

Sreenath Paleri

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EDUCATION	University of Wisconsin Madison <i>Ph.D. Student in the Department of Atmospheric and Oceanic Sciences</i> <i>Research Focus:</i> Interactions between land surface heterogeneities and meso scale circulations in the atmospheric boundary layer <i>Advisor: Dr. Ankur Desai, Ecometeorology Lab</i>	Sep 2018-present
	Indian Institute of Technology Madras, Chennai, India <i>B Tech in Civil Engineering and M Tech in Applied Mechanics</i> <i>Master's Thesis:</i> Interaction of Inertial Particles with Line Plumes in Natural Convection <i>Advisor: Dr. Baburaj Puthenveetil, Laser Velocimetry and Fluorescence Lab</i>	2008-2013

RESEARCH EXPERIENCE	Department of Atmospheric and Oceanic Sciences, UW Madison <i>Research Assistant, with Prof. Ankur Desai.</i> Chequamegon Heterogeneous Ecosystem Energy-balance Study Enabled by a High-density Extensive Array of Detectors (CHEESEHEAD19) <ul style="list-style-type: none">– Ran preliminary Large Eddy Simulations(model : PALM) for the numerical experiment design before the field campaign– Working on realistic LES over the field experiment domain using field measurements– Analyzing 25 Hz aircraft measurements across the CHEESEHEAD domain using the NEON eddy4R family of open source packages for eddy-covariance (EC) raw data processing, analyses	Sep 2018 - Present Madison, Wisconsin USA
	Institute of Hydrology and Meteorology, Technische Universität Dresden <i>Visiting Researcher, hosted by Prof. Dr. Matthias Mauder</i> Scale analysis of airborne flux measurements and setting up realistic Large Eddy Simulations using field experiment data <ul style="list-style-type: none">• Worked on extending the flux topography approach of Mauder et al. 2008 to back project scale resolved airborne fluxes measured during the CHEESEHEAD19 campaign across a heterogeneous forested domain• 8 ensemble runs of Large Eddy Simulations corresponding to autumn field experiment days were successfully completed	Feb - Apr 2022 Dresden, Germany
	Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science <i>Project Scientist, with Prof. Bhat G. S.</i> Interaction of Convective Organization and Monsoon Precipitation, Atmosphere, Surface and Sea(INCOMPASS) <ul style="list-style-type: none">• Field Work Installation of the relevant instruments and measurement of corresponding meteorological variables at four field sites across India (Jaisalmer, Ahmadabad, Patna, Bangalore) over different climatic conditions<ul style="list-style-type: none">– Measurement of insitu surface fluxes using (eddy covariance) CSAT-3 Sonic Anemometers and EC-150 Open path CO₂, H₂O gas analyzer from Campbell Scientific– Observations of precipitation intensity and droplet size spectrum using Thies Clima laser precipitation monitors– Ground based measurement of all four components of net radiation using Kipp and Zonen net radiometers• Land-Atmosphere Interactions<ul style="list-style-type: none">– Calculated the turbulent boundary layer fluxes for heat, momentum and trace gases from high frequency(20Hz) time series data obtained from June 2016, for wind, temperature, CO₂ and H₂O concentrations	Feb 2016 - Jul 2018 Bangalore, India

- Studied the spectral characteristics of the boundary layer turbulence within a similarity theory (Monin-Obukhov) framework across the trough of Indian summer monsoon

Department of Fluid Mechanics, IIT Madras

Jan 2012-Mar 2012

Research Intern, with Dr. Patnaik P.

Chennai, India

Comparative study of experiments and simulations for flow past a circular cylinder ($50 < Re < 5 \times 10^5$)

- Experimentally measured the pressure and velocity profiles for downstream sections of flow past a circular cylinder from a closed loop **wind tunnel**
- Numerical simulations (using FLUENT) were performed for the same flow conditions to obtain the velocity vector plots and vorticity magnitudes

Department of Civil Engineering, IIT Madras

Nov 2009-Mar 2010

Project

Chennai, India

Design and Construction of a Concrete Canoe

PRESENTATIONS

- **Diagnosing the Effects of Surface Heterogeneity Induced Secondary Circulations from Large Eddy Simulations of Diurnal Cycles During the CHEESEHEAD19 Field Campaign** Dec. 2021
Oral Session, American Geophysical Union, Fall Meeting
- **Scale resolved, sub-grid surface fluxes across a heterogeneous mid-latitude forested landscape** June 2021
Oral Session, Online, AMS 34th Conference on Agricultural and Forest Meteorology
- **Representativeness of surface heterogeneity induced secondary atmospheric circulations in Large Eddy Simulations** Dec. 2020
Oral Session, Online, American Geophysical Union, Fall Meeting
- **Scale resolved, sub-grid surface fluxes across a heterogeneous mid-latitude forested landscape** June 2020
Talk, CHEESEHEAD mini conference
- **Scale resolved flux contributions to surface atmospheric interactions across a mid-latitude, heterogeneous landscape from airborne measurements** Nov. 2020
UW AOSS Department Seminar, Madison, Wisconsin
- **Using high resolution observations and realistic LES to study the interactions between land surface heterogeneity and lower atmospheric response** Nov. 2020
Invited talk, Online, Coupling of Land and Atmospheric Subgrid Parameterizations (CLASP) Project Meeting
- **Mesoscale flux contributions to surface-atmosphere interactions across a heterogeneous mid-latitude landscape** Dec. 2019
Oral Session, American Geophysical Union, Fall Meeting
- **Interactions between land surface heterogeneity and scale transport in the Atmospheric Boundary Layer** Oct. 2019
Invited Talk, RUBISCO-Ameriflux Workshop, Lawrence Berkeley National Lab, Berkeley, CA.
- **Spectral characteristics of atmospheric turbulence for the diurnal changes of stability in the surface layer** 2018
Poster Session, Fluids Day Symposium, Department of Mechanical Engineering, IISc

PUBLICATIONS

Peer reviewed

Novel approach to observing system simulation experiments improves information gain of surface-atmosphere field measurements 2021

S. Metzger, D. Durden, S. Paleri, M. Sührling, B. Butterworth, A. Desai, C. Florian, M. Mauder, D. Plummer, E. Sigel, Z. Wang, L. Wanner, K. Xu

Atmospheric Measurement Techniques, DOI:10.5194/amt-14-6929-2021

Multi-sensor approach for high space and time resolution land surface temperature
Ankur R. Desai, Anam M. Khan, Ting Zheng, **Sreenath Paleri**, Brian Butterworth, Temple R. Lee, Joshua B. Fisher, Glynn Hulley, Tania Kleynhans, Aaron Gerace, Philip A. Townsend, Paul Stoy, Stefan Metzger **2021**
Earth and Space Science, DOI:10.1029/2021EA001842

Connecting Land–Atmosphere Interactions to Surface Heterogeneity in CHEESEHEAD19
Butterworth *et al.* **2020**
Bulletin of the American Meteorological Society, DOI:10.1175/BAMS-D-19-0346.1

Spatial and temporal variability in energy and water vapour fluxes observed at seven sites on the Indian subcontinent during 2017 **2019**
G. S. Bhat, R. Morrison, C. M. Taylor, B. K. Bhattacharya, **S. Paleri**, D. Desai, J. G. Evans, S. Pattnaik, M. Sekhar, R. Nigam, A. Sattar, S. S. Angadi, D. Kacha, A. Patidar, S. N. Tripathi, K. V. M. Krishnan, A. Sisodiya
Quarterly Journal of the Royal Meteorological Society, DOI:10.1002/qj.3688

Interaction of convective organization with monsoon precipitation, atmosphere, surface and sea: The 2016 INCOMPASS field campaign in India **2019**
A. G. Turner, G. S. Bhat *et al.*
Quarterly Journal of the Royal Meteorological Society, DOI:10.1002/qj.3633

In Press
Spatial Patterns and Scales, in Hiscox, A., McCombs, A., Eds., **Conceptual Boundary Layer Meteorology: The Air Near Here**, Elsevier
S. Paleri, Butterworth, B., Desai, A.R.

Under Review
Space - scale resolved surface-atmospheric fluxes across a heterogeneous midlatitude forested landscape
S. Paleri, A. Desai, S. Metzger, D. Durden, B. Butterworth, M. Mauder
Journal of Geophysical Research - Atmospheres, DOI:10.1002/essoar.10511424.1

In Preparation
Representing and diagnosing surface heterogeneity induced secondary circulations in Large Eddy Simulations
S. Paleri, L. Wanner, M. Sühring, A. Desai, B. Butterworth, M. Mauder, S. Metzger, D. Durden

AWARDS AND FELLOWSHIPS

Financial Awards

- University of Wisconsin-Madison, AOS Travel Grant. (\$1,000) **Oct. 2021**
- Reinhard-Süring-Foundation Travel Scholarship (€700) **Feb. 2020**

Academic Awards and fellowships

- Schwerdtfeger Award for academic excellence **Apr. 2019**
- Research Fellowship, Center for Climate Research, Nelson Institute, University of Wisconsin Madison **Sep. 2018**

PROFESSIONAL EXPERIENCE

Cognizant Technology Solutions,
Associate, Business Analytics

July 2013-Feb2016
Chennai, India

- Developed statistical models using **logistic regression** and **Principal Component Analysis** on **big data** to predict consumer behavior for multiple marketing analytics projects

Cochin Port Trust, Government of India,
Industrial Intern

May -July 2011
Cochin, India

- Session co-chair, AMS 34th Agricultural and Forest Meteorology conference: Advances in Spatial and Temporal Scaling of Surface-Atmosphere Fluxes **June 2021**
- Judge, NASA GLOBE Midwest Earth System Science Symposium **May 2021**

University Service

- Member, Teaching Assistants' Association. University of Wisconsin-Madison **2018-Present**
- Member, Atmospheric and Oceanic Sciences Graduate Student Association. University of Wisconsin-Madison **2018-Present**
- Student Mentor, Atmospheric and Oceanic Sciences Undergraduate Mentorship Program. University of Wisconsin-Madison **2019-Present**
- Organizer, Department Open House, Center for Atmospheric and Oceanic Sciences, Indian Institute of Science **2015,2016**

WORKSHOPS AND PROFESSIONAL DEVELOPMENT

- Selected to participate in Field Experiment on Submesoscale Spatio-Temporal Variability in Lindenberg (FESSTVal) Summer School **2022**
Scharmützelsee (Brandenburg), near Berlin, MOL-RAO Germany (postponed from 2020 due to COVID-19 and finally cancelled)
- Unlearning Racism in Geosciences (URGE) **Feb. - May 2021**
University of Wisconsin-Madison
- Reducing Uncertainties in Biogeochemical Interactions through Synthesis and Computation (RUBISCO) Workshop **Oct. 2019**
University of California, Berkely, CA
- Teaching in Science and Engineering **Sept.-Dec. 2018**
University of Wisconsin-Madison
- Summer School and Discussion Meeting on Buoyancy Driven Flows **2018**
International Center for Theoretical Sciences , Bangalore, India

TEACHING AND MENTORING

- Mentor, Atmospheric and Oceanic Sciences Undergraduate Mentorship Program, University of Wisconsin-Madison **2020-Present**
- Teaching Assistant, Introduction to Weather and Climate, Department of Atmospheric and Oceanic Sciences, UW Madison **August -December 2018**
- Teaching Assistant, Engineering Mechanics, Department of Applied Mechanics, IIT Madras **August -December 2012**