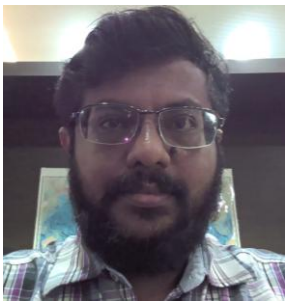
Curriculum Vitae



Dr. Vinu K. Valsala,
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Educational background

PhD (2006), in Ocean and Atmospheric Sciences, Hokkaido University, Sapporo, Japan.
Thesis: Pathways and effects of Indonesian Throughflow water in the Indian Ocean: A model study using lagrangian trajectories and passive tracers.
Advisor: Prof. Ikeda Motoyoshi, EES, Hokkaido University, Japan.

M.Sc. (2002), in Physical Oceanography, Cochin University of Science and Technology, India.
Thesis: Application of Weibull model for significant wave height forecast and wave height statistics.
Advisor: Dr. Muraleedharan G.

B.Sc. (1999), in Physics, University of Kerala, Kerala, India.

Positions held

- Scientist-F, 2020-Present, Project Director, Development of Skilled Manpower in Earth System Sciences (DESK), Indian Institute of Tropical Meteorology, Pune, India.
- Scientist-E, 2015-2020, Project Director, Development of Skilled Manpower in Earth System Sciences (DESK), Indian Institute of Tropical Meteorology, Pune, India.
- Scientist-D, 2011-2015, Center for Advanced Training in Earth System Science and Climate (CAT-ESSC), Indian Institute of Tropical Meteorology, Pune, India.
- NIES Postdoctoral fellow, 2009-2011, CGER, National Institute for Environmental Studies (NIES), Tsukuba, Japan.
- JSPS Postdoctoral fellow, 2007-2009, CGER, National Institute for Environmental Studies (NIES), Tsukuba, Japan.
- NIES Postdoctoral fellow, 2006-2007, CGER, National Institute for Environmental Studies (NIES), Tsukuba, Japan.
- Research Assistant (also PhD candidate), 2003-2006, Graduate School of Earth System Sciences, Hokkaido University, Sapporo, Japan.
- Project Assistant, 2002-2003, Center for Atmospheric and Oceanic Sciences, Indian Institute of Science, Bangalore, India.

Awards and Honors

- Certificate of Merit Award, 2018, Ministry of Earth Sciences, India, for the outstanding contributions in the field of Atmospheric Sciences and Technology.
- Fellow of Indian National Young Academy of Sciences (INYAS), Indian National Science Academy (INSA), India. (2015-2020)
- JSPS Postdoctoral Fellow, 2007-2009, Japan: Prestigious award from the Japanese Society for the Promotion of Science for 2-year research in postdoctoral level.
- Center of Excellence (COE) Research Assistant Fellowship, 2003-2006, Earth System Sciences, Hokkaido University, Sapporo, Japan.
- Mitsubishi UFJ Trust Scholarship Foundation, Scholarships for selected PhD candidates, 2004-2006, Tokyo, Japan.
- Summer Fellowship Trainee award, 2001-Summer, National Academy of Science, Bangalore, India.
- Merit Scholarship Award for best Master course student, 1999-2002, CUSAT, Cochin, India.

Research Interests

Oceanic Tracers, Ocean Carbon Cycle, Ocean Tracer Transport Modeling **(OTTM)**, application of tracer techniques to detect interannual to interdecadal climate variability of ocean circulations, Numerical Ocean modeling, air-sea CO2 flux and ocean pCO2, Biogeochemical modeling and data assimilation, Ocean-atmosphere interaction, Ocean Dynamic-Thermodynamic Model **(ODTM)**, Pathways of water masses, Tropical Ocean dynamics, Ocean Modeling, Reduced gravity models, Tropical Indian Ocean climate variability and Indonesian Throughflow.

Refereed Publications

2025

76. Faseela Hamza, I. V. G. Bhavani, **V. Valsala**, 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, Online, March 2025, DOI:10.1080/1755876X.2025.2481683, 1-14

75. Faseela Hamza, **V. Valsala**, Smitha B. R (2024), A review on the impacts of climate variability on small pelagic fish stock variability with special emphasis on the Indian west coast, Fisheries Science, https://doi.org/10.1007/s12562-024-01843-5

2024

74. Bhavani I. V. G., Faseela Hamza, B. R. Smitha, **V. Valsala** (2024), Quantifying the Role of Silicate and Dissolved Nitrogen in Co-Limiting the Primary and Secondary Productivity of the Bay of Bengal Euphotic Zone, J. Geophysical Research, Vol 129, Issue 10, https://doi.org/10.1029/2024JC021009

73. Suvarna Fadnavis, Parthasarathi Mukhopadhyay, E.N. Rajagopal, **Vinu Valsala**, Marc von Hobe, and Rolf Müller (2024), Understanding stratosphere-troposphere interactions and Forecast challenges of

monsoon weather extremes, Bulletin of the American Meteorological Society, https://doi.org/10.1175/BAMS-D-24-0210.1

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71. B. Sridevi, M. K. Ashitha, V. V. S. S. Sarma, T. V. S. Udaya Bhaskar, Kunal Chakraborty, I. V. G. Bhavani, **V. Valsala** (2024), A New Climatology of Depth of Nitracline in the Bay of Bengal for Improving Model Simulations 2024, J. Geophysical Research. Vol. Volume129, Issue 9. https://doi.org/10.1029/2024JG008211

70. Ghosh Jayashree, Kunal Chakraborty **Valsala V.**, Trishneeta Bhattacharya, Prasanna Kanti Ghoshal (2024), A Review of the Indian Ocean Carbon Dynamics, Acidity, and Productivity in a Changing Environment, Progress in Oceanography, Volume 221, 103210, https://doi.org/10.1016/j.pocean.2024.103210

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68. Chakraborty, K.,, A.P. Joshi, Prasanna Kanti Ghoshal, Jayashree Ghosh, Anirban Akhand, Trishneeta Bhattacharya, M.G. Sreeush, **Valsala V.** (2023), Mechanisms and drivers controlling spatio-temporal evolution of pCO2 and air-sea CO2 fluxes in the southern Java coastal upwelling system, Estuarine, Coastal and Shelf Science, Volume 293, https://doi.org/10.1016/j.ecss.2023.108509

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65. Anjumol Raju, S. Sijikumar, Pramit Kumar Deb Burman, **Valsala V.,** Yogesh Tiwari, Sandipan Mukherjee, Priyanka Lohani, Kireet Kumar (2023),Very high-resolution Net Ecosystem Exchange over India using Vegetation Photosynthesis and Respiration Model (VPRM) simulations, Ecological Modelling, Vol. 481, 2023, 110340, ISSN 0304-3800

64. Madkaiker, K., **Valsala, V.**, Sreeush, M. G., Mallissery, A., Chakraborty, K., & Deshpande, A. Understanding the seasonality, trends and controlling factors of Indian Ocean acidification over distinctive bio-provinces 2023, J. Geophysical Research, 128, https://doi.org/10.1029/2022JG006926

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58. Valsala V., Is Amundsen-Bellingshausen Seas-Low affecting trace gas air-sea fluxes in the Antarctic Ocean?, Deep Sea Research Part I, 183: 103725, May **2022**, DOI:10.1016/j.dsr.2022.103725, 1-8

2021

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56. Halder, S., Y. K. Tiwari, **V. Valsala**, S. Sijikumar, R. Janardanan, S. Maksyutov, (**2021**), Benefits of satellite XCO2 and newly proposed atmospheric CO2 observation network over India in constraining regional CO2 fluxes Science of The Total Environment, 51508, doi.org/10.1016/j.scitotenv.2021.151508.

55. Chakraborty K., **V. Valsala**, T. Bhattacharya, J. Ghosh, (2021), Seasonal cycle of surface ocean pCO2 and pH in the northern Indian Ocean and their controlling factors, Progress in Oceanography, Vol.198, doi.org/10.1016/j.pocean.2021.102683

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51. Valsala V., Sreeush M.G., Anju M., Sreenivas P., Tiwari Y.K., Chakraborty K., Sijikumar S., An observing system simulation experiment for Indian Ocean surface pCO2 measurements, Progress in Oceanography, 194: 102570, June 2021, DOI: 10.1016/j.pocean.2021.102570, 1-14

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2020

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45. Tiwari, Y. K., T. Guha, **V. Valsala**, A. S. Lopez, C. Cuevas, R. P. Fernandez, A. S. Mahajan, (2019), Understanding atmospheric methane sub-seasonal variability over India, Atmospheric Environment, (in press)

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2018

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interannual variability: A case study for Indian Ocean, Dynamics of Atmosphere and Ocean, doi.org/10.1016/j.dynatmoce.2018.10.001

39. Chakraborty, K., **V. Valsala**, G. V. M. Gupta and V. V. S. S. Sarma, (2018): Dominant biological control over upwelling on pCO2 in sea east of Sri Lanka, J. Geophysical Res., doi.org/10.1029/2018JG004446

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2017

35. Shirai, T.; Ishizawa, M.; Zhuravlev, R.; Ganshin, A.; Belikov, D.; Saito, M.; Oda, T.; **Valsala, V**.; Gomez-Pelaez, A.; Langenfelds, R.; et al. (2017): A decadal inversion of CO2 using the Global Eulerian-Lagrangian Coupled Atmospheric model (GELCA): Sensitivity to the ground-based observation network. Tellus Ser. B Chem. Phys. Meteorol. 2017, 69, 1291158, DOI:10.1080/16000889.2017.1291158

2016

34. **Valsala, V.** and R. R. Rao (2016), Coastal Kelvin waves and dynamics of Gulf of Aden eddies, Deep Sea Research Part I: **116**, 174-186.

33. Ravi Kumar, K., **V. Valsala**, Y. K. Tiwari, J.V. Revadekar, P. Pillai, S. Chakraborty, R. Murtugudde, (2016), Intra-seasonal variability of atmospheric CO2 concentrations over India during summer monsoons, Atmospheric Environment, Vol. 142, 229–237.

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10. **Valsala V**. and S. Maksyutov, (2010), A Short Surface Pathway of the Subsurface Indonesian Throughflow Water from the Java Coast Associated with Upwelling, Ekman Transport, and Subduction, International Journal of Oceanography, Vol. 2010, doi:10.1155/2010/540783

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Students Guided

PhD

1	Mr. Sreeush M. G., SRF, IITM	Completed (2020)	Forward and Inverse modeling of Indian Ocean Carbon Cycle
2	Ms. Shikha Singh, Scientsti-C, IITM	Completed (2022)	Possible role of oceanic biases in coupled climate models
3	Ms. Anju, M., SRF, IITM	Completed (2022)	Modeling of Ecosystems of Indian Ocean
4	Mr. Santanu Halder, JRF, IITM (co-guide)	Completed (2023)	Forward and Inverse modeling of CO2 fluxes
5	Mr. Rakesh	Ongoing (discontinued)	High resolution City based GHG inversion in Indian Megacities
6	Ms. Tanvi Desai	Ongoing	Development of an Indian Ocean Carbon Cycle Forecasting System at sub-seasonal time scales and understanding its variability.
7	Ms. Anika Arora	Ongoing	Western Ghat Precipitation and Tropical Biennial variability on Indian Monsoon

M.Tec/M.Sc (completed)

1	Ms. Ann Ouseph, M.Sc (2016)	Role of Pacific winds during ENSO on ITF variability
2	Mr. Saran R., M.Sc (2017)	Western Indian Ocean acidification, controlling factors
3	Ms. Swathy A., M.Sc (2017)	Subduction of watermasses in the south Indian Ocean
4	Ms. Aswathy M., M.Sc (2018)	Role of internal waves in vertical mixing in a hybrid coordinate ocean model
5	Mr. Ramu P., MTech (2018)	Optimal estimates of mixing parameterization using Bayesian Inversion
6	Mr. Kunal, MTech (2019)	North Indian Ocean Acidification and trends
7	Jabeen S. (2023)	Tropical Cyclones and oceanic responses in Bay of Bengal
8	Subashree B. (2024)	Non-linearity in ENSO dynamics
9	Nikhil Maheswaran (ongoing)	ENSO Dynamics in a simple coupled model