

# Agniv Sengupta

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## Education

**University of Maryland College Park** College Park, MD  
*Ph.D., Atmospheric and Oceanic Science* Dec 2019

- *Advisor:* Prof. Sumant Nigam
- *Dissertation:* SST-based Statistical Prediction of South Asian Summer Monsoon Rainfall Distribution

**University of Maryland College Park** College Park, MD  
*Master of Science, Atmospheric and Oceanic Science* Aug 2014 - Dec 2016

- *Advisor:* Prof. Sumant Nigam
- *Thesis:* The 2015-16 El Niño Episode: Classical Onset with Complex Evolution

**Jadavpur University, India** Kolkata, India  
*Bachelor of Engineering, Civil Engineering, First class honors* Jul 2010 - Jun 2014

## Research Interests

• Climate Dynamics • Hydroclimate Variability • Subseasonal-to-Seasonal Prediction • Atmospheric Rivers • Monsoon Dynamics • Ocean-Atmosphere Interactions

## Professional Experience

**Jet Propulsion Laboratory, California Institute of Technology** Pasadena, CA  
*Postdoctoral Scholar, Aerosols and Clouds group* Jan 2020 - present

- *Advisor:* Dr. Duane E. Waliser
- *Research areas:* Improving prediction of western U.S. subseasonal-to-seasonal precipitation; Global/regional water cycle; Atmospheric rivers

**University of Maryland College Park** College Park, MD  
*Graduate Research Assistant, Department of Atmospheric and Oceanic Science* Jun 2015 - Dec 2019

- *Advisor:* Prof. Sumant Nigam
- *Research areas:* Seasonal prediction of South Asian summer monsoon rainfall; Separation of natural variability and secular trend to advance understanding of hydroclimate impacts

## Academic Honors

- *Ann G. Wylie Dissertation Fellowship*, University of Maryland 2019
- *Outstanding Graduate Research Assistant Award*, University of Maryland 2018-19
- *Eugene Rasmusson Graduate Fellowship*, University of Maryland 2018
- *Jacob K. Goldhaber Travel Award*, University of Maryland 2017
- *Leah Thornton Lozano Graduate Fellowship*, University of Maryland 2017
- *NCAR-CESM Tutorial Award*, National Center for Atmospheric Research, Boulder, CO 2017
- *CMNS Dean's Fellowship*, University of Maryland 2016
- *CMNS Dean's Fellowship*, University of Maryland 2014-15
- *Indian Academy of Sciences Summer Research Fellowship* 2013

## Publications

### Peer-reviewed:

- Nigam, S., **A. Sengupta**, and A. Ruiz-Barradas, 2020: Atlantic-Pacific links in observed multidecadal SST variability: Is the Atlantic Multidecadal Oscillation's phase-reversal orchestrated by the Pacific Decadal Oscillation? *J. Climate*, **33**, 5479-5505, <https://doi.org/10.1175/JCLI-D-19-0880.1>.
- **Sengupta, A.** and S. Nigam, 2019: The Northeast winter monsoon over the Indian subcontinent and Southeast Asia: Evolution, interannual variability, and model simulations. *J. Climate*, **32**, 231-249, <https://doi.org/10.1175/JCLI-D-18-0034.1>.
- **Sengupta, A.** and M. Rajeevan, 2013: Uncertainty quantification and reliability analysis of CMIP5 projections for the Indian summer monsoon. *Current Science*, **105(12)**, 1692-1703.

### Manuscripts submitted and in preparation:

- Nigam, S., and **A. Sengupta**, 2020: The full extent of El Niño's precipitation influence on the United States and the Americas: The sub-optimality of the Niño 3.4 SST index. submitted to *Geophysical Research Letters*.
- **Sengupta, A.**, S. Nigam, and A. Ruiz-Barradas, 2020: SST-based predictability and prediction of the South Asian summer monsoon rainfall distribution. In preparation.

## Conference Presentations

° Oral; +Poster

- **Sengupta, A.** and S. Nigam, 2018: The Northeast winter monsoon: Evolution and ENSO impact in observations and model simulations, *American Geophysical Union Fall Meeting*, Washington, D.C.+
- **Sengupta, A.**, S. Nigam, and A. Ruiz-Barradas, 2018: South Asian summer monsoon: SST-based predictability and real-time forecast of the 2016 and 2017 monsoon, *31<sup>st</sup> Conference on Climate Variability and Change at 98<sup>th</sup> AMS Annual Meeting*, Austin, TX.+
- **Sengupta, A.**, S. Nigam, and A. Ruiz-Barradas, 2017: SST-based statistical forecast of South-Southeast Asian summer monsoon rainfall distribution, *6th WMO International Workshop on Monsoons*, Singapore.°
- **Sengupta, A.**, S. Nigam, S. Baxter, and A. Ruiz-Barradas, 2016: Anatomy of the 2015-2016 El Niño episode, *41st Annual NOAA Climate Diagnostics and Prediction Workshop*, Orono, ME.°
- **Sengupta, A.** and M. Rajeevan, 2013: Assessment of South Asian summer monsoon climatology based on CMIP5 historical simulations and representative concentration pathways (RCPs), *International Conference on Advances in Water Resources Development and Management*, Chandigarh, India.°

## Teaching and Mentorship Experience

### University of Maryland College Park

Teaching Assistant/Instructor, Department of Atmospheric and Oceanic Science

College Park, MD

2014-15 and 2018-19

- AOSC 200: Weather and Climate with Dr. Tim Canty. Developed and taught lectures to 2 discussion sections (30 students each), assisted in preparing and grading of exams, provided feedback on final projects.
- AOSC 201: Weather and Climate Laboratory. Served as Lead Instructor for the associated lab course, and guided students in taking meteorological observations.

Research Mentor, Department of Atmospheric and Oceanic Science

2017-18

- Supervised UG student - Lu Zhang in his Senior year thesis: Climate change in the Indus River basin.

## Professional Internships

### Indian Academy of Sciences

New Delhi, India

*Summer Research Fellow (Supervisor: Dr. M. Rajeevan)*

*May - Jul 2013*

- Provided a quantitative estimate of the uncertainty range and reliability of future climate projections informing the Intergovernmental Panel on Climate Change's Fifth Assessment for Indian summer monsoon.

### Indian Institute of Technology, Bombay (IIT Bombay)

Mumbai, India

*Summer Research Intern (Supervisors: Dr. Subimal Ghosh & Dr. Subhankar Karmakar)*

*May - Jul 2012*

- Investigated the seasonality, interannual variability and multidecadal periodicity of Indian rainfall; evaluated the CMIP5 suite of climate model runs in this context.

## Technical Skills

- **Programming Languages:** Python, MATLAB, Fortran, HTML, C.
- **Tools:** GrADS, CDO, L<sup>A</sup>T<sub>E</sub>X, AutoCAD.
- **Operating Systems:** Unix/Linux, macOS.

## Professional Activities

*Student Board Member, AMS Committee on Climate Variability and Change*

*2018-20*

- Worked towards promoting climate research and prediction, and fostering transfer of climate knowledge.

*Journal Reviewer*

- *Journal of Climate, Journal of Geophysical Research: Oceans, International Journal of Climatology, Earth and Space Science, Atmospheric Science Letters, Climatic Change, Current Science*

*Treasurer, UMD MetoGrads Student Organization*

*2017-19*

- Implemented an operating budget, organized community events and fundraisers.
- Maintained financial statements and balance sheets for all graduate student organization expenses.

*Graduate Student Member, Atmospheric and Oceanic Science Admissions Committee*

*2018-19*

- Worked towards recruiting diverse students, especially from under-represented groups.

*Graduate Student Member, Atmospheric and Oceanic Science Alumni Committee*

*2017-18*

- Served as the bridge between the Department and alumni through events, seminars, newsletters, etc.
- Helped organize the AOSC alumni reception at the AMS Annual Meeting.

*Graduate Student Member, Atmospheric and Oceanic Science Awards Committee*

*2015-16*

- Charged with identifying and submitting recommendations for student and faculty awards.

## Professional Memberships

- American Meteorological Society, 2017 - present
- American Geophysical Union, 2018 - present

## Outreach Activities

- Student Volunteer, *5<sup>th</sup> USA Science and Engineering Festival*, Washington D.C., April 7-8, 2018. Manned the UMD Atmospheric and Oceanic Science Department booth, and demonstrated displays to the visitors.
- Science Instructor, Elmer Wolfe Elementary School, May 2017. Presented laboratory experiments, and discussed potential career paths in science with 5<sup>th</sup> grade elementary school students.
- Volunteer on *Maryland Day*, April 2015 and 2016. Presented demonstration on the Urban Heat Island problem to the attendees.