

## DR. PINKI MONDAL

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University of Delaware

Department of Geography & Spatial Sciences

125 Academy Street, Newark, DE 19716, USA

### APPOINTMENTS

2021 – Director, Environmental Science Program, University of Delaware, Newark, DE

2018 – University of Delaware, Newark, DE

Assistant Professor; Department of Geography and Spatial Sciences

Joint Appointment: Assistant Professor; Department of Plant and Soil Sciences

Resident Faculty: Data Science Institute

Affiliate: Delaware Environmental Institute; Water Science and Policy Program; Center for Food Systems and Sustainability

2015 – Columbia University, New York

2018 Senior Research Associate; Center for International Earth Science Information Network (CIESIN), Earth Institute

2012 – Columbia University, New York

2015 Postdoctoral Research Scientist; Department of Ecology, Evolution and Environmental Biology

2011 University of Massachusetts – Amherst, Massachusetts

Postdoctoral Research Associate; Department of Environmental Conservation, Family Forest Research Center

### PROFESSIONAL PREPARATION

2011 University of Florida, Gainesville, Florida, USA

Ph.D. in Geography; Concentration: Land Change Science; Minor: Research Design and Methods in Conservation

2004 Jadavpur University, India

M.Sc. in Applied Geology

2002 University of Calcutta, India

B.Sc. in Geology (Honors); Minor: Chemistry and Mathematics

### GRANTS AND AWARDS (PI = Principal Investigator)

Submitted: NASA proposal for 2022-2025 for project titled "Boserup vs. Borlaug: A synthesis of land system changes, drivers and water sustainability in South Asia" (\$2,100,159 – Lead PI)

Submitted: NSF proposal for 2022-2025 for project titled "PROTEUS - Plant pROliferation sTrategies shape wEtland configUration and reSilience" (\$517,381 – Lead PI)

Submitted: NSF proposal for 2022-2027 for project titled "CAREER: Machine learning approaches to map fine-scale changes in smallholder agricultural systems" (\$433,814 – Single PI)

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Submitted: NSF proposal for 2022-2027 for project titled "Large-scale CoPe: REACCT - REsilient, Adaptable Communities facing Coastal Threats Hub for integrated research and engagement" (\$19,751,549 – key personnel)

Submitted: NASA FINESST proposal for 2022-2025 for project titled "Building West African land use inventory: A novel crop type dataset based on a new Robust Ensemble Thresholding (RET) technique" (\$150,000 – PI, with PhD student Ahouangbenon)

Submitted: NASA FINESST proposal for 2022-2024 for project titled "Assessing equality in urban green space access in four major US cities: A NAIP-Landsat data fusion approach" (\$100,000 – PI, with PhD student Walter)

Submitted: NSF proposal for 2022-2023 for project titled "IUCRC Planning Grant University of Delaware: Center for Robotic Oceanic and Coastal Systems (CROCS)" (\$20,000 – Co-PI)

Harry R. Hughes Center for Agro-Ecology Research proposal for 2022-2024 for project titled "Adapting to increasingly saline soil in coastal Maryland" (\$140,235 – Lead PI)

US National Fish and Wildlife Foundation grant for 2020-2022 for project titled "Increasing Wetland Habitat and Creating Tidal Salt Marshes to Support American Black Duck" (\$469,888 – UD co-PI)

NASA EPSCoR grant for 2020-2023 for project titled "Building a Competitive and Sustainable Delaware Remote Sensing Big Data Center for Cutting-Edge Coastal and Environmental Change Research and Workforce Development" (\$749,807 – co-PI)

University of Delaware Research Foundation (UDRF) Grant for 2019-2022 for project titled "Big data analytics for quantifying land cover transitions in coffee production systems in Vietnam" (\$38,500 – Single PI)

University of Delaware General University Research (GUR) Grant for 2019-2022 for project titled "Analyzing radar satellite data to examine changing rice intensification patterns in the Vietnamese Mekong Delta" (\$15,000 – Single PI)

Delaware Energy Institute grant for 2019-2021 for project titled "The energy footprint of food" (\$150,000 – co-PI)

University of Delaware Data Science Institute Seed Grant for 2019-2020 for project titled "A Data Visualization and Dissemination Dashboard (DVD2) for enhancing interdisciplinary research and collaboration" (\$10,000 – Single PI)

University of Delaware Center for Teaching and Assessment of Learning (CTAL) Instructional Improvement for 2019 for project titled "Training a new pool of teaching assistants using open educational resources for a new course in Geospatial Data Science" (\$5,000 – Single PI)

University of Delaware ADVANCE Institute Leadership Mini-grant for 2018 (\$1,563 – Single PI)

NASA Land-Cover and Land-Use Change (LCLUC) grant for FY 2017-2021 for project titled "The role of urbanization in degradation and regeneration of tropical deciduous forests in south Asia" (\$750,004 – co-I)

Google Earth Engine Research Award for 2014 for "The sensitivity of agricultural output to climate variability across smallholder farms in South Asia" (\$62,867 – Project collaborator)

Lamont Climate Center sponsored project for FY2014-2017 on “Assessing agricultural adaptation strategies for reducing winter crop sensitivity to future climate variability in central India” (\$9,850 – co-PI)

Indo-US Science and Technology Forum: Indo-US Bilateral Workshop for 2014 on “Adaptation of rural communities to climate change: Bridging the gap between academia and community workers and identifying research needs” (~\$16,000 – US PI)

USDA Forest Service (Remote Sensing Steering Committee) sponsored project for FY2012 (\$79,205 – Co-I)

### PUBLICATIONS (\*undergraduate mentee, †graduate advisee, ††postdoctoral mentee)

Peer-reviewed journal articles (published = 29)

29. **Mondal, P.**, Dutta, T., Qadir, A.<sup>†</sup>, Sharma, S. 2022. Radar and optical remote sensing for near-real time assessments of cyclone impacts on coastal ecosystems. Remote Sensing in Ecology and Conservation. <https://doi.org/10.1002/rse2.257>.
28. Maskell, G.<sup>†</sup>, Chemura, A., Nguyen, H. T. T., Gornott, C., **Mondal, P.** 2021. Integration of Sentinel optical and radar data for mapping smallholder coffee production systems in Vietnam. Remote Sensing of Environment. 266, 112709, doi: 10.1016/j.rse.2021.112709.
27. Huang, N., **Mondal, P.**, Cook, B., McDermid, S. 2021. Moisture and temperature influences on nonlinear vegetation trends in Serengeti National Park. Environmental Research Letters. 16: 094049, doi: 10.1088/1748-9326/ac1a37.
26. **Mondal, P.**, DeFries, R., Clark, J.\*, Flowerhill, N.\*, Arif, Md., Harou, A., Downs, S., Fanzo, J. 2021. Multiple cropping alone does not improve year-round food security among smallholders in rural India. Environmental Research Letters. 16: 0605017, doi: 10.1088/1748-9326/ac05ee.
25. Choksi, P., Singh, D., Singh, J., **Mondal, P.**, Nagendra, H., Urpelainen, J., DeFries, R. 2021. Sensitivity of seasonal migration to climatic variability in central India. Environmental Research Letters. 16: 064074. doi: 10.1088/1748-9326/ac046f.
24. DeFries, R., Agarwala, M., Baquie, S., Choksi, P., Khanwilkar, S., **Mondal, P.**, Nagendra, H., Urpelainen, J. 2021. Improved household living standards can restore dry tropical forests. Biotropica. doi: 10.1111/btp.12978.
23. Jain, M., Fishman, R., **Mondal, P.**, Galford, G., Bhattarai, N., Naeem, S., DeFries, R. 2021. Groundwater depletion will reduce cropping intensity in India. Science Advances. 7(9): eabd2849. DOI: 10.1126/sciadv.abd2849.
22. Baquie, S., Urpelainen, J., Khanwilkar, S., Galletti, C., Velho, N., **Mondal, P.**, Nagendra, H., DeFries, R. 2021. Migration, assets, and forest degradation in a tropical deciduous forest of South Asia. Ecological Economics. 181: 106887.

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21. Liu, X., Fatoyinbo, T.E., Thomas, N.M., Guan, W., Zhan, Y., **Mondal, P.**, Lagomasino, D., Simard, M., Trettin, C.C., Deo, R., Barenblitt, A. 2021. Large-scale high-resolution coastal mangrove forests mapping across West Africa with machine learning ensemble and satellite big data. Frontiers in Earth Science. doi: 10.3389/feart.2020.560933.
  20. Jin, E. <sup>††</sup>, Al Fahel, N., **Mondal, P.**, Li, H., Archer, C. L. 2020. Energy Footprint of Food: The Case of Corn Production in Delaware. Food and Energy Security. 9:e222, doi: 10.1002/fes3.222.
  19. DeFries, Agarwala, M., Baquie, S., Choksi, P., Dogra, N., Preetha G.S., Khanwilkar, S., **Mondal, P.**, Nagendra, H., Urpelainen, J. 2020. Post-lockdown spread of COVID-19 from cities to vulnerable forest-fringe villages in Central India. Current Science. 119(1).
  18. Qadir, A. <sup>†</sup>, **Mondal, P.** 2020. Synergistic use of radar and optical satellite data for improved monsoon cropland mapping in India. Remote Sensing. 12(3), 522, doi: 10.3390/rs12030522
  17. **Mondal, P.**, McDermid, S., Qadir, A. <sup>†</sup> 2020. A reporting framework for Sustainable Development Goal 15: Multi-scale monitoring of forest degradation using MODIS, Landsat and Sentinel data. Remote Sensing of Environment. 237, 111592, doi: 10.1016/j.rse.2019.111592.
  16. **Mondal, P.**, Liu, X., Fatoyinbo, L., Lagomasino, D. 2019. Evaluating combinations of Sentinel-2 data and machine-learning algorithms for mangrove mapping in West Africa. Remote Sensing. 11(24), 2928, doi: 10.3390/rs11242928.
  15. Walter, M. <sup>†</sup>, **Mondal, P.** 2019. A rapidly assessed wetland stress index (RAWSI) using Landsat 8 and Sentinel-1 radar data. Remote Sensing. 11(21), 2549, doi: 10.3390/rs11212549.
  14. **Mondal, P.**, Trzaska, S., de Sherbinin, A. 2018. Landsat-derived estimates of mangroves in the Sierra Leone Coastal Landscape Complex during 1990-2016. Sensors. 18(1), 12, doi: 10.3390/s18010012.
  13. Jain, M., **Mondal, P.**, Galford, G., Fiske, G., DeFries, R. 2017. An Automated Approach to Map Winter Cropped Area of Smallholder Farms across Large Scales Using MODIS Imagery. Remote Sensing. 9(6), 566, doi: 10.3390/rs9060566.
  12. DeFries, R., Fanzo, J., **Mondal, P.**, Remans, R., Wood, S. 2017. Is voluntary certification of tropical agricultural commodities achieving sustainability goals?: A review of the evidence. Environmental Research Letters. 12(3) 033001.
  11. DeFries, R., **Mondal, P.**, Singh, D., Agrawal, I, Fanzo, J., Remans, R., Wood, S. 2016. Synergies and Trade-offs for Sustainable Agriculture: Nutritional Yields and Climate-Resilience for Cereal Crops in Central India. Global Food Security 11, 44-53\_ doi: 10.1016/j.gfs.2016.07.001.
  10. **Mondal, P.**, Jain, M., Zukowski, M., Galford, G., DeFries, R. 2016. Quantifying fluctuations in winter cropped area in the Central Indian Highland landscape. Regional Environmental Change 16, 69-82.

9. **Mondal, P.**, Jain, M., DeFries, R., Galford, G., Small, C. 2015. Sensitivity of crop cover to climate variability: Insights from two Indian agro-ecoregions. Journal of Environmental Management 148, 21-30.
8. **Mondal, P.**, Jain, M., Robertson, A., Galford, G., Small, C., DeFries, R. 2014. Winter crop sensitivity to inter-annual climate variability in central India. Climatic Change 126, 61-76.
7. Jain, M., **Mondal, P.**, DeFries, R., Small, C., Galford, G. 2013. Mapping cropping intensity of smallholder farms: a comparison of methods using multiple sensors. Remote Sensing of Environment 134, 210-223.
6. **Mondal, P.**, Butler, B., Kittredge, D., Moser, W. 2013. How are America's private forests changing? An integrated assessment of forest management, housing pressure, and urban development in alternate emissions scenarios. Land Use Policy 32, 230-238.
5. **Mondal, P.**, Tatem, A. 2012. Uncertainties in measuring populations potentially impacted by sea level rise and coastal flooding. PLoS One 7 (10): e48191. doi:10.1371/journal.pone.0048191
4. **Mondal, P.**, Nagendra, H. 2011. Trends of forest dynamics in tiger landscapes across Asia. Environmental Management 48 (4), 781-794.
3. **Mondal, P.** 2011. Quantifying surface gradients with a 2-band Enhanced Vegetation Index (EVI2). Ecological Indicators 11 (3), 918-924.
2. **Mondal, P.**, Southworth, J. 2010. Evaluation of conservation interventions using a cellular automata-Markov model. Forest Ecology and Management 260 (10), 1716-1725.
1. **Mondal, P.**, Southworth, J. 2010. Protection vs. Commercial management: spatial and temporal analysis of land cover changes in the tropical forests of Central India. Forest Ecology and Management 259 (5), 1009 -1017.

#### Data sets and documentations (published = 8)

8. **Mondal, P.**, DeFries, R., Clark, J.\*, Flowerhill, N.\*, Arif, Md., Harou, A., Downs, S., Fanzo, J. 2021. Multiple cropping alone does not improve year-round food security among smallholders in rural India. Dryad. <https://doi.org/10.5061/dryad.tdz08kq07>
7. Khanwilkar, S., Galletti, C., **Mondal, P.**, Urpelainen, J., Nagendra, H., Jhala, Y.V., Quresh, Q., DeFries, R. 2021. Tropical Deciduous Forests of South Asia: Land Cover Classification and Monitoring Forest Degradation Using the Bare Ground Index LULC. NASA LCLUC Metadata. <https://lcluc.umd.edu/metadatafiles/LCLUC-2017-PIDefries/>.
6. DeFries, R., Agarwala, M., Baquie, S., Choksi, P., Khanwilkar, S., **Mondal, P.**, Nagendra, H., Urpelainen, J. 2021. Improved household living standards can restore dry tropical forests. Dryad. <https://doi.org/10.5061/dryad.44j0zpcdg>

5. **Mondal, P.**, Dutta, T., Qadir, A.<sup>†</sup>, Sharma, S. 2020. High-resolution inundation dataset for coastal India and Bangladesh (Version 1.0.0). Zenodo. <http://doi.org/10.5281/zenodo.4390084>
4. Meiyappan, P., Roy, P. S., Soliman, A., Li, T., **Mondal, P.**, Wang, S., Jain, A. K. 2018. India Village-Level Geospatial Socio-Economic Data Set: 1991, 2001. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <https://doi.org/10.7927/H4CN71ZJ>.
3. Jain, M., **Mondal, P.**, Galford, G. L., Fiske, G., DeFries, R. S. 2017. India Annual Winter Cropped Area, 2001-2016. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <https://doi.org/10.7927/H47D2S3W>.
2. Center for International Earth Science Information Network - CIESIN - Columbia University. 2016. Global Urban Heat Island (UHI) Data Set, 2013. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <http://dx.doi.org/10.7927/H4H70CRF>.
1. Center for International Earth Science Information Network -CIESIN - Columbia University. 2016. Global Summer Land Surface Temperature (LST) Grids, 2013. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <http://doi.org/10.7927/H408638T>.

#### Invited chapters in edited volumes (published = 2, accepted = 1)

3. Velho, N., DeFries, R., Nagendra, H., Galletti, C.S., Baquie, S., Urperlainen, J., **Mondal, P.**, Agarwala, M. Impacts of urban migration on forest use in central India. Book Chapter. Forthcoming.
2. **Mondal, P.**, Nagendra, H. 2012. Parks and Preserves. In Joel Campbell, Jingjing Liu, & Sony Pellissery (Eds.), *The Encyclopedia of Sustainability*, Vol. 7: China, India, and East and Southeast Asia: Assessing Sustainability. Great Barrington, MA: Berkshire Publishing.
1. Nagendra, H., **Mondal, P.**, Adhikari, S., Southworth, J. 2012. Peopled parks: Forest change in India's protected landscapes. In E. S. Brondizio and E. F. Moran (Eds.), *Human-Environment Interactions: current and future directions*, Springer.

#### Editorials (published = 2)

2. **Mondal, P.**, McDermid, S. 2021. Global Vegetation and Land Surface Dynamics in a Changing Climate. *Land* 10(1), 45, <https://doi.org/10.3390/land10010045>.
1. **Mondal, P.**, Nagendra, H., DeFries, R. 2016. Addressing issues of climate change impacts, adaptation and vulnerability on the ground: Challenges and opportunities. *Current Science* 110 (7), 1193-1194.

#### Technical/scientific reports (published = 6, in preparation = 1)

7. **Mondal, P.**, de Sherbinin, A., Trzaska, S. Sierra Leone mangrove forest cover change and carbon stock assessment 2017. *Report in preparation* under the USAID West Africa Biodiversity and Climate Change (WA BiCC) project. Palisades, NY: Center for International Earth Science Information Network, Columbia University.

6. Trzaska, S., de Sherbinin, A., Kim-Blanco, P., Mara, V., Schnarr, E., Jaiteh, M., **Mondal, P.** 2018. Climate change vulnerability assessment in mangrove regions of Sierra Leone: Long version. Report published under the USAID West Africa Biodiversity and Climate Change (WA BiCC) project. Palisades, NY: Center for International Earth Science Information Network, Columbia University. Available at: [http://www.ciesin.columbia.edu/wa-bicc/SierraLeone Coastal VA long-report jan2018.pdf](http://www.ciesin.columbia.edu/wa-bicc/SierraLeone%20Coastal%20VA%20long-report%20jan2018.pdf)
5. Trzaska, S., de Sherbinin, A., Kim-Blanco, P., Mara, V., Schnarr, E., Jaiteh, M., **Mondal, P.** 2017. Climate change vulnerability assessment in mangrove regions of Sierra Leone: Abridged version. Report published under the USAID West Africa Biodiversity and Climate Change (WA BiCC) project. Palisades, NY: Center for International Earth Science Information Network, Columbia University. Available at: <http://www.ciesin.columbia.edu/wa-bicc/wa-bicc-ccva-abridged-ff.pdf>
4. Housman, I., **Mondal, P.**, Hamilton, R., Fisk, H., Lister, A., Butler, B., Jacobs, D., Lister, T., Salajanu, D. 2013. Percent impervious landcover modeling: Analyzing the impacts of model types, calibration methods, and ecoregions. RSAC-10025-RPT1. Salt Lake City, UT: U.S. Department of Agriculture, Forest Service, Remote Sensing Applications Center. 13 p.
3. **Mondal, P.** 2011. Parks and policies: Integrating geospatial tools and modeling to evaluate conservation interventions in central India, University of Florida.
2. **Mondal, P.** 2010. 30 Years of Protection: A Success Story. In: Jha, M. and Joshi, C. 2010. Pench, Maharashtra: The Big Tale of a Small Tiger Reserve, Technical Book No. 3, Pench Tiger Reserve, India and Center for Environment Education, India.
1. **Mondal, P.** 2004. Land use/land cover analysis of Sundarbans using remote sensing techniques: A case study in Jharkhali Island (Master's thesis).

#### AWARDS, HONORS AND NOMINATIONS

- 2020 Nominated for the Emerging Scholar Award, American Association of Geographers Spatial Analysis and Modeling group  
Nominated for the Excellence in Teaching Award, University of Delaware
- 2015 Junior Researcher Task Force member, 2<sup>nd</sup> International Conference on Global Food Security
- 2011 Sponsored Student Travel Award, US Regional Association of the International Association for Landscape Ecology
- 2010 NSF "On the Cutting Edge" Professional Development Workshop Stipend  
NASA-MSU Professional Enhancement Award, US Regional Association of the International Association for Landscape Ecology  
Best Paper Award, University of Florida Graduate Student Council Interdisciplinary Research Conference  
CLAS Graduate Travel Award, University of Florida
- 2009 Ryan Poehling Fellowship, University of Florida

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- 2009 Graduate Student Council Travel Grant, University of Florida  
Imagery Grant, GeoEye Foundation, Virginia  
Best Poster Award, University of Florida Graduate Student Council Interdisciplinary Research Conference  
University of Florida Office of Graduate Research and Program Travel Grant
- 2008 Tropical Conservation and Development Field Research Grant, University of Florida  
Graduate Student Council Travel Grant, University of Florida
- 2006 Alumni Fellowship, University of Florida
- 2002, Certificate of merit under National Scholarship Scheme, Government of India  
1997

### MEDIA COVERAGE

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- 2021 [UDaily article](#) covering Dr. Mondal's food and nutrition security research.  
[CNN](#) covering Dr. Mondal's collaborative research in India.  
[UDaily article](#) covering Dr. Mondal's collaborative research in India.
- 2020 [UDaily article](#) covering Dr. Mondal's forest cover research.
- 2019 Dr. Mondal quoted in [Washington Post](#) article.
- 2018 [NASA Earth Science User Data Profile](#) for Dr. Mondal.
- 2014 Ashoka Trust for Research in Ecology and the Environment (ATREE) outreach newsletter featuring Indo-US bilateral workshop that Dr. Mondal led and co-organized: [Keeping pace with climate change impacts](#).
- 2014 Times of India coverage on Kanha-Pench Landscape Symposium that Dr. Mondal co-organized: [Symposium on Kanha-Pench landscape held at Mocha](#).
- 2010 Government of India (National Tiger Conservation Authority) bi-monthly outreach journal STRIPES highlighting Dr. Mondal's doctoral dissertation research: [Pench Tiger Reserve: Increase in Forest Cover](#).  
University of Florida alumni newsletter CLASnotes featuring Dr. Mondal's doctoral work: [From Deforestation to Reforestation](#).
- 2009 Times of India coverage of Dr. Mondal's doctoral research: [Pench forest cover up, says study](#).

### INVITED RESEARCH TALKS (non-UD)

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- 2021 Columbia University, Electrical Engineering, USA.  
University of California Santa Barbara, Bren School of Environmental Science and Management, USA.



- NSF Convergence Workshop on Food Security in Extreme Environments and Food Deserts, USA.  
 University of Washington, School of Environmental and Forest Sciences, USA.  
 University of North Carolina Wilmington, Department of Earth and Ocean Sciences, USA.  
 Boise State University, Ecology, Evolution and Behavior Program, USA.  
 Central Indian Landscape Symposium 4, India.
- 2020 Delaware Museum of Natural History. World of Discovery Lecture Series.  
 Canceled due to COVID-19.
- 2019 American Geophysical Union Fall Meeting, USA.  
 Can Tho University, College of Environment and Natural Resources, Vietnam.
- 2018 Rutgers University, USA. Annual Rutgers Climate Symposium.
- 2017 Columbia Global Centers | Mumbai, India.  
 New York University. Department of Environmental Studies.
- 2016 Pre-IGU International Conference on Land Use and Rural Sustainability. Xi'an, China.
- 2015 AsiaFlux Workshop 2015 and ISPRD TC WG VIII/3: Weather, Atmosphere and Climate Studies Joint Conference. Pune, India.
- 2014 San Francisco State University, USA.
- 2013 Oklahoma State University, USA.
- 2010 University of Colorado, Colorado Springs, USA.

## U. DELAWARE TALKS

- 2021 NSF EPSCoR Project WiCCED Seminar Series. University of Delaware, USA.  
 Department of Geography and Spatial Sciences. University of Delaware, USA.
- 2020 Biden School of Public Policy and Administration. University of Delaware, USA.  
 DARWIN HPC kick-off meeting. University of Delaware, USA.
- 2019 Department of Plant and Soil Sciences. University of Delaware, USA.  
 GIS Coffee Hour. University of Delaware, USA.

## PUBLISHED ABSTRACTS AND PRESENTATIONS (LAST 7 YEARS)

(<sup>†</sup>graduate advisee, \*undergraduate mentee, \*\*high school mentee)

- 2022 Mondal, P., Walter, M.<sup>†</sup>, Miller, J., Yawatkar, V.<sup>†</sup>, Epanchin-Niell, R., Nguyen, E.\*, Gedan, K., Tully, K. The American Association of Geographers Annual Meeting. 25 February-1 March 2022 (virtual). Oral Presentation.
- 2021 Mondal, P., Walter, M.<sup>†</sup>, Miller, J., Yawatkar, V.<sup>†</sup>, Epanchin-Niell, R., Nguyen, E.\*, Gedan, K., Tully, K. Maryland Water Monitoring Council Annual Conference. 2-3 December 2021 (virtual). Oral Presentation.

- Mondal, P., Soni, S.\*\*. Delaware Data Science Symposium, 17 November, 2021, University of Delaware. Oral Presentation.
- Yawatkar, V.<sup>†</sup>, Nguyen, E.\* , Walter, M.<sup>†</sup>, Tully, K., Mondal, P. Using Machine Learning and Remote Sensing Data for Land Cover Classification in the Eastern USA. 6<sup>th</sup> DENIN Graduate Research Symposium, 5 March, 2021 (virtual), University of Delaware. Poster Presentation.
- Yawatkar, V.<sup>†</sup>, Walter, M.<sup>†</sup>, Nguyen, E.\* , Tully, K., and Mondal, P. Using machine learning and remote sensing data for land cover classification in the eastern USA. DARWIN Computing Symposium, February 2021 (virtual). Poster presentation.
- 2020 Walter, M.<sup>†</sup>, Mondal, P. Invasive species mapping in estuarine wetlands using high-resolution aerial imagery. GIS Day, University of Delaware, November 2020 (virtual). Oral presentation.
- Walter, M.<sup>†</sup>, Mondal, P. Invasive species mapping in estuarine wetlands using high-resolution aerial imagery. Middle States American Association of Geographers Annual Meeting. October 2020 (virtual). Oral presentation.
- Yawatkar, V.<sup>†</sup>, Nguyen, E.\* , Walter, M.<sup>†</sup>, Tully, K., and Mondal, P. Quantifying land cover changes due to saltwater intrusion in the Delmarva peninsula using machine-learning and NAIP imagery. Middle States American Association of Geographers Annual Meeting. October 2020 (virtual). Poster presentation.
- Mondal, P., DeFries, R., Harou, A., Downs, S., Ad. Arif, Clark, J.\*, Flowerhill, N.\*, Fanzo, J. Implications of agricultural intensification for dietary diversity and food security in rural India. The American Association of Geographers Annual Meeting. 6-10 April 2020, Denver. Oral Presentation. [Session canceled due to COVID-19.](#)
- Qadir, A.<sup>†</sup>, Mondal, P. Improved monsoon crop mapping with radar-optical satellite data for small-scale farms in tropical regions. The American Association of Geographers Annual Meeting. 6-10 April 2020, Denver. Oral Presentation. [Session canceled due to COVID-19.](#)
- Walter, M.<sup>†</sup>, Mondal, P. A rapidly assessed wetland stress index (RAWSI) using Landsat 8 and Sentinel-1 radar data. The American Association of Geographers Annual Meeting. 6-10 April 2020, Denver. Oral Presentation. [Session canceled due to COVID-19.](#)
- Yawatkar, V.<sup>†</sup>, Nguyen, E.\* , Walter, M.<sup>†</sup>, Tully, K., Mondal, P. Quantifying land cover changes due to saltwater intrusion in the Delmarva peninsula using machine-learning and NAIP imagery. The American Association of Geographers Annual Meeting. 6-10 April 2020, Denver. Poster Presentation. [Session canceled due to COVID-19.](#)
- Yawatkar, V.<sup>†</sup>, Nguyen, E.\* , Walter, M.<sup>†</sup>, Tully, K., Mondal, P. Using machine learning to study saltwater intrusion in the Delmarva Peninsula. DENIN Graduate Research Symposium, 5 March, 2020, University of Delaware. Poster Presentation.
- Mondal, P., Walter, M.<sup>†</sup>, Miller, J., Yawatkar, V.<sup>†</sup>, Epanchin-Niell, R., Nguyen, E.\* , Gedan, K., Tully, K. 2020. Using remote sensing to map saltwater intrusion. Stakeholder Meeting, 14 February 2020, Princess Anne, Maryland. Oral Presentation.

- Yawatkar, V.<sup>†</sup>, Nguyen, E.\*<sup>\*</sup>, Walter, M.<sup>†</sup>, Tully, K., Mondal, P. Machine learning and cloud computing for environmental research. DARWIN Computing Symposium, 14 February 2020, University of Delaware. Poster Presentation.
- 2019 Mondal, P., Jain, M., Singh, D., McFadden, C.\*<sup>\*</sup>, Galford, G., DeFries, R. Assessing impacts of climatic and non-climatic factors on smallholder agricultural systems in India. American Geophysical Union Fall Meeting. 9-13 December 2019, San Francisco. Oral Presentation.
- Qadir, A.<sup>†</sup>, Mondal, P. A novel machine learning based approach to generate dynamic monsoon crop mask for small-scale farms in tropical regions using a combination of radar and optical satellite data. American Geophysical Union Fall Meeting. 9-13 December 2019, San Francisco. Poster Presentation.
- Clark, J.\*<sup>\*</sup>, Mondal, P. When producers are consumers: Dietary diversity and food insecurity among Indian smallholder farmers. 10<sup>th</sup> Annual Undergraduate Research and Service Scholar Symposium. 15 August 2019, University of Delaware. Poster Presentation.
- Mondal, P., McDermid, S., Qadir, A.<sup>†</sup> Multi-scale monitoring of forest degradation using MODIS, Landsat and Sentinel data. Global Land Project 4<sup>th</sup> Open Science Meeting. 24-26 April 2019, Bern, Switzerland. Oral Presentation.
- Mondal, P., Jain, M., Singh, D., Galford, G., DeFries, R. The relative importance of climatic and non-climatic factors in explaining spatio-temporal variability in Indian agriculture. The American Association of Geographers Annual Meeting. 3-7 April 2019, Washington DC. Oral Presentation.
- Qadir, A.<sup>†</sup>, Mondal, P. Synergistic use of optical and Synthetic Aperture Radar (SAR) time series imagery for improved mapping of monsoon crops for small-scale farmers. The American Association of Geographers Annual Meeting. 3-7 April 2019, Washington DC. Poster Presentation.
- Walter, M.<sup>†</sup>, Mondal, P. Evaluating buffer stress along a spectrum of land uses for wetland health rapid assessment in Delaware. The American Association of Geographers Annual Meeting. 3-7 April 2019, Washington DC. Poster Presentation.
- 2018 Mondal, P., McDermid, S. Forest degradation in South Asia: A vegetation trend analysis in the context of climate variability. American Geophysical Union Fall Meeting. 10-14 December 2018, Washington, D.C. Poster Presentation.
- 2016 Mondal, P., Md. Arif, Agrawal, I., Gallant, M., Singh, D., Fanzo, J., Remans, R., Wood, S., DeFries, R. Implications of agricultural intensification for diet and nutrition in central India. Central Indian Landscape Symposium. 14-17 December 2016, Nagpur, India. Oral Presentation.
- 2015 Mondal, P., Jain, M., Galford, G., DeFries, R. Coupled Effects of Climatic and Socio-economic Factors on Winter Cropping in India. American Geophysical Union Fall Meeting. 14-18 December 2015, San Francisco, California. Poster Presentation.
- Mondal, P., Jain, M., Galford, G., DeFries, R. Quantifying winter crop sensitivity to climate variability across agro-ecological zones in India. International Conference on Global Food Security. 11-14 October 2015, Ithaca, New York. Oral Presentation.

**CONFERENCE SESSIONS/SYMPOSIA/PANELS ORGANIZED/CHAIED**

- 2022 The American Association of Geographers Annual Meeting. "From Food to Diet and Nutrition in Geographies of Food and Agriculture." 25 February-1 March 2022. Role: Invited panelist.  
The American Association of Geographers Annual Meeting. "Agricultural Geography: Mechanization and Irrigation." 25 February-1 March 2022. Role: Session Chair/Speaker.
- 2019 The American Association of Geographers Annual Meeting. "Agriculture and Food Systems: Interdisciplinary Perspectives I-III." 3-7 April 2019, Washington DC. Role: Co-organizer.
- 2018 American Geophysical Union Fall Meeting. "Global Vegetation and Land Surface Dynamics in a Changing Climate." 10-14 December 2018, Washington, D.C. Role: Co-convener/Co-chair.  
Annual Rutgers Climate Symposium. "Food Security and Climate Change." 14 November 2018, Rutgers University, New Jersey. Role: Plenary panelist.
- 2017 NASA DAAC workshop at the Ecological Society of America Annual Meeting. "Ecology from Space: How Can NASA Remote-Sensing Data Inform Your Research?" 6-11 August 2017, Portland, Oregon. Role: Co-organizer/Speaker.
- 2016 Central Indian Landscape Symposium. "Future of water, Climate, and Agriculture." 14-17 December 2016, Pench Tiger Reserve, India. Role: Co-organizer/Co-chair/Speaker.
- 2014 Indo-US bilateral workshop. "Adaptation of rural communities to climate change: Bridging the gap between academia and community workers and identifying research needs." 20-21 February 2014, Bengaluru, India. Role: Co-organizer/Leader.
- 2013 American Geophysical Union Fall Meeting. "Improving the Understanding of Climate Variability and Change in Agriculture: AgMIP, Tropical Farm Adaptation, and Related Research I-III." 9-13 December 2013, San Francisco, California. Role: Co-convener/Co-chair.

**WORKSHOPS AND PROFESSIONAL TRAINING**

- 2021 Leadership in STEM Fields: Increasing Leadership from Historically Underrepresented Groups. 29 October 2021. Role: Invited Participant.
- 2020 AgMIP 8 Virtual Webshop: Food Systems, Shocks, and Actions. 13-15 October 2020. Role: Participant.  
University of Delaware Center for Teaching and Assessment of Learning (CTAL) virtual Summer Institute on Teaching. 3 June 2020. University of Delaware. Role: Participant.
- 2019 University of Delaware Center for Teaching and Assessment of Learning (CTAL) Summer Course Design Institute. 11-13 June 2019. University of Delaware. Role: Selected participant.
- 2018 NSF Fall 2018 Grants Conference. 8-9 November 2018. New Orleans, Louisiana. Role: Selected participant.  
Early Career Geoscience Faculty Workshop. University of Maryland. 22-27 July 2018. College Park, Maryland. Role: Selected participant.

- 2017 NASA and World Resources Institute workshop. GPM Agricultural Application Workshop. 1 August 2017, Washington D.C. Role: Participant.
- 2013 Dinamica: Landscape Dynamics Modeling. University of Vermont. 20-23 August 2013, Burlington, Vermont. Role: Participant.
- 2011 GIS Tools for Analyzing Dynamic Landscapes. US Regional Association of the International Association for Landscape Ecology Symposium. 3 April 2011, Portland, Oregon. Role: Participant.
- 2010 NSF “On the Cutting Edge: Preparing for an Academic Career in the Geosciences” Workshop. 29 July – 1 August 2010, Stanford University, California. Role: Participant.
- Land Surface Phenology. US Regional Association of the International Association for Landscape Ecology Symposium. 5 April 2010, Athens, Georgia. Role: Participant.
- 2009 What is Landscape Ecology up to in the Climate Change Debate? US Regional Association of the International Association for Landscape Ecology Symposium. 14 April 2009, Snowbird, Utah. Role: Participant.
- 2007 Airborne GPS and Inertia in Support of Triangulation and Orientation of Airborne Framing and Push broom Sensors. American Society for Photogrammetry and Remote Sensing Annual Conference. 8 May 2007, Tampa, Florida. Role: Participant.
- 2006 DOEACC A-level professional training in computer applications (training equivalent to Post Graduate Diploma in Computer Application), Kolkata, India. Role: Participant.

## FIELDWORK

- 2019 Remote sensing field data collection in Vietnam
- 2016, Semi-quantitative food frequency questionnaire survey in central India  
2015
- 2013, Remote sensing field data collection and social survey for post-doc project in Madhya  
2012 Pradesh, India
- 2008 Remote sensing field data collection for PhD project in Maharashtra, India  
Ecological survey and questionnaire-based social survey in Yucatan, Mexico
- 2003, Geological survey in structurally complex zones in Jharkhand and Maharashtra, India  
2001

## TEACHING (UG=Undergraduate; G=Graduate; UG/G=both)

YEAR (Fall/Spring)	INSTITUTE	COURSE TITLE	COURSE LEVEL	TOTAL ENROLLMENT
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2021F, 2020F	University of Delaware	Remote Sensing of Environment (with lab)	UG/G	54 (21+33)
2021F, 2020F, 2020S, 2019F, 2019S, 2018F	University of Delaware	Introduction to GIS (with lab)	UG	288 (52+46+58+41+43+48)
2019F	University of Delaware	Know Your Satellites (with lab)	UG/G	18
2020S, 2019S	University of Delaware	Independent Study	G	4
2018S	California State University, Bakersfield	GIS Applications in Geoscience (with lab)	UG/G (virtual)	14
2017F	City University of New York - City College	Introduction to Ecology & GIS	G	17
2016F, 2015F	City University of New York - City College	Physical Geography	G	33 (15+18)
2016S	Columbia University	Introduction to Landscape Analysis (with lab; co-teach)	UG/G	13
2008F, 2008S, 2007F	University of Florida	Physical Geography	UG	304 (129+62+113)

**GUEST LECTURES** (*UG=Undergraduate; G=Graduate; UG/G=both*)

YEAR	INSTITUTE	COURSE TITLE	COURSE LEVEL
2021, 2020, 2019, 2018	University of Delaware	Prelude to Geography	G
2020	Osher Institute of Lifelong Learning	Environmental Issues	G
2019	University of Delaware	World Regional Geography	UG
2018	California State University, Bakersfield	Principles of Nutrition	G
2013	Columbia University	Global Assessment and Monitoring Using Remote Sensing	UG/G
2010	University of Florida	Remote Sensing	UG/G
2010	University of Florida	Regional Geography	UG

**GRADUATE ADVISEES** (\*Dissertation/Thesis committee chair)

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- 2022 – Manan Sarupria\* (PhD in Geography expected 2026)
- 2021 – Dustin Braden\* (MS expected 2022)
- 2020 – Matthieu Ahouangbenon\* (PhD in Geography expected 2024)  
Matthew Walter\* (Advanced to candidacy; PhD in Geography expected 2024)  
Dongyang Wei (Advanced to candidacy; PhD in Geography expected 2024)  
Piyush Mehta (Advanced to candidacy; PhD in Geography expected 2024)  
Hanan Abou Ali (PhD in Geography expected 2024)  
Nicholas Butler (MS in Geography expected 2022)
- 2019 – Vishruta Yawatkar\* (MS in Data Science, graduated Summer 2021)  
Gina Maskell (Potsdam Institute for Climate Impact Research, Germany; PhD expected 2023)
- 2018 – Abdul Qadir\* (MS in Data Science, graduated Spring 2020)  
Matthew Walter\* (MS in Geography, graduated Spring 2020)  
Emma Stell (MS in Geography, graduated Fall 2020)  
Elizabeth Smith (PhD in Plant and Soil Sciences expected 2023)  
Israt Jahan (PhD in Geography expected 2022)  
Mehmet Altingoz (PhD in Water Science and Policy expected 2022)  
Ricardo Llamas Barba (PhD in Plant and Soil Sciences expected 2022)

#### POSTDOCTORAL MENTEE

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- 2019 Enze Jin (co-mentored with C. Archer)

#### UNDERGRADUATE/HIGH SCHOOL MENTEE

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- 2021 Isabella Ventimiglia (DE Space Grant and UDRF-funded undergraduate intern)  
Saumya Soni (UD High School Scholar Program)
- 2020 Antigone Goetz (UD Summer Scholars Program)  
Isabella Ventimiglia (UD Summer Fellow Program)  
Rebecca King (UD EPSCoR project)
- 2019 Jessica Clark (Major: Environmental Science)  
Justin Czech (Major: Environmental Science)  
Nicole Flowerhill (Major: Environmental Science)  
Callie McFadden (Major: Environmental Science)  
Elizabeth Nguyen (University of Maryland; Major: Environmental Science and Technology)

Undergraduate advisee: 18

Informal undergraduate mentee: 4

**AWARDS TO ADVISEES/MENTEES**

- 2022 Matthieu Ahouangbenon; American Association of Geographers (AAG) Human Dimensions of Global Change (HDGC) Specialty Group Graduate Student Research Award  
Matthieu Ahouangbenon; American Association of Geographers (AAG) Africa Specialty Group Graduate Research Grant Award  
Matthew Walter; Ecological Society of America 2022 Katherine S. McCarter Graduate Student Policy Award
- 2021 Matthew Walter; NASA DE Space Grant Graduate Fellowship  
Isabella Ventimiglia; NASA DE Space Grant Summer Internship  
Saumya Soni; NSF EPSCoR Project WiCCED High School Scholar Internship
- 2020 Matthew Walter; 1<sup>st</sup> place in paper presentation competition, The Middle States Division of the American Association of Geographers Meeting  
Abdul Qadir; Ta Liang Memorial Award, The American Society for Photogrammetry and Remote Sensing (ASPRS)
- 2019 Matthew Walter; 1<sup>st</sup> place in paper presentation competition, The Middle States Division of the American Association of Geographers Meeting  
Abdul Qadir; 2<sup>nd</sup> place in paper presentation competition, The Middle States Division of the American Association of Geographers Meeting  
Abdul Qadir; 1<sup>st</sup> place in poster competition, International Statistical Institute/ESRI Student Competition  
Matthew Walter; Mather Graduate Fellows Research Award  
Matthew Walter; 1<sup>st</sup> place in poster competition, Human and Climate Series III: Water Management and Policy: Local and Global Perspectives Symposium  
Gina Maskell; Geo.X Young Academy PhD Fellowship, Germany  
Jessica Clark; UD Center for Food Systems and Sustainability undergraduate internship  
Callie McFadden; UD Center for Food Systems and Sustainability undergraduate internship

**SERVICE & LEADERSHIP****INTERNATIONAL**

- 2020 – Associate Editor, CABI Agriculture & Bioscience (Section: Food Security, Nutrition & Planetary Health)
- 2019 – Editorial Board member: Land  
2021
- 2019 Guest co-Editor: Land (Special Issue: Global Vegetation and Land Surface Dynamics in a Changing Climate)



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- Invited member, Global Land Programme Social Media Team
- 2018, Organizing committee member, Central Indian Landscape Symposium  
2016
- 2016 Founder/member, Network for Conserving Central India
- Guest co-Editor: Current Science (Special Section on Livelihood impacts and adaptation of rural communities to climate change in India)
- 2014 PI and co-organizer, Indo-US bilateral workshop
- Organizing committee member, Kanha-Pench Landscape Symposium
- 2010 – Manuscript reviewer: Science Advances; Scientific Reports; Scientific Data; Environmental Research Letters; Remote Sensing; International Journal of Remote Sensing; ISPRS Journal of Photogrammetry and Remote Sensing; Geocarto International; Global Food Security; Forest Ecology and Management; Landscape and Urban Planning; Ecological Complexity; Environmental Management; Land Use Policy; Landscape Ecology; Climatic Change; Journal of Land Use Science; Society & Natural Resources, PLoS One, PeerJ, One Earth; Remote Sensing Applications: Society and Environment; CABI Agriculture and Bioscience.

#### NATIONAL

- 2022 Ad hoc reviewer: National Science Foundation (NSF)
- 2019 Panel reviewer: National Science Foundation (NSF) Geography and Spatial Sciences Doctoral Dissertation Research Improvement (2 different cycles)
- Ad hoc reviewer: NSF Geography and Spatial Sciences Doctoral Dissertation Research Improvement
- Undergraduate research presentation abstract reviewer: Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
- 2019, Outstanding Student Presentation Award judge: American Geophysical Union (AGU) fall  
2018 meeting
- 2018 Ad hoc reviewer: NSF International Research Experiences for Students (IRES), Track III
- 2016 Panel reviewer, NASA NESSF-Carbon Cycle and Ecosystems Program
- 2013 Panel reviewer, NASA Terrestrial Ecology Program

#### UNIVERSITY

- 2021 Mentor (a group of 4 junior colleagues); UD Faculty Achievement Program
- Panelist, UD's Womxn of Color Discussion Series: Asian American Identity and Asian Identity in America
- Speaker, UD NSF Career Academy
- 2019 Faculty search committee member, U. Delaware Data Science Institute

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- 2019 Committee member, U. Delaware Data Science Institute Fall Symposium Organizing Committee
- Postdoctoral researcher search committee member, U. Delaware Department of Environmental Science & Engineering
- Speaker, U. Delaware MS in Data Science New Student Orientation
- Speaker, U. Delaware MS in Data Science Launch Event
- 2016 Mentor, Columbia's Lamont-Doherty Earth Observatory High School Student Intern Mentoring Program

### COLLEGE

- 2022 Volunteer, Decision Day
- 2021 Volunteer, Open house for prospective students from local high schools (virtual)
- Volunteer, Open house for prospective graduate students (virtual)
- Volunteer, Graduate School Information Panel for Current CEOE Undergraduate Students (virtual)
- 2021, Volunteer, Blue and Golden Saturday
- 2019
- 2019 Faculty search committee member, U. Delaware School of Marine Science and Policy
- 2019, Volunteer, U. Delaware recruitment booth at the AGU fall meeting
- 2018 Invited panelist, U. Delaware Department of Geological Sciences grad school Q&A panel
- 2018 Invited panelist, U. Delaware "Ph.D. to Postdoc to Faculty" panel

### DEPARTMENT

- 2021 – Director, Environmental Science Major
- 2019, Co-organizer, U. Delaware Department of Geography and Spatial Sciences Seminar Series
- 2020
- 2018 Committee member, U. Delaware Department of Geography GIS lab renovation committee
- 2009 Graduate Representative, U. Florida Geography
- Liaison person between Geography and U. Florida Graduate Student Council
- Co-organizer, U. Florida Geography new student orientation events and departmental participation in several national meetings

### COMMUNITY SERVICE AND PUBLIC OUTREACH

- 2021 Invited contributor, International Society for Photogrammetry and Remote Sensing Student Consortium (ISPRS SC) newsletter
- Contributor, [First-Gen Geoscience: A Community Blog](#)

- 2020, 2019 Scientist volunteer pen-pal, Letters to a Pre-Scientist Program
- 2020, 2018 Volunteer, DE Coast Day
- 2017 Invited panel scientist, 4th Annual Women in Science Night at East Side Community High School, New York
- 2015 Blog post for Cornell University's Economics that Really Matters: <http://www.econthatmatters.com/2015/10/can-we-climate-proof-global-food-systems/>  
Blog post for Columbia University's State of the Planet: <http://blogs.ei.columbia.edu/2015/07/10/help-for-indian-small-farmers-in-a-changing-climate/>  
Volunteer at Columbia's Lamont-Doherty Open House: <http://openhouse.ideo.columbia.edu/>
- 2006 Volunteer, Florida Museum of Natural History Fossil Hunt

#### PROFESSIONAL MEMBERSHIP

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- 2018 – Global Land Programme
- 2012 – American Geophysical Union
- 2011 – CHANS-Net: International Network of Research on Coupled Human and Natural Systems
- 2008 – American Association of Geographers