because the model simulates the observed vertical structure of the apparent heat source poorly at all lead times which leads to poor simulation of the observed relationship between cloud optical properties and extreme rainfall. (Goswami T., Mukhopadhyay P., Phani M.K.R., Rajeevan M., Chowdhuri S., Can a 12 Km GFS model simulate the observed relationship between cloud optical properties and extreme rainfall of Indian Summer monsoon?, Weather and Forecasting, 40, January 2025, DOI:10.1175/WAF-D-24-0010.1, 79-91)

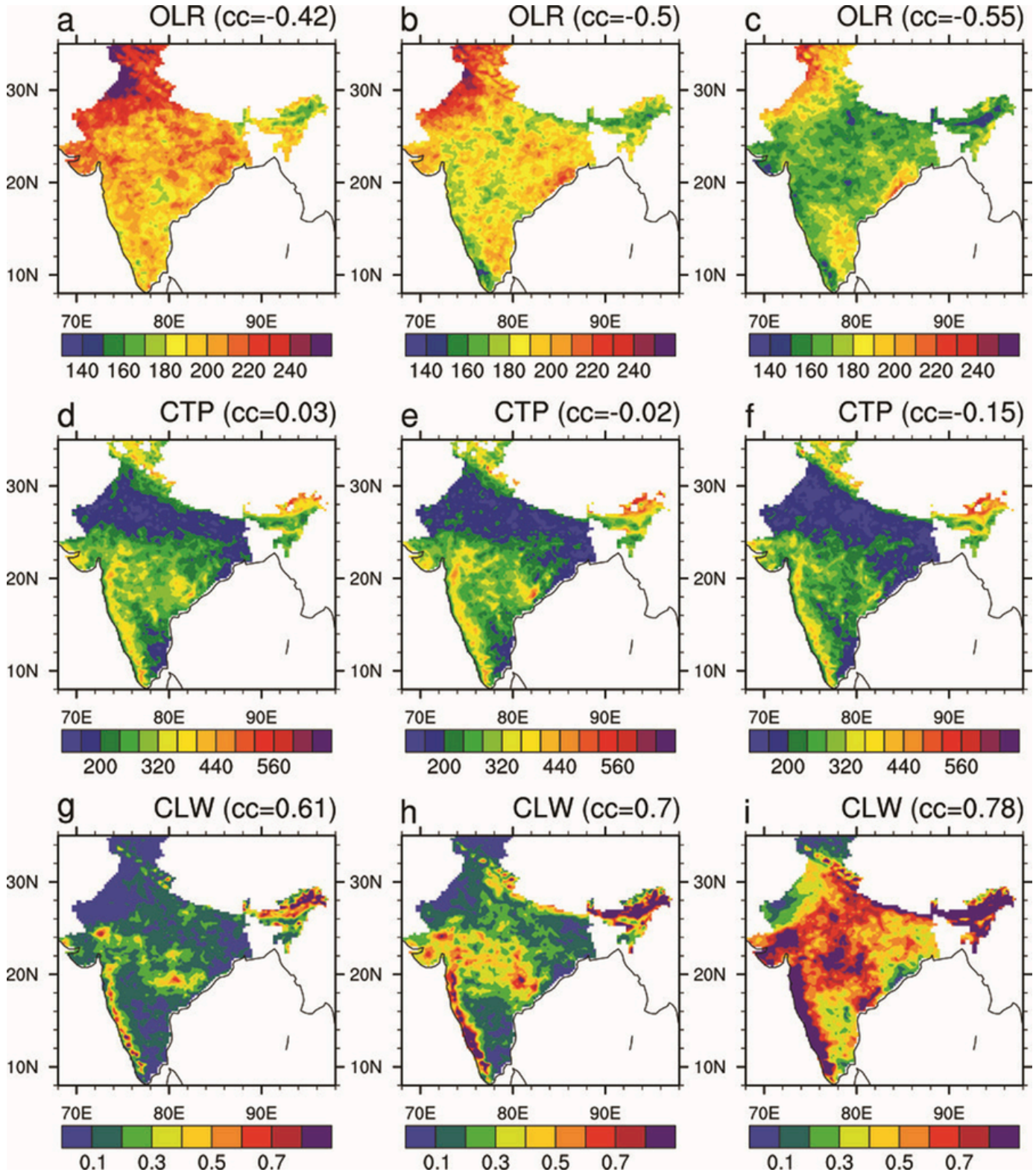


Figure 7: Composite maps of GFS T1534 simulated (a)–(c) OLR ($W m^{-2}$), (d)–(f) CTP (hPa), and (g)–(i) CLW path ($kg m^{-2}$) for extreme rainfall events at different lead times. (left) 24-h lead time, (middle) 48-h lead time and (right) 72-h lead time. The cc with extreme rainfall is given in the parenthesis at the top-right corner of each panel.

Source characteristics of non-refractory particulate matter (NR-PM₁) using high-resolution time-of-flight aerosol mass spectrometric (HR-ToF-AMS) measurements in the urban industrial city in India

This study investigated the source characteristics of submicron non-refractory particulate matter (NR-PM₁) over a highly growing urban industrial city near the western coast of India. Using a high-resolution time-of-flight aerosol mass spectrometer (HR-ToF-AMS), we conducted continuous measurements from June 2020 to May 2021, capturing seasonal variations in aerosol composition. The annual average NR-PM₁ concentration was 16.4 ±15.4 µg m⁻³, with substantially higher concentrations observed during winter (33.3 ±22.2 µg m⁻³). Chemical analysis revealed distinct contributions of organic aerosols (OA), nitrate (NO₃), sulfate (SO₄²⁻), ammonium (NH₄⁺) to NR-PM₁. Organic aerosol consistently contained the most significant fraction of NR-PM₁, and chloride (Cl⁻) (49–67 % seasonally). Positive Matrix Factorization (PMF) resolved four distinct OA sources: traffic-related hydrocarbon-like OA (HOA), biomass-burning OA (BBOA), and two oxygenated OA factors (Semi-Volatile Oxygenated OA (SV-OOA) and Low-Volatile Oxygenated OA (LV-OOA)). Secondary organic aerosol (SOA) was a large OA fraction, with LV-OOA being most abundant in winter and post-monsoon, while SV-OOA was higher in monsoon and summer, suggesting photochemical and potentially aqueous-phase formation. Seasonal changes were also observed in OA elemental composition (O/C: 0.67–0.74; H/C: 1.53–1.61; OM/OC: 2.07–2.16) and carbon oxidation state (OSc: 0.25 in monsoon/winter to 0.06 in summer), further supporting the influence of photochemical processes. Size distribution analysis indicated that aerosols were predominantly in the accumulation mode (300–800 nm), suggesting aged and internally mixed aerosol particles. Back trajectory and Concentration Weighted Trajectory (CWT) analyses indicated varied regional influences on PM₁ characteristics. (Vispute A.S., Acharja P., Gosavi S.W., Govardhan G., Ruge V., Patil M.N., Dharmaraj T., Ghude S.D., Source characteristics of non-refractory particulate matter (NR-PM₁) using high-resolution time-of-flight aerosol mass spectrometric (HR-ToF-AMS) measurements in the urban industrial city in India, Atmospheric Environment, 351: 121186, June 2025, DOI:10.1016/j.atmosenv.2025.121186, 1-14)

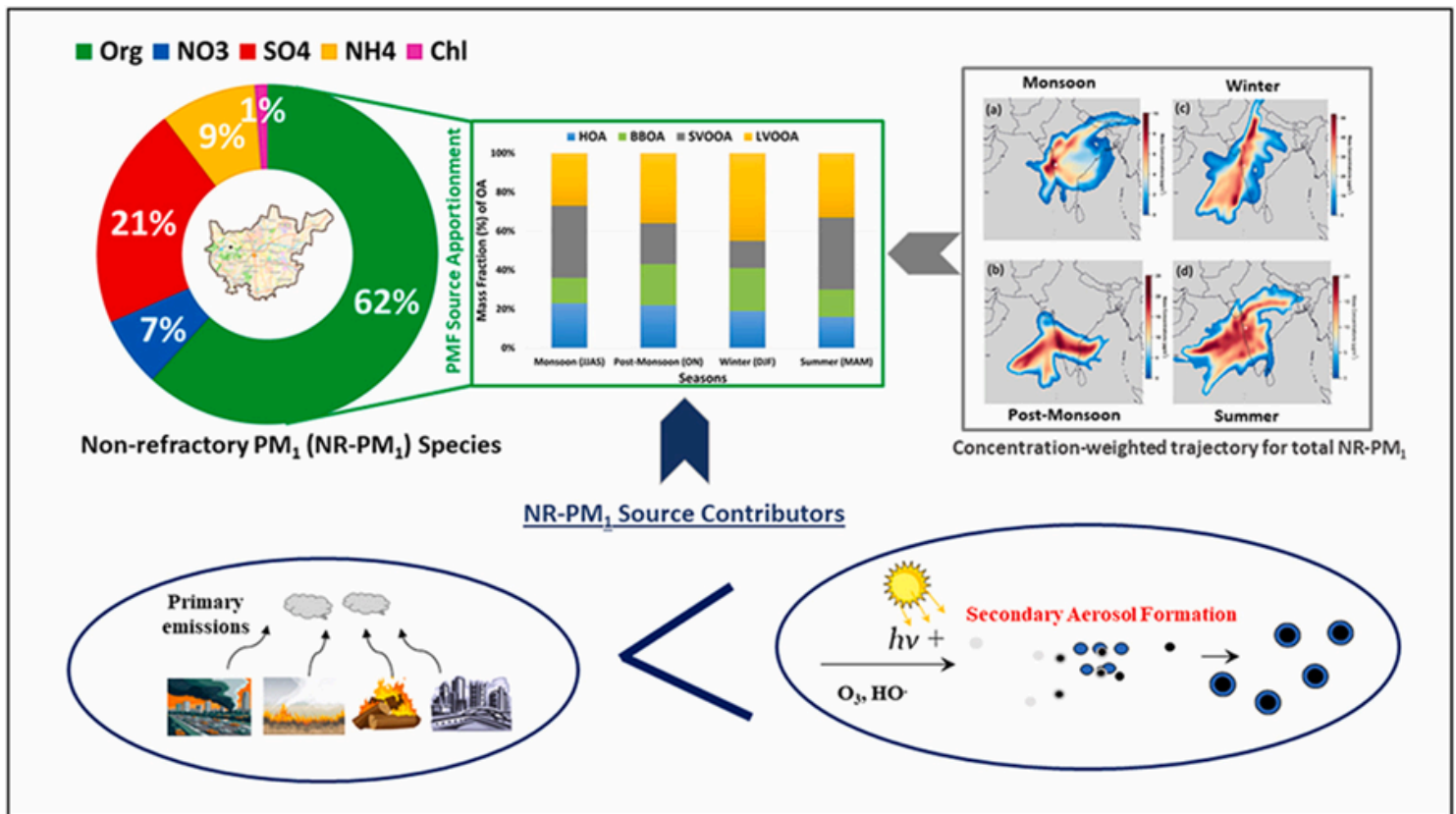


Figure 8: Graphical Abstract

Influence of meteorological variability on aerosol size distribution during the winter fog campaign over Delhi: a case study

The aerosol size distribution, particularly the number and mass distributions, plays a crucial role in understanding changes in optical properties due to hygroscopic growth, which affects visibility and radiative forcing on a regional scale. The Indo-Gangetic Plain (IGP), including National Capital Region (NCR) of Delhi, experiences severe fog and haze with reduced visibility during the post-monsoon to winter months (October–February) every year. This study reports aerosol mass size distribution over Delhi during a winter fog campaign (December 15, 2015–February 15, 2016) using a ground-based optical particle counter. The fine and coarse mode aerosols were contributed to ~85% and 15% to the total aerosol mass concentration during the campaign period. The characteristic changes in aerosol size distribution, effective radius, and the influence of meteorological factors, particularly relative humidity (RH) and temperature, under three visibility conditions: Vis-1 (<600 m), Vis-2 (600–1200 m), and Vis-3 (>1200 m) were investigated. Fine-mode aerosols accounted for ~85 % of the total aerosol mass, with their concentration increasing by a factor of 3.7 during Vis-1 and 2.3 during Vis-2 compared to Vis-3, when the effective radius of aerosol was lowest (R_{eff} : 0.44 μm). Fine particle concentrations showed a positive correlation with RH ($R = 0.35$) and a negative correlation with visibility ($R = -0.65$), suggesting that the high RH and fine-mode aerosols contribute to fog formation and reduced visibility in Delhi-NCR. (Srivastava Atul K., Ram K., Bisht D.S., Raju M.P., Singh Vivek., Soni V.K., Influence of meteorological variability on aerosol size distribution during the winter fog campaign over Delhi: a case study, Journal of Atmospheric and Solar Terrestrial Physics, 271: 106531, June 2025, DOI:10.1016/j.jastp.2025.106531, 1-8)

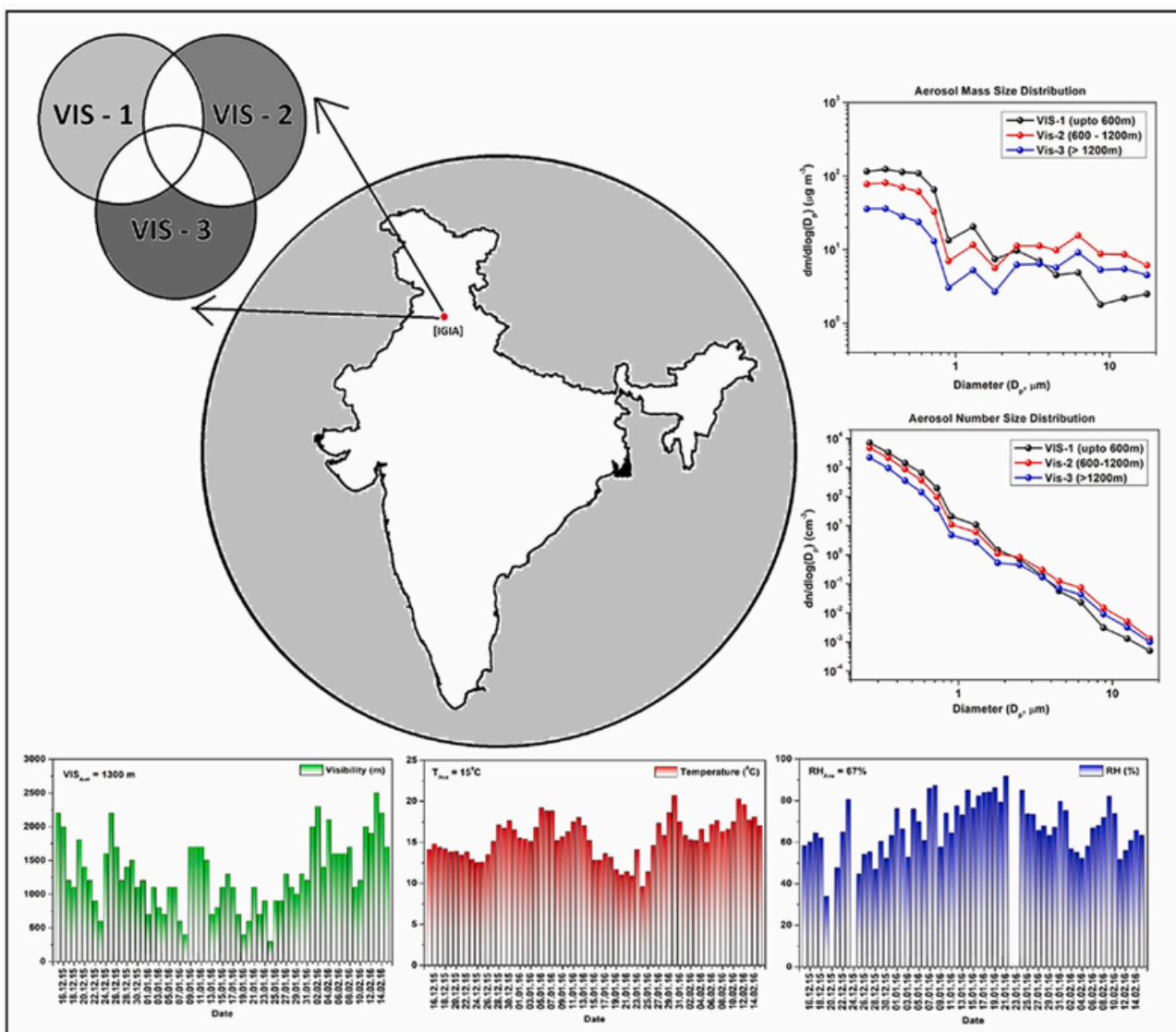


Figure 9 : Graphical Abstract

Important Events

Prof. R. Ananthkrishnan Colloquium Series

77th Series : Prof. Rodrigo Caballero, Department of Meteorology, Stockholm University, on 11 April 2025, spoke on *"Storm Tracks and the Symmetry of Earth's Albedo."*

Link: <https://www.youtube.com/live/1zosjY6AjJM?si=Uu3JXtiK9V4LsnET>



78th Series : Dr. Suryadev Pratap Singh, Postdoctoral Fellow, The Pi Cloud Chamber, on 08 May 2025, delivered a talk on *"Vertical Distribution of Aerosols and Clouds & its Implications to Atmospheric Modelling,"* and, following him,



Prof. Kannabiran Seshasayanan, Assistant Professor, Department of Applied Mechanics & Biomedical Engineering, IIT Madras, presented on *"Understanding Different Regimes of Rotating Turbulent Flows."*

Link: <https://www.youtube.com/live/7SuOzsygZg8?si=xiOuwmWYpLjCdHTa>



Health Check-up Camp for IITM employees and their family members was organized in collaboration with Jehangir Hospital, Pune on 21 May 2025 in which Fibroscan (Liver function test), PFT (Lung function test), BMD (Bone density test) Eye Check-up, General Consultation with doctor, including BP and BMI monitoring services were provided.



Glimpses of Health Check-up Camp 2025 at IITM, Pune

Outreach Activities:

Earth Day 2025 (21–22 April) – On the occasion of Earth Day 2025, IITM-EIACP PC-RP, Pune organized a two-day awareness campaign titled "Wake Up for Nature" (जागर पर्यावरणाचा) on 21st and 22nd April 2025. The event aimed to engage the general public on key environmental issues and spread awareness about this year's Earth Day theme. Eco-friendly cloth items were awarded to winners to promote sustainable living.



Glimpses of Earth Day 2025 (21–22 April)

- **Seed Ball Making Video** – Produced an instructional video demonstrating simple techniques for seed ball preparation, encouraging tree plantation and greenery enhancement.

Drawing Competitions :

- 29 April 2025: In collaboration with Vanchit Vikas Samajik Sanstha at Janata Vasahat, Pune, to raise environmental awareness through creative expression.
- 09 May 2025 (Mission LIFE): For slum students of Parvati Paytha, Pune, with around 80 participants. Top 10 winners received eco-friendly prizes to inspire sustainable habits.
- **Environmental Awareness Event** – On 21st May 2025, the IITM-EIACP (PC-RP), Pune, in collaboration with Vanchit Vikas Sanghatana, organized a vibrant Environmental Awareness Event at Janata Vasahat, Pune. The initiative was aimed at fostering eco-consciousness and sustainable habits among children and communities in slum areas.



Drawing Competitions

- **International Day for Biological Diversity (22 May 2025)** – On 22nd May 2025, the IITM-EIACP (PC-RP), Pune commemorated the International Day for Biological Diversity by organizing an impactful public awareness event at Rajiv Gandhi Zoological Park, Katraj. The aim of the event was to educate the general public about the importance of biodiversity conservation and to promote responsible environmental behavior.



International Day for Biological Diversity

World Environment Day 2025

- Online competitions (Waste to Wealth Model Making, Innovative Ideas, Photography, Script Writing) throughout June, with eco-friendly prizes and a special recognition video for winners



Online competitions

- Online lecture on “Ending Plastic Pollution Globally by Responsible Actions Towards Reduce, Reuse, Recycle & Recover” by Shri Tushar K. Bandopadhyay, ICPE Technical Director.
- Expert talk on “Plastic and Open Burning Hazards & Reporting Mechanisms in Pune/PMC Area” by Aditya Sharma, CII-CABL, including a documentary screening on “Plastic Warriors.”
- **Sustainable Products Exhibition (05 June 2025)** – Showcased eco-friendly alternatives to plastic such as bamboo crafts, clay utensils, herbal products, and solar energy devices. Over 300 visitors engaged with local entrepreneurs to encourage conscious consumption.
- **Cleanliness & Plastic Collection Drive (06 June 2025)** – Conducted at IITM Campus, IITM Colony, and Shiv Mandir with over 350 participants collecting significant amounts of plastic waste to raise awareness on waste segregation.
- **Environmental Awareness Program during Wari Pilgrimage (18 June 2025)** – At Dehugaon, involving over 1,000 Warkaries and devotees, focusing on plastic pollution, water conservation, and sustainable living practices.

Rajbhasha Activities

Hindi One-Act Play Competition: Organized under the aegis of the Town Official Language Implementation Committee (TOLIC), Pune (Off.-2) on 23 May 2025, the competition provided a creative platform to promote the use of Hindi in cultural expressions.

Release of “Indradhanush” Magazine: The 22nd issue of IITM’s Rajbhasha magazine “Indradhanush” was released by Hon’ble Dr. Jitendra Kumar Singh, Minister of State (Independent Charge), Ministry of Earth Sciences, at Vigyan Bhavan, New Delhi, on **26 May 2025**. Published regularly by IITM, the magazine serves as a medium of encouragement, inspiration, and progress in the promotion of Hindi. It offers staff a platform to contribute articles on meteorology, environment, society, culture, health, language, and life values. The latest issue (Indradhanush-2024-25.pdf) is available on the IITM website.



Release of “Indradhanush” Magazine

Rajbhasha Seminar Series; As part of the ongoing series, Dr. Vineet Kumar Singh, Project Scientist-II, delivered a lecture on “Seasonal Variations in Tropical Cyclone Intensity and Cyclone-Induced Sea Surface Cooling in the North-West Pacific Ocean” on 04 June 2025.

Rajbhasha Workshop: A one-day workshop on “Official Language Policy and Incentive Schemes” and “Unicode Hindi Typing” was conducted on **11 June 2025** to enhance awareness and skills in the effective use of Hindi.



Glimpses of Rajbhasha Workshop

IITM Participation in Important Meetings/Events

- **Silver Jubilee celebration of NCPOR, Goa, 05 April 2025.**
- **WCRP Global South Inclusion Task Team meeting, 12 April 2025 (online).**
- **Meghayan 2025, Naval Headquarters, New Delhi, 14 April 2025.**
- **31st South Asian Climate Outlook Forum (SASCOF-31), Pune, 28 April 2025.**
- **National Workshop on Scientific Proposals for the 45th Antarctic Expedition, NCPOR, Goa – 29–30 April 2025.**
- **International Indian Ocean Science Conference (IIOSC-2025), Port Louis, Mauritius, 05–09 May 2025.**
- **ANRF/SERB 10th Programme Advisory Committee (PAC) Meeting – Earth & Atmospheric Sciences, IIT Madras Climate Lab, Munnar – 06–07 May 2025.**
- **National Workshop on Advanced Legged Robotics (NWALR)-2025, Dr APJ Abdul Kalam Auditorium, Pashan, Pune, 08-10 May 2025.**
- **25th International TOVS Study Conference (ITSC-25), NCMRWF–MoES, Resort Rio, Goa – 08–14 May 2025.**
- **Global km-Scale PAN Hackathon, World Climate Research Programme, University of Tokyo, Japan – 12–16 May 2025.**
- **MoES Institutions Online Coordination Meeting on Social Media Outreach – 22 May 2025. AMS meeting, 27- 28 May 2025.**
- Meeting on “Strategic Roadmap Document on Air Quality Management”, **Bureau of Indian Standards (BIS), 28 May 2025.**
- Meeting with HDFC Bank on possible collaborations with IITM, 10 June 2025.
- Online Meeting of the Working Group on Numerical Experimentation, 12 June 2025.
- Meeting with **Kshema General Insurance Limited** regarding the utility of forecast applications for crop Insurance and on possible collaborations with IITM, 19 June 2025.
- First Meeting of the **Global Extremes Platform Contact Group** for Weather and Climate Extremes, 25 June 2025.
- **Monsoon Working Group Meeting: Summer 2025 (online), 26 June 2025**
- **6th International Workshop and Training School on Atmospheric Composition and Asian Monsoon (ACAM), Bali, Indonesia, 11-13 June 2025.**
- Annual meeting of the Network for the Detection of Atmospheric Composition Change (NDACC-IRWG), the Total Carbon Column Observing Network (TCCON), and the Collaborative Carbon Column Observing Network (COCCON) communities, Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, 16-20 June 2025.

Visitors

National Training Workshop on Weather Radar (NT-Radar): As part of the National Training Workshop on Weather Radar: Theory, Calibration, Maintenance, Data Analysis and Applications (NT-Radar), several eminent experts visited IITM to serve as resource persons

- **Prof. Chandrasekaran Venkatachalam, Colorado State University, USA (06–09 April 2025)**



- **Dr. Roberto Cremonini, Regional Weather Service, Italy (06–12 April 2025)**



- **Dr. Luca Baldini**, National Research Council, Italy (06–12 April 2025)



- **Dr. Renzo Bechini**, Regional Weather Service, Italy (06–09 April 2025)



- **Prof. Soumendra Kuiry**, IIT Madras (07–08 April 2025)



- **Prof. Swaroop Sahoo**, IIT Palakkad (06–09 April 2025)



- **Dr. Devajyoti Dutta**, NCMRWF, Noida (08–11 April 2025)



- **Mr. Kiren Rijiju**, Hon'ble Cabinet Minister of Parliamentary Affairs & Minister of Minority Affairs, Government of India, and Member of Parliament (Itanagar, West), visited the IITM Disdrometer Site at the Donyi Polo Airport, in Itanagar, Arunachal Pradesh on 10 June 2025.



Visit of Hon'ble Mr. Kiren Rijiju (Cabinet Minister of Parliamentary Affairs & Minister of Minority Affairs,

Shri Amit Kumar, Officer on Special Duty, Relief Commissioner Office, Government of Uttar Pradesh, visited IITM on 23 June 2025 to understand the functioning and modeling of data from lightning sensors installed in the state. Discussions were held with IITM scientists on modalities for data sharing with the U.P. Government.

- **Dr. Gopinath G.** and **Mr. Immanuel A.**, Project Scientists–II from National Centre for Coastal Research (NCCR), Chennai, visited IITM (03–04 June 2025) for collaborative work under the Mission Mausam Project.



A group of **M.Sc. (Tech.)** students from the **Department of Geophysics, Banaras Hindu University (BHU)**, Varanasi, visited the **IITM Branch Office** on **06 June 2025**. The visit included lab exposure and hands-on training on various atmospheric and weather monitoring instruments, enhancing their academic excursion and learning experience.

Academic Cell Activities

AcSIR Intellectual Property Rights Course: A 1-credit course on Intellectual Property Rights Management for AcSIR students (January 2025 session) was conducted in April 2025.

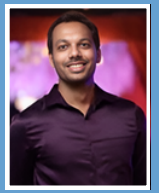
AcSIR Ph.D. Admissions: Applications for the August 2025 session opened on the AcSIR portal, with the deadline extended to 15 May 2025. Interviews for 20 shortlisted candidates were conducted on 30 June 2025.

Ph.D. Synopsis

Ajinkya M. Aswale submitted his synopsis titled “Tropical Atlantic Teleconnection with the South Asian Summer Monsoon” on 13 May 2025, under the guidance of Dr. Sooraj K.P. and Dr. Swapna P.



Mr. Jagdish Jena, Ph.D. candidate, Savitribai Phule Pune University (SPPU), submitted his proposal “Understanding Precipitation Efficiency in Convective Systems Derived from Radar Network” under the guidance of Dr. Subrat Kumar Das.



Mr. Ajith Baby, Ph.D. candidate, SPPU, submitted his proposal “Western Disturbances over India: Variability and Subseasonal Prediction” under the guidance of Dr. Avijit Dey.



Mr. Jitendra Bhilala, Ph.D. candidate, SPPU, submitted his proposal “Regional Modelling of Water Isotopes over Selected Indian Locations and Their Assessment Using In-situ and Satellite Observations” under the guidance of Dr. Saikat Sengupta.



Ph.D. Thesis Submitted

Mr. Ray Avishek submitted his doctoral thesis titled “Study of Aerosol Hygroscopicity and its Role on CCN Activation Based on Measurements over Mahabaleshwar, Western Ghats and Modeling” to SPPU, Pune in April 2025, under the guidance of Dr. G. Pandithurai, Dr. Anupam Hazra, and Dr. Bipin Kumar.



Ph.D. Thesis Awarded

Mr. Rahul Pai was awarded a Ph.D. degree from SPPU, Pune in April 2025 for his thesis “Understanding the Variability of Shallow Meridional Overturning Circulation and its Impact on the Indian Ocean Temperature”, under the guidance of Dr. Parekh Anant and Dr. C. Gnanaseelan.

Ms. Pallavi Buchunde was awarded a Ph.D. degree from SPPU, Pune in April 2025 for her thesis “Carbonaceous Aerosols over a High Altitude Location: Temporal Variation and Their Role in the Formation of New Particles and Associated Cloud Condensation Nuclei”, under the guidance of Dr. P.D. Safai, Dr. Devendraa Siingh, and Dr. G. Pandithurai.

Mr. Avinash N. Parde was awarded a Ph.D. degree from SPPU, Pune in May 2025 for his thesis “Impact of Data Assimilation on Fog Forecasting over Delhi and the National Capital Region (NCR)”, under the guidance of Dr. Sachin D. Ghude.

International Engagment

- **Dr. Anupam Hazra** and **Dr. Moumita Bhowmik** participated in the iLEAPS–IFDA Joint Meeting and the Workshop on Fog and Dew, in addition to the IFDA–iLEAPS meeting.



- **Dr. Padma Kumari**, **Mr. Subrata Mukherjee**, **Dr. Smrati Gupta**, and **Ms. Tanu Sharma** attended and presented their work at the EGU International Conference 2025.



- **Dr. Roxy Mathew Koll**
- Invited as Speaker at EarthX 2025, Dallas, Texas, USA (21–25 April).
- Engaged with students and faculty on climate change, oceans, and sustainability at the University of Texas, Dallas (28–30 April).
- Served as Co-chair at the International Indian Ocean Science Conference (IIOSC) 2025 in Mauritius (3–10 May).
- Participated in the Virtual Institute for Earth's Water (VIEW) Advisory Board Meeting at Stanford University, USA (12–15 May).



- **Dr. Yogesh Kumar Tiwari**
- The WMO IG3IS–ICOS Urban Greenhouse Gas Conference and Stakeholder Summit 2025 (7–9 April).
- The GAW Programme Coordination Meeting (8–11 April) on urban-related activities.
- Later deputed (30 June – 03 July 2025) for the WMO IG3IS Scientific Steering Committee meeting and Workshop on National-scale Applications for Quantifying GHG Emissions and Removals.



Southern Ocean Expedition

- **Ms. Sandhya Singh** participated in the 12th Indian Scientific Expedition to the Southern Ocean (ISEO) (10 Feb – 28 Mar 2025), focusing on atmospheric trace gases in the Southern Ocean.

International Indian Ocean Science Conference (IIOSC) & Associated Meetings, Mauritius | 05–11 May 2025

- **Dr. Shikha Singh** (Co-chair, IORP) attended the 21st Session of CLIVAR/IOC–GOOS Indian Ocean Region Panel (IORP), alongside meetings of IIOE-2 Steering Committee, IOGOOS, IRF, and SIBER (05–09 May), followed by a focused meeting (10–11 May).
- Chaired the joint IORP–SIBER meeting during the Annual Meeting of Indian Ocean Global Ocean Observing System (IOGOOS), held in Port Louis, Mauritius (05–09 May 2025).



- **Dr. Aditi Modi** participated in the IOGOOS 20th Annual Meeting and associated projects (IORP, SIBER, IRF, IIOE-2). She also served as Co-chair, IIOE2–ECSN Core Committee engaged in IIOE-2 Working Group discussions.

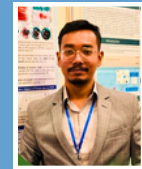


Workshops

- **Dr. Suvarna Fadnavis** delivered a talk at the 6th International Workshop & Training School on Atmospheric Composition and the Asian Monsoon (ACAM), held in Bali, Indonesia (11–13 June 2025).



- **Mr. Shubhajyoti Roy** and **Mr. Akshay Shivaji Patil** presented research posters at th International Workshop & Training School on Atmospheric Composition and the Asian Monsoon (ACAM), held in Bali, Indonesia (11–13 June 2025).



- **Dr. Sabin T.P.** served as Resource Person at the South Asia Hydromet Forum (SAHF) Climate Services Workshop in Bangkok, Thailand (24–26 June 2025).



- **Dr. Neelam Malap** presented a poster and interacted on AI-driven climate modelling at the EXCLAIM Symposium 2025, ETH Zurich, Switzerland (02–04 June 2025).



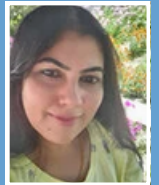
Honors & Awards

Academic and Professional Appointments

Dr. S.D. Pawar – Recognized as Honorary Associate Professor, Faculty of Physical Sciences, Academy of Scientific and Innovative Research (AcSIR).



Dr. Amita Prabhu – Appointed Assistant Professor, Faculty of Physical Sciences, Academy of Scientific and Innovative Research (AcSIR).



Dr. Bhupendra Bahadur Singh – Elected to the Executive Committee of the Ocean Society of India, Pune Chapter (OSIP) from April 2025, after completing two terms as Vice-Chairman.



Dr. Aditi Modi – Elected as Vice President of the Ocean Society of India (OSI), Pune Chapter for the 2025–2027 term.



Leadership Roles and Representation

Dr. Thara Prabhakaran – Featured by the World Meteorological Organization (WMO) on its social media platforms as a member of the InPRHA steering group.



Dr. Sachin Ghude – Chaired the EGU General Assembly 2025 in Vienna, Austria.



Scientific Achievements

Dr. Sophia Jacob – Awarded 1st Prize in the S.K. Ghosh Memorial Young Scientist Award 2025 by the Indian Meteorological Society (Kolkata Chapter) for her research “Dengue dynamics, predictions, and future increase under changing monsoon climate in India” published in Nature Scientific Reports.



Dr. Bhupendra Bahadur Singh – Honored with the Editor of Distinction Award 2025 by Springer Nature.



Rajbhasha Awards – 2024–25

- Atmospheric Research Testbed (ART) Group – Vibhagiya Rajbhasha Chal-Shield.
- Centre for Climate Change Research (CCCR) – First Prize (Scientific Category).
- Smt. Mercy Varghese – Second Prize.
- Climate Variability and Prediction (CVP) – Third Prize.

Sports Achievement

The IITM Cricket Team secured third place in the Research Premier League (RPL) 2025 for the prestigious Bharat Ratna Dr. APJ Abdul Kalam Cup.



The IITM Cricket Team secured third place in the Research Premier League (RPL) 2025

Superannuation

We extend our heartfelt wishes and deepest respect to the following colleagues on their superannuation:



Dr. G Pandithurai
Scientist- 'G'



Shri Ajit Prasad P.
Administrative Officer



Shri Sanjay Pandurang Hasnale
Technician Grade-C

Their dedication and years of valuable service have greatly contributed to our organization. We thank them for their commitment and wish them good health, happiness, and a fulfilling retired life ahead.

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