

Abinash Bhattachan

CONTACT INFORMATION	Assistant Professor Department of Geosciences Texas Tech University 1200 Memorial Circle Lubbock, TX 79409 USA 806-834-2464 (Office) abibhatt@ttu.edu https://abhattachan.github.io/
RESEARCH INTERESTS	Land degradation, Surface Processes, Air quality, Sea level rise, Geospatial analytics, Coupled natural-human systems.
EDUCATION	University of Virginia , Charlottesville, VA, USA. Ph.D., Environmental Sciences, 05/2013. (Adv: Dr. Paolo D'Odorico) Indiana University , Bloomington, IN, USA. M.S., Environmental Sciences, 08/2008. (Adv: Dr. Kelly Caylor) Utah State University , Logan, UT, USA B.S., Watershed Science, 05/2006. (Adv: Dr. Nancy Mesner)
EMPLOYMENT	Assistant Professor, Texas Tech University 08/2022 - Department of Geosciences Assistant Professor, California State University, East Bay 08/2020 to 08/2022 Department of Earth and Environmental Sciences Staff Research Associate, University of California, Los Angeles 09/2019 - 12/2020 Department of Geography, Advisors: Dr. Greg Okin and Dr. Dennis Lettenmaier Postdoctoral Research Associate, University of California, Los Angeles 09/2017 - 09/2019 Department of Geography, Advisors: Dr. Greg Okin and Dr. Dennis Lettenmaier Postdoctoral Research Associate, North Carolina State University 09/2015 - 08/2017

Department of Forestry and Environmental Resources,
Advisor: Dr. Ryan Emanuel

**Research Scientist,
University of Virginia**

06/2013 - 08/2015

Department of Environmental Sciences,
Advisor: Dr. Paolo D'Odorico

GRANTS

1. NSF – EAR, PI, RAPID: Unraveling rates of wind erosion and potential dust emission post Smokehouse Creek Fire in Texas, Co-PIs: Branimir Segvic (TTU), John Stout and Scott Van Pelt (USDA), \$27,000, 2024-2025.
2. NSF – RISE, PI, EAGER: Valley fever incidence, spread and future expansion in Texas, Co-PIs: Sandip Pal (TTU), Jennifer Head (UM), Scott Van Pelt (USDA), \$262,000, 2024 - 2026.
3. NIH, PI, Dust emission and valley fever in California, subaward from UC Berkeley, \$55,000 (2020-2021 to CSUEB. 2022-2023 to TTU)
4. USGS South-Central Climate Adaptation Science Center, PI, Quantitative estimates of recharge and the effects of climate change in a semi-arid karst aquifer complex, Devils River, Edwards-Trinity Aquifer System in West-Central Texas, \$450,000 (declined), 2022.
5. PI, Center for Student Research - Summer Student Development Experience, California State University East Bay, \$7700, 2022.
6. NSF – ERI, PI, Wind transport of microplastics, \$200,000 (declined), 2021.
7. PI, Faculty Support Grant, California State University East Bay, \$7000, 2021.

REFEREED
JOURNAL
PUBLICATIONS

Includes graduate*, undergraduate[†] advisees

1. Heaney AK, Camponuri SK, Head JR, Collender P, Sondermeyer-Cooksey G, Yu AT, Jain S, **Bhattachan A**, Taylor J, Remais JV (2024). Coccidioidomycosis seasonality in California: a longitudinal surveillance study of the climate determinants and spatiotemporal variability of seasonal dynamics, 2000-2021. *Lancet Regional Health – Americas*, In Press.
2. Phillips S, Jones I, Sondermeyer-Cooksey G, Yu AT, Heaney AK, Zhou B, **Bhattachan A**, Weaver AK, Campo SK, Mgbara W, Wagner R, Taylor J, Lettenmaier DP, Okin GS, Jain S, Vugia D, Remais JV, Head JR (2023). Association between

- wildfires and coccidioidomycosis incidence in California, 2000 - 2018: a synthetic control analysis. *Environmental Epidemiology*, <https://doi.org/10.1097/EE9.0000000000000254>.
3. Payne SAR[†], Okin GS, **Bhattachan A**, Fischella MR (2023). The two faces of Janus: processes can be both exogenous forcings and endogenous feedbacks with wind as a case study. *Ecology*, 104(4): e3998. <https://doi.org/10.1002/ecy.3998>.
 4. Head JR, Sondermeyer-Cooksey G, Heaney AK, Yu AT, Jones I, **Bhattachan A**, Campo S, Wagner R, Mgbara W, Mgbara W, Philips S, Keeney N, Taylor J, Eisen EA, Lettenmaier DP, Hubbard A, Okin GS, Vugia D, Jain S, Remais JV (2022). Drought in Western United States displaces and amplifies coccidioidomycosis, an emerging fungal disease: a longitudinal surveillance study incidence in California. *Lancet Planetary Health*, 6, 10, e793 - e803, [https://doi.org/10.1016/S2542-5196\(22\)00202-9](https://doi.org/10.1016/S2542-5196(22)00202-9).
 - UC Berkeley Public Health: [Drought exacerbates emerging infectious disease in California](#)
 5. **Bhattachan A**, Tatlhago M, Webb NP, Dintwe K, D’Odorico P, Okin GS (2022). Evaluation of dust production efficiencies in sandy sediments. *Earth Surface Processes and Landforms*, 1 - 9, <https://doi.org/10.1002/esp.5312>.
 6. **Bhattachan A**, Skaff NK, Irish AM, Vimal S, Remais JV, Lettenmaier DP (2021). Outdoor water-use restrictions during recent drought suppressed disease vector abundance in Southern California. *Environmental Science and Technology*, 55, 1, 478-487. doi: 10.1021/acs.est.0c05857
 - UCLA Newsroom: [Drought restrictions had side benefit: lowering the risk of mosquito-borne disease](#)
 - Guardian article: [West Nile virus: another alarming side effect of US drought](#)
 7. Tatlhago M, **Bhattachan A**, Okin GS, D’Odorico P (2020). Mapping areas of the Southern Ocean where productivity likely depends on dust-delivered iron. *Journal of Geophysical Research – Atmospheres*, doi: 10.1029/2019JD030926 (*corresponding author)
 8. D’Odorico P, Rosa L, **Bhattachan A**, Okin GS (2019) Desertification and Land Degradation. In D’Odorico P, Porporato A, and Runyan CW (Editors), *Dryland Ecohydrology* (2019), Springer, Dordrecht. doi: 10.1007/978-3-030-23269-6_21
 9. **Bhattachan A**, Okin GS, Zhang J, Vimal S, Lettenmaier DP

- (2019). Characterizing the role of wind and dust in traffic accidents in California. *GeoHealth*, doi: 10.1029/2019GH000212
10. **Bhattachan A**, Jurjonas MD, Morris PR, Smart LS, Taillie PJ, Emanuel RE, Seekamp EL (2019). Linking residential saltwater intrusion risk perceptions to physical exposure of climate change impacts in rural communities of North Carolina. *Natural Hazards*, doi: 10.1007/s11069-019-03706-0
 - Press coverage: [Climate Change is Killing East Coast Forests](#)
 11. Webb NP, Okin GS, **Bhattachan A**, D’Odorico P, Dintwe K, Tatlhago M (2019). Ecosystem dynamics and aeolian sediment transport in the southern Kalahari. *African Journal of Ecology*, doi: 10.1111/AJE.12700
 12. Yu K, D’Odorico P, Collins SC, Carr DE, Porporato A, Wang L, Gilhooly WP, **Bhattachan A**, Hartzell S, Bartlett MS, Yin J, Anderegg WRL, He Y, Li W, Tatlhago M, Fuentes JD (2019). The competitive advantage of a constitutive CAM species over C4 grass species under drought and CO2 enrichment. *Ecosphere*, 10(5), doi: e0271.10.1002/ecs2.2721
 13. **Bhattachan A**, Jurjonas MD, Moody A, Morris PR, Sanchez GM, Smart LS, Taillie PJ, Emanuel RE, Seekamp EL (2018) Sea level rise impacts on rural coastal socio-ecological systems and the implications for decision making. *Environmental Science and Policy*, 90, 122-134, <https://doi.org/10.1016/j.envsci.2018.10.006>
 14. **Bhattachan A**, Emanuel RE, Ardon M, Bendor TK, Bernhardt ES, Wright JP (2018) Evaluating the effects of climate and land-use changes on vulnerability of coastal landscapes to saltwater intrusion. *Elementa Science of the Anthropocene*, 6(1):62, <https://doi.org/10.1525/elementa.316>
 - [Salt water seeps into coastal ecosystems](#), Dispatches - Frontiers in Ecology and the Environment
 15. Okin GS, Sala OE, Vivoni ER, Zhang J, **Bhattachan A** (2018) The interactive role of wind and water in functioning drylands: what does the future hold? *BioScience*, 68(9), 670-677, doi: 10.1093/biosci/biy067.
 16. Davis KF, **Bhattachan A**, D’Odorico P, Suweis S (2018) A universal model for predicting human migrations under climate change: examining future sea level rise in Bangladesh. *Environmental Research Letters*, 13, 064030, <https://doi.org/10.1088/1748-9326/aac4d4>
 - Earth Institute, Columbia University: [How Will People Move as Climate Changes?](#)

- Press release: [Universal migration predicts human movements under climate change](#)
- 17. Van Pelt RS, Baddock M, Zobeck T, D’Odorico P, Ravi S, **Bhattachan A** (2017) Total vertical sediment flux and PM10 emissions from disturbed Chihuahuan Desert surfaces. *Geoderma*, <https://dx.doi.org/10.1016/j.geoderma.2017.01.031>
- 18. **Bhattachan A**, Reche I, D’Odorico P (2016) Soluble ferrous iron (Fe(II)) enrichment in airborne dust. *Journal of Geophysical Research – Atmospheres*, 121, 10153-10160, doi: 10.1002/2016JD0250025
- 19. Yu K, D’Odorico P, **Bhattachan A**, Okin GS, Evan AT (2015) Dust-rainfall feedbacks in West-African Sahel. *Geophysical Research Letters*, 42, 7563-7571, doi: 10.1002/2015GL065533
- 20. O’Donnell FC, Caylor KK, **Bhattachan A**, Dintwe K, D’Odorico P, Okin GS (2015). A quantitative description of the interspecies diversity of belowground structure in savanna woody plants. *Ecosphere*, 6(9): 154, <http://dx.doi.org/10.1890/ES14-00310.1>
- 21. **Bhattachan A**, Wang L, Miller MF, Licht K, D’Odorico P (2015). Antarctica’s Dry Valleys: a potential source of iron to the Southern Ocean. *Geophysical Research Letters*, 42, 1912-1918, doi: 10.1002/2015GL063419
- 22. **Bhattachan A**, D’Odorico P, Okin GS (2015). Biogeochemistry of dust sources in Southern Africa. *Journal of Arid Environments*, 117, 18-27, doi:10.1016/j.jaridenv.2015.02.013
- 23. Dintwe K, Okin GS, D’Odorico P, Hrast T, Mladenov N, Handorean A, **Bhattachan A**, Caylor KK (2014). Soil organic carbon and total nitrogen pools in the Kalahari: potential impacts of climate change. *Plant and Soil*, doi: 10.1007/s11104-014-2292-5
- 24. **Bhattachan A**, D’Odorico P, Dintwe K, Okin GS, Collins SC (2014). Resilience and recovery potential of duneland vegetation in the southern Kalahari. *Ecosphere*, 5(1):2, <http://dx.doi.org/10.1890/ES13-00268.1>
 - Featured in the Ecological Society of America Blog article ‘Water rises, cattle graze, dunes walk on the Kalahari (Oct 14, 2014)
 - Featured in the National Science Foundation Spotlight story ‘Sleeping sands of the Kalahari awaken after more than 10,000 years’ (Oct 8, 2014).
- 25. **Bhattachan A**, D’Odorico P (2014). Can land-use intensification in the Mallee, Australia increase the supply of soluble iron to the Southern Ocean? *Scientific Reports*, 4, 6009, doi:10.1038/srep06009

26. Meyer T, D’Odorico P, Okin G, Shugart H, Caylor K, O’Donnell F, **Bhattachan A**, Dintwe K (2014) An analysis of structure: Biomass structure relationships for characteristic species of the western Kalahari, Botswana. *African Journal of Ecology*, 52(1), 20-29, doi: 10.1111/aje.12086
27. D’Odorico P, **Bhattachan A**, Davis KF, Ravi S, Runyan CW (2013) Global Desertification: Drivers and feedbacks. *Advances in Water Resources*, 51, 326-344, doi: 10.1016/j.advwatres.2012.01.013
28. **Bhattachan A**, D’Odorico P, Okin GS, Dintwe K (2013) Potential dust emissions from the southern Kalahari’s dunelands. *Journal of Geophysical Research - Earth Surface*, 118, 307-314, doi: 10.1002/jgrf.20043
29. **Bhattachan A**, Tatlhego M, Dintwe K, O’Donnell FC, Caylor KK, Okin GS, Perrot DO, Ringrose S, D’Odorico P (2012) Ecohydrologic controls on root biomass and depth in southern African savannas. *PloS One*, 7(3), e33996, doi:10.1371/journal.pone.0033996.
30. **Bhattachan A**, D’Odorico P, Baddock M, Zobeck T, Okin GS, Cassar N (2012) The Southern Kalahari: A potential new dust source in the southern hemisphere? *Environmental Research Letters*, 7 024001, doi: 10.1088/1748-9326/7/2/024001
31. D’Odorico P, **Bhattachan A** (2012) Hydrologic variability in dryland regions: impacts on ecosystem dynamics and food security. *Philosophical Transactions of Royal Society of London B*, 367, 3145-3157. doi: 10.1098/rstb.2012.0016.
32. D’Odorico P, Scanlon TM, Runyan CW, Abshire K, Barrett P, **Bhattachan A**, Coloso JJ, Erler A, Miller J, Mitchell N, Mobley J, Van Vleet D, Whitman E (2009) Dryland Ecohydrology: Research perspectives. *Annals of Arid Zone*, 48(3-4), 1-29.

Publications in review

33. Weaver AK, Keeney N, Head JR, Heaney AK, Campo SK, Collender P, **Bhattachan A**, Okin GS, Eisen EA, Sondermeyer-Cooksey G, Yu AT, Vugia D, Jain S, Balmes J, Taylor J, Remais JV, Strickland MJ (2023). Estimating the exposure-response relationship between fine mineral dust concentration and coccidioidomycosis incidence using speciated particulate matter data: A longitudinal surveillance study. Submitted.
34. Head JR, Campo S, Weaver M, Montoya L, Lee E, Radosevich M, Jones I, Wagner R, **Bhattachan A**, Campbell G, Keeney N, Collender P, Heaney A, Colvin K, Larios L, Bean W, Taylor

J, Remais JV (2023). Small mammals and their burrows shape the distribution of Coccidioides in soils: a long-term ecological experiment. Submitted.

CONTRIBUTED
ORAL
PRESENTATIONS

1. Jarin NZ*, **Bhattachan A**. Spatiotemporal dynamics of Dengue vulnerability in Bangladesh: A GIS based approach. Southwest Division of AAG, Laredo, TX, November 2023
2. Patelski K*, **Bhattachan A**. Complexities in the food system: the case of Nepal. Southwest Division of AAG, Laredo, TX, November 2023.
3. Bhattachan A, Pao SK[†]. The role of dust on crop photosynthesis: use of spaceborne solar-induced fluorescence. AAG Annual Meeting, Denver, CO, March 2023. Abstract 25079.
4. Ban Z, Vimal S, **Bhattachan A**, Cucchi K, Hoover C, Skaff N, Remais J, Lettenmaier DP. Assessing inundation in the Central Valley, CA and its implications for West Nile Virus transmission using remote sensing and hydrological modeling. AGU Fall Meeting, 2018. Abstract GH31A-08.
5. D’Odorico P, Tatlhago M, **Bhattachan A**, Okin GS. Connecting the dots: the possible distance impacts of Kalahari dune mobilization. International Conference on Geomorphology 2017, New Delhi, India.
6. Emanuel RE, Bernhardt E, Ardon M, Wright JP, BenDor T, **Bhattachan A**. Salinization of freshwater-dependent coastal ecosystems: understanding landscapes in transition along the leading edge of climate change. AGU Fall Meeting 2015, Abstract H31O-05.
7. Dintwe K, Gilhooly W, Wang L, O’Donnell FC, **Bhattachan A**, D’Odorico P, Okin GS. Variations of soil $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ across a precipitation gradient in a savanna ecosystem: implications for climate change on the carbon cycle, AGU Fall Meeting 2015, Abstract GC11I-08
8. D’Odorico P, **Bhattachan A**, Yu K, Okin GS. Land degradation and environmental change in dryland ecosystems: irreversibility and long-range effects. AGU Fall Meeting 2014, Abstract H34B-01. [Invited Presentation]
9. Okin GS, Webb NP, **Bhattachan A**, Dintwe K, D’Odorico P. The Southern Kalahari as a dust source: results from the field. AGU Fall Meeting 2014, Abstract A43L-01. [Invited Presentation]
10. D’Odorico P, **Bhattachan A**, Dintwe K, Tathlhago M, Okin GS. Determinants and indicators of dune stabilization by grasses

in overgrazed regions of the Southern Kalahari. International Conference on Aeolian Research (ICAR VIII), Lanzhou, China July 2014.

11. Okin GS, Webb NP, **Bhattachan A**, Dintwe K, D’Odorico P. The Southern Kalahari as a dust source: Preliminary results from the field. International Conference on Aeolian Research (ICAR VIII), Lanzhou, China July 2014.
12. O’Donnell FC, Caylor KK, **Bhattachan A**, Dintwe K, D’Odorico P, Okin GS. Root structure and water-use diversity of Kalahari savanna woody plant communities. Ecological Society of America Annual Meeting, Minneapolis, August 2013 [Invited Presentation]
13. **Bhattachan A**, Tatlhego M, D’Odorico P, O’Donnell FC, Caylor KK, Okin GS, Dintwe K. Evaluating the patterns of below ground woody biomass along the Kalahari rainfall gradient. ESA Annual Meeting, Minneapolis, August 2013 [Invited Presentation]
14. D’Odorico P, **Bhattachan A**, Tathlhego M, Dintwe K, O’Donnell FC, Caylor KK, Okin GS, Perrot D, Ringrose S. Hydrologic controls on patterns of below ground woody biomass in savannas. AGU Fall Meeting 2012, Abstract H52A-03.
15. D’Odorico P, **Bhattachan A**, Zobeck TM, Baddock M, Dintwe K, Okin GS. Dust emissions and dune mobilization in the southern Kalahari: possible effects on biotic-abiotic interactions in the Earth system. AGU Fall Meeting 2010, Abstract B42A-02. [Invited Presentation]
16. D’Odorico P, **Bhattachan A**, Zobeck TM. Potential for new dust emissions from the Southern Kalahari. International Conference on Aeolian Research (ICAR VII), Santa Rosa, Argentina, July 2010.
17. Baddock M, Zobeck TM, D’Odorico P, Van Pelt S, Ravi S, **Bhattachan A**. Hoof, Teeth and Fire: the effects of different simulated forms of disturbance on wind erosion in a desert scrub grassland. International Conference on Aeolian Research (ICAR VII), Santa Rosa, Argentina, July 2010.
18. **Bhattachan A**, Caylor KK. Characterizing 33-year shifts in vegetation pattern of southern African savannas using high-resolution declassified satellite imagery. Association of American Geographers Annual Meeting, Boston, MA, April 2008.

POSTER
PRESENTATIONS

1. Clark TC[†], **Bhattachan A**. Post fire shrub recovery in West Texas. Southwest Division of AAG, Laredo, TX, November 2023

2. Saldana MG*, **Bhattachan A**. Left behind places and the Ogallala Aquifer in Texas. Southwest Division of AAG, Laredo, TX, November 2023
3. Zhou B, **Bhattachan A**, Weaver A, Okin GS. Wind erosion and dust emission modeling using Google Earth Engine based on long term monitoring sites calibration in the western United States. AGU Fall Meeting, 2022. Abstract A55O-1308.
4. **Bhattachan A**, Keeney NJ, Zhou B, Okin GS. Calibration of a wind erosion and dust emission model using continental-scale geospatial soil and vegetation datasets. AGU Fall Meeting, 2021. Abstract A35E-1671.
5. Ban Z, **Bhattachan A**, Vimal S, Remais JV, Lettenmaier DP, Irish AM. Predicting mosquito population with high-resolution inundation in California: implications for West Nile Virus. AGU Fall Meeting, 2021. Abstract GH35B-0678.
6. **Bhattachan A**, Okin GS, Zhang J, Vimal S, Lettenmaier DP. Dust and accidents in California. AGU Fall Meeting, 2018. Abstract GH33B-1249.
7. Emanuel RE, **Bhattachan A**, Ardon M, Bernhardt, Anderson SM, Stillwagon MG, Ury EA, BenDor TK, Wright JP. Artificial Drainage and the altered vulnerability of freshwater dependent coastal landscapes to saltwater intrusion. AGU Fall Meeting 2018, Abstract B43L-2997.
8. **Bhattachan A**, BenDor T, Ardon M, Bernhardt E, Wright JP, Emanuel RE. Re-plumbing the coast: Untangling the effects of climate change and water management on vulnerability of coastal landscapes to saltwater intrusion. AGU Fall Meeting 2016, Abstract GC23F-1294
9. Tatlhago M, D'Odorico P, **Bhattachan A**, Okin GS. Mapping regions of the Southern Ocean likely to remain limited in supply of dust-delivered iron from terrestrial sources. AGU Fall Meeting 2016, Abstract A21E-0118.
10. Smart L, **Bhattachan A**, Jurjonas M, Moody A, Morris P, Sanchez G, Taillie P, Emanuel R, Seekamp E (2016) Sea level rise impacts in rural coastal regions of the southeastern US: Implications for resilience and adaptation. Challenges of Natural Resource Economics and Policy, 5th National Forum on Socioeconomic Research in Coastal Systems, New Orleans, Louisiana, March 2016.
11. **Bhattachan A**, Emanuel RE, Moody AC. An index for assessing salt-water vulnerability in coastal regions. AGU Fall Meeting 2015, Abstract B21D-0473.

12. **Bhattachan A**, Wang L, Miller MF, Licht K, D’Odorico P. Antarctica’s Dry Valleys: a potential source of iron to the Southern Ocean. Interdisciplinary Antarctic Earth Sciences Meeting and Shackleton Camp Planning Workshop, Loveland, Colorado, September 2015.
13. **Bhattachan A**, D’Odorico P, Dintwe K, Okin GS, Collins SL. Resilience and recovery of duneland vegetation in the southern Kalahari. AGU Fall Meeting 2013, Abstract B13I-0632.
14. **Bhattachan A**, D’Odorico P, Okin GS, Dintwe K. Dust from Southern Africa: rates of emission and biogeochemical properties. AGU Fall Meeting 2012, Abstract A33E-0217.
15. O’Donnell FC, Gerlein C, **Bhattachan A**, Caylor KK. Ground penetrating radar measurements show a spatial relationship between coarse root biomass and soil carbon biomass. AGU Fall Meeting 2012, Abstract B23A-0431.
16. Masteller C, Jerolmack DJ, **Bhattachan A**. Response of vegetation stability and groundwater depth to spatial variability in sediment transport; White Sands National Monument, New Mexico. AGU Fall Meeting 2012, Abstract EP31B-0813.
17. O’Donnell FC, Caylor KK, D’Odorico P, Okin GS, **Bhattachan A**, Dintwe K. Inter-annual rainfall variability supports coexistence of savanna tree and shrub species with dimorphic rooting strategies. ESA Annual Meeting, Portland, August 2012.
18. **Bhattachan A**, D’Odorico P, Okin GS, Dintwe K. Effect of land-use on sediment fluxes, dune mobilization, and soil nutrient loss in the southern Kalahari. AGU Fall Meeting 2011, Abstract B21G-0349.
19. O’Donnell FC, Caylor KK, D’Odorico P, Okin GS, Tatlhago M, **Bhattachan A**, Dintwe K. Influence of rainfall climatology and coarse root structure on water use and carbon uptake by savanna trees. AGU Fall Meeting 2011, Abstract B11A-0467.
20. Dintwe K, Okin GS, D’Odorico P, Caylor KK, O’Donnell FC, **Bhattachan A**. Soil organic carbon and nitrogen content in savannas: Potential impacts of climate change. AGU Fall Meeting 2011, Abstract B11A-0452.
21. O’Donnell FC, Caylor KK, D’Odorico P, Okin GS, **Bhattachan A**, Dintwe K. Coarse root structure in water-limited ecosystems: Results of large-scale tree and shrub excavations across a rainfall gradient in Southern Africa. AGU Fall Meeting 2010, Abstract B41A-0291.
22. Baddock M, Zobeck TM, D’Odorico P, Van Pelt S, Ravi S, Over TM, **Bhattachan A**. Responses of wind erosion to disturbance

in a desert scrub grassland: grass vs. bush cover, and a snapshot into recovery. AGU Fall Meeting 2010, Abstract B33B-0408.

23. **Bhattachan A**, D’Odorico P, Okin GS, Zobeck TM. Assessing the dust generation potential of soils/sediments in Southern Kalahari. AGU Fall Meeting 2009, Abstract EP21A-0562.
24. **Bhattachan A**, D’Odorico P, Okin GS, Caylor KK, O’Donnell FC, Perrot D, Dintwe K, Tatlhago M. Tree Root Profiles along the Kalahari rainfall gradient. AGU Chapman Conference on Examining Ecohydrological Feedbacks of Landscape Change along Elevation Gradients in Semiarid Regions, Sun Valley, ID, October 2009.

SEMINARS	Texas Tech University, California State University East Bay, Texas A & M University, University of Alabama, University of Virginia
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AWARDS	Open Educational Resources Adoption Incentive Grant, Texas Tech University 2023 NextProf Science, University of Michigan 2020 Open access publication fund, University of Virginia Library, 2014, 2015. Award for Academic Excellence, International Studies Office, University of Virginia 2013 Departmental Fellowship, Department of Environmental Sciences, University of Virginia 2012-2013 3rd place winner, Oral presentation, Huskey Graduate Research Exhibition, University of Virginia 2012 Fred Holmsley Moore Graduate Teaching Award, Department of Environmental Sciences, University of Virginia 2012 Outstanding Graduate Teaching Award, Teaching Resource Center, University of Virginia 2012 Best Graduate Student Publication Award, Department of Environmental Sciences, University of Virginia 2012 Best Graduate Student Poster, EnviroDay, University of Virginia, 2012 Huskey Travel Grant, Graduate School of Arts and Sciences, University of Virginia, 2011, 2012 Outstanding first year student in hydrology, Department of Environmental Sciences, University of Virginia 2010 Exploratory Award, Department of Environmental Sciences,
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University of Virginia (\$1500)	2009
MSES Scholarship, School of Public and Environmental Affairs, Indiana University	2006-2007
College of Natural Resources Alumni Scholarship, College of Natural Resources, Utah State University	2005-2006
Merit Scholarship, Office of International Students and Scholars, Utah State University	2005-2006
S. J. and Jessie E. Quinney Scholarship, College of Natural Resources, Utah State University	2004-2006
Service Scholarship, Office of International Students and Scholars, Utah State University	2004-2005

TEACHING &
SUPERVISION

Texas Tech University

2022 -

Fall 2023: GEOG 4302: Energy, Food & Water (3 credits)

Fall 2022: GEOG 5304: Advanced Physical Geography (3 credits)

Spring 2023, 2024: GEOG 3310: Environmental Change (3 credits)

California State University East Bay

2020 - 2022

Spring 2021: ENSC 280: Humans and Environment in California
(3 credits), GEOL 499: Capstone seminar in GeoSciences (Public
Health Effects of Climate Change, 3 credits)

Fall 2021: ENSC 280: Humans and Environment in California (3
credits), ENSC 420: Global Change (3 credits)

Spring 2022: ENSC 280: Humans and Environment in California
(3 credits), ENSC 320: Science of Global Change (3 credits)

University of Virginia

2009 - 2014

Instructor:

Summer 2014, EVSC 1600: Water on Earth (3 credits)

Teaching Assistant

Spring 2012, EVHY 5700 - Forest Hydrology

2009 - 2011, EVSC 3601 - Physical Hydrology (Head TA for 3
semesters)

Undergraduate mentoring

Spring 2010 - present

Mr. Cayden Parris, Political Science, Texas Tech University, Spring 2023

Mr. Travis Clark, Geography and Environmental Science, Texas Tech University, 2023 - 2024

Ms. Dimple DeLuna Sumajit, Environmental Science, California State University East Bay, 2021 - 2022

Ms. Sok Keang Pao, Environmental Science, California State University East Bay, 2021 - 2022

Ms. Kayla Hill, Psychology, California State University East Bay, 2021 - 2022

Mr. Jeremiah Garcia, Environmental Science, California State University East Bay, 2021 - 2022

Ms. Sarah Payne, Geography/Environmental Science, Senior Thesis Project: Machine learning approaches to estimate grass mortality in the Chihuahuan Desert (University of California, Los Angeles, 2019-2020)

Mr. Matthew Loman, Environmental Sciences, Project: Evaluating the effect of soil salinization on erodibility. (University of Virginia, 2014-2015)

Ms. Lauren Pontius, Environmental Sciences / Economics, Project: The effect of 'islands of fertility' in desert ecosystems. (University of Virginia, 2010-2012)

Ms. Noaa Spiekermann, Environmental Sciences / Studio Art, Projects: Trajectory analysis from the Mallee basin in Australia using HYSPLIT; biogeochemical analyses of Kalahari soils. (University of Virginia, 2011-2012)

* Recipient of Best Undergraduate Student in Hydrology Award, University of Virginia, 2012

Ms. Shamika Ranasinghe, Environmental Sciences, Project: Modeling the trajectories of dust from Southern Africa and the

Mallee basin in Australia using HYSPLIT. (University of Virginia, 2010-2011)

Ms. Jennifer Nelson, Environmental Sciences, Project: The biogeochemistry of southern African dust (University of Virginia, Spring 2011)

Ms. Jenny Stoner, and Ms. Ellie Horner, Environmental Sciences, Spring 2010, Project: The global distribution of dust sources and comparison of soil grain size distribution using a particle size analyzer and Baucuous hydrometer method. (University of Virginia, Spring 2010)

Graduate Committee Chair Fall 2022 - present

Binisha Shrestha, MS Geography & Environment, Texas Tech University, 2024 -

Gayatri Paudel, MS Geography & Environment, Texas Tech University, 2024 -

Keely Patelski, MS Geography & Environment, Texas Tech University, 2023 -

Ashten Fenton, MS Geology, Texas Tech University, 2023 -

Nusrat Zahan Jarin, MS Geography & Environment, Texas Tech University, 2022 - 2024 (now a PhD student at UC Santa Barbara)

Olakuyade Ige, MS Geography & Environment, Texas Tech University, 2022 - 2023 (now at ESRI)

Graduate Committee Member Fall 2020 - present

Isabel Torres (MS Environmental Geoscience, 2022; Ms. Agnieszka Gniazdowska (MS Environmental Geoscience, 2021)

Ruba al Zubi (PhD in Geosciences, 2023)

Mohammad Tarak Aziz (MS in Geography & Environment, 2023)

Benjamin Dohan (MS in Geography & Environment, 2022 - 2024)

Zyanya Ramirez-Diaz (PhD in Geosciences 2023 -)

SERVICE	Academic Editor : <i>Plos One</i>	2019 - 2024
	Proposal Review:	
	NSF - Environmental Biology	2015
	Department of Defense - SERDP	2021
	Manuscript Reviewer:	2012 - present
	Advances in Water Resources, Aeolian Research (x3), African Journal of Ecology, Ambio, Biogeochemistry, Boundary-Layer Meteorology, Earth's Future, Earth Surface Processes Landforms, Ecological Engineering, Ecosphere, Geoenvironmental Disasters, GeoHealth, Geology, Geophysical Research Letters (x3), Journal of Geophysical Research – Atmospheres (x3), Journal of Geophysical Research – Biogeosciences (x2), Journal of Geophysical Research – Earth Surface, Land Degradation and Development (x2), PLoS One (x4), Science of the Total Environment (x3), Water Resources Research	
	Convener & Session Chair: American Geophysical Union Fall Meeting:	
	The resilience of wetland ecosystems to multiscale environmental changes 2018	
	Advances in ecohydrology of water-stressed environments	2016, 2021
	Aeolian research at the interface of biophysical, sedimentary and atmospheric processes	
	2015	
PROFESSIONAL SOCIETIES	American Geophysical Union (AGU) American Association of Geographers (AAG)	
SKILLS	Computer Programming	
	• Python, MATLAB, ArcGIS	
	Fieldwork Experience:	
	• Albemarle-Pamlico Peninsula, North Carolina: (2015-2016), Kalahari Desert, Botswana: (2008-2015), Sevilleta LTER, New Mexico (December 2009, March 2010), White Sands, New Mexico (March 2011), Welverdiend, South Africa and Machipanda, Mozambique (Summer 2007),	

Deseret Land and Livestock, and T.W. Daniels Experimental Forest,
Utah (Summer 2005, 2006)

Field Skills:

- skills in surface water hydrology, vegetation sampling, high precision GPS, Ground Penetrating Radar (GPR), LiCor 6400.

Laboratory Skills:

- Elemental analysis of soils.