

Aditi Modi

SCIENTIST · INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE 411008 INDIA

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Work/Research Experience

Centre for Climate Change Research (CCCR), Indian Institute of Tropical Meteorology, MOES

Pune, India

SCIENTIST C

Jan 2019 - Present

- Research Area - "Biophysical Interactions in the tropical oceans using the available in-situ data, satellite observations and models"
- Involved in the Earth System Model Development and Diagnostics at CCCR, IITM Pune for its participation in CMIP6
- Contributing Author to the Books under the realms "Indian Ocean observations" and "Ocean Biogeochemistry"
- Co-Advisor to M.Sc and M.Tech project students
- Physical Oceanography Instructor at the World Meteorological Organization (WMO) Regional Training Centre in India
- Involved in various Leadership and Management Activities at IITM

CCCR, Indian Institute of Tropical Meteorology

Pune, India

SCIENTIST B

Oct 2015 - Dec 2018

- Enrolled as external PhD at IDP Climate Studies, Indian Institute of Technology, Bombay
- Research Area - "Biophysical Interactions in the tropical oceans"
- Involved in the Earth System Model Development at CCCR, IITM Pune
- Co-Advisor to M.Sc and M.Tech project students
- Involved in various Leadership and Management Activities at IITM such as organizing International workshops and conferences

CCCR, Indian Institute of Tropical Meteorology

Pune, India

PROJECT SCIENTIST-B

Jul 2015 - Sept 2015

- Involved in the Earth System Model Development at CCCR, IITM Pune
- Performing Coupled Climate Model Diagnostics

Indian Institute of Tropical Meteorology

Pune, India

TRAINEE SCIENTIST

Aug 2013 - June 2015

- Selected one of 23 from 7000+ applications across the country
- Rigorous two-semester coursework in Earth System Sciences followed by a 6 month dissertation
- Successfully completed the course with rank 3 in semester 1st and rank 1 in semester 2
- Nominated by Director, IITM for the ICTP-IITM-TTA, IITM India, 9-20 February 2015
- Nominated by Director, IITM to represent IITM Pune at ICTP-IITM-COLA Targeted Training Activity, Trieste, Italy, Jun-Jul 2014

Indian Oil Corporation Limited

Mathura, India

TRAINEE ENGINEER

May - July 2012

- Engineering Project on "Fire-Proofing of a hydrocarbon storage facility"

Teaching Experience

Meteorological Training Institute (MTI), WMO Regional Training Centre

India

ADJUNCT FACULTY

2019-Present

- Physical Oceanography and Ocean-Atmosphere Interactions for Forecaster's Training Course Batch no. 191 at MTI Pune and Delhi in July-Sept 2021
- Physical Oceanography and Ocean-Atmosphere Interactions for Forecaster's Training Course Batch no. 190 at MTI Pune and Delhi in Jan-Mar 2021
- Advanced Physical Oceanography and Marine Pollution for Advanced Met Training Course Batch no. 181 for Naval Officers at MTI Pune in Sept-Dec 2020
- Physical Oceanography for Forecaster's Training Course Batch no. 190 at MTI Pune during Jan - Mar 2020
- Physical Oceanography for Forecaster's Training Course Batch no. 190 at MTI Delhi during Jan - Mar 2020
- Advanced Physical Oceanography and Marine Pollution for Advanced Met Training Course for Naval Officers at MTI Pune in Sept-Dec 2019
- Physical Oceanography for Forecaster's Training Course at IMD Delhi during Jun-July 2019
- Physical Oceanography for Forecaster's Training Course at MTI Pune during Mar-Jun 2019

Indian Institute of Tropical Meteorology, Pune

India

STUDENT CO-ADVISOR

2016-Present

- Himadri S, M.Sc project, Role of heat transport on variability in Indian Ocean heat content, University of Pune, 2017
- Adithyan V, M.Sc project, Oceanic Rossby wave - Madden Julian Oscillation interactions in the Indian, Cochin University of Science and Technology, Kochi, 2017

Research Interests

- Biophysical interactions in the Marine Ecosystem
- Phytoplankton phenology
- Biogeochemical Modelling
- Statistical Analysis
- Cyclone-biology interactions
- Machine Learning

Skills

Programming

- Python
- Shell Scripting
- Matlab
- NCL
- Ferret
- LATEX
- Fortran

Publications

Peer-Reviewed Articles

- **A Modi**, Roxy M K, Ghosh S et al. Gap-Filling of Ocean Color Over the Tropical Indian Ocean Using Monte-Carlo Method, 03 September 2021, PREPRINT (Version 1) available at Research Square [<https://doi.org/10.21203/rs.3.rs-861017/v1>]
- Roxy, M. K., **Modi, A.**, Murtugudde, R., Valsala, V., Panickal, S., Prasanna Kumar, S. Panickal, S. P. Kumar, M. Ravichandran, M. Vichi, and Lévy, M. (2016). A reduction in marine primary productivity driven by rapid warming over the tropical Indian Ocean. *Geophysical Research Letters*, 43(2), 826–833. <https://doi.org/10.1002/2015GL066979>

Books/Monographs/Reports

- Roxy, M. K. et al., Future Projections for the Indian Ocean, in (eds.), *The Indian Ocean and its role in the Global Observation System* [To be Published]
- Roxy M.K. et al. (2020) Indian Ocean Warming. In: Krishnan R., Sanjay J., Gnanaseelan C., Mujumdar M., Kulkarni A., Chakraborty S. (eds) *Assessment of Climate Change over the Indian Region*. Springer, Singapore. https://doi.org/10.1007/978-981-15-4327-2_10

Coursework

Ph. D

Mumbai, India

Jun 2018-Dec 2018

- Numerical Methods
- Eco-hydro Climatology
- Climate Change
- Communication Skills
- Hydroinformatics

Centre for Advanced Training, ESSO

Pune, India

2013-2014

- Air-Sea Interactions
- Atmosphere-Ocean Modelling
- Geophysical Fluid Dynamics
- Physical and Dynamic Oceanography
- Statistical-Numerical Methods
- Advanced Statistical Techniques
- Synoptic Meteorology

B.Tech

Jhansi, India

2009-2013

- Fluid Mechanics
- Structural Engineering
- Hydraulics
- Geotechnical Engineering
- Environmental Engineering

Academic Qualifications

Indian Institute of Technology, Bombay

Mumbai, India

PH.D. IN IDP IN CLIMATE STUDIES, EXTERNAL STUDENT

GUIDE: • PROF SUBIMAL GHOSH • DR. ROXY MATHEW KOLL

July 2018 - Present

COURSEWORK GPA: 8.71 / 10

Indian Institute of Tropical Meteorology

Pune, India

INDUCTION TRAINING IN ATMOSPHERIC AND OCEAN SCIENCE

CENTRE FOR ADVANCED TRAINING, ESSO, MOES, GOVT OF INDIA

Aug 2013-Dec 2014

1ST RANK IN OVERALL COURSE

Holy Public School

CBSE

CUM GPA: 9.23 / 10

CUM GPA: 8.6 / 10

Agra, INDIA

Jul 2008- May 2009

Jul 2006- May 2007

Awards\Recognitions

- 2017 **Silver Jubilee Best Paper Award**, at IITM Pune, India
- 2013 **GATE**, Qualified with an all India GATE score of 579 and an all India Rank of 570 India
- 2009-13 **Merit Scholarship**, awarded by the University for best Student of the Civil Engineering batch Lucknow, India
- 2009-13 **LIC Gold Jubilee Scholarship**, awarded by LIC, India at State Level for a bright academic background Uttar Pradesh, India

Conference Presentations

- A. Modi and Roxy M.K., "Difference in the Past Trends and Future Projections of Marine Primary Productivity in between the CMIP6 and CMIP5 Models", AGU Fall Meeting, 16 December 2021
- A. Modi, Roxy M.K., S. Ghosh, "Addressing the uncertainty in estimation of Ecological indicators of the marine ecosystem", AGU Fall Meeting, 13 December 2021
- A. Modi, Roxy M.K. and S. Ghosh, "Understanding biophysical Interactions over the tropical Indian Ocean", IIT Bombay, 24 October 2021
- A. Modi, Roxy M.K. and S. Ghosh, "Understanding biophysical Interactions over the tropical Indian Ocean", IIT Bombay, 20 October 2020
- A. Modi, Roxy M.K. and S. Ghosh, "Understanding biophysical Interactions over the tropical Indian Ocean in a changing Climate", IIT Bombay, 24 August 2019
- A. Modi and Roxy M. K., "Contrasting trends of marine phytoplankton in the tropical Indian Ocean", CLIVAR Open Science Conference and the Early Career Scientists Symposium on Charting the course for climate and ocean research, Qingdao, China, 18-25 September 2016
- A. Modi, Roxy M. K., R. Murtugudde, V. Valsala, S. Panickal, S. Prasanna Kumar, M. Ravichandran, M. Vichi and Marina Lévy "Decline in marine phytoplankton - changing monsoon winds or warming ocean?", Workshop on Climate Change and Regional Impacts over South Asia, IITM, Pune, 28-29 July 2016
- A. Modi, Roxy M. K., R. Murtugudde, V. Valsala, S. Panickal, S. Prasanna Kumar, M. Ravichandran, M. Vichi and Marina Lévy, "Marine ecosystem response to the rapid warming over the tropical Indian Ocean", SPIE Asia Pacific Conference on Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions VI, New Delhi, 4-7th April, 2016
- A. Modi, Roxy M. K., R. Murtugudde, V. Valsala, S. Panickal, S. Prasanna Kumar, M. Ravichandran, M. Vichi and Marina Lévy "Decline in marine phytoplankton - changing monsoon winds or warming ocean?", Annual Monsoon Workshop-2015 and National Symposium on Understanding and Forecasting the Monsoon Extremes, IITM, Pune, 23th-24th February 2016
- A. Modi, Roxy M. K., R. Murtugudde, V. Valsala, S. Panickal, S. Prasanna Kumar, M. Ravichandran, M. Vichi and Marina Lévy, "Marine ecosystem response to the rapid warming over the tropical Indian Ocean", National Space Science Symposium, at Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram, Kerala, 9 February, 2016

Workshops/Summer Schools

- 7th National Conference of the Ocean Society of India 2021 (OSICON) held virtually during 28-30 August, 2021
- ComSciCon at UVA 2021 Virtual Workshop at the University of Virginia during August 16-18, 2021
- OceanHackWeek hybrid workshop focused on data science and oceanography during August 3-6, 2021
- Ocean Carbon and Biogeochemistry (OCB) first virtual Summer Workshop 2021 during June 4 - June 24, 2021
- Global Ocean Biogeochemistry Array (GO-BGC) workshop virtually as an initiative by G7 Future of the Seas and Oceans Initiative held during May 4 - June 1, 2021

- Climate Science and Policy e-School, IDP, Climate Studies, IIT Bombay, India, 17-28th August 2020
- International workshop on Prediction skill of extreme Precipitation events and tropical cyclones: Present status and Future prospects and the Annual Climate Change Workshop, IITM Pune, India, 25-28 November 2019
- Stakeholders Consultation cum brain storming meeting on Biodiversity Beyond National Jurisdiction, CMLRE, Kochi India, 1-2 July, 2019
- Hindi Workshop titled 'Official Language policy', IITM Pune India, 16 March 2018
- HPC Pratyush User training, IITM Pune, 20-22 February, 2018
- Meeting conducted by Ocean Society of India 2017 as an OSI Member, NCESS, Trivandrum, Kerala, 28 August, 2017
- 5th National Conference of the Ocean Society of India 2017 (OSICON), NCESS, Trivandrum, Kerala, India, 28-30 August, 2017
- Hindi Workshop regarding the Official Language Implementation Committee, IITM Pune, 27 June 2017
- GEWEX-CLIVAR Monsoon Panel Meetings as a guest, Qingdao, China, during 17-25 September, 2016
- Hindi Workshop on 'Rajbhasha Niti Avam Patrachar ke vividh Roop', IITM Pune India, 16 December 2016
- CLIVAR Open Science Conference and the Early Career Scientists Symposium on, "Charting the course for climate and ocean research", Qingdao, China, 17-25 September 2016. Travel support was provided by IMBER/COR, USA
- Advanced School on Earth System Modelling (ESM) followed by a Workshop on Climate Change and Regional Impacts over South Asia jointly organised by Abdus Salam International Centre for Theoretical Physics (ICTP Trieste, Italy) and IITM Pune, 18-29 July 2016
- Science Plan discussions for the "Strategic Document on Atmospheric Sciences" to build a framework of the next Research Plan on Ocean circulation and biogeochemical response to climate change and Long-term climate variability and change using IITM-ESM
- Advanced Refresher course on Operational Climate Services, Meteorological Training Institute(MTI), IMD, Pune India, 24-28 August 2015
- ICTP-IITM-TTA: To Improve Prediction Skill of Monsoon Weather and Climate Challenge in Monsoon Prediction, IITM Pune, India, 9-20 February 2015
- ICTP-IITM-COLA Targeted Training Activity: Challenge in Monsoon Prediction, Trieste, Italy, Jun-Jul 2014

Community Services

Working Groups

- Council Member of Ocean Society of India-Pune Chapter for the term 2021-2023
- Recreation Committee Member for the term 2021-2023
- Core Committee team of International Indian Ocean Expedition-2 ECSS for 2021-2030

Reviewing Activities

- Reviewer for the Nature Climate Change, JGR Oceans, Progress in Oceanography, Ocean Sciences

Memberships

- AGU Membership during Jan-Dec 2021
- Member of The Oceanography Society (TOS, since 2021)
- Life Member of Ocean Society of India (since 2017)