Curriculum Vitae

Biplab Sadhukhan, Ph.D.

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Education

Ph.D. in Physical Oceanography, Indian Institute of Technology Kharagpur, India	2017 - 2024
Master of Technology in Earth System Science and Technology, Indian Institute of Technology Kharagpur, India	2015 - 2017
Bachelor of Technology in Aerospace Engineering, JIS Institute of Aviation, Indira Gandhi National Open University, India	2009 - 2013

Professional Experience (8 years)

Postdoctoral research Associate at Ocean Process Analysis Laboratory, University of New Hampshire, New Hampshire, USA ➢ Working as a part of NSA funded project, to find the response of coastal sea level height to atmospheric variables over the East coast of USA. ➢ Use of numerical modelling and Machine Learning Techniques	2024 - present
Project Assistant in the lab of Prof. Arun Chakraborty, CORAL, Indian Institute of Technology Kharagpur, India. ➢ Worked under the project title "Long-Term Master Plan of Digha Shankarpur Planning Area". ➢ Use of numerical modeling and GIS Mapping techniques.	2023 - 2024
Research Fellow in the lab of Prof. Arun Chakraborty, CORAL, Indian Institute of Technology Kharagpur, India. ➢ Identification of the role of local and remote forcing on the upper surface variability in association with the air-sea interaction processes over the Bay of Bengal. ➢ Use of numerical modeling and long-term data analysis in interannual and decadal timescales.	2017 - 2022

Project Student in Ocean Observation Laboratory under Dr. Jossia Joshep, National Institute of Ocean Technology (NIOT), Chennai, India — 2016 - 2017

- Worked on the Validation of satellite and buoy data
- Observed long-term variation of wave climate in the North Indian Ocean and prediction of climate change.
- Investigation of wave energy in the Indian coastal seas.

Fellowships and grants

GATE fellowship for Senior Research Fellow from Ministry of Human Resource, Govt. of India for the amount of Rs 35000 per month — 2019 - 2022

GATE fellowship for Junior Research Fellow from Ministry of Human Resource, Govt. of India for the amount of Rs 31000 per month — 2017 - 2019

GATE fellowship for Teaching Assistantship from Ministry of Human Resource, Govt. of India for the amount of Rs 12400 per month — 2015 - 2017

Awards and Honors

- Awarded full travel grant and daily allowances from IIT Kharagpur to attend and present my work at the international conference (AOGS-2023) held in Singapore.

Supervision and Mentoring experience

- Mentored 2 undergraduates in their summer internship, 2 post-graduate students to complete their thesis, and 2 Ph.D. students for the competition of thesis.

Academic Service

- Volunteered as a student member to management and support at the 20th annual meeting of the Asia Oceania Geosciences Society (AOGS-2023) in Singapore.
- Organizing member of the National Conference on Challenges in Earth System Sciences for Global Sustainability, 2020, and Alumni meet in IIT Kharagpur
- Actively participated as a core organizing member of the International Conference on Climate Change Impacts, Vulnerabilities, and Adaptation: Emphasis on India and Neighborhood, 2019 at IIT Kharagpur
- Elected as the departmental Research Scholar Representative (2019-2021) in CORAL, Indian Institute of Technology Kharagpur, India.
- Elected as General Secretary (Library) (2018-2019) at B.R. Ambedkar Hall of Residence, Indian Institute of Technology Kharagpur, India.

Skills

- Expertized in Ocean modeling – Regional Ocean Modeling System (ROMS), development of pre-processing, model run, and post-processing scripts.
- Worked in coupling numerical models like ROMS/CROCO and biochemical models.
- Worked on High–performance computing (HPC) Param-Sakti
- Suitable to work in both Windows and UNIX/LINUX operating software.
- Basic Knowledge of Windows Office, Excel, and the Internet.

- Specialized in working with different statistical tools used for data analysis MATLAB, Python, GRADs, CDO, NCO, FORTRAN, NCL, R, and ArcGIS.
- Other software: Photoshop, Coral Draw, Printing machinery
- Excellent writing skills and comfort with public speaking
- Ability to manage multiple tasks and projects simultaneously
- Hobbies - Making new friends, traveling, stamp collecting, watching movies
- Languages known – English, Hindi, Bengali, German

Publications

Journals

1. **Biplab Sadhukhan**, Arun Ckharaborty, K. J. Joseph, and R.Venkatesan (2019). "Long-term estimation of wave climate variability in the Western Bay of Bengal". IEEE Journal of Oceanic Engineering, 45(3), 871-886. doi: 10.1109/JOE.2019.2905733.
2. **Biplab Sadhukhan**, Arun Ckharaborty, and Abhishek Kumar (2021). "Role of external forcing on the seasonal and interannual variability of mixed layer depth over the Bay of Bengal using reanalysis datasets during 1980–2015". Dynamics of Atmospheres and Oceans, 93, 101200. https://doi.org/10.1016/j.dynatmoce.2020.101200.
3. **Biplab Sadhukhan and** Arun Ckharaborty (2023). "Role of local and remote forcing on the decadal variability of Mixed Layer Depth in the Bay of Bengal". Dynamics of Atmospheres and Oceans, 102, 101349. https://doi.org/10.1016/j.dynatmoce.2022.101349.
4. Abhishek Kumar, Arun Ckharaborty, **Biplab Sadhukhan**, (2023). "Sequential occurrence and development of three tropical cyclones in the Bay of Bengal in 2013". Dynamics of Atmospheres and Oceans, 102, 101363. https://doi.org/10.1016/j.dynatmoce.2023.101363.
5. Arun Chakraborty, Raghvendra Chandrakar, Sudhanshu Kumar, **Biplab Sadhukhan**, and Abhishek Kumar. (2023). "Analysis of marine heatwaves and biogeochemistry in the Northern Arabian Sea". Regional Studies in Marine Science, 103019. https://doi.org/10.1016/j.rsma.2023.103019.
6. Sudhanshu Kumar, Arun Chakraborty, Raghvendra Chandrakar, Abhishek Kumar, **Biplab Sadhukhan,** and Riyanka Roy Chowdhury. (2023). "Analysis of Marine Heatwaves over the Bay of Bengal during 1982-2021". Sci Rep 13, 14235. https://doi.org/10.1038/s41598-023-39884-y
7. Rajiv Kumar Srivastava, **Biplab Sadhukhan**, Arun Chakraborty, and R.K. Panda (2024). Bias Correction and Trend Analysis of Temperature and Rainfall in Eastern India. Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, 1-16. https://doi.org/10.1007/s40010-024-00876-w
8. Ramakant Nayak, **Biplab Sadhukhan**, Resmi Nayak, and Arun Chakraborty (2025). Characteristics of the Longest Duration and Highest Intensity Marine Heat Waves Over the Bay of Bengal in Recent Period. *Earth Systems and Environment*, 1-15.
9. **Biplab Sadhukhan** and Arun Chakraborty, (2024). Influence of local forcing on the sensitivity of the Mixed Layer Depth Variability over the Bay of Bengal using Numerical ROMS Simulations. (Under Review).

10. Subhadeep Maishal, and **Biplab Sadhukhan**, (2024). Prediction of the ENSO using Recurrent Neural Networks (RNNs) and Long Short-Term Memory (LSTM) supervised learning from other ocean indices. (Under Review).

Book Chapter

- **Biplab Sadhukhan,** R.K. Srivastava, Arun Chakraborty, and R.K. Panda (2023) "Scientific Evidence Supporting the Progression of Climate Change–Induced Drought through History." In Integrated Drought Management, Volume 1 (pp. 525-540). CRC Press. DOI: 10.1201/9781003276555-26.

Acknowledged In

- Sen, R., Francis, P. A., Chakraborty, A., & Effy, J. B. (2021). A numerical study on the mixed layer depth variability and its influence on the sea surface temperature during 2013–2014 in the Bay of Bengal and Equatorial Indian Ocean. Ocean Dynamics, 71, 527-54.

International/National Conference/ Workshops

Conferences

1. **American Geophysical Union Fall Meeting (AGU-2024)** – Presented a poster on Why and where are extreme coastal sea-level events more driven by wind than pressure? Location- Washington D.C., 9-13 December 2024, Vol. 2024, and pp. OS41D-0473
2. **Asia Oceania Geosciences Society 20th Annual Meeting (AOGS-2023)** – Presented a poster on the role of local and external forcing on the variability of mixed layer depth over the Bay of Bengal, Location- Singapore, and 30th July -4th August 2023.
3. **Challenges in Earth System Science for Global Sustainability (CESS-GS-2020)** – Presented a talk on the variability of the upper oceanic surface of the Bay of Bengal using Reanalysis Products, Location- Kharagpur, India, and 15-16 January 2020.
4. **American Geophysical Union Fall Meeting (AGU-2022)** - Presented a poster on the analysis of the mixed layer depth variability for decadal scale over the Bay of Bengal, Location- Chicago, IL & Online Everywhere, 12 -16 December 2022.
5. **Ocean Sciences Meeting (OSM-2022)** - Presented an online talk on the role of air-sea fluxes on the interannual variability of mixed layer depth over the Bay of Bengal from 1980 to 2015, Online Everywhere, 24th February to 4th March 2022, I.D. - 2244.
6. **American Geophysical Union Fall Meeting (AGU-2019)** – Presented a poster on analysis of the effect of air-sea fluxes to Mixed Layer Depth in the Bay of Bengal, Location- San Francisco, CA, 9-13 December 2019, Vol. 2019, and pp. OS11D-1507
7. **Sixth Biennial Conference of Ocean Society of India (OSICON-2019)** – Presented a talk on the Seasonal and Interannual variation of Mixed Layer Depth in the Bay of Bengal, Location - Kochi, India, 12-14 December 2019.

Workshops

1. Participated at an International Workshop on Biodiversity and Climate Change (BDCC) on "Species Distribution Modelling/Eco-Physiological Measurements" organized from 24th - 27th February 2018 in IIT Kharagpur, India.

2. Participated in an onsite workshop conducted by TERI-NORCE Climate Research School on “Global Climate Anomalies, Teleconnections, and Regional Implications,” organized from August 5th -8th, 2019, in New Delhi, India.
3. Participated in online workshop training for the COAWST Modeling system from 25-28 February 2019 that covers WRF overview, WRF coupling, ROMS overview, WRF and ROMS coupling, SWAN overview, coupling to WRF, ROMS for WAVEWATCH implementation.

References

1. **Professor Arun Chakraborty (Ph.D. Supervisor)**
   Centre for Ocean, River, Atmosphere and Land Sciences (CORAL), Indian Institute of Technology Kharagpur, Pin- 721302
   Email: arunc@coral.iitkgp.ac.in
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2. **Professor James Pringle**
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3. **Professor Anirban Dhar**
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