



SDG 14. Life Below water

14.3 SUPPORTING AQUATIC ECOSYSTEMS THROUGH ACTION

14.3.1. CONSERVATION AND SUSTAINABLE UTILISATION OF THE OCEANS



14.3

Supporting Aquatic System through Action

14.3.1. CONSERVATION AND SUSTAINABLE UTILISATION OF THE OCEANS

1. INDIAN GEOPHYSICAL UNION (IGU) DIAMOND JUBILEE CONVENTION ON “ADVANCES IN GEOSCIENCES WITH SPECIAL REFERENCE TO COASTAL HAZARDS”

The Indian Geophysical Union (IGU) celebrated its Diamond Jubilee (60th Anniversary) by organizing a landmark convention from 22-24 November 2023, focusing on the theme "Advances in Geosciences with Special Reference to Coastal Hazards." The conference was jointly organized by the IGU and the Department of Marine Geology and Geophysics at the Cochin University of Science and Technology (CUSAT). The event brought together leading geoscientists, researchers, policymakers, industry experts and students to address persistent issues related to coastal hazards and the latest advancements in geophysical research. As coastal areas around the world face increasing threats from climate change, natural disasters, and anthropogenic activities, the conference aimed to explore innovative solutions, new research findings, and emerging technologies to better understand and mitigate these hazards.

The IGU Diamond Jubilee Convention was formally inaugurated on 22 November 2023 by the esteemed Dr. (Mrs.) N. Kalaiselvi, the Director General of the Council of Scientific and Industrial Research (CSIR). Dr. Kalaiselvi, in her inaugural address, emphasized the growing significance of geosciences in addressing the challenges posed by climate change, particularly in coastal regions. She highlighted the importance of interdisciplinary collaboration and innovation to improve resilience against coastal hazards such as tsunamis, cyclones, and rising sea levels etc. The inaugural session was presided over by Padmashree (Dr.) Shailesh Naik, the President of the Indian Geophysical Union, who in his speech emphasized the key role of the IGU in fostering research and discussions on various geological and geophysical phenomena, with a special focus on coastal hazards. Dr. Naik also emphasised the need for greater scientific research and policy initiatives aimed at improving disaster preparedness and response. Prof. Mohamed Hatha, Director, School of Marine Sciences, CUSAT welcomed the attendees, Dr. Abhey Ram Bansal, Hon. Secretary, IGU presented Secretary's Report and Prof. Sunil P.S., Convenor, 60th IGU Convention from the Department of Marine Geology and Geophysics, CUSAT expressed the vote of thanks.

In addition, several distinguished guests addressed the gathering, including: Dr. M. Ravichandran, Secretary, Ministry of Earth Sciences (MoES), Prof. P.G. Sankaran, Vice Chancellor, CUSAT, Dr. Ranjith Rath, Chairman and Managing Director, Oil India Ltd. (OIL), Prof. Lisa J. Graulich; President, American Geophysical Union (AGU); Prof. Chris Rizos, President, International Union of Geodesy and Geophysics (IUGG), Dr. V.M. Tiwari, President, Federation of Indian Geosciences Association (FIGA), etc. Prestigious IGU Awards/Medals such as, Dr. Hari Narain Lifetime Achievement Award, Prof. K.R. Ramanathan Memorial Lecture Award, Decennial Award, Krishnan Medal, Dr.JG Negi Young Scientist Award, Anni Talwani Memorial Grant for Young Women Researcher, Prof. D. Lal Best Paper Award, Prof. Jagdeo Singh & Dr. S. Balakrishna Memorial Grant to Student Toppers were also presented to the awardees during the inaugural session. Total 105 abstracts were presented verbally and 119 abstracts were presented over posters. The conference also included a series of keynote addresses, Invited Talks, plenary sessions, panel discussions and technical sessions.



Fig. 14.3.1. The inauguration of Indian Geophysical Union (IGU) Diamond Jubilee convention



Fig. 14.3.2. Group photo of participants at Indian Geophysical Union (IGU) Diamond Jubilee convention



Fig. 14.3.3. Student leaders of different chapters with panel members at Indian Geophysical Union (IGU) Diamond Jubilee convention

2. GEOSYMPIOSIUM: LEARNERS OF GEOSCIENCES, 2023

The Department of Marine Geology & Geophysics, CUSAT has organised a Geosymposium, Learners of Geosciences, 2023 (LOG'23) in association with SEG Students Chapter, CUSAT. This symposium aims to bring together young, talented and enthusiastic Geoscience students to challenge their curious minds through various events and to promote interactions with the Geoscience community. Five events were organised for the 8 different teams participated from various universities to have and refresh the ideas conservation, management and sustainable utilisation of oceans, land, glaciers and marine resources. The programme was started with the Key note address of Prof. Sunil P.S, Head, Department of Marine Geology & Geophysics, CUSAT on the topic from Poles to Poles. The key note discussed the impact of Global warming and rising sealevel issues and its impact in coastal zones.

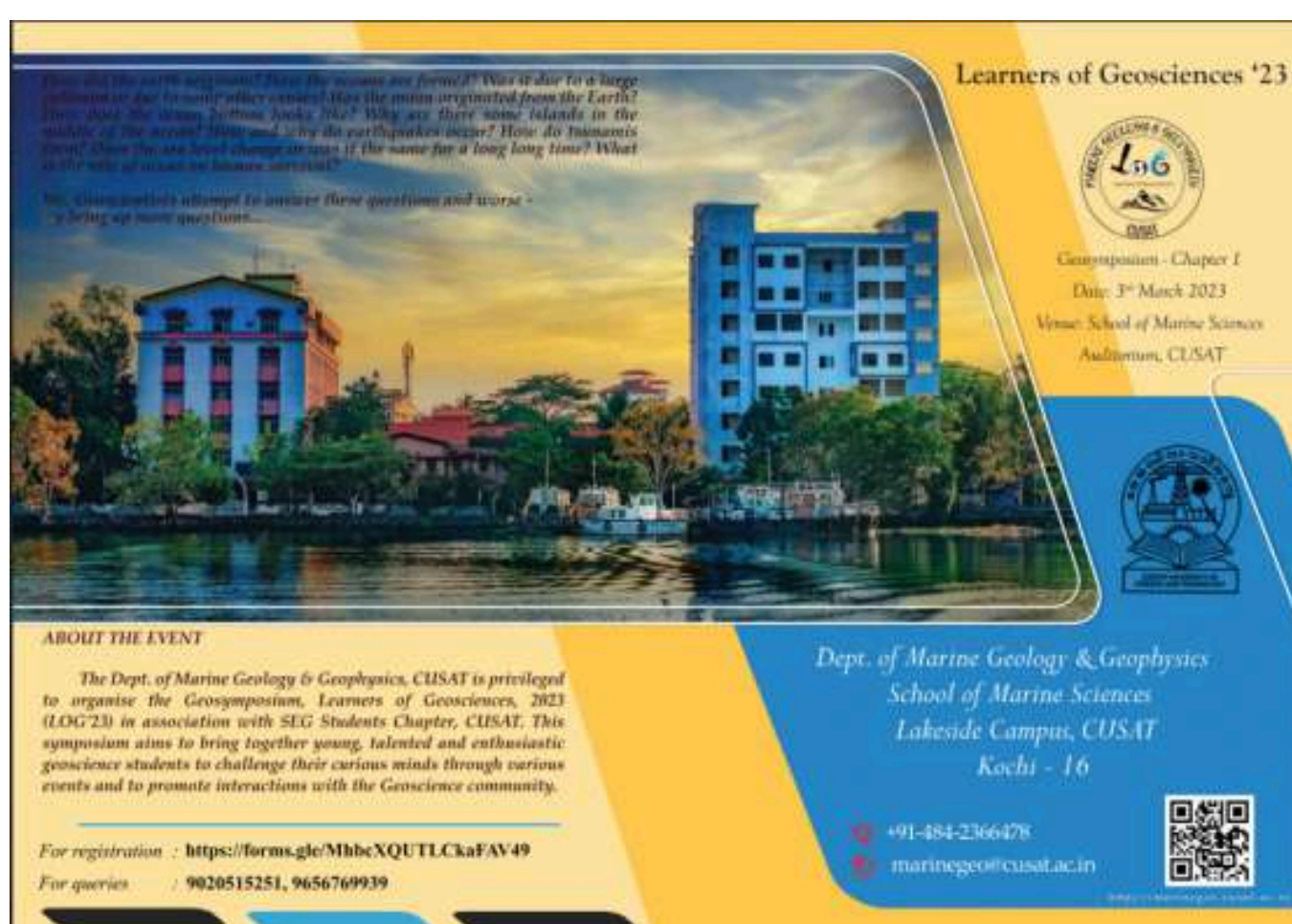


Fig. 14.3.4. Brochure of Geo-symposium LOG

3. Invited talk on Thin ice melting glaciers and rising hazard

An invited talk by Dr. Thamban Meloth (Director NCPOR, Goa) on “Thin ice melting glaciers and rising hazards” was organised in the School of Marine Science Auditorium, Lakeside Campus, CUSAT on 17th January 2023. The programme was convened by Dr. N.R Nisha, Assistant Professor, Department of Marine Geology and Geophysics, CUSAT in association with GeMS (Geo Marine Society), the alumni association of the Department of Marine Geology and Geophysics and SEG Students Chapter (Society of Exploration Geophysicists). The invited talk was followed by a panel discussion where Prof. N. Chandrasekar (V.C., M S University, Thirunelveli), Dr. Thamban Meloth, (Director, NCPOR, Goa) and Director School of Marine Sciences were the Panelists. The need for management of water and coastal conservation was discussed in detail by the panelists where the student and participants are allowed to interact with the dignitaries.



Fig. 14.3.5. Talk by Dr. Thamban Meloth at School of Marine Science Auditorium, CUSAT

4. INTERNATIONAL TRAINING WORKSHOP ON PRIMER V7 & PERMANOVA- ITW'05

The Department of Marine Biology, Microbiology, and Biochemistry at Cochin University of Science and Technology (CUSAT), in collaboration with the Chancellor's Chair, organized the International Training Workshop on "PRIMER v7 & PERMANOVA" from March 20-24, 2023. This workshop attracted registered participants from across various institutions, including research scholars, students, and professionals engaged in marine and environmental sciences. The event commenced with an inaugural ceremony graced by esteemed guests, including Prof. K.P. Sudheer, Ex Officio Principal Secretary for the Department of Science and Technology, and Dr. K.N. Madhusoodanan, Hon'ble Vice Chancellor of CUSAT. The workshop was led by Distinguished Professor Dr. Marti J. Anderson from Massey University, New Zealand, an internationally recognized expert in ecological statistics. Dr. Anderson guided participants through advanced multivariate statistical techniques, emphasizing their applications in environmental monitoring and impact assessment. The interactive sessions provided hands-on training on PERMANOVA and other ecological data analysis methods, equipping participants with valuable tools for analyzing complex marine and environmental datasets.

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF MARINE BIOLOGY, MICROBIOLOGY & BIOCHEMISTRY

WELCOMES

Distinguished Professor Dr. Marti J. Anderson
Massey University, New Zealand
Director, Primer-a

CHANCELLOR'S CHAIR PROFESSOR
16 - 29 March 2023

Distinguished Professor Marti J. Anderson (Massey University and PRIMER-e, FRSNZ) holds the Professorial Chair in Ecological Statistics at the New Zealand Institute for Advanced Study (NZIAS) at Massey University in Auckland. She is also the Director of PRIMER-e. Her core research is in community ecology, biodiversity, multivariate analysis, experimental design and resampling methods, with a special focus on developing novel statistical methods for ecology.

She has developed all of the statistical methods in PERMANOVA+ and especially loves engaging in the dynamic interactions with students, academics and professionals that have become a trademark of the PRIMER/PERMANOVA+ international workshops, shedding new light on multivariate data.

Invitation

DEPARTMENT OF MARINE BIOLOGY, MICROBIOLOGY & BIOCHEMISTRY
SCHOOL OF MARINE SCIENCES
COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY, COCHIN-16

Cordially invites you to the Inaugural Ceremony of
Chancellor's Chair
&
INTERNATIONAL TRAINING WORKSHOP ON
PRIMER v7 & PERMANOVA- ITW'05

on
20th March 2023 at 2.00 pm
at
School of Marine Sciences, CUSAT, Cochin -16

Chief Guest
Prof. K. P. Sudheer
Ex Officio Principal Secretary S&T Department &
Executive Vice President, Kerala State Council for Science,
Technology and Environment, Govt. of Kerala

Presided
Prof. (Dr.) K. N. Madhusoodanan
Hon'ble Vice Chancellor
Cochin University of Science and Technology

Fig.14.3.6. Brochure on International Training Workshop on Primer V7 & Permanova- ITW'05



Fig.14.3.7. Inauguration of the International Training Workshop on Primer V7 & Permanova- ITW'05



Fig. 14.3.8 Sharing a memento to Distinguished Professor Dr. Marti J. Anderson from Massey University, New Zealand



Fig.14.3.9. Participants of the International Training Workshop on Primer V7 & Permanova- ITW'05

5. INTERNATIONAL SYMPOSIUM ON OCEAN TECHNOLOGY (SYMPOL 2023)

Introduction

The 2023 International Symposium on Ocean Technology (SYMPOL 2023), addressing the Global Oceans, Systems and Technologies, organized by the Department of Electronics of the Cochin University of Science and Technology, Kochi with the technical co-sponsorship of IEEE-OES was held during 13-15 December 2023. SYMPOL is being organized as a biennial program and the first symposium of the series was held in the Cochin University of Science and Technology, during 18-20 December 1991 to highlight the formal opening of the Center for Ocean Electronics established in the Department of Electronics as a joint venture of the University Grants Commission and Ministry of Human Resource Development, Government of India.

Inaugural Function

The three-day symposium was inaugurated on 13th December 2023 by Dr. Manu Korulla, Outstanding Scientist and Director, Directorate of Management Services (DMS) as well as Directorate of Civil Works & Estates (DCW&E) at the Auditorium, Department of Electronics, CUSAT Main Campus in a function presided over by Dr. P G. Sankaran, Vice-Chancellor, Cochin University of Science and Technology. Dr. Deepti Das Krishna, Head of the Department, welcomed the gathering. Dr. Supriya M. H., Chairperson, SYMPOL 2023, provided an overview of the previous SYMPOL conferences and Arun A. Balakrishnan, Coordinator, SYMPOL 2023 proposed the vote of thanks.



Fig.14.3.10. Dr. Manu Korulla, inaugurates SYMPOL 2023 by lighting the lamp.



Fig.14.3.11. Release of Proceedings of SYMPOL 2023 by Dr. Ananya Sen Gupta, Professor, University of IOWA, USA.

Technical Program

The technical program of SYMPOL 2023 commenced with a keynote addresses on “Sea Systems and Innovative Underwater Technology Transformations” by Dr. Manu Korulla and “Interpreting Geometric Concepts into Underwater Acoustic Feature Representations: Case Studies and Challenges” by Dr. Ananya Sen Gupta, Professor, University of IOWA, USA. The keynote addresses were followed by an invited talk on “Thermal Performance Characteristics of Electronic Components: A Computational Fluid Dynamics based Approach” by Dr. Favas T. K., Department of Ship Technology, Cochin University of Science & Technology. Dr. Gopu R. Potty, Professor, Department of Ocean Engineering, University of Rhode Island, USA delivered a talk on “Listening to the heartbeat of oceans of the world: latest trends”. Mr. Jineesh George, Group Head, Transducers Group, Naval Physical and Oceanographic Laboratory, Kochi delivered a talk on “Piezoelectric Transducers for Underwater Acoustics Applications”. Another invited talk was delivered by Dr. D. D. Ebenezer, Adjunct Faculty, Department of Ship Technology, Cochin University of Science & Technology on “Propeller Radiated Noise”.



Fig.14.3.12. Keynote address by Dr. Manu Korulla Fig.14.3.13. Keynote address by Dr. Ananya Sen Gupta



Fig.14.3.14. Invited talk by Mr. Jineesh George, Group Head, Transducers Group, Naval Physical and Oceanographic Laboratory, Kochi



Fig.14.3.15. Invited talk by Dr. Gopu R. Potty, Professor, Department of Ocean Engineering, University of Rhode Island, USA



Fig.14.3.15. Invited talk by Dr. D. D. Ebenezer, Adjunct Faculty, Department of Ship Technology, Cochin University of Science & Technology



Fig.14.3.16. Invited talk by Dr. Favas T. K., Department of Ship Technology, Cochin University of Science & Technology.



Fig.14.3.17. Delegate receiving presentation certificate from the session chairs.



Fig.14.3.18. Talk on Advanced Communication Technologies by Shri. S. Gopalan, DDG (Compliance), DoT, Ernakulam.

Out of the 25 manuscripts submitted for evaluation, 16 papers were accepted for oral presentation and all 16 of them were eventually presented. These presentations were organized in the following technical sessions covering a broad-spectrum of topics of interest to the SYMPOL community. · Ocean Acoustics · Artificial Intelligence for Ocean Exploration · Signal Processing · Navigation, Communication, Instrumentation & Localization While the research sessions of SYMPOL spanned two days, the third day was dedicated for a workshop entitled “Advanced Communication Technologies”, conducted by Department of Telecommunications, India.

Announcement

The eighteenth biennial Symposium on Ocean Technology (SYMPOL 2025) is scheduled to be held in the Department of Electronics of the Cochin University of Science and Technology, Kochi during 10-12 December 2025.

SYMPOL 2023

at the magnificent Shores of Great Cochin
13-15 December 2023



Main Theme

Technology for Sustainable Oceans

- ▶ Noise Mitigation
- ▶ Artificial Intelligence for Ocean Exploration

The Seventeenth Biennial Symposium on Ocean Technology, 2023 (SYMPOL 2023)

organised by department of electronics, cochin university of science and technology, Kochi is scheduled to be held during 13-15 december 2023

CALL FOR PAPERS

Papers are invited for SYMPOL 2023. The papers prepared in the template downloadable from <https://sympol.cusat.ac.in> may be submitted online.

STUDENT POSTER PROGRAM

Papers are also invited for the student poster program. All full-time postgraduate engineering/science students or research scholars enrolled in an accredited university are eligible to be considered for the student poster competition. Accepted papers will be published in the Proceedings of SYMPOL 2023 and IEEE Xplore. For further details contact the SYMPOL Secretariat at sympol@cusat.ac.in or supriya@cusat.ac.in

TOPICS

- Underwater Sensor Technology
- Underwater Signal Processing
- Underwater Imaging
- Seismic Signal Processing
- Acoustic Holography
- Ocean Exploration Systems
- Remote Sensing
- Tsunami Warning Systems
- Underwater & Surface Communications
- Sonar Technology
- Electronic Navigation Aids
- Underwater Telemetry/Command & Control
- Marine Environment & Bioelectronics
- Marine Measurements & Data Logging
- Oceanography & Meteorology
- Marine Renewable Energy & Storage
- Underwater Acoustics & Acoustical Oceanography
- Non-acoustic Means for Underwater Applications
- Ocean Vehicles & Floating Structures
- Ocean Observing Platforms & Instrumentation
- NDE for Ocean Structures/Cables/Pipelines
- Offshore Structures & Technology
- Ocean Data Modeling & Information Management
- AI & Machine Learning in Ocean Technology

SCHEDULE

- Submission of Full Paper Text : 31st August 2023
- Submission of Final Paper : 15th October 2023
- Communication of Acceptance : 30th September 2023
- Symposium Dates : 13-15 December 2023

SYMPOL 2023

Fig.14.3.19. Brochure of the International Symposium on Ocean Technology (SYMPOL 2023)

6. WORLD ENVIRONMENT DAY CELEBRATION-2023

As part of World Environment Day on June 5th 2023 the Society of Marine Biologists (SOMB), Department of Marine Biology, Microbiology, and Biochemistry in association with Kerala State Pollution Control Board, conducted full day awareness programme to provide techniques prevent plastics and microplastics reaching the oceans. A Talk was arranged on 'Beat Plastic Pollution' by Shri.Krishnan M.N, Environmental Engineer, Kerala State Pollution Control Board. Quiz competition and poster designing completion for college students were also conducted on the theme “Beat Plastic Pollution”. There was active participation of students from different colleges and nearby Institutions. Following these events, planting of trees was done in the Lakeside campus and distribution of cloth bags was done. On June 2nd, 2023 SOMB hosted an essay writing competition on "Microplastic Pollution" and a photography contest titled "Celebrating Ocean's Majesty," both attracting active participation from various colleges and Institutions.

World Environment Day
JUNE 5

10:00 am:- **QUIZ COMPETITION**
(1 team- 2 individuals)

1st- Rs. 5,000/-,
2nd – Rs.3,000/-

Register on or before 01/05/2023
societyofmarinebiologists@gmail.com

WORLD ENVIRONMENT DAY
5 JUNE, 2023

TALK ON
"Beat Plastic Pollution"
by

SHRI. KRISHNAN M N
ENVIRONMENTAL ENGINEER
Kerala State Pollution Control Board
Eloor, Ernakulam

Programme Schedule

- 10:00 am - Quiz Competition
- 02:00 pm - 03:00 pm - Talk by Shri. Krishnan M N
- 03:00 pm- Prize and Certificate Distribution
- 03:30 pm- Tea
- 04:00 pm- Planting of tree

Participation Certificate for all of those who attend programme

Fig.14.3.20. Brochure of the Talk on World Environment Day

7. LECTURE ON WORLD OCEAN DAY

As part of World Ocean Day lectures was delivered on 'Impact of pollution on Marine Ecosystems' at S.N.M College, Maliankara on June 6th 2024 to create an awareness among students about the future impacts of pollution by Dr. Priyaja P, Assistant Professor, Department of Marine Biology, Microbiology and Biochemistry and Dr. Abhilash S, Scientist, Advanced Centre for Atmospheric Radar Research. The audience targeted were college students, local people and panchayath members attended the function.



Fig.14.3.21. Brochure of the Talk on World Oceans Day

8. ONE DAY NATIONAL WORKSHOP “PRESENT DAY ADVANCEMENTS IN GEOSCIENCES, PAGE – 2024”

One-day National Workshop on Present Day Advancements in Geosciences was under RUSA 2.0 convened by Dr. Ajayakumar P, Assistant Professor, Dept. of Marine Geology & Geophysics on 7 February 2024. The workshop was organised with a focus on the following three themes.

- Coastal protection, development and sustainability in the context of Kerala

Dr. KK Ramachandran (Former Scientist, NCESS, Thiruvananthapuram)

- Unearthing secrets: the power of seismology in subsurface exploration

Dr. Padma Rao B (NCESS, Thiruvananthapuram)

- World ocean mineral resources with special references to the Indian offshore.

Shri. AC Dinesh (CTO, Geo Marine Solutions Pvt Ltd) &

(Former Director, GSI, Marine and Coastal Surveys, Mangalore)



Fig.14.3.22. Inauguration of ONE DAY NATIONAL WORKSHOP “Present Day Advancements in Geosciences, PAGE – 2024”



Fig.14.3.23. Participants of ONE DAY NATIONAL WORKSHOP- PAGE – 2024”



Fig.14.3.24. Talk by Dr. A.C. Dinesh, CTO, Geo Marine Solutions Pvt Ltd



Fig. 14.3.25. Talk by Dr. Padma Rao B, NCESS, Thiruvananthapuram

9. INTERNATIONAL CONFERENCE ON FRONTIERS IN MARINE SCIENCES (MARICON-2024)

The second international conference on Frontiers in Marine Sciences – MARICON 2024 was organized in association with National Centre for Polar and Ocean research (NCPOR), Goa and Indian national Science Academy (INSA) Scientific Committee on Antarctic Research (INSA-SCAR) during April 8-10, 2024 at School of Marine Sciences, Cochin University of Science and Technology (CUSAT). Marine Sciences being a highly interdisciplinary the focal themes were spread over 25 different theme areas. There was an excellent response to the Conference call and more than 450 abstracts were submitted for presentation under different theme areas. There was at least a couple of papers in each of the theme areas.

Formal inauguration of the conference was held at School of Marine Sciences, Lakeside Campus, CUSAT. The Chief Guest for the event was Prof. Harilal B Menon, Hon. Vice Chancellor of Goa University, who inaugurated the MARCON 2024 by lighting the traditional lamp. Hon. Vice Chancellor of CUSAT Prof. P.G. Sankaran; Director, NCPOR Dr. Thamban Meloth; Director, School of Marine Sciences and Organizing Convenor of MARICON-24, Prof. A.A. Mohamed Hatha; Dean, Faculty of Marine Sciences, Prof. S. Bijoy Nandan, and Prof. P.S. Sunil, Organising Secretary, MARICON-2024 were also present.

After the formal inauguration the technical sessions were held at 6 parallel venues. MARICON-24 had several eminent Keynote/ Invited Speakers from abroad namely Prof. Syed Hashsham from Michigan State University, USA; Prof. Maarten Loonen from Groningen University, The Netherlands; Prof. M. Satish Kumar and Prof. Iida Omori from Niigata University, Japan; Prof. PKSM Rahman from Liverpool John Moores University, United Kingdom, Prof. Shubha Satyendranath from Plymouth Marine Laboratory, United Kingdom. Experts from world renowned institutions such as NCPOR, National Centre for Earth System Sciences (NCESS), ICAR - Central Institute for Brackishwater Aquaculture (CIBA), ICAR - Central Institute of Marine Fisheries Research Institute (CMFRI), ICAR - Central Institute of Fisheries Technology (CIFT), Indian Institute of Space Technology (IIST), CSIR - National Institute of Oceanography (NIO), ICAR - National Institute of Fisheries and Post Harvest Technology and Training (NIPHATT), Delhi University, Kerala University of Fisheries and Ocean Sciences (KUFOS), Mahatma Gandhi University, University of Kerala delivered invited lectures on various theme areas. MARICON 2024 also witnessed active participation from various states in the country such as Tamil Nadu, Maharashtra, Goa, Karnataka, Uttar Pradesh, Rajasthan, Delhi and West Bengal Both oral and poster presentations were conducted, showcasing diverse research and advancements in marine sciences.

Major themes of the conference included polar science, aquatic animal health and management, marine genomics, marine pollution and ecotoxicology, marine bio prospecting of natural products and drugs, marine biodiversity and conservation, advancements in aquaculture, coastal processes and estuarine dynamics, isotope geochemistry, Geomarine resources and exploration, Submarine groundwater discharge and mapping, Societal applications of marine geosciences, Ocean and climate change, Marine biogeochemical dynamics, Marine policies and regulations, Remote sensing application in earth system sciences, Quaternary environment and paleoclimate, Environmental geosciences and geohazards, Fisheries and food security, Deep continental studies and geodynamics, Atmospheric modelling, Air-sea interactions, Climate modelling, Ocean observation systems, and Aerosol and air quality. Best poster and oral awards were given to each session, recognizing outstanding contributions in various fields.

In order to meet the costs of organizing such a big event as MARICON-24, we have approached various organizations for funding support. We thankfully acknowledge the funding/ sponsorship support received from Ministry of Earth Sciences (MoES), Govt. of India; MoES-NCPOR, DST-SERB, Govt. of India; CMFRI, NCESS, NIO, CIFT, NIPHAAT, MPEDA, Ocean Society of India and Cochin Shipyard. Industry support from BD and Leica Microscopes are thankfully acknowledged. MARICON-24 successfully brought together leading scientists and researchers from around the globe, facilitating knowledge exchange and collaboration in marine sciences and associated areas. The diverse range of topics covered and the high level of participation underscored the conference's significance in advancing marine research and addressing critical environmental challenges.

The conference came to an end with the valedictory function on 10th evening, which was chaired by Dr. George Ninan, Director, ICAR - Central institute of Fisheries technology. Prizes were distributed to top two papers under various themes, both in oral and poster category. Overall, International Conference MARICON-2024 was a grand success. We take this opportunity to thank everyone involved in the successful conduct of MARICON-24.



Fig.14.3.26. A glimpse of the inaugural session of Maricon- 24



Fig.14.3.27. Organising Members of MARCON 2024 with invited speakers

10. WORKSHOP ON “INTEGRATION AND APPLICATION OF GENOMICS IN MANGROVE CONSERVATION”

Mangroves are vital parts of coastal ecosystems, providing various benefits, such as habitat for fish and other wildlife, protection from storms, and carbon sequestration. However, mangroves are being threatened by various factors, including climate change, pollution, and habitat destruction. Genomics can be a powerful tool for understanding and conserving mangroves. By studying the genetic diversity of mangroves, we can learn more about their adaptation to different environments, identify species that are at risk of extinction, and develop strategies for conservation. Two-day faculty workshop for the targeted participants from nearby colleges on the topic “Integration and application of Genomics in Mangrove conservation” was conducted on 25th -26th June 2024 at Department of Biotechnology, Cochin University of Science and Technology. The workshop was funded by SERB SRG. A total of 16 participants – faculty in various aided and unaided colleges who are closely working in plant science attended the workshop.

The following topics were discussed in the two-day session with thorough lab exposure

- Use of genomics to identify and characterize mangrove species
- Development of genomic tools for assessing the health of mangrove ecosystems
- The application of Next Generation sequencing techniques to mangrove restoration and conservation

TOPICS TO BE COVERED :-

- HOW TO WRITE A PROJECT PROPOSAL
- POPULATION GENETICS
- NEXT GENERATION SEQUENCING
- GENOME EDITING TECHNOLOGY

HANDS-ON TRAINING :- IN PLANT DNA ISOLATION FROM MANGROVES, NEXT GENERATION SEQUENCING ANALYSIS, SSR IDENTIFICATION AND PRIMER DESIGNING, MICROSATELLITE MARKER AMPLIFICATION ANALYSIS AND DNA BARCODING.

REGISTRATION FEE :-

THERE IS NO REGISTRATION FEE, INTERESTED CANDIDATES CAN REGISTER (ON OR BEFORE 22 TH JUNE, 2024) USING THE GOOGLE LINK FORM:
<https://forms.gle/x7p3CS0zmyCKD1qh9>

SELECTION CRITERIA :-

SELECTION WILL BE DONE BASED ON FIRST-COME –FIRST-SERVE BASIS AND THE CONFIRMED CANDIDATES WILL BE NOTIFIED BY EMAIL.THE MAXIMUM NUMBER OF PARTICIPANTS WILL BE TWENTY, DO CONTACT US FOR ANY ENQUIRES VIA.
E-mail : sreekantp.mangrove@gmail.com

ORGANIZING SECRETARY :-

Dr. Sreekant P.M
Assistant Professor & PI
SERB Special Cell Project
Department of Biotechnology

ORGANIZING COMMITTEE :-

All Field Biotechnology Faculty and Students

Address for Communication

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sreekantp@gmail.com
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"INTEGRATION AND APPLICATION OF GENOMICS IN MANGROVE CONSERVATION".

Sponsored by

ANUSANDHAN NATIONAL RESEARCH FOUNDATION (ANRF)
Science and Engineering Research Board, [SERB]

On

25 and 26 JUNE 2024

Two Days Faculty Training Workshop for the targeted participants from nearby colleges

SERB-SCIENTIFIC - SOCIAL-RESPONSIBILITY POLICY

at

Cochin University of Science and Technology
Department of Biotechnology
Main Campus, Thrikkakara

Fig.14.3.28. Brochure of the two-day workshop programme conducted at Department of Biotechnology, CUSAT



Fig.14.3.29. Participants of Integration and application of Genomics in Mangrove conservation

11. OUTREACH PROGRAMME AT INTERNATIONAL EXPERT GROUP OF THE NSR ENVIRONMENTAL MONITORING PROJECT

In alignment with Sustainable Development Goal 14, "Life Below Water," Senior Professor Dr. S. Bijoy Nandan, Vice Chancellor of Kannur University and Dean of the Faculty of Marine Sciences at CUSAT, who serves as a Permanent Expert on the International Expert Group (IEG) of Lomonosov Moscow State University's Marine Research Center (LMSU MRC) in the fields of Marine Biology, Marine Pollution, and Polar Biology, was invited to deliver an online lecture. The lecture, titled "Perspectives on Indian Arctic Research: Leveraging Insights for the North Sea Route," primarily focused on Indian Arctic research, covering areas such as atmospheric, biological, marine, hydrological, and glaciological studies. It addressed critical issues, including the unprecedented climate changes impacting economic security, water security, and sustainability. The lecture also documented impact assessments related to coastal and transit Arctic shipping, the environmental implications for Russian Arctic seas, the North Sea Route (NSR) port infrastructure, and discussed aspects like pollution, biodiversity, and vulnerability. Additionally, it explored potential methods for monitoring shipping impacts, with a focus on spatial and temporal coverage. The meeting was attended by representatives from 18 prominent Russian and international research institutions, associations, and public organizations, including key stakeholders. Together, they evaluated the comprehensive NSR environmental monitoring program and developed recommendations for its ongoing improvement.

12. ONLINE NATIONAL SEMINAR ON MICROFOSSILS: SIGNIFICANCE IN ENVIRONMENTAL RECONSTRUCTION

A National Seminar on the theme Microfossils: Significance in Environmental Reconstruction was jointly organised by CUSAT, University of Madras and National College Trichy, on 26 June 2024 to make students and participants aware about the important marine and fresh water microorganisms and their application in various aquatic domains. It was intended refresh the knowledge on the domain micropaleontology and learn about the experts' fieldwork experiences.

DEPARTMENT OF GEOLOGY, UNIVERSITY OF MADRAS
DEPARTMENT OF MARINE GEOLOGY AND GEOPHYSICS, COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT)

DEPARTMENT OF GEOLOGY, NATIONAL COLLEGE, TRICHY

CORDIALLY INVITE YOU FOR THE NATIONAL SEMINAR ON MICROFOSSILS: SIGNIFICANCE IN ENVIRONMENTAL RECONSTRUCTION

RETIREMENT FELICITATION OF Dr. S.M. HUSSAIN
ON 26 JUNE 2024, 10.00 AM - 4.00 PM [ONLINE MODE]

EMINENT SPEAKERS

Dr. RAJIV NIGAM
Chief Scientist (Retd.), Geological Oceanography Division, CSIR-National Institute of Oceanography (NIO), Goa

Prof. DEVESH K. SINHA
Director, Delhi School of Climate Change & Sustainability (DSOCCS), Professor of Oceanography and Marine Geology, Department of Geology, University of Delhi

Prof. S.M. HUSSAIN
Former Head & Professor, Department of Geology, University of Madras

Organising Chairman & Convener:
Prof. M SURESH GANDHI
Professor & Head, Dept. of Geology, University of Madras, Chennai

INAUGURATION 10.00 AM TO 10.25 AM
26 JUNE 2024

About the Programme
Dr. MOHAMMED NOOHU NAZEER
Co-convener and Assistant Professor, Department of Marine Geology and Geophysics, CUSAT

Welcome address:
Prof. M. SURESH GANDHI
Organising Chairman & Convener, Professor & Head, Department of Geology, University of Madras

Presidential address:
Prof. S.P. MOHAN (Retd.)
Former Head, Department of Geology, University of Madras

Inaugural address:
Prof. A. A. MOHAMED HATHA
Director, School of Marine Sciences, CUSAT, Kochi

Felicitation:
Prof. P.S. SUNIL
Head, Department of Marine Geology and Geophysics, CUSAT

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Vote of Thanks:
Dr. K. RADHAKRISHNAN
Co-convener, Assistant Professor, Department of Geology, National College, Trichy

Fig.14.3.30. Brochure of the online National seminar jointly Organised by CUSAT, University of Madras and National College, Trichy

13. DBT- BIOINFORMATICS CENTRE FOR MARINE BIORESOURCE CONSERVATION AND SUSTAINABLE UTILIZATION

Focal theme of the Bioinformatics (BI) Centre is the human resource development in bioinformatics and computational biology pertaining marine bioresource conservation and sustainable utilization. The research pertains to perturbed marine ecosystem, targeted computer aided drug discovery from marine biological systems, synthetic biology platform for marine biomolecules and model organisms in assessing impacts of xenobiotics in marine ecosystem besides processes and products in the respective disciplines. In addition to secondary data, primary data are getting generated utilizing the resources in the project and from that of other resources. The human resource development in bioinformatics at various levels as higher secondary, under graduate, postgraduate, doctoral, postdoctoral and faculty levels are an ongoing activity of the DBT-Bioinformatics Centre, besides teaching Bioinformatics and Computational Biology to the students of M.Tech in Marine Biotechnology (DBT sponsored programme) at the Centre and providing bioinformatics research support to the internal and external research projects. The Next Generation Sequencing Facility and DNA sequencing facility established at the Centre funded by the Kerala State Government had successfully sequenced the genomes of seventeen organisms and the data generated is being analysed by the DBT-Bioinformatics Centre. The data generated from molecular taxonomy of marine microorganisms, fishes, microalgae, macroalgae, aquaculture pathogens, aquatic animal viruses and analyses of gut microbiome and metagenome will form a part of the database of the Bioinformatics Centre. The CVJ Centre for Metabolic Engineering and Synthetic Biology, Functional Genomics and Metabolomics Platforms getting established at the University is closely working with the DBT-Bioinformatics Centre. The Centre train 77 persons during the period in computational biology and bioinformatics and molecular taxonomy and phylogeny at various levels such as higher secondary school, graduate postgraduate, doctoral and postdoctoral and faculty levels.; 24 students in computational biology and bioinformatics.

Outreach Activities by DBT- BIC

1. Evolutionary Genomics

Hosted a session on 'Evolutionary Genomics' as a part of the course 'An Introduction to Biological Evolution' conducted by LUCA Science Portal, Centre for Science in Society, CUSAT and Kerala Sasthra Sahithya Parishad on 24.06.2023. Participants were selected from forty candidates from the public including school/college students, research scholars, school/college teachers, professors etc. Dr. Valsamma Joseph, Dr. Jayesh Puthumana and Dr. Silpa Bhaskaran delivered talks on Evolutionary genomics and Bioinformatics. The lecture sessions were followed by the experimental lab visit where the demonstration of DNA isolation was provided.



Fig.14.3.30. Session on 'Evolutionary Genomics' as a part of the course 'An Introduction to Biological Evolution' conducted by LUCA Science Portal, Centre for Science in Society, CUSAT

2. R Programming in house training Programme

An in-house training on R Programming was conducted from 19.03.2024 to 26.03.2024 (during 2PM to 4.30PM). 18 participants were regular and distributed certificates to them.

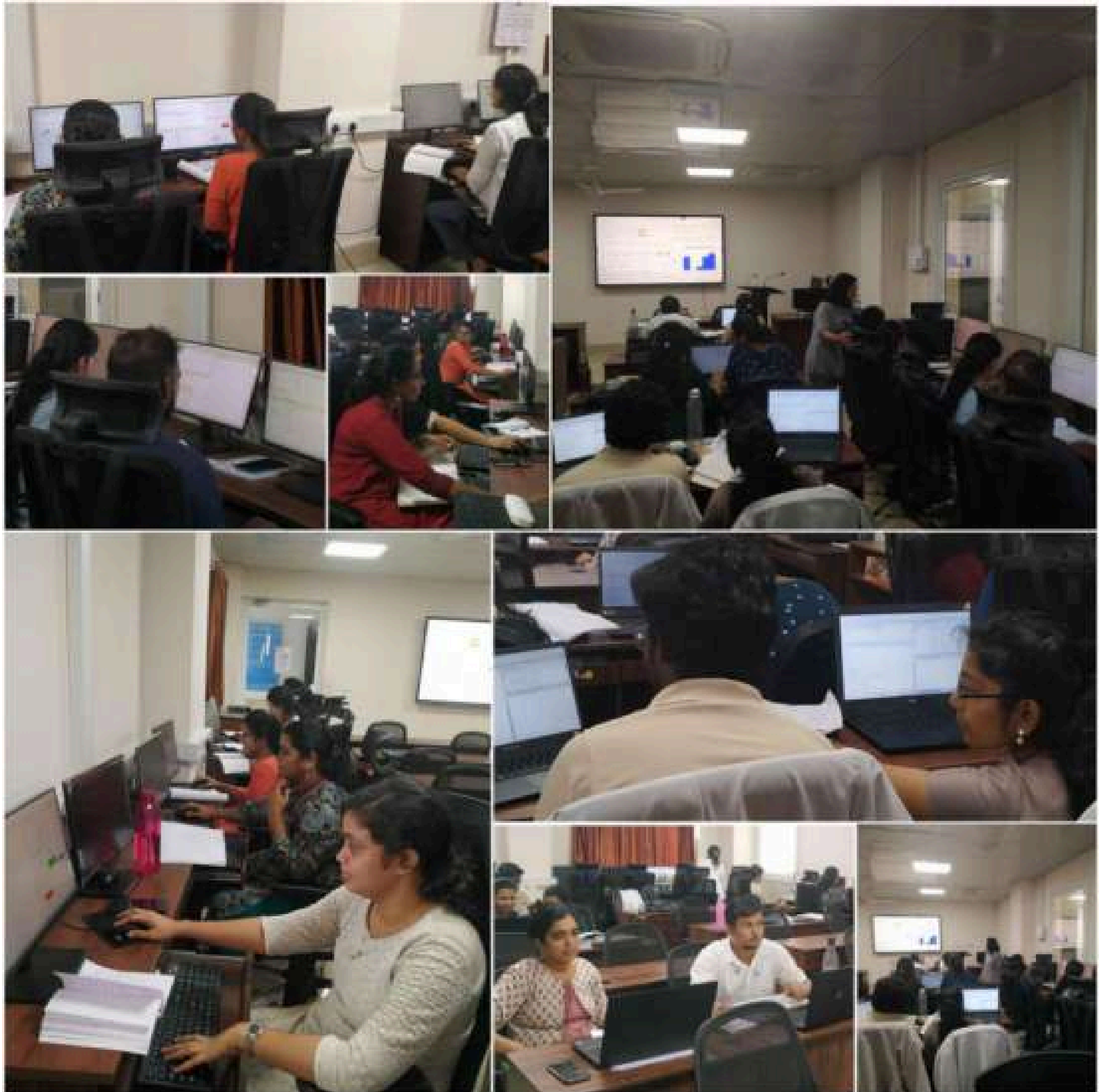


Fig.14.3.31. R Programming in house training Programme