

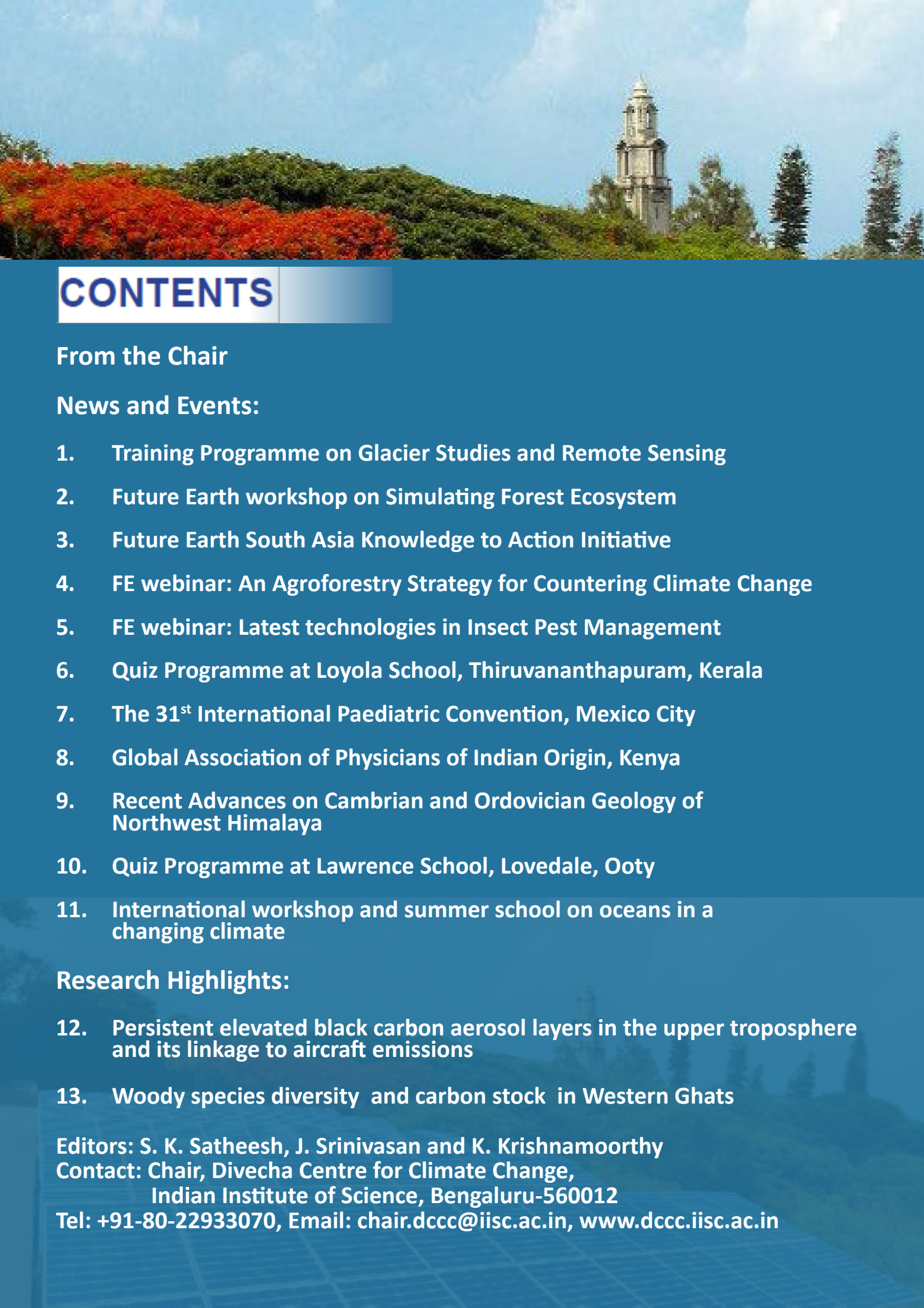
DIVECHA CENTRE FOR CLIMATE CHANGE

Training Programme on Glacier Studies and Remote Sensing

Future Earth workshop on Simulating Forest Ecosystem

Quiz Programme at Loyola School, Thiruvananthapuram, Kerala

Quiz Programme at The Lawrence School, Lovedale, Ooty



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FROM THE CHAIR

Greetings!



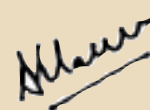
On 21st May 1975, The New York Times stated that scientists consider a major cooling of the Earth was inevitable in the future.

This unusual statement appeared on account of new discoveries that were made about the end of the last ice age. The scientists were not sure how long the present interglacial will last and hence wondered if the present interglacial may end soon. During the last 2.6 million years the Earth has been cold most of the time. We came out of the last ice age about 12,000 years ago. Hence this period is called an interglacial.

The data from the ice core in the Arctic and Antarctic regions indicated that the interglacials are usually anywhere from 10,000 years to 30,000 years.

The duration of the interglacials depends upon the amount of solar radiation incident on the north pole during summer. If this radiation is not large, the snow falling on the polar regions will not melt and hence sheets will grow to initiate a new ice age. Our understanding of the duration of the interglacial has improved dramatically during the past 50 years. In 2025, the scientists believe that the present interglacial may persist for long time if the concentration of carbon dioxide continues to rise monotonically. This remarkable turnaround in the views of the scientists occurred on account high-quality data from ice-core and sediments from the bottom of the ocean. This was possible because of the unusual international cooperation in the drilling of ice cores and ocean cores. In addition there was need for collaboration between those with expertise in mathematics, physics, chemistry, biology, climatology to understand what controlled the duration of ice ages and interglacials. The international collaboration to understand the Earth's climate started in the International Geophysical year (1957-58). The famous observatory at Mauna Loa, Hawaii to measure the concentration of carbon dioxide in the Earth's atmosphere began in 1956. There is a disconcerting news that this observatory may be closed due to reduction of money allocated for research on climate science.

The remarkable progress the scientists have made during the past 50 years will be derailed if the money allocated to climate science is reduced and there is less international collaboration to understand the stability of ice sheets in the Arctic and the Antarctic. We hope scientists all over the world can convince their political leaders to continue to support research to understand the earth's climate.



S. K. Satheesh

TRAINING PROGRAMME ON GLACIER STUDIES AND REMOTE SENSING



Participants of the training programme on Glacier Studies and Remote Sensing held from 3rd-14th June 2025.

The Himalaya has a large amount of seasonal snow and glacier ice, which serve as a vital and sustainable source of water for major rivers in northern India, along with their numerous tributaries. The rise in temperature in the Himalayan region has caused, however, rapid loss of glacier extent, mass, and snow cover. This influences water availability. In addition, retreating glaciers have also created new hazards like flash floods from glacier lakes, affecting the safety and livelihood of people living in the mountains.

Given these challenges, regular and accurate monitoring of the Himalayan cryosphere is essential for understanding future water security and natural hazard risks. The rugged terrain and harsh climate of the region make field based monitoring and observation difficult. The satellite-based technologies have become an essential tool for glacier monitoring at the Himalayas. People trained to use these technologies and produce reliable data is limited in India. To address this gap, the Divecha Centre for Climate Change at IISc, Bengaluru, organizes a training programme on 'Glacier Studies and Remote Sensing' every year aiming at in-house capacity building in this very important area. This year's training programme was held from 3rd to 14th June 2025, to equip students with the knowledge and skills required to work in the field of glaciology and remote sensing.

Applications were invited from research fellows and students from institutes and universities for the participation. A total of 305 applications from various institutions across India were received for the programme. Out of them, 54 participants were selected based on their educational qualifications and research experience.

The training programme was inaugurated by Dr. Thamban Meloth, Director of the National Centre for Polar and Ocean Research (NCPOR), Goa, who delivered a talk on “Cryosphere Changes Across the Polar Regions – Indian Endeavours.” Dr. Anil Kulkarni, Distinguished Scientist at DCCC, welcomed the participants, and Prof. J Srinivasan, Founding Chair of DCCC, delivered the keynote address.

A total 20 lectures and 8 tutorial session were held during this course. The syllabus was designed to integrate theoretical knowledge with hands-on experience. Faculty from DCCC and guest experts from institutions including NCPOR, the Ministry of Earth Sciences, Manipal Academy of Higher Education, Azim Premji University, and Jyothi Institute of Technology shared their insights with the participants.

DCCC has made a contribution to the building of capacity in glacier research in India by equipping the next generation of leaders with the tools and knowledge needed to address the challenges of a changing cryosphere.



Dr. Anil Kulkarni, Distinguished Scientist at DCCC, welcoming the guest of honour and the participants.

FUTURE EARTH WORKSHOP ON SIMULATING FOREST ECOSYSTEM



Dr. Raj Kishore, Visiting Scientist, DCCC, Co-Director of Future Earth South Asia, delivering his talk at the training workshop held from 17th to 20th June 2025.

A training workshop on climate change was organised by the Divecha Centre for Climate Change for capacity building among forestry professionals from 17 to 20 June 2025. They were trained to use the ecosystem simulation models for forest management, biodiversity conservation, and climate change adaptation. The workshop began with lecture on “introduction to Climate models” by Prof. J. Srinivasan from DCCC. This was followed by talks by Prof. Rajiv Kumar Chaturvedi from BITS-Pilani on vegetation and carbon dynamics in forests. In the afternoon there were case studies on how to use Dynamic Global Vegetation Models (DGVM) for conservation strategies. On the second day Dr. Jaideep Joshi from IIT, Bombay discussed the plant-FATE (Plant Functional Acclimation and Trait Evolution) model. This was followed by a talk on impact of climate change on forests by Prof. J. Srinivasan from DCCC. The afternoon session was devoted to the use of climate data and hands-on training on DGVM. On the third day Dr. Rajiv Kumar Chaturvedi discussed the use of DGVMs for restoration planning, biodiversity impact analysis, and forest policy design. In the final session there was assessment of the knowledge gained by the participants about DGVMs.

FUTURE EARTH SOUTH ASIA KNOWLEDGE TO ACTION INITIATIVE



Dr. Raj Kishore, Visiting Scientist, DCCC, Co-Director of Future Earth South Asia, meeting with Ms. Uma Mahadevan (*Centre*), IAS, Additional Chief Secretary and Development Commissioner, Government of Karnataka on 6th June 2025.

Dr. Raj Kishore Singh, Visiting Scientist, DCCC, Co-Director of Future Earth - South Asia Hub at IISc met Ms. Uma Mahadevan Additional, Chief Secretary & Development Commissioner, Government of Karnataka, to discuss the Future Earth South Asia Knowledge to Action Initiative on 6th June. He highlighted the initiatives to promote climate resilience and sustainability. Ms. Uma Mahadevan appreciated the initiative undertaken by the Future Earth team. Dr. Manjari Manisha, on behalf of the Future Earth South Asia Hub, IISc, made a detailed presentation on the proposed on-ground pilot programme. The concept revolves around developing model sustainable communities in Karnataka, integrating sectors such as water, health, sanitation, waste management, agriculture, renewable energy, and women's empowerment. Ms. Mahadevan emphasized that climate resilience and sustainability should be among the highest priorities for the State. She further stressed that local governance and women's empowerment must be integral and cross-cutting themes throughout the project to ensure inclusiveness and sustainability at the grassroots. She suggested that the Future Earth team should conduct department-specific meetings to discuss targeted interventions and opportunities for integration.

FE WEBINAR - "AN AGROFORESTRY STRATEGY FOR COUNTERING CLIMATE CHANGE"

Food Forests: to address climate change and nutritional insecurity

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Dr. Syam Viswanath, Former Director, KSCSTE-Kerala Forest Research Institute Scientist G retd, Indian Council of Forestry Research and Education (ICFRE), MoEF&CC, Govt. of India, delivering his talk on 3rd June 2025.

The Future Earth Global Secretariat Hub South Asia, DCCC, hosted an online webinar titled "Food Forests: An Agroforestry Strategy for Countering Climate Change through Enhanced Soil Carbon Sequestration and Soil Organic Matter", by Dr. Syam Viswanath, Former Director, KSCSTE-Kerala Forest Research Institute, Indian Council of Forestry Research and Education (ICFRE), MoEF&CC, Govt. of India, on 3rd June 2025.

Food forests (FFs) are ecologically sustainable systems that mimic natural forests by integrating diverse fruit trees with annual and perennial food crops. This approach offers small farmers in India a means to enhance food and nutritional security while generating additional income. FFs are characterized by layered planting, use of fast-growing nurse crops like banana and papaya, and continuous live mulch to maintain soil moisture, suppress weeds, and enrich soil nutrients through biological nitrogen fixation. A key principle is minimal soil disturbance—crops are harvested without uprooting plants, promoting the buildup of soil organic matter and carbon sequestration via root decomposition. FFs support nutrient cycling and resource efficiency, especially with proper canopy and moisture management. Though less commercially intensive than other agroforestry models, FFs prioritize soil health and long-term sustainability.

FE WEBINAR - “LATEST TECHNOLOGIES IN INSECT PEST MANAGEMENT”

Advantages of nanopesticides over conventional pesticides

Conventional pesticides

- Lower stability
- Affect non-targeted soil microbiota
- Lower dispersibility
- Higher amount required
- Accumulation in food and soil
- Environment pollution risk

Nano-pesticides

- Improve pesticide stability
- Improve pesticide bioavailability
- High dispersibility
- Reduction in pesticides requirement
- Improve leaf adhesion and penetration
- Eco-friendly approach

Pramod Katti Director EMPRI (Unverified)

Dr. Pramod Katti, Director, Environmental Management and Policy Research Institute (EMPRI) delivering his talk on 29th August 2025.

The Future Earth Global Secretariat Hub South Asia, DCCC, hosted an online webinar titled “Latest technologies in Insect Pest Management”, by Dr Pramod Katti, Director, Environmental Management and Policy Research Institute (EMPRI) on 29th August 2025. Dr. Katti pointed out that the field of pest control has undergone remarkable transformations over the years, with technology playing a significant role in revolutionizing traditional pest management methods.

Traditional monitoring technologies like pheromone traps, light traps, sticky traps, berlese funnel traps, etc., have limitations, more labour and time requirements and were less accurate in getting real-time pest scenarios under field conditions. Pest control is evolving beyond traditional methods, thanks to technology-driven innovations that prioritize effectiveness, sustainability, and environmental responsibility. Latest technology-driven trends in pest control that are shaping the way we combat infestations are required like remote sensing, artificial intelligence, acoustic monitoring and molecular methods for the pest control and management. These methods use real-time data or situations to generate the most accurate results that help in achieving precision pest management goals.

QUIZ PROGRAMME AT LOYOLA SCHOOL, THIRUVANANTHAPURAM, KERALA



Prof. S. K. Satheesh, Chair, DCCC, delivering a talk on “The influence of short-lived climate forcers like atmospheric aerosols and their impact on climate change”, at Loyola School, Thiruvananthapuram on 11th July 2025.

On 11th July 2025, Divecha Centre for Climate Change (DCCC), in association with TALENTSPIRE, organised a day-long educational and awareness event titled “Awareness Programme for School Students and Interschool Quiz Competition on Climate Change and the Environment” at Loyola School, Thiruvananthapuram.

The programme commenced with a virtual inauguration ceremony by Dr. V. Narayanan, Secretary, Department of Space, and Chairman, ISRO. He addressed the urgency of climate action, the importance of Indian research in the context of climate change, and inspired the young minds to take up the challenges to a more sustainable future. Prof. S. K. Satheesh, Chair, DCCC addressed the audience to set context for the programme, following the presidential address by Dr. Salvin Augustine, Director, Loyola Schools. Dr. Kuncheria P. Isaac, former Vice Chancellor, APJ Abdul Kalam Technological University and Member Secretary AICTE, then addressed the

audience to conclude the inaugural session.

Prof. S. K. Satheesh delivered a talk on the influence of short-lived climate forcers like atmospheric aerosols and their impact on climate change. This was followed by Dr. H. Paramesh, who offered a compelling perspective by linking climate change to human health. A comprehensive talk on the science of climate change was delivered by Prof. J. Srinivasan, touching upon the present status and future impacts of climate change.

The main highlight of the day was the inter-school quiz competition on climate change and environment, conducted by Prof. S. K. Satheesh. Several schools from Thiruvananthapuram city attended the quiz, out of which the top eight teams were selected to the final round following a rigorous written screening test. Sarvodaya Vidyalaya bagged the first prize, with Loyola School CBSE, Sree Narayana Public School Thiruvananthapuram securing the second and third prizes respectively.



Prof. S. K. Satheesh, Chair, DCCC, and Dr. H. Paramesh, Visiting Scientist, DCCC, giving away the prize to the winners of the quiz programme.

THE 31ST INTERNATIONAL PAEDIATRIC CONVENTION, MEXICO CITY



Prof. Dr. H Paramesh with Prof. Ruth Etzel of USA and Dr. David Githanga of Nairobi Kenya organised a workshop on Environmental Impact on Children Health from 8th to 10th May 2025. 65 people participated during International Paediatric Convention in Mexico city. Dr Paramesh spoke on Neurocognitive development in children: Role of Air pollution. He also chaired a session on “Lead poisoning a global phenomenon”.



Dr. Paramesh also visited United Nation Environment Programme (UNEP) in Copenhagen, Denmark interacted with the supervisors and shared how Divecha Centre of Climate Change of IISc. Propagate the knowledge to the school children and colleges students on climate change and global warming on health and how to save our planet by giving talks and organising quiz.

GLOBAL ASSOCIATION OF PHYSICIANS OF INDIAN ORIGIN, KENYA



From Left sitting Dr. Prakash Heda (Chancellor Lukenya University Kenya, Right sitting Dr. Uday Bodhankar (Executive Director COMHAD) Top standing Dr. Ramesh Mehta (President COMHAD & Chairman of the Organising committee)

Dr. H Paramesh, Visiting Scientist, DCCC, addressed the Global Association of Physicians of Indian Origin (GAPIO) International Conference held at Nairobi, Kenya, Africa from July 16th – 21st 2025 and gave a talk on Sustainability and Green Health Care.

Environment, climate change, and air pollution are closely interrelated and have a significant impact of child development from womb to tomb. This causes psycho-socio-economic burden more in low and middle income population. Nature created various species with biodiversity in them. Human species represent 0.01% of the living things, who destroyed 83% of wild animals and 50% of plants and polluted all 5 elements of our planet. This, in turn, caused health issues either directly or indirectly through water resources, environment, agriculture which impacted the physical and mental development of a child. Chemical pollution has become a growing problem. Chemicals from pesticides, fertilizers and herbicides are causing endocrinal disruption and neurotoxins in a human body. Hence measures must be taken to prevent and manage birth defects for a healthy child development.

of Himalaya

Tethyan Himalaya

Lesser Himalaya

INDIA

1000 km

Tethyan Himalaya

Lesser Himalaya

Google Earth

The Divecha Centre for Climate Change organised a seminar on “Recent Advances on Cambrian and Ordovician Geology of Northwest Himalaya and Prospects” by Dr. Birendra P. Singh, Associate Professor, Department of Geology, Punjab University, Chandigarh on 19th June 2025.

Moreover, it was also suggested that the biozonation available in the Spiti region is implacable all over the Himalayan section. The relation between the Cambrian and Ordovician deposits is identified as the angular discordance but it was not analysed how much of Cambrian in different

sections remains preserved before the Cambro-Ordovician angular discordance. Furthermore, Cambrian Kashmir fauna remains as unique as it shares a very low faunal element with Zaskar and Spiti regions and because of this, it was presumed that Kashmir fauna is endemic.

In the last two decades work on the Cambrian of the Himalayas has led to the successful resolution in these aspects. It is now established that (i) Cambrian and Ordovician sequences in the THZ are cut by several faults systems in the THZ i.e. Tanso (TF), Lingti-Sarchu (LSF), and North Lahaul faults (NLF), which have disrupted the continuity of Cambrian sequences between Zaskar and Spiti. As a consequence, different stratigraphic levels of the Cambrian deposits are exposed along the strike from Zaskar to Spiti regions, (ii) Cambrian biozonation exists broadly at two stratigraphic intervals, i.e., ~514-505 Ma (in the Spiti region and partially in the Kashmir region) and ~505-498 Ma (in the Zaskar region and partially in the Kashmir region); (iii) Before Cambro-Ordovician angular discordance the Cambrian deposits shows progressive down cutting from NW to SE direction; (iv) discoveries of faunal level in Spiti helps in straightforward correlation between the Cambrian of Kashmir and Spiti region, (v) Recent work constraint the Cambrian deposits of the LHZ and it suggests that the Cambrian biozonation is available at four stratigraphic intervals, i.e., at ~542-535 Ma, ~524-513 Ma, ~516 Ma, and ~512 Ma.

Similarly, the Ordovician of the Himalayas was poorly known from only the THZ, but in recent years the Ordovician trace fossils have also been recorded from the Lesser Himalayas and this discovery was validated by the geochronological data (Zircon analysis). In addition, recent work led to the revision of the Ordovician deposits of the THZ which included reclassification of the Sanugba Group.

QUIZ PROGRAMME AT LAWRENCE SCHOOL, LOVEDALE, OOTY



Prof. S. K. Satheesh, Chair, DCCC, inaugurating the event at The Lawrence School, Lovedale, Ooty on 23rd Aug 2025.

On 23rd August 2025, Divecha Centre for Climate Change (DCCC), in association with TALENTSPIRE, organised a day-long educational event titled “Awareness Programme for School Students and Interschool Quiz Competition on Climate Change and the Environment” at The Lawrence School, Ooty. The programme was inaugurated by Prof. S. K. Satheesh, Chair, DCCC and the Headmaster of the Lawrence School Mr. Dhavala Venkata Someswara Rao.

Prof. S. K. Satheesh, introduced the guest speakers. This was followed by the inaugural address by Dr. M. Rajeevan, Vice-Chancellor, Atria University. This was followed by various talks by eminent scientists. Prof. S. K. Satheesh delivered a talk on the influence of short-lived climate forcers like atmospheric aerosols and their impact on climate change. This was followed by Dr. H. Paramesh, who offered a compelling perspective by linking climate change to human health.

A comprehensive talk on the science of climate change was delivered by Prof. J. Srinivasan, touching upon the present status and future impacts

of climate change. The main highlight of the day was the inter-school quiz competition on climate change and environment, conducted by Prof. S. K. Satheesh. Several schools from Ooty attended the quiz, out of which the top four teams were selected. JSS Public School Ooty Theetukal won the first prize. The second prize was won by Unique Public School, Ooty followed by The Lawrence School, Ooty which came in third place. An audience round of quiz was conducted followed by demonstration of Aerosol instruments. The programme concluded with prize and certificate distribution.



Prof. S. K. Satheesh, Chair, DCCC, and Dr. H. Paramesh, Visiting Scientist, DCCC, with the principal and staff of The Lawrence School.



Prof. S. K. Satheesh, Chair, DCCC, and Dr. H. Paramesh, Visiting Scientist, DCCC, giving away the trophy to the first prize winners of the quiz programme.

INTERNATIONAL WORKSHOP AND SUMMER SCHOOL ON OCEANS IN A CHANGING CLIMATE



Participants of the International Workshop and Summer School on “Oceans in a Changing Climate and their Prediction” held from 8th to 18th July 2025.

The oceans are significantly impacted by global warming, acidification, sea level rise, and deoxygenation. With growing awareness of these changes, ocean science has progressed rapidly over the past decade. One valuable tool now widely used in research is ocean reanalysis products, which rely on ocean general circulation models. Another emerging and increasingly applied approach is the use of machine learning techniques.

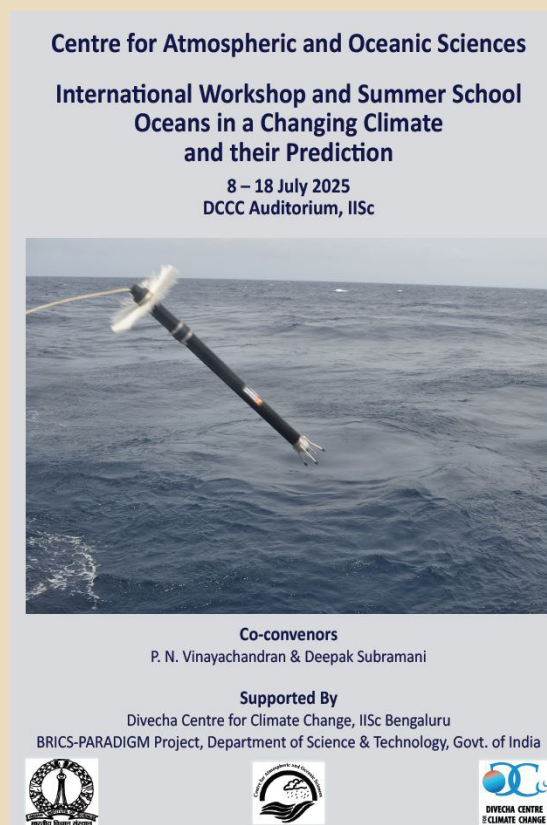
An International Workshop and Summer School on “Oceans in a Changing Climate and their Prediction” was held at the Divecha Centre for Climate Change from 8th to 18th July 2025. The primary objective of the workshop and summer school was to introduce Ph.D. students to advanced oceanographic methods -- particularly ocean modelling and applications of machine learning -- and their practical applications. A key secondary goal was to provide exposure to cutting-edge research in oceanography being conducted across the globe.

A total of 32 students attended the summer school, including 2 participants from Russia, 2 from Brazil, and 3 from other countries. The lectures were

delivered by eminent scientists from renowned institutions across India, Japan, Brazil, South Africa, and Russia. The structure of the workshop and summer school was carefully designed to balance theory and practice. It comprised 1.5-hour lecture sessions, 30-minute participant presentations, and hands-on practical sessions lasting about 3 hours each day, providing participants with an immersive and comprehensive learning experience.

A key feature of the programme was hands-on training in running ocean general circulation models on personal laptops. Participants installed and simulated using two models: the state-of-the-art NEMO (Nucleus for European Modelling of the Ocean) and the CROCO (Coastal and Regional Ocean Community) model. They were also trained to analyse model outputs using 'Open Drift,' a particle tracking tool for simulating tracer movement in the ocean.

Another key highlight of the programme was hands-on training in applying machine learning to oceanographic problems. Participants explored both simple models to grasp fundamental concepts and advanced methods for predicting oceanic variables. The inclusion of lectures and tutorials on discriminative and exploratory approaches in Earth sciences added a novel dimension to the summer school. These sessions were well-received and broadened participants' perspectives across various domains of ocean science.



RESEARCH HIGHLIGHTS



20MLD Sewage treatment plant ,Horamavu, Bengaluru

PERSISTENT ELEVATED BLACK CARBON AEROSOL LAYERS IN THE UPPER TROPOSPHERE AND ITS LINKAGE TO AIRCRAFT EMISSIONS

Black carbon (BC) particles are tiny and produced by incomplete combustion. It absorbs sunlight, heats the air, and can influence weather and climate—so knowing where BC is in the atmosphere is crucial. Most measurements focus near the ground, but in this study, we measured BC directly up to 12 km above Hyderabad, India, using research balloons launched during winter and early summer of 2023–2024.

The balloon-borne instruments recorded BC mass concentrations from the surface through the upper troposphere. A striking and persistent pattern emerged: BC peaked near 8 km and again around 11 km, reaching up to three times higher levels than at the surface. These elevated “layers” were not the result of surface pollution mixing upward or transport from distant sources. Instead, analysis points to emissions from busy flight corridors overhead, with hundreds of domestic and international aircraft passing through daily. The persistence of these BC layers means pollution is being injected directly into a sensitive part of the atmosphere, where it can remain longer, absorb more sunlight, and potentially influence cloud formation and regional weather. This has two major implications: first, it reveals a largely invisible source of emissions absent from most ground-based monitoring networks; second, BC at these altitudes interacts differently with radiation and clouds compared to surface-level BC, meaning its climate impact could be disproportionately large. Because climate models and air-quality frameworks often lack direct observations aloft, these balloon-based measurements offer rare, in-situ evidence that BC can be more abundant at 8–11 km over major airports.

The findings highlight the need to improve monitoring of upper-tropospheric aerosols in weather and climate models, and to account for aviation’s role in shaping regional climate impacts.

Reference: Sunilkumar, K., A. Ajay, N. Anand, T. Dharmesh, P. G. Stalin, B. V. N. Kapardhi, K. Santosh, K. K. Moorthy, and S. K. Satheesh. “Persistent elevated black carbon aerosol layers in the upper troposphere and its linkage to aircraft emissions.” *Geophysical Research Letters* 52, no. 11 (2025): e2024GL113363.

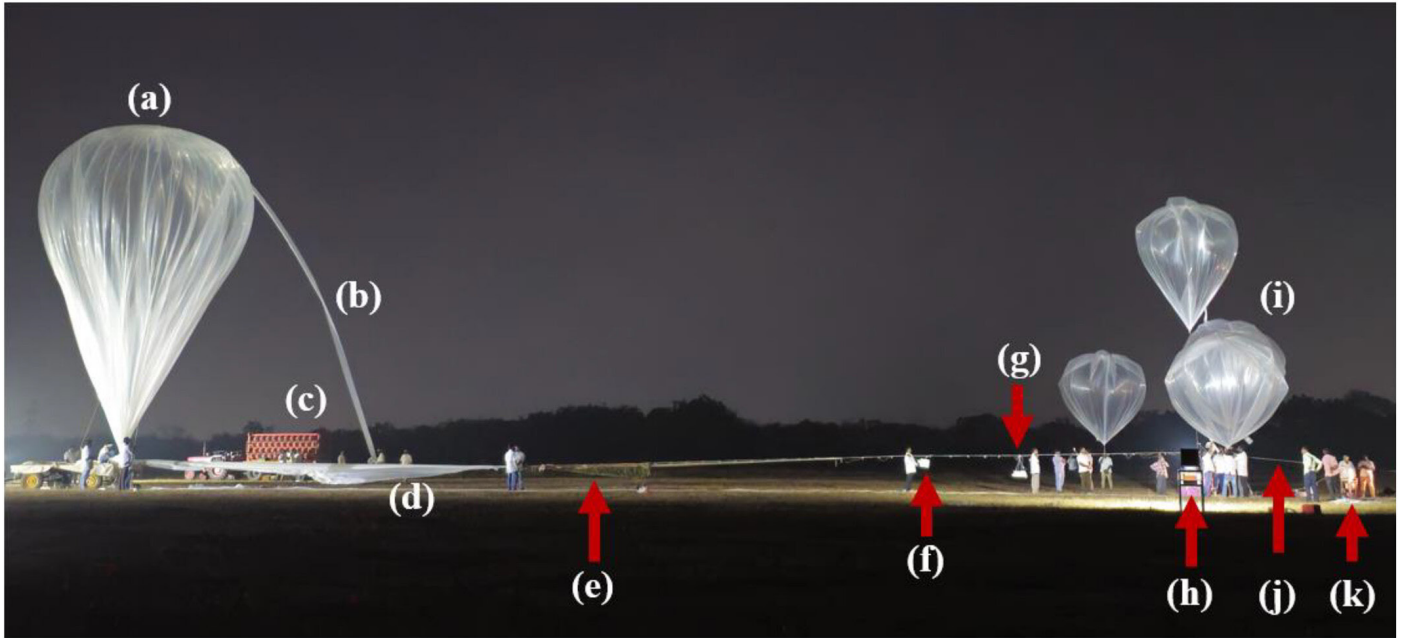


Fig: Static anchor line launch method of hydrogen-inflated zero-pressure balloon flight before lift-off, shown for one of the flights (on 21 January 2024). (a) Balloon ground bubble, (b) hydrogen filling tube, (c) hydrogen cylinders, (d) unfilled portion of balloon (e) 20-ft parachute, (f) GPS radiosonde unit, (g) aviation safety system, (h) science payloads, (i) launch balloons, (j) load line, and (k) magnetic ballast systems

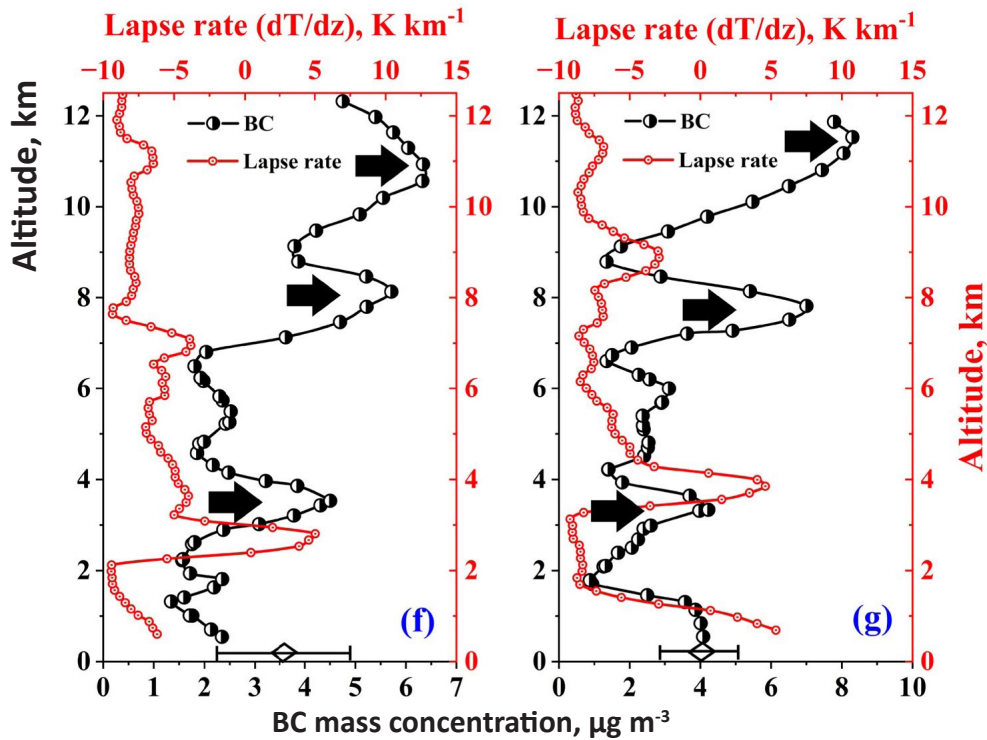


Fig: Vertical profiles of (f) flight II on 21 January 2024, and (g) flight III on 10 March 2024. The black diamond markers represent the average of independently measured BC surface concentrations. The error bars indicate the standard deviations.

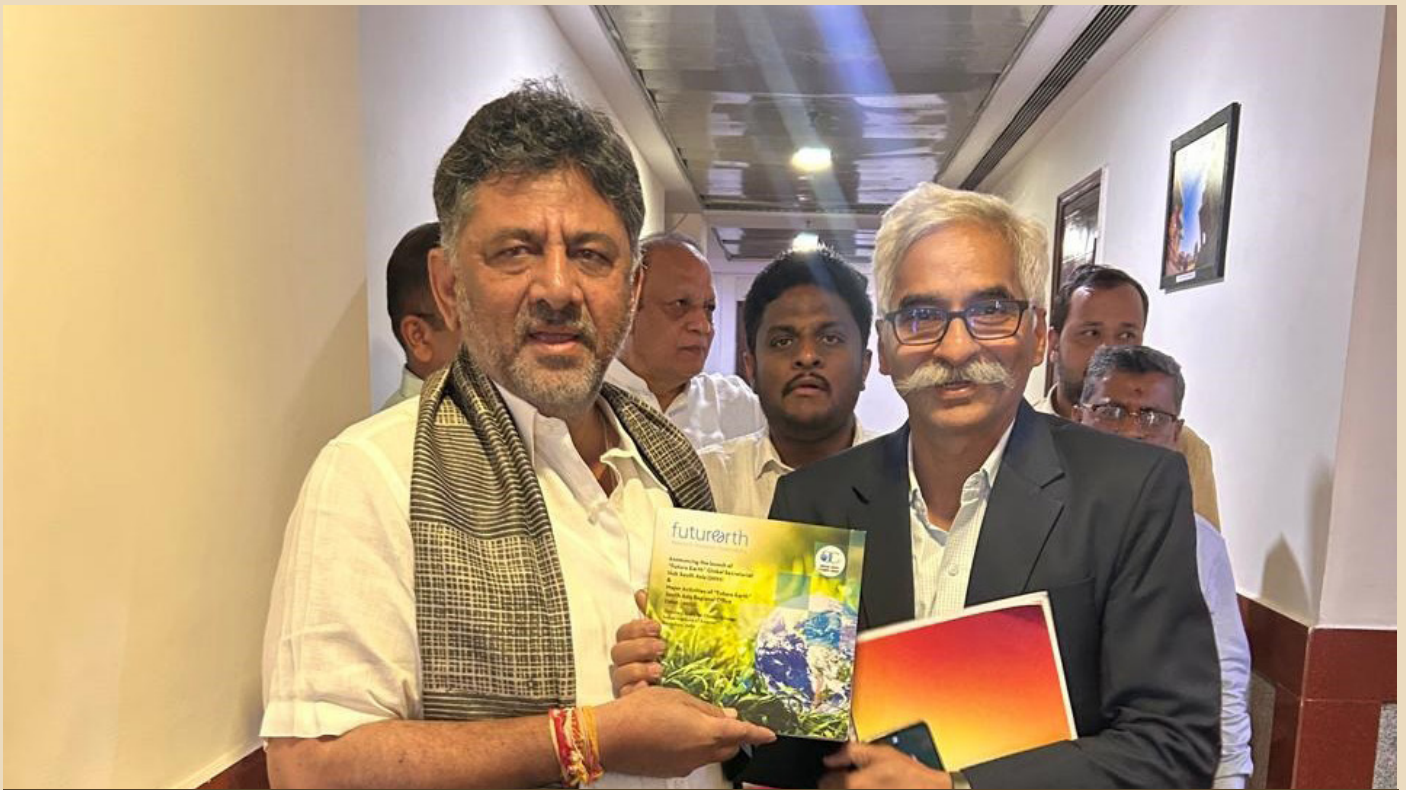
WOODY SPECIES DIVERSITY AND CARBON STOCK IN WESTERN GHATS

Stretching along India's west coast, the Western Ghats are a global biodiversity treasure, rich in plant life and storing vast amounts of carbon. Yet, tropical semi-evergreen forests (TSEF), covering about 20% of the region's total forest area, have been largely absent from long-term monitoring programs. Researchers from BITS Pilani K. K. Birla Goa Campus, in collaboration with the Indian Institute of Science (IISc), Bangalore, and the Wildlife Institute of India (WII), have established the first 1-hectare long-term monitoring plot in the TSEF of Netravali Wildlife Sanctuary, Goa. Following CTFS protocols, all woody stems ≥ 1 cm in diameter were identified, measured, geolocated, and tagged. To date, two complete enumerations of the plot have been carried out, providing robust data on forest structure, regeneration, and carbon storage. A total of 84 species, including 11 species endemic to the Western Ghats, were recorded within the 1 ha plot, which is on the higher side of global species richness estimates. Tree density was 5,395 individuals/ha, with 866 adult trees contributing a basal area of 33.6 m² ha⁻¹, exceeding the pantropical average of 32 m² ha⁻¹. Aboveground biomass was 289.4 Mg/ha, and total carbon stock (including soil) was 241.75 Mg C/ha, equivalent to storing about 900 tons of CO₂ per hectare. Most species show healthy regeneration, but some, such as the endemic *Eugenia macrosepala*, lack young plants, highlighting the need for targeted conservation. This plot creates an essential baseline for monitoring biodiversity, forest structure, and carbon stocks, and underscores the importance of expanding long-term monitoring efforts across India's forests.

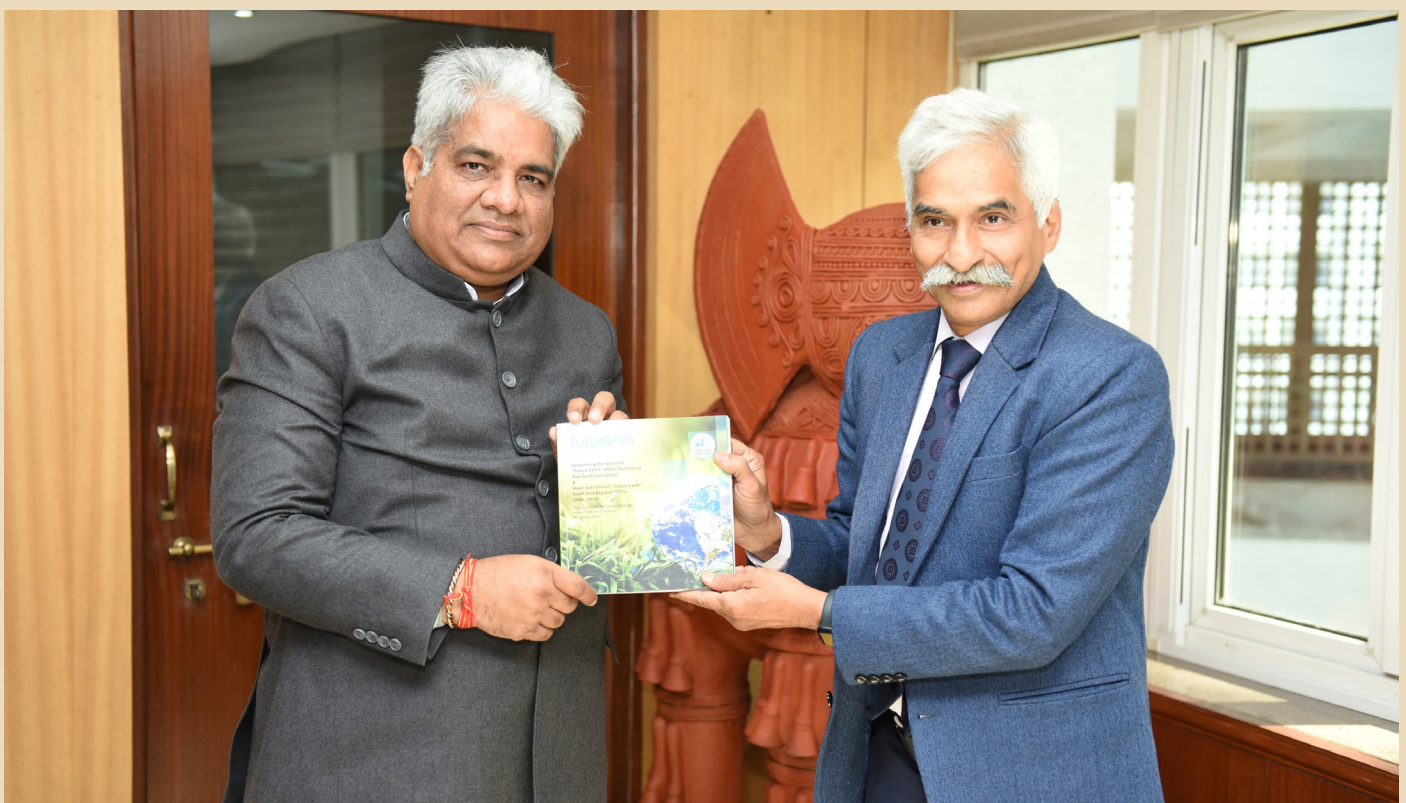
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Jose, K., Najeeb, N., Suryawanshi, K., Hebbalalu, S. S., Page, N., & Chaturvedi, R. K. (2025). Woody species diversity, structure, and carbon stock in a tropical semi-evergreen forest in Western Ghats, India. *Environmental Research Communications*, 7(4), 045027.





Mr. Raj Kishore Singh, Visiting Scientist, DCCC, Co-Director of Future Earth South Asia, presented the Future Earth Coffee Table booklet to Mr. D. K. Shivakumar, Deputy Chief Minister of Karnataka, while discussing and briefing him about the FE South Asia hub.



Mr. Raj Kishore Singh, Visiting Scientist, DCCC, Co-Director of Future Earth South Asia, presented the Future Earth Coffee Table booklet to Mr. Bhupender Yadav, Minister of Environment, Forest and Climate Change, while discussing and briefing him about the FE South Asia hub.