Anamika Shreevastava

NASA Earth and Space Science Fellow

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EDUCATION

Purdue University, West Lafayette, IN — **Aug '16 – onwards**
PhD, Civil Engineering; Specialization: Urban Climate — GPA: 3.91/4.00
Interdisciplinary graduate program of Ecological Sciences and Engg,
Advisor: Prof. Suresh Rao

Purdue University, West Lafayette, IN — **May '16**
MS, Civil Engineering; Specialization: Architectural Engineering — GPA: 3.65/4.00

Indian Institute of Technology, Roorkee, India — **May '14**
Bachelor of Technology, Department of Civil Engineering — GPA: 7.86/10.00

RELEVANT GRADUATE COURSES

Smart Cities analytics, Boundary Layer Meteorology, Complex Systems Engineering, Resilient Hybrid Infrastructure Networks, GIS, Geospatial Modeling and Analysis, Land Surface Modeling, and Environmental Informatics, Urban Ecosystem Services.

JOURNAL PUBLICATIONS

1. **Shreevastava, A.,** Rao, P. S. C., & McGrath, G. S. (2018, October). Spatial analysis of the Surface Urban Heat Island. *Land Surface and Cryosphere Remote Sensing IV* (Vol. 10777, p. 107770C). International Society for Optics and Photonics.
2. **Shreevastava, A.,** Rao, P. S. C., & McGrath, G. S. (2019). Emergent scaling of intra-urban heat islets across global cities *(in review with Physical Reviews E).*
3. **Shreevastava, A.,** Bhalachandran, S., McGrath, G.S., Huber, M., & Rao, P.S.C. (2019). Impact of urban expansion and densification on the spatial organization of intra-urban extreme heat islets *(in preparation).*
4. Bhalachandran, S., Chavas, D. R., Marks, F. D., Dubey, S., **Shreevastava, A.,** & Krishnamurti, T. N. (2019). Characterizing the energetics of multiscale asymmetries during tropical cyclone rapid intensity changes *(in review with Journal of Atmospheric Sciences).*
5. Ching, J., et al (2018). WUDAPT: An urban weather, climate, and environmental modeling infrastructure for the anthropocene. *Bulletin of the American Meteorological Society*, 99(9), 1907-1924.

PRESENTATIONS IN CONFERENCES

1. **Shreevastava, A.,** Rao, P. S., & McGrath, G. S. (2018, December). Fractal topography of the intra-urban thermal landscape. *AGU Fall Meeting Abstracts, Washington, DC.*
2. **Shreevastava, A.,** McGrath, G., Rao, P.S.C., (2017) Characterizing the intra-urban spatial structure of High Heat Stress Zones. *AGU Fall meetings, New Orleans, LA.*
3. **Shreevastava, A.,** Bhalachandran, S., Rao, P.S.C., and Niyogi, D. (2017) Role of heterogeneity in LULC and LST association in a WUDAPT framework. *97th AMS Annual Meeting, Seattle, WA.* **(Won the AMS Best Presentation Award)**
4. **Shreevastava, A.,** Bhalachandran, S., Krueger, E., Rao, P.S.C., Modak, P., and Niyogi, D. (2017) A resilience analysis of the C-40 cities. *97th AMS Annual Meeting, Seattle, WA.*

FELLOWSHIP

NASA Earth and Space Science Fellowship (NESSF) **Sept '17 – Sept '20**

- Currently working on characterizing the intra-urban high heat stress zones using a combined approach of satellite observations and modelling.

INTERNATIONAL EXPERIENCE

Synthesis of Complex Networks Workshop, TU Dresden, Germany **Aug '16 & Aug '17**

- Studied the fractal characteristics of thermal variance within cities as a part of collaboration between several international universities. (Research findings presented at AGU and submitted to *Physical Reviews E*)
- Preliminary modelling the urban heat island as a spatially embedded network of heat flows from thermal sources to sinks.

GRADUATE RESEARCH ASSISTANTSHIP

Master's research: Estimation of anthropogenic heat flux at a city scale **June '15 – Jan '16**

- Developed an algorithm to estimate the heat generated due to thermal conditioning of buildings and emissions from vehicles at a city-scale for a coupled land-atmospheric model.
- Worked with the World Urban Database and Portal Access Tool (WUDAPT) team to develop Local Climate Zones maps for Indian cities.
- Research findings were presented by Prof. Jason Ching at the 3rd WUDAPT workshop in Hong Kong (Dec '15) and published in *Bulletin of the American Meteorological Society*.

SELECTED PROJECTS

An energy efficiency study for different urban forms **Nov '15 – Dec '15**

- An energy efficiency analysis of four communities of different urban layouts as characterized by Local Climate Zones was done using Simergy (software based on EnergyPlus).

Spatial correlation analysis of LULC and LST using GIS **Mar '15 – May '15**

- Spatial correlation of remotely sensed Land Surface Temperature and Local Climate Zone (LCZ) for the city of Indianapolis was studied.
- The project was developed further to explore the role of spatial heterogeneity in modulating the correlation (presented at AMS'17)

TEACHING EXPERIENCE

Graduate Instructor, Purdue University **Jan '16 – May'16**

Worked as a mentor for an interdisciplinary graduate class on resilient cities design.

Graduate Teaching Assistant, Purdue University **Aug '14 – May '15**

Courses taught: Principles and Practices of Geomatics, and Applied Statics
Responsibilities include: Demonstrations, field work, designing lab experiments, holding tutorial sessions and grading.

SKILLS

Programming: Matlab, Python, R, Latex. Remote Sensing & Geospatial Analysis: ArcGIS, SAGA GIS, R, Google Earth Engine. Modelling: Weather Research Forecast (WRF).