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A. PROFESSIONAL EXPERIENCE

Associate Professor & Director (2021-), The GIS and Remote Sensing Laboratory, School of Forestry and Wildlife Sciences, Auburn University.
Assistant Professor & Director (2014-2021), The GIS and Remote Sensing Laboratory, School of Forestry and Wildlife Sciences, Auburn University.
Research Associate & Director (2003-2014), The GIS and Remote Sensing Laboratory, School of Forestry and Wildlife Sciences, Auburn University.
Research Associate & Project Coordinator (2001-2003), NASA Regional Earth Science Applications Center, Applied Remote Sensing Program, University of Kansas
Data Specialist (1998-2001), The Ecosystem Center, Marine Biological Laboratory, Woods Hole

B. TEN SELECTED PUBLICATIONS (out of 100+)

([Total Citation: 4862](#); [H-index: 42](#), [Google Scholar](#) by March 2021)

1. **Pan** S, Bian Z., Tian H., Yao Y., Najjar R., Friedrichs M., Hofmann E., Xu R. and Zhang B. (2021) Impacts of Multiple Environmental Changes on Long-term Nitrogen Loading from the Chesapeake Bay Watershed, *J. Geophys. Res. Biogeosciences* (In Press)
2. **Pan**, S., N., Pan, H., Tian, P., Friedlingstein, et al. (2020) Evaluation of terrestrial evapotranspiration by state of the art approaches in remote sensing, machine learning, and process-based modeling, *Hydrology and Earth System Sciences*. doi:10.5194/hess-2019-409
3. **Pan**, S., J., Yang, H., Tian, H., Shi, J, Chang, P, Ciais, L, Francois, K, Frieler, B, Fu, T, Hickler, A, Ito, et al. (2020) Climate extremes versus climate extreme: Responses of terrestrial carbon fluxes to temperature and precipitation: *J. Geophys. Res. Biogeosciences*, 125 (4), e2019JG005252.
4. Yao, Y., H., Tian, H., Shi, S, **Pan**, R., Xu, N., Pan, J., Canadell. (2020), Increased global nitrous oxide emissions from streams and rivers in the Anthropocene, *Nature Climate Change*, **10**, 38–142.
5. **Pan**, S., G. Chen, W. Ren, SRS Dangal, K. Banger, J. Yang, B. Tao, H. Tian (2018) Responses of global terrestrial water use efficiency to climate change and rising atmospheric CO₂ concentration in the twenty-first century. *International Journal of Digital Earth*, 11 (6), 558-582
6. Yang, J., **S. Pan**, S. Dangal, B. Zhang, S. Wang, H. Tian (2017). Continental-scale quantification of post-fire vegetation greenness recovery in temperate and boreal North America. *Remote Sensing of Environment* 199, 277-290.
7. Chen, G., **S. Pan**, D.J. Hayes, H. Tian (2017). Spatial and temporal patterns of plantation forests in the United States since the 1930s: an annual and gridded data set for regional Earth system modeling. *Earth System Science Data* 9 (2), 545-556.
8. **Pan**, S., H. Tian, S. Dangal, Q, Yang, J. Yang and C. Lu (2015) Responses of global terrestrial evapotranspiration to climate change and increasing atmospheric CO₂ in the 21st century. *Earths Future*, 3(1),15-35
9. **Pan**, S., Dangal, S. R., Tao, B., Yang, J., Tian, H. (2015). Recent patterns of terrestrial net primary production in Africa influenced by multiple environmental changes. *Ecosystem Health and Sustainability*, 1(5), 1-15
10. **Pan**, S., H. Tian, S. Dangal, Z. Ouyang, C. Lu, J. Yang, B. Tao, W. Ren, K. Banger, Q. Yang, B. Zhang (2015) Impacts of climate variability and extremes on global net primary production in the first decade of the 21st century. *Journal of Geographical Sciences*, 25(9), 1027-1044

C. PROFESSIONAL PREPARATION

UCAS and Auburn University	Ecology	Ph.D.	2014
Capital University of Economics and Business Southwestern University of Finance & Economics	Ecological Economics	M.S.	1991
Lishui University, China	Liberal Arts	BLA	1984

D. RESEARCH PROGRAM AND INTEREST

Dr. Pan's research program and interests focus on the **Monitoring, Assessment and Prediction (MAP)** of *coupled natural-human systems* at multiple scales in the context of global environmental changes. The interdisciplinary nature of her research leads her to work across traditional disciplinary lines. By using GIS, Remote Sensing, Big Data, machine learning, and ecological modeling, she has investigated a wide range of research topics as follows:

- 1) **Hydrological Processes and Water Resource:** using remote sensing, machine learning and ecosystem modeling to evaluate and predict changes in key hydrological processes such as terrestrial evapotranspiration and water use efficiency in the changing global environment.
- 2) **Climate Extremes and Ecosystem Production:** assessing the impact of extreme weather events (drought and flooding) on terrestrial ecosystem production.
- 3) **Natural Disasters and Ecosystem Resilience:** using satellite observations and geospatial analysis to assess ecosystem resilience to natural disasters, e.g. hurricane impacts on ecosystems and forest resilience to hurricanes along the northern Gulf of Mexico.
- 4) **Environmental change and Public Health:** assessing how the emissions of ammonia from agriculture link to human respiratory and cardiovascular ailments; using geospatial Big Data and satellite observation to assess urban resilience to COVID-19, highlighting the importance of urban vegetation as a resilient infrastructure.
- 5) **Global Change and Food-Energy-Water Nexus:** understanding and predicting the complex interactions and feedbacks within the Food-Energy-Water (FEW) system towards a basin-scale sustainable FEW provisions in Mississippi and Yellow Rivers basins.

E. SELECTED SYNERGISTIC ACTIVITIES

1. As the founding Director of the GIS and Remote Sensing Laboratory in the School of Forestry and Wildlife Science at Auburn University.
2. PI and Co-PI for 19 Funded Projects (8 million) including two NSF awards (both starting in Fall 2019: 1) NRT: Addressing Resiliency to Climate Related Hazards and Disasters Through Data Informed Decision, total \$3 Million, 2019-2024); 2) INFEWS U.S.-China: Integrated systems modeling for sustainable FEW Nexus under multi-factor global changes: Innovative Comparison, total \$500,000, 2019-2023).
3. Lead to develop the new undergraduate degree program GSEI (Geospatial and Environmental Informatics) at Auburn University (Established in 2017) and serve as GSEI program leader.
4. Invited Panelist for the Workshop on Food-Energy-Water Nexus in Asia and Its Global Importance, 16th National Conference and Global Forum on Science, Policy and the Environment, January 19-21, 2016, Washington D. C.; CERF Session Chair, Coastal and Estuarine Research Federation, CERF 2019-25th, Biennial Conference, Mobile, Alabama, 3-7 November 2019; 2021 Session Co-chair for SE GSA.
5. Technical Input Document author for the 2013 National Climate Assessment, United States.