

# ARKAPRAVA RAY

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**Phone :** +91 8536044852/+91 9851101884

**About:** Passionate researcher committed to advancing scientific knowledge and understanding. Eager to embrace challenges and uncovering the intricate scientific aspects of nature while making meaningful contributions to the community.

**Current Affiliation:** Project Scientist, Applied Research and Research to Operation [Indian National Centre for Ocean Information Services](#), Ocean Valley, Pragathi Nagar, Hyderabad- 500090, Telengana, India

**Address:** Burnpur Road, Asansol, Paschim Barddhaman, West Bengal, 713304, India

**Research Profiles:** [Google Scholar](#), [ResearchGate](#), [LinkedIn](#)

## EDUCATION

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Jan 2021 –  
March 2026

**Ph.D.**

**CGPA** for the required Course Work: **9.61/10**

*“Upper Ocean Variability of the Bay of Bengal and its Relation with Indian Summer Monsoon and Pre-monsoon Cyclones”*  
Indian Institute of Technology Bhubaneswar, India.

Jul 2018 –  
Jul 2020

**M.Sc. in Atmosphere & Ocean Sciences (CGPA: 9.02/10)**

Secured 1<sup>st</sup> position from the batch of -2018-2020

*School of Earth, Ocean and Climate Sciences*  
Indian Institute of Technology Bhubaneswar, India.

September 2015–  
May 2018

**B.Sc. in Geology (Marks: 71.1/100)**

Secured 2<sup>nd</sup> position from the batch of 2015-2018

*Department of Geology,*  
*T.D.B College, Kazi Nazrul University, India.*

May 2015–

**12<sup>th</sup> Standard (Marks: 85.5/100)**

*[Languages, Mathematics, Physics, Chemistry, Biology]*  
*Santinagar Vidyamandir, Asansol*

May 2013–

**10<sup>th</sup> Standard (Marks: 89.5/100)**

*[Languages, Basic Sciences, Social Sciences]*  
*Asansol Ramkrishna Mission High School*

## COURSE EXPERIENCE

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**Geology:**

*Petrology (Igneous, Metamorphic, Sedimentary), Structural Geology, Paleontology & Paleoclimate. Experience of 3years Fieldwork*

## **Meteorology & Oceanography**

*Physics of Atmosphere, Advanced Dynamics of Atmosphere, Remote Sensing (Meteorology), GIS, Boundary layer Meteorology, observational Techniques, Chemistry of Atmosphere (Aerosol), Climate Change, Dynamics & Physics of Oceanography, Ocean State Forecast*

## **Modelling**

*Numerical Weather Prediction, Data Assimilation & Objective Analysis, High Performance Computing,*

## **RESEARCH EXPERIENCE**

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*Worked on data processing, data analysis, ocean modelling,*

*Details of Masters Project:*

**Advisors:** Dr. Sourav Sil (IIT BBS)

**Thesis Title:** Intra-seasonal Variability of the Sea Level using Tide Gauge Observations in the Western Bay of Bengal

*Research Assistant (May, 2020-Sept, 2020):*

**Project Title:** Multiscale Variability of Ocean and its Relation with Indian Summer Monsoon and Tropical Cyclone.

**Sponsor:** Science and Engineering Research Board, India

**PI:** Dr. Sourav Sil (IIT BBS)

*Junior Research Fellow (Sept,2020 -Dec,2020):*

**Project Title:** Multiscale Variability of Ocean and its Relation with Indian Summer Monsoon and Tropical Cyclogenesis

**Sponsor:** Science and Engineering Research Board, India

**PI:** Dr. Sourav Sil (IIT BBS)

## **TOOLS USED FOR RESEARCH**

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***MATLAB, Python, R, CDO, GRADS, NCO, NCL, Arc GIS, QGIS***

*Modelling Experience in **CROCO, OpenDrift***

## **WORKSHOPS**

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**International Workshop on Marine Meteorology & Ocean State Forecasting** (*ITC Ocean, ESSO-INCOIS, Ministry of India*) held from 17-21 June 2019 at INCOIS Hyderabad

**Researches & Observations of National Atmospheric Research Laboratory (NARL)** held on IIT Bhubaneswar 26<sup>th</sup> July 2019

## **Ocean Data Utilization and Ocean Observation System**

(*ITC Ocean, ESSO- INCOIS, Ministry of India*) held from 02-05 December 2019 at INCOIS Hyderabad

## AWARDS

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**Received Institute Silver Medal in MSc from IIT Bhubaneswar**

**Second Prize in Student Hackathon Competition in OCEANS 2022**

## CONFERENCES

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**Ray, A., & Sil, S. (2023).** Surface and subsurface variability of the North Indian Ocean and its relation to the Indian summer monsoon. *In Proceedings of the TRAC-BRISTI Symposium: TRACing moisture sources of extreme rainfall over India – a tool for Better monsoon pRedIction at Synoptic Timescales, University of Southampton, United Kingdom, 23–24 November 2023.*

**Ray, A., Mandal, S., & Sil, S. (2020).** Tidal variability of sea level along the east coast of India using tide gauge observations. *In Challenges in Earth System Science for Global Sustainability (CESS-GS), Center for Oceans, Rivers, Atmosphere and Land Sciences (CORAL), IIT Kharagpur, India, 15–16 January 2020.*

**Ray, A., Mandal, S., & Sil, S. (2021).** Importance of tide gauge observations to identify the multiscale sea level variability over the western Bay of Bengal. *In Proceedings of OSICON 2021 – 7th National Conference, National Centre for Polar and Ocean Research (NCPOR), India, 12–14 August 2021.*

Mandal, S., **Ray, A.**, Sil, S., & Venkatesan, R. (2021). Seasonal and intraseasonal variability of winds and associated air–sea interaction in the Bay of Bengal from moored buoy observations. *In Proceedings of OSICON 2021 – 7th National Conference, National Centre for Polar and Ocean Research (NCPOR), India, 12–14 August 2021.*

Kumar, A., **Ray, A.**, Sil, S. (2022). Intensification of Tropical Cyclones before Landfall over Bay of Bengal during Post Monsoon Season. *AGU Fall Meeting, 12–16 December 2022.*

**Ray, A., & Sil, S. (2023).** Interaction of multiscale weather events during the Indian summer monsoon and associated variability in the ocean–atmosphere coupled system: A study using ocean observations. *In Proceedings of OSICON 2023 – 8th National Conference, Indian National Centre for Ocean Information Services (INCOIS), India, 23–25 August 2023.*

**Ray, A., Das, S., & Sil, S. (2024).** Impact of ocean stratification and warming on the intensification of pre-monsoon tropical cyclones over the northern Bay of Bengal. *In Proceedings of the National Symposium on Tropical Meteorology, National Institute of Technology (NIT) Rourkela, India, 10–12 December 2024.*

## PUBLICATION

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**Ray, A., Das, S., & Sil, S. (2024).** Role of anomalous ocean warming on the intensification of pre-monsoon tropical cyclones over the northern Bay of Bengal. *Journal of Geophysical Research: Oceans*, 129(4), e2023JC020527. <https://doi.org/10.1029/2023JC020527>

**Ray, A., Sil, S., & Mandal, S. (2024).** Multiscale Sea Level Variability on the Western Bay of Bengal: A Study using Tide Gauge and Satellite Observations. *Continental Shelf Research*, 105361. <https://doi.org/10.1016/j.csr.2024.105361>

**Ray, A., & Sil, S. (2023).** Monsoon depressions and air-sea interactions during different phases of monsoon intraseasonal oscillation. *Climate Dynamics*, 60(3-4), 851-866. <https://doi.org/10.1007/s00382-022-06352-8>

**Ray, A., & Sil, S. (2023).** Assessment of intraseasonal variability indices on identifying Indian summer monsoon rainfall variability. *Theoretical and Applied Climatology*, 1-10. <https://doi.org/10.1007/s00704-023-04470-9>

**Bhuyan, D. P., Mandal, S., Ray, A., Sil, S., & Venkatesan, R. (2021).** Surface and subsurface signatures of monsoon intraseasonal oscillations from moored buoys observation in the Bay of Bengal. *Dynamics of Atmospheres and Oceans*, 95, 101240. <https://doi.org/10.1016/j.dynatmoce.2021.101240>

**Kumar, A., Ray, A., & Sil, S. (2024).** Role of coastal downwelling on intensification post-monsoon tropical cyclones in the Bay of Bengal. *Estuarine, Coastal and Shelf Science*, 108670. <https://doi.org/10.1016/j.ecss.2024.108670>

**Dey, D., Joseph, L., Ray, A., Marsh, R., Skliris, N., Turner, A. G., ... & Sil, S. (2025).** Interactions between subpolar and subtropical jet streams lead to extreme rainfall events over the North Indian Subcontinent in June 2013 and July 2023. *Climate Dynamics*, 63(5), 1-17. <https://doi.org/10.1007/s00382-025-07712-w>

**Gupta, H., Deogharia, R., Sil, S., Singh, V., & Ray, A. (2025).** On the interconnection of marine heatwaves and the extremely severe cyclonic storms Mocha and Biparjoy in the Northern Indian Ocean. *Natural Hazards*, 121, 18205–18225. <https://doi.org/10.1007/s11069-025-07513-8>

**Gupta, H., Goswami, P., Ray, A., Bhattacharjee, A., & Sil, S. (2026).** Evolution of marine heatwaves and air-sea interactions during the 2020 Southwest Monsoon in the Bay of Bengal. *Climate Dynamics*, 64(3), 105. <https://doi.org/10.1007/s00382-026-08086-3>

**Ray, A., Dey, D., Das, S., Marsh, R., Skliris, N., & Sil, S.** Influences of Eastward Wind Stress and Associated Ocean Warming on the Cyclogenesis over Southeastern Bay of Bengal. [Under Review in *Climate Dynamics*]

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## REFERENCES

**Dr Sourav Sil**, (Supervisor)  
Associate Professor  
School of Earth Ocean and Climate Sciences  
Indian Institute of Technology Bhubaneswar  
Argul Campus, Jatani  
Odisha, India, 752050  
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Contact No: +91 6747135520

**Dr Dipanjan Dey**  
Assistant Professor  
School of Earth Ocean and Climate Sciences  
Indian Institute of Technology Bhubaneswar  
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