

## KEY QUESTIONS

1. How can we better understand feedbacks between climate change and biodiversity?
2. How do we maintain a balance between bioresource management and socio-economic development?
3. Is spatial biodiversity special? - Geomatics perspective!
4. How do cryospheric changes in polar regions and high mountains affect biodiversity, water cycle and global climate?
5. How can we better predict and manage the natural hazards and extreme weather events?
6. How can we better understand the intricacies between terrestrial and marine bio-geochemical cycles?
7. What are the ways forward to achieve the net-zero targets through nature-based solutions?

## THEMES/TECHNICAL SESSIONS

- I. Biodiversity and Land Cover Dynamics
- II. Geomatics and Data Analytics
- III. Forest and Agricultural Resources & Biotechnology
- IV. Climate, Extreme Weather and Natural Hazards
- V. Global Cryosphere and The Himalayas
- VI. Biogeochemistry - Terrestrial and Marine
- VII. Nature-based Solutions and Net-Zero Targets

## MEMORIES OF BDCC-2010



BDCC-2023

bdcciit2023@gmail.com

BDCC-2023

bdcciit2023@gmail.com

## INTRODUCTION

Healthy ecosystems constitute healthy planet. In this connection, ecosystem restoration is a win-win strategy that is crucial to attain Sustainable Development Goals (SDGs) and climate targets of the Paris Agreement. The on-going climate change is unequivocally anthropogenic and together with other stressors like deforestation, land degradation, biological invasion, etc. has resulted in species losses and shifts in landscape dynamics. The carbon cycle and the water cycle, arguably the two most important large-scale processes for life on Earth, depend on biodiversity at genetic, species, and ecosystem levels and can yield feedbacks to climate change.

Geomatics and data analytics have revolutionized our understanding on the impacts of climate change and ecosystem responses. The effects of climate change are particularly felt in fragile ecosystems like that of the Himalayas which harbor rich biodiversity and support several dependent communities. Climate extremes and natural hazards are becoming more prevalent especially in vulnerable ecosystems. By joining hands with experts from various science arenas such as ecology, oceans, cryosphere and atmosphere, it would be easier to build climate change-resilient ecosystems as a way of nature-based solutions to realize SDGs and net-zero targets.

## MEMORIES OF BDCC-2018



BDCC-2023

bdcciit2023@gmail.com

Welcome to IIT Kharagpur



Commemorating the UN Decade on Ecosystem Restoration  
**3<sup>rd</sup> International Workshop on**



# BIODIVERSITY AND CLIMATE CHANGE -

## Sustainable Development Perspective



3<sup>rd</sup> BDCC 2023  
(16-19 February 2023)



Centre for Ocean, River, Atmosphere and Land Sciences  
(CORAL)

**Indian Institute of Technology Kharagpur**

BDCC-2023

bdcciit2023@gmail.com



## BDCC-2023

bdccit2023@gmail.com

## Patrons

S Chandrasekhar  
(DST, New Delhi)VK Tewari  
(IIT Kharagpur)S Somanath  
(ISRO, DOS, Bengaluru)M Ravichandran  
(MoES, New Delhi)P Kumar  
(DOWR, New Delhi)RS Gokhale  
(DBT, New Delhi)A Gupta  
(SERB, New Delhi)M Mohapatra  
(IMD, New Delhi)H Pathak  
(ICAR, New Delhi)

## Advisors

S K Dube, Ex-Director, IIT Kharagpur  
S Nayak, NIAS, Bengaluru  
B Pani, DU, Delhi  
SK Barik, NEHU, ShillongT Mohapatra, ICAR, New Delhi  
PS Roy, WRII, New Delhi  
VP Singh, TAMU, USA  
SP Singh, CEDAR, DehradunA.K. Shasany, NBRI, Lucknow  
S Mukherjee, Forest Dept., West Bengal  
D Ray, Forest Dept., West Bengal  
YVN Krishna Murthy, IIST, Trivandrum  
Prakash Chauhan, NRSC, Hyderabad  
B Pradhan UTS, Australia  
RP Singh, IIRS, Dehradun  
SK Srivastav, NRSC, New Delhi  
E Sharma, ATREE, Darjeeling  
A Orr, British Antarctic Survey, UK  
C Biradar, CIFOR-ICRAF, New Delhi  
SWA Naqvi, IIT Kanpur  
N Khare, MoES, New Delhi  
HS Debnath, WBBB, Kolkata  
BK Bhattacharya, SAC, Ahmedabad  
AS Raghunathan, BHU, VaranasiS Behera, JAMSTEC, Japan  
A Patra, IIT Kharagpur  
SK Popli, Forest Dept., Odisha  
Raj Kumar, SAC, Ahmedabad  
S Nautiyal, GBP-NIHE, Almora  
SC Shenoi, INCOIS, Hyderabad  
VM Tiwari, NGRI, Hyderabad  
PK Trivedi, CIMAP, Lucknow  
S Paul, Forest Dept., Odisha  
H Nagendra, Azim Premji Univ., Bengaluru  
ML Khan, Dr. HSG Vishwavidyalaya, Sagar  
J Dash, Univ. of Southampton, UK  
UC Mohanty, IIT Bhubaneswar  
T Meloth, NCPOR, Goa  
GA Ramadass, NIOT, Chennai  
AK Saraf, IIT Roorkee

## Organizing Committee

Chairman - Krishna Kumar, Head, CORAL, IIT Kharagpur

T Das, Forest Dept., West Bengal  
VM Chowdary, NRSC, Hyderabad  
TP Singh, SIG, Pune  
S Sharma, GBP-NIHE, Leh  
PK Srivastava, BHU, Varanasi  
CP Singh, SAC, Ahmedabad  
C Sudhakar Reddy, NRSC, Hyderabad  
NK Dhal, CSIR-IMMT, Bhubaneswar  
G Talukdar, WII, Dehradun  
S Sundarapandian, Pondicherry Univ.  
A Roy, IIRS, Dehradun  
AA Khuroo, Univ. of Kashmir, Srinagar  
M Kale, C-DAC, Pune  
H Padalia, IIRS, Dehradun  
N Sharma, DST, Sikkim  
P Tripathi, ICIMOD, Nepal  
P Das, WRII, New Delhi  
SK Mukhopadhyay, MoES, New Delhi  
H Biswas CSIR-NIO, Goa  
SC Sahu, MSCBDU, Baripada  
C Jegannathan, BIT, Mesra  
R Pathania, IIT Roorkee  
SK Sahoo, PRSC, Chandigarh  
BK Prusty, IIT KharagpurT Ashok Kumar, Forest Dept., Odisha  
SK Palita, CDO, Odisha  
V Jain, IIT Gandhinagar  
A Pandey, IIT Roorkee  
S Goel, Univ. of Delhi, Delhi  
A Chakraborty, IIT Kharagpur  
D Swain, IIT Bhubaneswar  
SK Behera, CSIR-NBRI, Lucknow  
M Jena, Berhampur Univ., Odisha  
B Parida, CUJ, Jharkhand  
VS Chitale, GIZ, New Delhi  
A Chawla, CSIR-IHBT, Himachal Pradesh  
G Mohapatra, CSIR-4PI, Bengaluru  
R Joshi, GBP-NIHE, Gangtok  
D Samanta, NTU, Singapore  
JA Dar, SRM-AP Univ., Amaravati  
S Rathore, UTAS, Australia  
N Patidar, NIH, Roorkee  
K Chakraborty, INCOIS, Hyderabad  
MA Paul, ISRO HQ, Bengaluru  
N Sahu, Univ. of Delhi, Delhi  
N Sahu, IGNTU, Amarkantak  
PS Ranhotra, BSIP, Lucknow  
BK Dubey, IIT Kharagpur

## Organizing Secretary

Secretary : MD Behera (mdbehera@coral.iitkgp.ac.in/+91-3222-281802)

Jt. Secretary : P Chakraborty (pchak@coral.iitkgp.ac.in/281822)  
P Deb (pranab@coral.iitkgp.ac.in/281806)

Location: Situated about 120 km west of Kolkata, Kharagpur can be reached in about 2 hours by train from Howrah railway station or 3 hours from Kolkata Airport. The Institute is a 10-minute drive (5 km) from Kharagpur railway station. Private taxi, auto or rickshaw can be hired to reach the Institute.

Weather: Winter (October to February) is moderate and pleasant (10 to 25°C). Summer (March to June) is hot (25 to 40°C) and sometimes humid. Rains occur normally between June and September.

For more information: <http://www.iitkgp.ac.in/>

BDCC-2023

bdccit2023@gmail.com

## BDCC-2023

bdccit2023@gmail.com

## TENTATIVE SCHEDULE

16.02.2023

1400 hrs  
1430-1630 hrsRegistration  
Tutorial - I/II(Species Distribution Modelling using Machine Learning/  
Soft Techniques in Environmental Geochemistry and Sediment Analysis)

Tutorial-III/IV [\*\*Tea Break\*\*]

1630-1830 hrs

(Geomatics and Data Analytics using Open Source - GEE/  
A hierarchy of glacier models)

1900-2200 hrs

Interactions &amp; Kick-off Dinner

17.02.2023

0800-0920 hrs  
0925-1130 hrs

\*\*Breakfast\*\*

Inauguration

\*\*Tea Break\*\*

1130-1200 hrs

Plenary Talks

1200-1330 hrs

\*\*Lunch Break\*\*/ Award Contest- POSTER

1330-1430 hrs

Campus visit/ Networking/ \*\*Tea Break\*\*

1430-1600 hrs

Technical Session /Plenary Talks

1630-1830 hrs

Cultural Program

1900-2030 hrs

\*\*GALA Dinner\*\*

2030-2200 hrs

18.02.2023

0800-1030 hrs

\*\*Breakfast\*\* / Technical Session

1100-1130 hrs

\*\*Tea Break\*\*

1130-1330 hrs

Technical Session

1330-1430 hrs

\*\*Lunch Break\*\*

1430-1630 hrs

Technical Session/ Journal SIs Meeting

1600-1630 hrs

\*\*Tea Break\*\*

1630-1800 hrs

Technical Session Keynote Talks

1800-2000 hrs

Valedictory and Feedback

2030-2200 hrs

\*\*Dinner\*\*

19.02.2023

0630 Onwards -Field visit (Similipal BR/Sundarbans/-) - To be Confirmed

Best Oral &amp; Poster Award Contest: Prizes will be awarded in each category.

Registration (including food, excluding Accommodation)

Before 10/02/2023

After 10/02/2023

For Scientists/officials  
from academia/others:

Rs. 6000/-

Rs. 7000/-

For Students:

Rs. 4500/-

Rs. 5000/-

(\*approval certificate required)

Accommodation\*: (in IIT Guest House/ TGH, Limited)

Double Room with double occupancy : Rs. 1500/- + 12% GST per day (approx.)

Single Room with single occupancy : Rs. 1000/- + 12% GST per day (approx.)

Hostel Accommodation for Students : Rs. 700/- per day (approx.)

## Important Dates

Abstract Submission Deadline Upto 05<sup>th</sup> February, 2023

(Up to 500 words in MS Word/PDF format)

Abstract Acceptance Intimation Upto 06<sup>th</sup> February, 2023

Publication in Peer-reviewed International Journals: Selected papers shall be published in Peer-reviewed International Journals.

Application Procedure: Fill in your details and submit your Abstract Title, keywords, affiliations at 12 Times New Roman Font through <https://forms.gle/hacPix4fDEw6qQz6A> or via email to [bdccit2023@gmail.com](mailto:bdccit2023@gmail.com). \*Students need (i) to send/carry a certificate from their University/Institute or copy of Valid ID card and (ii) to specifically mention if their paper to be considered for ORAL/POSTER Award contest (iii) May apply for one tutorial each day.\*Registration Fee: DD in favor of 'CEP-STC, IIT Kharagpur' (or) Electronic transfer to Name: CEP-STC, Savings A/C No: 95562200002955, IFSC: CNRB0019556 & inform with detail proof to [bdccit2023@gmail.com](mailto:bdccit2023@gmail.com).For more information, visit <https://sites.google.com/view/bdcciitkgp2023/home>Contact Information: M.D Behera, Organizing Secretary  
3<sup>rd</sup> BIODIVERSITY AND CLIMATE CHANGE WORKSHOP  
CORAL, Indian Institute of Technology Kharagpur  
Tel. 91-3222-281802/1822/1806, FAX- 91-3222-255303

## Centre for Ocean, River, Atmosphere and Land Sciences (CORAL)

<http://www.iitkgp.ac.in/departments/CL>Centre for Ocean, River, Atmosphere and Land Sciences (CORAL) at IIT Kharagpur was established on 16<sup>th</sup> March, 2005. The important mission of the Centre is to identify & address the challenges of the Earth Systems Science & Technology.

## Vision

To impart quality education in Earth System Science &amp; Technology to meet the national requirement

Advance research and technology development on multi-disciplinary aspects of Environmental &amp; Climate Sciences and Land-Ocean related issues

## Special Issues in Elsevier/ Springer Journals Proposed

1. Journal of Environmental Management
2. Biodiversity and Conservation
3. Remote Sensing Applications: Society and Environment
4. Marine Pollution Bulletin
5. Applied Geography
6. Environmental Monitoring and Assessment
7. Tropical Ecology

## In Association with

1. Indian Society of Geomatics, Kharagpur Chapter
2. International Society of Tropical Ecology, Varanasi
3. CSIR-National Botanical Research Institute, Lucknow
4. IESD, Banaras Hindu University, Varanasi
5. GB Pant National Institute of Himalayan Environ., Almora
6. Dr. Harisingh Gour Vishwavidyalaya (A Central Univ.), Sagar
7. Central University of Odisha, Koraput
8. National Institute of Ecology, New Delhi

## Session In-Charge

ANV Satyanarayana, IIT Kharagpur  
MK Dash, IIT Kharagpur  
AK Rai, IIT Kharagpur  
N Pal, IIT KharagpurJ Kuttippurath, IIT Kharagpur  
C Shaji, IIT Kharagpur  
RR Nayak, IIT Kharagpur

BDCC-2023

bdccit2023@gmail.com