

Dr. Sourav Sil

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16 Sep 2026

PROFILE

Physical oceanographer with over 15 years of research experience spanning satellite observations, in-situ measurements (HF Radar, Argo, BGC-Argo), and numerical ocean modeling of the Bay of Bengal and Indian Ocean. Author of 60+ peer-reviewed journal publications, with sustained funded research on marine heatwaves, mesoscale/sub-mesoscale circulation, and ocean-cyclone interactions, and an active track record of doctoral and postgraduate research supervision.

RESEARCH INTEREST

Physical Oceanography · HF Radar · Argo · Marine Heatwaves · Ocean Modeling

ACADEMIC QUALIFICATIONS

- **Ph.D. in Oceanography** — Indian Institute of Technology Kharagpur, India (2012)
- **M.Sc. in Physics** — Vidyasagar University, West Bengal, India (2007)
- **B.Sc. in Physics** — Midnapore College, West Bengal, India (2005)

PROFESSIONAL EXPERIENCE

- **Associate Professor** — SEOCS, IIT Bhubaneswar (Oct 2022 – present)
- **Assistant Professor** — SEOCS, IIT Bhubaneswar (Jul 2013 – Oct 2022)
- **Postdoctoral Researcher** — JAMSTEC, Japan (Jun 2012 – Jun 2013)
- **Research Fellow** — CORAL, IIT Kharagpur (Mar 2008 – May 2012)

RESEARCH PROJECTS (TOTAL BUDGET: ₹220 LAKHS)

Ongoing:

- Ocean Surface Currents Variability in the Bay of Bengal using satellite, in situ, and numerical models — *ISRO-RESPOND*, 2024–2027
- Formation and Dissipation Mechanism of Marine Heatwaves and their influences on primary productivity and air-sea interactions in the Bay of Bengal — *ANRF*, 2024–2027

Completed:

- Subsurface Variability of the Bay of Bengal from Observations and Models — *SERB*, 2020–2023
- Quality Control of HF Radar Surface Currents for Coastal Process Investigation & INCOIS Model Assimilation — *INCOIS, MoES*, 2019–2021
- Numerical Simulation of Sub-Mesoscale Features along Odisha Coast using SCATSAT Winds — *ISRO-SAC*, 2017–2020
- Simulation of Coastal Processes on the North West Bay of Bengal — *SERB*, 2015–2018
- Multi-scale Analysis of Circulation and Variability in the NW Bay of Bengal using HF Radar — *INCOIS, MoES*, 2015–2017
- Mesoscale Eddies in the Western Bay of Bengal — *IIT Bhubaneswar Seed Grant*, 2014–2016

RESEARCH GUIDANCE

Ph.D.: 15 (10 awarded, 5 ongoing) • M.Tech.: 26 (completed) • M.Sc.: 32 (completed) • B.Tech.: 1 (completed)

RESEARCH COLLABORATIONS

- **International:** University of Massachusetts Dartmouth; Woods Hole Oceanographic Institution, USA
- **National:** National Institute of Ocean Technology; India Meteorological Department; INCOIS; Space Application Centre

PUBLICATIONS SUMMARY

Published in International Journals	57
Published in National Journals	02
Proceedings of Seminars / Conferences	03
Book Chapters	03
Papers Presented in Seminars / Workshops	50+
Manuscripts Under Review (International Journals)	04

Selected International Journal Publications (most recent)

- Deogharia, R., Gupta, H., Dey, P., Sikhakolli, R., **Sil, S.**, Gangopadhyay, A., & Jena, B. K. (2026). Characterization of two different Coastally-Attached Lagrangian Coherent Structures. *Estuarine, Coastal and Shelf Science*.
- 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, 105.
- Gupta, H., Deogharia, R., **Sil, S.**, Singh, V., and Ray, A. (2025). On the Interconnection of Marine Heatwaves and the Extremely Severe Cyclonic Storms Mocha and Biparjoy. *Natural Hazards*.
- Shee, A., **Sil, S.**, Gangopadhyay, A., Agarwal, N., & Sandeep, K. K. (2025). Upper Ocean Biophysical Budget Analysis during a Cyclone using ROMS. *Ocean Modelling*, 195, 102524.
- Ray, A., **Sil, S.**, & Mandal, S. (2025). Multiscale Sea Level Variability on the Western Bay of Bengal. *Continental Shelf Research*, 284, 105361.
- Gupta, H., Deogharia, R., **Sil, S.** and Dey, D. (2025). Characteristics of Marine Heat Extreme Evolution in the Northern Indian Ocean. *Int J Climatol*, 45, e8734.
- 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. *JGR: Oceans*, 129(4).
- Gupta, H & **Sil, S.** (2024). Assessment of GHR SST and OISST Datasets in Identification of Marine Heat-Waves and Heat-Spikes. *IEEE Geoscience and Remote Sensing Letters*, 21, 1-5.
- Shee, A., **Sil, S.** & Gangopadhyay, A. (2023). Recent changes in the upper oceanic water masses over the Indian Ocean using Argo data. *Scientific Reports*, 13, 20252.
- Deogharia, R. & **Sil, S.** (2023). Reconstructing High-Frequency Radar Derived Ocean Surface-Current Fields Using Spatio-Temporal Kriging. *IEEE Journal of Oceanic Engineering*.
- Sil, S., Gangopadhyay, A., Gawarkiewicz, G. and Pramanik, S. (2021). Shifting seasonality of cyclones and western boundary current interactions in Bay of Bengal as observed during Amphan and Fani. *Scientific Reports*, 11, 22052.
- Mandal, S., **Sil, S.**, Gangopadhyay, A., Jena, B. K., Venkatesan, R. and Gawarkiewicz, G. (2020). Seasonal and Tidal Variability of Surface Currents in the Western Andaman Sea Using HF Radars and Buoy Observations. *IEEE Transactions on Geoscience and Remote Sensing*, 59(9), 7235-7244.
- Pramanik, S., **Sil, S.** (2021). Assessment of SCATSat-1 Scatterometer winds on the Upper Ocean Simulations in the North Indian Ocean. *JGR: Oceans*, 126, e2020JC016677.
- Mandal, S., **Sil, S.** and Gangopadhyay, A. (2020). Tide-current-eddy interaction: A seasonal study using HF radar observations along the western Bay of Bengal near 16°N. *Estuarine, Coastal and Shelf Science*, 232, 106523.

Selected Seminar / Conference Presentations

- Sil, S.**, Gangopadhyay, A., Das, S., Gupta, H., Bhattacharjee, A. (2025). Marine Heatwaves in the Bay of Bengal – Possible Mechanisms and Impacts. *AOGS 22nd Annual Meeting, Singapore*.
- Gupta, H., Deogharia, R., and **Sil, S.** (2025). Regime Shifts in Marine Heat Extremes in the Northern Indian Ocean. *EGU General Assembly, Vienna*.
- Sil, S.**, Gangopadhyay, A., Das, S., Gupta, H., Shee, A., and Pramanik, S. (2025). Exploring Upper Layer Bio-Physical Processes in the Bay of Bengal using BGC-Argos. *EGU General Assembly, Vienna*.

Full list of 57 international journal publications, 3 book chapters, and 50+ conference presentations available on request or via the IIT Bhubaneswar faculty profile above.