

# Sudip Majumder

## *Curriculum Vitae*

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School of Earth and Atmospheric Sciences  
Georgia Institute of Technology  
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<https://sudipmajumder.weebly.com>

## Research Interests

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Atmosphere-ocean exchange of heat and freshwater; dynamics and thermodynamics of the upper ocean; near-inertial motions; ocean's role to climate variability; Meridional Overturning Circulation; mesoscale and large-scale oceanography; boundary currents; satellite remote sensing; data analysis.

## Education

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- Ph.D.:** Marine Science & Technology.  
School for Marine Science and Technology, University of Massachusetts.  
North Dartmouth, MA, USA, **2014**.  
**Dissertation:** *The Importance of Near Inertial Motions for the Arabian Sea and the South Eastern Pacific*  
**Advisor:** Dr. Amit Tandon
- M.S.:** Physics, University of Massachusetts.  
North Dartmouth, MA, USA, **2009**.  
**Thesis:** *The Transition Layer Characteristics at the Arabian Sea Mooring*  
**Advisor:** Dr. Amit Tandon
- B.Ed.:** Vidyasagar University, West Bengal, India
- M.Sc.:** Physics, Vidyasagar University, West Bengal, India
- B.Sc.:** Physics, Vidyasagar University, West Bengal, India

## Appointments

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- 02/2020 – present: **Research Scientist II.**  
Georgia Institute of Technology, GA, USA
- 09/2018 – 01/2020: **Postdoctoral Associate.**  
University of Georgia, GA, USA
- 11/2014 – 08/2018: **Postdoctoral Associate.**  
University of Miami, Cooperative Institute for Marine and  
Atmospheric Studies, NOAA/AOML/Physical Oceanography Division,  
Miami, FL
- 05/2007 – 09/2014: **Graduate Research Assistant.**  
University of Massachusetts, North Dartmouth, MA

01/2007 – 04/2009: **Graduate Teaching Assistant.**  
University of Massachusetts, North Dartmouth, MA

2004 – 2006: **High School Physics Teacher (PGT).**  
(School Service Commission, West Bengal, India)

## Awards

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Graduate Research Assistantship Award (2007-2014): School of Marine Science and Technology and Physics Department, University of Massachusetts Dartmouth

Best Graduate R.A. (2013, 2014): Physics Department, University of Massachusetts Dartmouth

## Publications [Accepted/Published]

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- [1] **Majumder, S.**, R. Castelao, and C. Amos **2021**: Freshwater variability and transport in the Labrador Sea from in situ and satellite observations; *Journal of Geophysical Research: Oceans* (**accepted**).
- [2] **Majumder, S.**, Goes, M., Polito, P. S., Lumpkin, R., Schmid, C., & Lopez, H. **2019**. Propagating modes of variability and their impact on the western boundary current in the South Atlantic. *Journal of Geophysical Research: Oceans*, 124. <https://doi.org/10.1029/2018JC014812>
- [3] Goes, M., Cirano, M., Mata, M. M., & **Majumder, S.** **2019**. Long-term monitoring of the Brazil Current transport at 22°S from XBT and altimetry data: seasonal, interannual and extreme variability. *Journal of Geophysical Research: Oceans*, 124. <https://doi.org/10.1029/2018JC014809>
- [4] Chakraborty, K., A. Lotliker, **S. Majumder**, A. Samanta, P. P. Madhuri, K. C. Sahu, T. S. Kumar, N. S. Sarma, B. S. Rao, and P. Shanmugam, **2019**: Assessment of model-simulated upper ocean biogeochemical dynamics of the Bay of Bengal. *Journal of Sea Research*, Volume 146, 2019, Pages 63-76, ISSN 1385-1101, <https://doi.org/10.1016/j.seares.2019.01.001>
- [5] Kersalél, M., R. Perez, S. Speich, C. S. Meinen, T. Lamont, M. L. Hénaff, M. A. van den Berg, **S. Majumder**, I. J. Ansorge, S. Dong, C. Schmid, T. Terre, and S. L. Garzoli, **2019**. Shallow and deep eastern boundary currents in the South Atlantic at 34.5°S: mean structure and variability. *Journal of Geophysical Research: Oceans*, 124. <https://doi.org/10.1029/2018JC014554>.
- [6] **Majumder, S.** and Schmid, C.: A study of the variability in the Benguela Current volume transport, *Ocean Sci.*, 14, 273-283, <https://doi.org/10.5194/os-14-273-2018>, **2018**.

- [7] Schmid, C. and **Majumder, S.**: Transport variability of the Brazil Current from observations and a data assimilation model, *Ocean Sci.*, 14, 417-436, <https://doi.org/10.5194/os-14-417-2018>, **2018**.
- [8] **Majumder, S.**, C. Schmid, and G. Halliwell, **2016**: An observation and model-based analysis of meridional transports in the South Atlantic, *J. Geophys. Res. Oceans*, 121, 5622–5638, doi:[10.1002/2016JC011693](https://doi.org/10.1002/2016JC011693).
- [9] **Majumder, S.**, A. Tandon, D. L. Rudnick, and J. T. Farrar, **2015**: Near-inertial kinetic energy budget of the mixed layer and shear evolution in the transition layer in the Arabian Sea during the monsoons. *J. Geophys. Res. Oceans*, 120, 6492–6507, doi:[10.1002/2014JC010198](https://doi.org/10.1002/2014JC010198).
- [10] Weller, R., **S. Majumder**, and A. Tandon, **2014**: Diurnal re-stratification events in the southeast Pacific trade wind regime, *J. Phys. Oceanography*, 44, 2569–2587, doi:<http://dx.doi.org/10.1175/JPO-D-14-0026.1>

## **Publications [submitted/in prep.]**

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- [1] **Majumder, S.**, Lozier S. M. and F. Li, **2021**: On the optimization of the OSNAP array at the Subpolar North Atlantic Ocean [**submitted**].
- [2] **Majumder et. al. 2021**: Freshwater and heat budgets in the subpolar North Atlantic Ocean [**in prep.**].

## **Grants/Proposal**

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Variability of the Circulation in the Western Indian Ocean and the Relationship to the Monsoon, 2021 [submitted to NASA].

## **Teaching & Mentoring**

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- 09/2018 – 01/2019 Course taught - waves and tides, University of Georgia
- 05/2013 – 08/2013 Co-advised Manita Chouksey with Dr. Amit Tandon, a graduate student visiting University of Massachusetts Dartmouth from IIT Bhubaneswar, India; guided her analysis of data from RAMA mooring at 15N in the Bay of Bengal.
- 01/2007 – 04/2007 Teaching Assistant; University of Massachusetts Dartmouth; Courses taught: Oceanography 101, PHY 103, PHY 111, PHY 182; shared responsibilities for exams, homework assignments, and grades; held office hours, led review/discussions

## **Selected Conference Presentations**

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- [1] May 2019, Gordon Research Conference, Manchester, New Hampshire: Transport mechanisms of Greenland ice sheet-melt water into the Labrador Sea (Poster)
- [2] August 2018, AOML, NOAA, Miami: Propagating modes of variability and their impact on the western boundary current in the South Atlantic (Oral)
- [3] February 2018, AGU Ocean Sciences, Portland, Oregon: An analysis of the interannual variability of the Brazil Current (Poster)
- [4] May 2017, US AMOC Science Team Meeting, New Mexico: A Study of the Variability of the Benguela Current (Poster)
- [5] September 2016, CLIVAR Open Science Conference, Qingdao, China: On the temporal variability of Meridional Transports in the Subtropical South Atlantic. (Poster)
- [6] February 2014, AGU Ocean Sciences, Honolulu, Hawaii: Diurnal Re-stratification Events and Near Inertial Mixing in the Subtropical Southeastern Pacific. (Poster)
- [7] February 2012, AGU Ocean Sciences, Salt Lake City, Utah: Near-Inertial Kinetic Energy Distribution at the Arabian Sea Mooring. (Poster)
- [8] January 2012, University of Massachusetts Boston, Boston, MA: Near-Inertial Wind Work at the Upper Ocean. (Oral)
- [9] June 2011, IIT, Kharagpur, India: Transition Layer Dynamics and the Near-Inertial Kinetic Energy Budget in the Upper Ocean. (Oral)
- [10] April 2011, SMS Colloquium, University of Massachusetts Lowell, MA: Near-Inertial Kinetic Energy Propagation in the Upper Ocean. (Oral)

- [11] September 2010, University of Washington, Seattle, Washington, Physical Oceanography Student Meet: Near-Inertial Transition Layer Dynamics at the Arabian Sea Mooring. (Oral)
- [12] February 2010, AGU Ocean Sciences, Portland, Oregon: Hourly to Weekly Transition Layer Variations at the Arabian Sea Mooring. (Poster)
- [13] June 2009, GRC (Coastal Ocean Circulation), Colby-Sawyer College, New London, NH: Transition Layer Characteristics at the Arabian Sea Mooring. (Poster)
- [14] December 2008, AGU Fall Meeting, San Francisco, California: Probability density distributions and event-based analyses of transition layers from Arabian Sea and Marine Light Mixed Layer Moorings. (Poster)

## **Science Communication/Workshop**

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- 02/2016 AMOC Science team workshop, New Orleans, USA
- 2009, 2010, 2011, 2013 Communicated research findings to a broader audience at Waterfront Festivals, MA, New Bedford, USA
- 2011 Demonstrated rotating table experiments, High School Marine Science Symposium, Dartmouth, MA, USA
- 18/2011 –11/2011 Bay of Bengal Monsoon Workshop on identifying the key processes in Bay of Bengal influencing Indian Monsoon, WHOI, Woods Hole, MA, USA

## **Field Experience**

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- 2017: Western Boundary (Gulf Stream) Cruise; 2 days at sea; CTD, LADCP, data processing
- 2010: River plume experiment in Merrimack river, Newburyport, MA; 5 days at sea. Deployed and collected drifters
- 2009: Participated in oceanographic field experiments in Buzzards Bay; 2 days at sea. Responsibility included: Operations of ADCP and CTD, data processing

## Technical Skills

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MATLAB, Python (numpy, scipy, pandas, scikit learn, matplotlib), Octave, Ferret, Fortran, C, Ocean Data View, ArcGIS, Unix Shell Scripting, LaTeX; statistical data analysis, time series analysis, data visualization, handling big geophysical data sets, Machine learning

## Professional Affiliations

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**Member:** American Geophysical Union (AGU); member, American Physical Society (APS); member - US Climate Variability and Predictivity Program (CLIVAR) Task Team 2

**Reviewer:** Climate Dynamics, Journal of Atmospheric and Oceanic Technology, Journal of Geophysical Research-Oceans, Journal of Oceanology and Limnology and, Fluids

**Miscellaneous:** Judge for the Georgia Science and Engineering Fair in 2019