Kaiguang Zhao – **Associate Professor**

School of Environment & Natural Resources (SENR)
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EDUCATION

Ph.D. in Forestry, Texas A&M University, USA, Aug. 2008
M.S. in Geography, Beijing Normal University, China, Aug. 2004
B.S. in Physics, Beijing Normal University, China, Aug. 2001

MAJOR EXPERTISE & RESEARCH INTEREST

- Environmental remote sensing, geoanalytics, and image analysis
- Land use, disturbances, and climate impact assessment: land-based climate mitigation, agriculture production, forestry activities, climatic benefits, carbon, water quality, and biophysics
- Ecosystem, crop, and watershed modeling
- Use and development of geospatial techniques for natural resources management, environmental applications, and engineering problems
- Machine learning, Bayesian learning, data analytics, and statistical modeling for environmental applications

ACADEMIC EXPERIENCE & EMPLOYMENT

- Associate Professor, SENR and OARDC, The Ohio State University, Aug. 2020 – present
- Assistant Professor, SENR and OARDC, The Ohio State University, Jan. 2014 – Jul. 2020
- Post-doctoral Scholar, Terrestrial Processes and Adaptation Group, Joint Global Change Research Institute, College Park, Maryland, Jan. 2013 – Jan. 2014
- Post-doctoral Associate, Robert Jackson's Lab, Dept. of Biology, Center on Global Change & Nicholas School of the Environment, Duke University, Feb. 2010 – Jan. 2013.
- Postdoc and Project manager for carbon accounting, ecosystem mapping, air quality, and WebGIS projects funded by NASA and the Texas Commission on Environmental Quality, Spatial Sciences Lab., Texas A&M Univ., Jan. 2009 – Feb. 2010.
- Research Engineer, Feature Extraction/Object Recognition Team, Division of ERDAS Imagine, Leica-Geosystems Inc., Atlanta, May 2007 – Jul. 2007.
- Graduate Research Assistant, The State Key Laboratory of Remote Sensing Sciences, jointly Sponsored by the Institute of Remote Sensing Applications of Chinese Academy of Sciences and Beijing Normal University, Beijing, China, Sept. 2001 – Aug. 2004.

REFEREED PUBLICATIONS (h-index=38; 7150 citations)

1. Cao et al., Increasing global urban exposure to flooding: An analysis of long-term annual dynamics. Science of The Total Environment (in press).
2. Li, Y., Liu, Y., Bohrer, G., Cai, Y., Wilson, A., Hu, T., Wang, Z. and **Zhao, K**., 2022. Impacts of forest loss on local climate across the conterminous United States: Evidence from satellite time-series

observations. Science of The Total Environment, 802, p.149651.

3. Li, H., Zhou, Y., Jia, G., **Zhao, K**. and Dong, J., 2022. Quantifying the response of surface urban heat island to urbanization using the annual temperature cycle model. Geoscience Frontiers, 13(1), p.101141.

4. Adams, B.T., Matthews, S.N., Iverson, L.R., Prasad, A.M., Peters, M.P. and **Zhao, K**., 2021. Spring phenological variability promoted by topography and vegetation assembly processes in a temperate forest landscape. Agricultural and Forest Meteorology, 308, p.108578.

5. Salas, E.A.L., Subburayalu, S.K., Slater, B., Dave, R., Parekh, P., **Zhao, K**. and Bhattacharya, B., 2021. Assessing the effectiveness of ground truth data to capture landscape variability from an agricultural region using Gaussian simulation and geostatistical techniques. Heliyon, 7(7), p.e07439.

6. Hu, T., Toman, E.M., Chen, G., Shao, G., Zhou, Y., Li, Y., **Zhao, K**. and Feng, Y., 2021. Mapping fine-scale human disturbances in a working landscape with Landsat time series on Google Earth Engine. ISPRS Journal of Photogrammetry and Remote Sensing, 176, pp.250-261.

7. He, Y., Chen, G., Cobb, R.C., **Zhao, K.** and Meentemeyer, R.K., 2021. Forest landscape patterns shaped by interactions between wildfire and sudden oak death disease. Forest Ecology and Management, 486, p.118987.

8. Li, Y., Jiao, Z., **Zhao, K.,** Dong, Y., Zhou, Y., Zeng, Y., Xu, H., Zhang, X., Hu, T. and Cui, L., 2021. Influence of Varying Solar Zenith Angles on Land Surface Phenology Derived from Vegetation Indices: A Case Study in the Harvard Forest. Remote Sensing, 13(20), p.4126.

9. KC, K., **Zhao, K**., Romanko, M. and Khanal, S., 2021. Assessment of the spatial and temporal patterns of cover crops using remote sensing. Remote Sensing, 13(14), p.2689.

10. Zone, P.P., Culman, S.W., Haden, V.R., Lindsey, L.E., Fulford, A.M. and **Zhao, K**., 2020. Do soil test levels and fertilization with phosphorus and potassium impact field crop tissue concentrations? Agronomy Journal, 112(4), pp.3024-3036.

11. Liu, Z., Ma, F., Hu, T., **Zhao, K.,** Gao, T., Zhao, H. and Ning, T., 2020. Using stable isotopes to quantify water uptake from different soil layers and water use efficiency of wheat under long-term tillage and straw return practices. Agricultural Water Management, 229, p.105933.

12. García, M., North, P., Viana-Soto, A., Stavros, N.E., Rosette, J., Martín, M.P., Franquesa, M., González-Cascón, R., Riaño, D., Becerra, J. and **Zhao, K.,** 2020. Evaluating the potential of LiDAR data for fire damage assessment: A radiative transfer model approach. Remote Sensing of Environment, 247, p.111893.

13. Cui, L., Jiao, Z., **Zhao, K.,** Sun, M., Dong, Y., Yin, S., Li, Y., Chang, Y., Guo, J., Xie, R. and Zhu, Z., 2020. Retrieval of Vertical Foliage Profile and Leaf Area Index Using Transmitted Energy Information Derived from ICESat GLAS Data. Remote Sensing, 12(15), p.2457.

14. Wang, C., Qiu, X., Liu, H., Li, D., **Zhao, K**. and Wang, L., 2020. Damaged buildings recognition of post-earthquake high-resolution remote sensing images based on feature space and decision tree optimization. Computer Science and Information Systems, (00), pp.4-4.

15. Wang, C., Liu, H., Shen, Y., **Zhao, K**., Xing, H. and Wu, H., 2020. High-Resolution Remote-Sensing Image-Change Detection Based on Morphological Attribute Profiles and Decision Fusion. Complexity, 2020.

16. Salas, E.A.L., Subburayalu, S.K., Slater, B., **Zhao, K.**, Bhattacharya, B., Tripathy, R., Das, A., Nigam, R., Dave, R. and Parekh, P., 2019. Mapping crop types in fragmented arable landscapes using AVIRIS-NG imagery and limited field data. International Journal of Image and Data Fusion, pp.1-24.

17. **Zhao. K.,** Ryu, Y., Hu, T., Garcia, M., Li, Y., Liu, Z., Londo, A., & Wang, C. 2019. How to better estimate leaf area index and leaf angle distribution from digital hemispherical photography? Switching to a binary nonlinear regression paradigm. Methods in Ecology and Evolution, 10(11), pp.1864-1874.

18. Wu, Q., Lane, C.R., Li, X., **Zhao, K.,** Zhou, Y., Clinton, N., DeVries, B., Golden, H.E. and Lang, M.W., 2019. Integrating LiDAR data and multi-temporal aerial imagery to map wetland inundation dynamics using Google Earth Engine. Remote Sensing of Environment, 228, 1-13.

19. Yang, Q., Zhang, X., Almendinger, J.E., Huang, M., Chen, X., Leng, G., Zhou, Y., **Zhao, K.,** Asrar,

G.R. and Li, X. 2019. Climate change will pose challenges to water quality management in the st. Croix River basin. Environmental Pollution, 251, 302-311.

20. **Zhao, K**., Wulder, M.A., Hu, T., Bright, R., Wu, Q., Li, Y., Qin, H., Toman, E., Mallick B., Zhang, X., & Brown, M. (2019) Detecting change-point, trend, and seasonal change in satellite time series data to track land disturbance and nonlinear dynamics: A Bayesian ensemble algorithm. Remote Sensing of Environment, 232, p.111181.

21. Hu, T.; Zhao, T.; **Zhao, K**.; Shi, J. 2019. A continuous global record of near-surface soil freeze/thaw status from AMSR-E and AMSR2 data. International Journal of Remote Sensing, 40(16), 6993-7016.

22. Yang, Q.; Zhang, X.; Almendinger, J.E.; Huang, M.; Leng, G.; Zhou, Y. et al. (2019). Improving the SWAT forest module for enhancing water resource projections: A case study in the St. Croix River basin. Hydrological Processes, 33 (5), 864-875.

23. Dashti, H., Glenn, N.F., Ustin, S., Mitchell, J.J., Qi, Y., Ilangakoon, N.T., Flores, A.N., Silván-Cárdenas, J.L., **Zhao, K**., Spaete, L.P. and de Graaff, M.A., 2019. Empirical Methods for Remote Sensing of Nitrogen in Drylands May Lead to Unreliable Interpretation of Ecosystem Function. IEEE Transactions on Geoscience and Remote Sensing, 57(6), 3993-4004.

24. Wang, C., Qin, H., **Zhao, K**., Dong, P., Yang, X., Zhou, G. and Xi, X., 2019. Assessing the Impact of the Built-Up Environment on Nighttime Lights in China. Remote Sensing, 11(14), p.1712.

25. Wang, C., Shen, Y., Liu, H., **Zhao, K.,** Xing, H. and Qiu, X., 2019. Building Extraction from High–Resolution Remote Sensing Images by Adaptive Morphological Attribute Profile under Object Boundary Constraint. Sensors, 19(17), p.3737

26. Zhou, T., Popescu, S., Malambo, L., **Zhao, K**. and Krause, K., 2018. From LiDAR waveforms to Hyper Point Clouds: a novel data product to characterize vegetation structure. Remote Sensing, 10(12), p.1949.

27. Liu, D., Toman, E., Fuller, Z., Chen, G., Londo, A., Zhang, X. and **Zhao, K**., 2018. Integration of historical map and aerial imagery to characterize long-term land-use change and landscape dynamics: An object-based analysis via Random Forests. Ecological Indicators, 95, pp.595-605.

28. Yang, Q., Almendinger, J.E., Zhang, X., Huang, M., Chen, X., Leng, G., Zhou, Y., **Zhao, K.,** Asrar, G.R., Srinivasan, R. and Li, X., 2018. Enhancing SWAT simulation of forest ecosystems for water resource assessment: A case study in the St. Croix River basin. Ecological Engineering, 120, pp.422-431.

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31. Hurisso, T.T., Culman, S.W. and **Zhao, K**., 2018. Repeatability and spatiotemporal variability of emerging soil health indicators relative to routine soil nutrient tests. Soil Science Society of America Journal, 82(4), pp.939-948.

32. **Zhao, K**., Suarez, J.C., Garcia, M., Hu, T., Wang, C. and Londo, A., 2018. Utility of multitemporal lidar for forest and carbon monitoring: Tree growth, biomass dynamics, and carbon flux. Remote Sensing of Environment, 204, pp.883-897 (Most Downloaded Articles, Ranking #1; ESI Highly Cited paper).

33. Hu, T., Zhao, T., Shi, J., Wu, S., Liu, D., Qin, H. and **Zhao, K**., 2017. High-resolution mapping of freeze/thaw status in china via fusion of MODIS and AMSR2 data. Remote Sensing, 9(12), p.1339.

34. Meng, X., Shang, N., Zhang, X., Li, C., **Zhao, K.,** Qiu, X. and Weeks, E., 2017. Photogrammetric UAV mapping of terrain under dense coastal vegetation: an object-oriented classification ensemble algorithm for classification and terrain correction. Remote Sensing, 9(11), p.1187.

35. Tagwireyi, P., Sullivan, S.M.P. and **Zhao, K.,** 2017. Associations between riverine landscape patches

and internal and external environmental determinants are scale dependent: evidence from the Scioto River, USA. Fundamental and Applied Limnology/Archiv für Hydrobiologie, 190(3), pp.235-249.

36. Li, Y., Guo, Q., Su, Y., Tao, S., **Zhao, K.** and Xu, G., 2017. Retrieving the gap fraction, element clumping index, and leaf area index of individual trees using single-scan data from a terrestrial laser scanner. ISPRS Journal of Photogrammetry and Remote Sensing, 130, pp.308-316.

37. Shu, L., Jiang, Q., Zhang, X. and **Zhao, K.,** 2017. Potential and limitations of satellite laser altimetry for monitoring water surface dynamics: ICESat for US lakes. International Journal of Agricultural and Biological Engineering, 10(5), pp.154-165.

38. Liu, S., Baret, F., Abichou, M., Boudon, F., Thomas, S., **Zhao, K**., Fournier, C., Andrieu, B., Irfan, K., Hemmerlé, M. and De Solan, B., 2017. Estimating wheat green area index from ground-based LiDAR measurement using a 3D canopy structure model. Agricultural and Forest Meteorology, 247, pp.12-20.

39. Bright, R.M., Davin, E., O'Halloran, T., Pongratz, J., **Zhao, K**. and Cescatti, A., 2017. Local temperature response to land cover and management change driven by non-radiative processes. Nature Climate Change, 7(4), p.296.

40. Yang, X., Tang, J., Mustard, J.F., Wu, J., **Zhao, K.,** Serbin, S. and Lee, J.E., 2016. Seasonal variability of multiple leaf traits captured by leaf spectroscopy at two temperate deciduous forests. Remote Sensing of Environment, 179, pp.1-12.

41. Li, Y., Guo, Q., Tao, S., Zheng, G., **Zhao, K**., Xue, B. and Su, Y., 2016. Derivation, validation, and sensitivity analysis of terrestrial laser scanning-based leaf area index. Canadian Journal of Remote Sensing, 42(6), pp.719-729.

42. Zhou, Y., Smith, S.J., **Zhao, K.,** Imhoff, M., Thomson, A., Bond-Lamberty, B., Asrar, G.R., Zhang, X., He, C. and Elvidge, C.D., 2015. A global map of urban extent from nightlights. Environmental Research Letters, 10(5), p.054011. (IOPSelect Articles).

43. **Zhao, K**., García, M., Liu, S., Guo, Q., Chen, G., Zhang, X., Zhou, Y. and Meng, X., 2015. Terrestrial lidar remote sensing of forests: Maximum likelihood estimates of canopy profile, leaf area index, and leaf angle distribution. Agricultural and forest meteorology, 209, pp.100-113. (Top 25 hottest articles).

44. Jackson, R.B., Lowry, E.R., Pickle, A., Kang, M., DiGiulio, D. and **Zhao, K**., 2015. The depths of hydraulic fracturing and accompanying water use across the United States. Environmental science & technology, 49(15), pp.8969-8976.

45. Gallagher, M.E., Down, A., Ackley, R.C., **Zhao, K.,** Phillips, N. and Jackson, R.B., 2015. Natural gas pipeline replacement programs reduce methane leaks and improve consumer safety. Environmental Science & Technology Letters, 2(10), pp.286-291.

46. García, M., Gajardo, J., Riaño, D., **Zhao, K**., Martín, P. and Ustin, S., 2015. Canopy clumping appraisal using terrestrial and airborne laser scanning. Remote Sensing of Environment, 161, pp.78-88.

47. Bright, R.M., **Zhao, K.,** Jackson, R.B. and Cherubini, F., 2015. Quantifying surface albedo and other direct biogeophysical climate forcings of forestry activities. Global change biology, 21(9), pp.3246-3266 (Invited Review).

48. Zhang, X., Izaurralde, R.C., Manowitz, D.H., Sahajpal, R., West, T.O., Thomson, A.M., Xu, M., **Zhao, K**., LeDuc, S.D. and Williams, J.R., 2015. Regional scale cropland carbon budgets: evaluating a geospatial agricultural modeling system using inventory data. Environmental Modelling & Software, 63, pp.199-216.

49. **Zhao, K**. and Jackson, R.B., 2014. Biophysical forcings of land-use changes from potential forestry activities in North America. Ecological Monographs, 84(2), pp.329-353.

50. Hultquist, C., Chen, G. and **Zhao, K**., 2014. A comparison of Gaussian process regression, random forests and support vector regression for burn severity assessment in diseased forests. Remote sensing letters, 5(8), pp.723-732.

51. Zhou, Y., Smith, S.J., Elvidge, C.D., **Zhao, K**., Thomson, A. and Imhoff, M., 2014. A cluster-based method to map urban area from DMSP/OLS nightlights. Remote Sensing of Environment, 147,

pp.173-185 (ESI Highly Cited paper).

52. Jackson, R.B., Down, A., Phillips, N.G., Ackley, R.C., Cook, C.W., Plata, D.L. and **Zhao, K**., 2014. Natural gas pipeline leaks across Washington, DC. Environmental science & technology, 48(3), pp.2051-2058. (Most-read articles).

53. Zhang, X., Sahajpal, R., Manowitz, D.H., **Zhao, K**., LeDuc, S.D., Xu, M., Xiong, W., Zhang, A., Izaurralde, R.C., Thomson, A.M. and West, T.O., 2014. Multi-scale geospatial agroecosystem modeling: a case study on the influence of soil data resolution on carbon budget estimates. Science of the Total Environment, 479, pp.138-150..

54. Chen, G., **Zhao, K**. and Powers, R., 2014. Assessment of the image misregistration effects on object-based change detection. ISPRS journal of photogrammetry and remote sensing, 87, pp.19-27.

55. Jackson, R.B., Vengosh, A., Darrah, T.H., Warner, N.R., Down, A., Poreda, R.J., Osborn, S.G., **Zhao, K.** and Karr, J.D., 2013. Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction. Proceedings of the National Academy of Sciences, 110(28), pp.11250-11255 (Most-read articles).

56. Warner, N.R., Jackson, R.B., Darrah, T.H., Osborn, S.G., Down, A., **Zhao, K.,** White, A. and Vengosh, A., 2012. Reply to Engelder: Potential for fluid migration from the Marcellus Formation remains possible. Proceedings of the National Academy of Sciences, 109(52), pp.E3626-E3626. (Most-read articles)..

57. Zhang, X., Izaurralde, R.C., Zong, Z., **Zhao, K**. and Thomson, A.M., 2012. Evaluating the efficiency of a multi-core aware multi-objective optimization tool for calibrating the SWAT model. Transactions of the ASABE, 55(5), pp.1723-1731.

58. Phillips, N.G., Ackley, R., Crosson, E.R., Down, A., Hutyra, L.R., Brondfield, M., Karr, J.D., **Zhao, K**. and Jackson, R.B., 2013. Mapping urban pipeline leaks: Methane leaks across Boston. Environmental pollution, 173, pp.1-4 (featured in Nature, the New York Times, the Boston Globe and others).

59. **Zhao, K**., Valle, D., Popescu, S., Zhang, X. and Mallick, B., 2013. Hyperspectral remote sensing of plant biochemistry using Bayesian model averaging with variable and band selection. Remote Sensing of Environment, 132, pp.102-119.

60. Gloor, M., Gatti, L., Brienen, R., Feldpausch, T.R., Phillips, O.L., Miller, J., Ometto, J.P., Rocha, H., Baker, T., De Jong, B. and Houghton, R.A., Malhi, Y., Aragao, L., Guyot, J.-L., **Zhao, K.,** Jackson, R., Peylin, P. , Sitch, S., Poulter, B., Lomas, M. , Zaehle, S., Huntingford, C.,. Lloyd, J., 2012. The Carbon Balance of South America: status, decadal trends and main determinants, Biogeosciences Discuss, 9, 627-671.

61. Warner, N.R., Jackson, R.B., Darrah, T.H., Osborn, S.G., Down, A., **Zhao, K**., White, A. and Vengosh, A., 2012. Geochemical evidence for possible natural migration of Marcellus Formation brine to shallow aquifers in Pennsylvania. Proceedings of the National Academy of Sciences, 109(30), pp.11961-11966. (Press highlight paper and Most-read article).

62. García, M., Popescu, S., Riaño, D., **Zhao, K.,** Neuenschwander, A., Agca, M. and Chuvieco, E., 2012. Characterization of canopy fuels using ICESat/GLAS data. Remote Sensing of Environment, 123, pp.81-89.

63. Xie, Y., **Zhao, K.** and Huynh, N., 2012. Analysis of driver injury severity in rural single-vehicle crashes. Accident Analysis & Prevention, 47, pp.36-44..

64. Zhang, X. and **Zhao, K**., 2012. Bayesian neural networks for uncertainty analysis of hydrologic modeling: a comparison of two schemes. Water resources management, 26(8), pp.2365-2382.

65. Jiang, L., Tjuatja, S., Shi, J., Zhang, L. and **Zhao, K.,** 2012. Evaluation of emission from snow-covered ground for passive microwave remote sensing. International journal of remote sensing, 33(3), pp.872-886.

66. Chen, G., **Zhao, K**., McDermid, G.J. and Hay, G.J., 2012. The influence of sampling density on geographically weighted regression: a case study using forest canopy height and optical data. International Journal of Remote Sensing, 33(9), pp.2909-2924.

67. **Zhao, K.,** Popescu, S., Meng, X., Pang, Y. and Agca, M., 2011. Characterizing forest canopy structure with lidar composite metrics and machine learning. Remote Sensing of Environment, 115(8),

pp.1978-1996 (Top 25 hottest articles).

68. Cui, Y., **Zhao, K.**, Fan, W. and Xu, X., 2011. Retrieving crop fractional cover and LAI based on airborne Lidar data. Yaogan Xuebao- Journal of Remote Sensing, 15(6), pp.1276-1288.

69. Popescu, S.C., **Zhao, K.**, Neuenschwander, A. and Lin, C., 2011. Satellite lidar vs. small footprint airborne lidar: Comparing the accuracy of aboveground biomass estimates and forest structure metrics at footprint level. Remote Sensing of Environment, 115(11), pp.2786-2797 (top 25 hottest articles).

70. Valle, D., Clark, J.S. and **Zhao, K.**, 2011. Enhanced understanding of infectious diseases by fusing multiple datasets: a case study on malaria in the Western Brazilian Amazon region. PLoS One, 6(11), p.e27462.

71. Xie, Y., **Zhao, K.**, Sun, Y. and Chen, D., 2010. Gaussian processes for short-term traffic volume forecasting. Transportation Research Record, 2165(1), pp.69-78 (2010 TRB best statistical paper award).

72. Meng, X., Currit, N. and **Zhao, K.**, 2010. Ground filtering algorithms for airborne LiDAR data: A review of critical issues. Remote Sensing, 2(3), pp.833-860 (Ranking No.1 for years in the all-time most cited articles).

73. **Zhao, K.**, Popescu, S. and Nelson, R., 2009. Lidar remote sensing of forest biomass: A scale-invariant estimation approach using airborne lasers. Remote Sensing of Environment, 113(1), pp.182-196 (Top 25 hottest article & most-cited articles since 2009).

74. Zhang, X., Srinivasan, R., **Zhao, K.** and Liew, M.V., 2009. Evaluation of global optimization algorithms for parameter calibration of a computationally intensive hydrologic model. Hydrological Processes: An International Journal, 23(3), pp.430-441.

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77. **Zhao, K.,** Popescu, S. and Zhang, X., 2008. Bayesian learning with Gaussian processes for supervised classification of hyperspectral data. Photogrammetric Engineering & Remote Sensing, 74(10), pp.1223-1234.

78. **Zhao, K.,** Popescu, S.C. and Nelson, R.F., 2008. Quantifying the uncertainty for the lineintercept sampling estimators of canopy cover. Journal of Forest Planning, 13, pp.195-205.

79. Popescu, S.C. and **Zhao, K.**, 2008. A voxel-based lidar method for estimating crown base height for deciduous and pine trees. Remote sensing of environment, 112(3), pp.767-781 (Most-cited article since 2008).

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81. Zhou, G., Wang, J., Tang, S., Wang, Z., Hu, N., Zhao, F., and **Zhao, K.,** 2004. A Large-Scale Web-GIS Service System of Remote Sensing Models, Remote Sensing Information, 1:38-41 (in Chinese).

82. Yang, H., Li, X.W., Shi, H., **Zhao, K**. and Han, L.J., 2003. "Fly Dots" Spreading Model of SARS along Transportation. Chinese Journal of Remote Sensing, 7(4), pp.251-255.

BOOK/PROCEEDINGS EDITED

- Proceedings of Sivilaser 2009: the 9th international conference on lidar applications for assessing forest ecosystems. Popescu S., Nelson R., Zhao K., and Neuenschwander A. (Eds). October, 2009. College Station, USA. (ISBN 978-1-61623-997-8)

- V. Bandaru, C. Izaurralde, & K. Zhao, Biomass potential of switchgrass and miscanthus on the USA's marginal lands. In Bhardwaj, A. K., Zenone, T., & Chen, J. (Eds.). Sustainable Biofuels: An

Ecological Assessment of the Future Energy. Walter de Gruyter GmbH & Co KG, 2015

SELECTED PROCEEDINGS & ABSTRACT

1. X. Zhang, K. Zhao, M. Abraha, I. Gelfand, R. Izaurralde, A. Thomson, S. Hamilton, J. Chen, P. Robertson, M. Xu, and X.L. Liang, Biogeochemical and biophysical climate regulation services from converting native grassland to bioenergy production in the US Midwest, American Geophysical Union, Fall Meeting 2015, 2015.

2. Y. Zhou, S J. Smith, K. Zhao, S. Yu, B. Bond-Lamberty, G. R Asrar, M. Imhoff, J. Eom, & C.D. Elvidge, 2015. Modeling Global Urbanization Supported by Nighttime Light Remote Sensing, American Geophysical Union, Fall Meeting 2015

3. Y. Xie, M. Talbot, K. Zhao & J. Laurent. 2014. Automatic Track Inspection Using 3D Laser Profilers to Improve Rail Transit Asset Condition Assessment and State of Good Repair - A Preliminary Study. Transportation Research Board 93rd Annual Meeting.

4. Y. Zhou, S.J. Smith, K. Zhao, M. Imhoff, A. Thomson, B. Bond-Lamberty, & C. Elvidge. 2014 Global Urbanization Modeling Supported by Remote Sensing. American Geophysical Union, Fall Meeting 2014

5. Y. Zhou, S.J. Smith, K. Zhao, M. Imhoff, A. Thomson, B. Bond-Lamberty, & C. Elvidge. 2014 Spatio-Temporal Dynamics of Urbanization in China: Historical and Future. American Geophysical Union, Fall Meeting 2014

6. Y. Zhou, S.J. Smith, K. Zhao, M. Imhoff, A. Thomson, B. Bond-Lamberty, & C. Elvidge. 2014 Global Urbanization Modeling Supported by Remote Sensing. American Geophysical Union, Fall Meeting 2014

7. AM. Thomson, R.C. Izaurralde, R. Beach, X. Zhang, K. Zhao, & E. Monier. 2013. Agricultural climate impacts assessment for economic modeling and decision support. American Geophysical Union, Fall Meeting 2013

8. Y. Zhou, J. Eom, C. Elvidge, K. Zhao, & K. Clarke. 2013. Understanding and Simulating Spatially Explicit Global Urban Expansion in the Context of Climate Change. NASA Land-Cover and Land-Use Change (LCLUC) Science Meeting.

9. S. Popescu, K. Zhao, RA Feagin, D. Gatziolis, R. Sheridan, S. Srinivasan, N. Ku, R. Kulawardhana. 2013. From grass to forest biomass: uncertainty estimates with lidar remote sensing (Invited). American Geophysical Union, Fall Meeting 2013, abstract #B34B-01.

10. R. Jackson, N. Phillips, R. Ackley, K. Zhao, A. Down, & C. Cook. Natural gas leaks across Washington, D.C: Their number, source, and relevance to greenhouse gas emissions, 2013. The 89th Ecological Society Association Annual Convention.

11. Y. Xie, K. Zhao, K. Feng, & J. Hong. 2012. GIS-Based Decision Support Tool for Finding Optimal Biorefinery Locations. Transportation Research Board 91st Annual Meeting

12. Y. Cui, K. Zhao. W. Fan & X. Xu. 2010. Using airborne lidar to retrieve crop structural parameters. IEEE International Geoscience and Remote Sensing Symposium.

13. Y. Lan, H, Zhang, K. Zhao, Y. Huang, W.C, Hoffmann, & R. Lacey. Multisensor data fusion of remotely sensed imagery for crop field mapping, 2010, International Conference on Precision Agriculture Abstracts & Proceedings. CDROM.

14. Y. Pang, Z. Li, M. LI & K. Zhao. The Potential of Airborne Lidar for Forest Stand Map Generation, Silvillaser 2010 Proceedings, Sept. 14-17, 2010, Freiburg, Germany.

15. S. Popescu, K. Zhao,& D. Gatziolis. Comparing the Accuracy of Aboveground Biomass Estimates and

Forest Structure Metrics at Large Footprint Level: Satellite Waveform Lidar vs. Discrete-Return Airborne Lidar. 2009. American Geophysical Union, Fall Meeting 2009, abstract #B23F-04.

16. Y. Xie & K. Zhao. 2009. Latent Class Model for Rural Single-Vehicle Crash Injury Severity Analysis. Transportation Research Board 88th Annual Meeting.

17. A. Griffin, S. Popescu, & K. Zhao. Estimating LAI and Canopy Cover with Lidar data, Silvillaser 2008 Proceedings, Sept. 12-19, 2008, Edinburgh, UK.

18. K. Zhao & S. Popescu. The Extraction of Individual Tree Parameters from Laser Scanner Data, "Tree Extraction Project" of Finnish Geodetic Institute, 2005.

19. L. Zhang, K. Zhao, Y. Zhu, B. Qin, & J.C. Shi. Simulated Radiation Characteristics of Frozen Soil Surface at Typical Microwave Bands, Proceedings of IGRASS'04, IEEE No. 04CH37612C, 2004.

20. Y. Zhu, L. Zhang, K. Zhao, & F. Wang. Simulation of the emission of frozen soil by using IEM, Proceedings of IGARSS'04, 2004.

21. K. Zhao, J.C. Shi, L. X, L. Jiang, et al. Retrieval of Bare Soil Surface Parameters from Simulated Data Using Neural Networks Combined with IEM, Proceedings IGRASS' 03, IEEE No.03CH37477, 2003.

22. Y. Yao, , G. Yan, J. Wang, P. Wang, Y. Qu, , & K. ZHao. Leaf area index inversion using multiangular and multispectral data sets. In Geoscience and Remote Sensing Symposium, 2003. IGARSS'03. Proceedings. 2003 IEEE International (Vol. 6, pp. 3869-3871). IEEE.

23. L. Jiang, J. Shi, & K. Zhao. Evaluate Subsurface Effects on AMSR-E's Snow Depth Retrieval, Proceedings IGRASS'03, IEEE No.03CH37477, 2002.

24. L. Zhang, J. Shi, S. Liu, & K. Zhao. The Statistical Inversion Algorithm of Bare Surface Soil Moisture for the AMSR Using C-band IEM Simulated Emissivity, Proceedings IGRASS'02, IEEE No. 02CH37380, 2002.

PROPOSALS (12 funded since joining OSU, with 5 as lead PI)

- Improving the Life Cycle Assessment of Bioenergy Crops for Climate Regulation. NASA-FINESST. Yang FI (Zhao, PI), $89K, 2022-2024 (Pending)

- Collaborative Research: MRA: Elucidating the multi-dimensionality and scaling of biodiversity-vegetation relationships, NSF, Jarzyna et al. (Zhao, Co-PI), $590K, 2022-2025 (Pending)

- Quantifying Subsurface Drainage Using Remote Sensing Technology For Better Water Quality Management, USDA-NIFA, Khanal et al., (Zhao, Co-PI), $500K, 2020-2023 (Not Selected)

- Synergies of multisource remote sensing and in-situ water quality data to enhance satellite-based monitoring of HABs in Ohio's inland lakes and waters, Ohio Department of Higher Education HAB initiative project, the Ohio Sea grant, Zhao et al. (PI), $194k+$192K, 2020-2022 (Selected)

- Stream & Wetland Mitigation Forecasting: Developing a Predictive Model for Faster Project Delivery and Cost-Savings, the Ohio DOT, Toman and Zhao, (Zhao Co-PI), $200K, 2020-2022 (Selected)

- Tapping the power of AI to tackle regional water quality issues in Ohio, Google AI Impact Challenge., Zhao (PI), $300K, 2019-2022 (Not Selected)

- From sensors to decisions: Leveraging multi-source Earth observation data, geo-analytics, and agroecosystem modeling to support agriculture management and monitoring in the Hindu Kush-Himalayan Region, NASA- SERVIR Applied Science, Zhao et al. (PI), 2019-2022, Pre-proposal (Not Invited)

- Quantifying Variation in the Effects of Wildfire Burn Severity on Arctic Tundra: critical questions following the 2017 Greenland Wildfire, NSF, Davies et al. (Zhao, Co-I), $599K, 2018-2020 (Declined)

- Fire and Ice: environmental change in polar systems through the lens of the 2017 Greenland Wildfire, NATIONAL GEOGRAPHIC SOCIETY, Davies et al. (Zhao, Co-I), $42, 2018-2020 (Declined)
- Quantifying Variation in the Effects of Wildfire Burn Severity on Arctic Tundra: critical questions following the 2017 Greenland Wildfire, NSF RAPID, Davies et al. (Zhao, Co-I), 2017-2018 (Declined)
- Landscape fragmentation and water yield with unconventional shale oil and gas development in Ohio, Ohio WRC/OEE, Toman and Zhao (Zhao, Co-PI), $35K, 2018-2019 (Funded).
- Regional integrated modeling of farmer adaptations to guide agroecosystem management in a changing climate, USDA-NIFA, Wilson, R., Irwin, E., et al. (Zhao, Co-PI), $1199K, 2018-2020 (Funded).
- Using AVIRIS imagery to map spatial variability of soil carbon across diverse agricultural management systems, NASA, Subburayalu et al. (Zhao, Co-I), $148K, 2017-2019 (Funded)
- Development of a multi-scale management tool for predicting and mitigating HABs in Ohio River watersheds, EPA, Sullivan et al. (Zhao, Co-I), $681K, 2017-2020 (Funded).
- New data analytics to detect nonlinear land dynamics and disturbances from multisource time-series imagery, NASA, Zhao et al. (Zhao, PI), $237K, 2018-2020 (Declined).
- Landscape fragmentation and water yield with unconventional shale oil and gas development in Ohio, Ohio WRC/OEE, PI, $35K, 2017-2019 (declined).
- Integrating Biogeophysical (BGP) Mechanisms into Assessments of Boreal Forest Management Impacts on Climate, NordForsk, Collaborator, $800K, 2016-2019 (Funded)
- Leveraging multisource data and physical remote sensing theories to improve mapping terrestrial aboveground carbon across scales, Chinese Academy of Sciences, PI, RMB70K, 2016-2017 (Funded)
- Sources and Fates of Nutrients in Non-agricultural Ohio Surface Waters, Ohio Corn and Small Grains Programs, Co-I, $552K, Sept. 15- Sept. 2018 (Funded)
- A Satellite-based Global Assessment of Climatic Impacts on Terrestrial Ecosystem Dynamics from 1980 to 2013, Microsoft-Climate Data Initiative, PI, $20K (azure), 2016-2017 (funded)
- Agriculture Sensitivity to Climate Variability in the US: Insights from Historical Survey and Satellite Observations, Microsoft-Food Resilience, PI, $20K (azure), 2016-2017 (funded)
- Integrating Biophysical Indicators into Assessment of Land-use/Land-cover change Impacts on Climate, NASA, PI, $320K, Aug. 2005-Jul. 2017 (Declined)
- Forest fragmentation and water yield with unconventional shale oil and gas development in eastern Ohio, Co-PI, $74K, Jan. 2015 –Dec. 2015, The Muskingum Watershed Conservancy District (Declined)
- Comprehensive Optimization for Bioenergy Systems, DOE, $5586K, Co-I, 2015-2020 (Declined)
- Quality Trading in Lake Erie and the Great Lakes Region, USDA.NIFA, Co-I, $9611K, (Declined)
- Improving Agricultural Soil Carbon Budgets by Deriving Tillage Intensity from Remote Sensing Data, NASA, Co-I, $1030K, 2014-2017 (Declined)
- Assessing forest carbon dynamics with multi-temporal and multi-scale lidar remote sensing and national forest inventory data, NASA, Co-I, 2013 (declined)
- Mapping Surface and Canopy Forest Fuels with Lidar and Optical Remote Sensing, NASA, Co-I, 2011 (Declined)
- Sensitivity of crop production to climate change: A modeling perspective, OARDC-SEEDS, $50K, Aug. 2015 –Aug 2017 (Declined)
- Use of Multiple Remote Sensing Data Sources for 3D Characterization of Ecosystems Structure and Habitat Analysis of Endangered Bird Species, NASA, Co-I, 2008 (Declined)

- Development of a GIS-Based Decision Support System for Biomass Transportation Analysis, James E. Clyburn University Transportation Center of South Carolina State University, PI, $10K
- Understanding and Simulating Global Urban Expansion in the Context of Climate Change, NASA-LCLU Change, Collaborator, 2012-2015 (Funded)
- ICESat-2 Science Definition Studies to Measure Forest, NASA, Co-I, $258K, 2011-2013 (Funded)
- An Automated Remote Sensing-based System for Rail Transit Infrastructure Inspection Source of support, USDOT, $1185K, Co-I, Aug. 2012 0 Dec. 2014 (finished).
- Expansion of Texas Land Use/Land Cover through Class Crosswalking and Lidar Parameterization of Arboreal Vegetation, Texas Commission on Environmental Quality, Co-I, 2009 (finished)
- Assessing vegetation structure and endangered bird species habitat and multiple scales: A modeling approach using lidar and optical imagery, NASA-Biodiversity, Co-I, 2008-2011 (Declined)
- Developing an On-The-Fly Airborne Profiling Laser System for Real-Time Assessment of Forest Biophysical Parameters, NASA-Earth & Space Science Fellowship, 2007 (Declined)

PROFESSIONAL SERVICES AND ACTIVITIES

REVIEWERS/EDITORS

- <u>Reviewers</u> *for Agronomy Journal, Agricultural and Forest Meteorology, Applied Mathematical Modeling, Advances in Atmospheric Sciences, Applied Vegetation Science, Computers and Electronics in Agriculture, Canadian Journal of Remote Sensing, Chinese Journal of Remote Sensing, Data, Ecology and Evolution, Environmental Challenges, Environmental Research Letters, Environmental Modeling and Software, Environmental Engineering and Management Journal, Environmental Science & Technology, Expert Systems with Applications, Forestry, Forest Ecology and Management, Forest Science, Forests, Frontiers Plant Science, Global Change Biology, Geophysical Research Letter, Geocarto International, Hydrological Processes, Methods in Ecology and Evolution, Measurement Science and Technology, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Geoscience and Remote Sensing, IEEE Transactions on Geoscience and Remote Sensing Letters, International Journal of Applied Earth Observation and Geoinformation, International Journal of Environmental Research and Public Health, International Journal of Remote Sensing, ISPRS Journal of Photogrammetry & Remote Sensing, IEEE Transactions on Pattern Analysis and Machine Intelligence, Journal of Cleaner Production, Journal of the American Water Resources Association, Journal of Forest Planning, Journal of Applied Remote Sensing, Journal of Applied Geography, Land, Optics Express, Pest Management Science, PLOS ONE, Photogrammetry Engineering & Remote Sensing, Pure and Applied Geophysics, Remote Sensing of Environment, Remote Sensing, Remote Sensing Letters, Restoration Ecology, Scandinavian Journal of Forest Research, Sensors, Survey Review, Sustainability, Trees, Nature-Sustainability, Nature-Climate Change, Nature-Scientific Reports, Nature, Northwest Science*
- *Editorship*
    - **Guest Editor:** Special issue on "How Topography Impacts Forests under Global Change?", Forests (IF: 1.96), *2017-2018.* Special issue on "Carbon Storage Measurement through Remote Sensing", Remote Sensing (IF: 4.118) .2019-2020; Special issue on "Mapping Forest Dynamics using Multi-Source Remote Sensing", Remote Sensing (IF: 4.118), 2019.
    - **Guest subject-matter Editor:** Ecological Applications (IF:4.39), 2018-2020
    - **Associate Editor:** Remote Sensing of Environment (IF: 6.46), 2018-2020
- Panels/Grants*:*
    - Review Board (Invited), Carbon Monitoring System, NASA, Jun 2010 - Aug 2010

-Ad hoc reviewer, Earth Sciences and Engineering program, the National Science Foundation of Georgia, 2015

    - Ad hoc reviewer, the Earth Sciences Instrumentation and Facilities Program, the National Science Foundation of the USA, 2017

    - Ad hoc reviewer, the Estonian Research Council, 2020

COMMITTEES
- The Research & Space Committee, School of Environment and Natural Resources, OSU, 2019-present
- Faculty Search Committee for Ecohydrologist, OSU, 2019-2020
- OARDC Director′s Associateship Selection Committee, OARDC, OSU, 2016-present
- OARDC Minority Fellowship Selection Committee, OARDC, OSU, 2016-present
- OARDC Research Conference Poster Committee, OARDC, OSU, 2015-present
- IGARSS 2019 Scientific Committee, Review Board (Invited), IEEE/GRSS International Geoscience and Remote Sensing Symposium, Dec 2018 - May 2019
- Faculty Search Committee for Physical Hydrologist, SENR, 2017
- Faculty Search Committee for Mathematician, ATI, OSU, 2015
- The Research, Space and Equipment Committee, School of Environment and Natural Resources, OSU, 2015-2017
- IGARSS 2018 Scientific Committee, Review Board (Invited), IEEE/GRSS International Geoscience and Remote Sensing Symposium, Dec 2017 - May 2018
- IGARSS 2016 Scientific Committee, Review Board (Invited), IEEE/GRSS International Geoscience and Remote Sensing Symposium, Dec 2015 - May 2016
- IGARSS 2012 Scientific Committee, Review Board (Invited), IEEE/GRSS International Geoscience and Remote Sensing Symposium, Dec 2011 - May 2012
- Sivilaser 2013 Scientific Committee, Review Board (Managing). Feb 2013 - Oct 2013
- Forestry, Editorial Board (invited), 2013
- Conference Co-chair: the 9th international conference on lidar remote sensing of forest ecosystems - Silvilaser 2009, Texas A&M University, October 14-16, 2009.
- Technical committee: the 13th international conference on lidar applications for assessing forest ecosystems, Chinese academy of forestry, Beijing, China, October, 2013.

MEMBERSHIPS
    - Sigma Xi-the Scientific Research Society (2006 -), The American Society for Photogrammetry and Remote Sensing (2005-2010), the American Geophysical Union (2007-2010), Society of American Foresters (2005-2008), The Honor Society of Phi Kappa Phi (2007 –), The Ohio Academy of Science (2015-).

AWARDS & HONORS
- 2014 Remote Sensing Best Paper Award, Prize Awarding Committee for Remote Sensing, with X. Meng, and N. Currit, 2014.
- 2010 Best Paper Award, TRB ABJ80 Statistical Methods Committee, with Y. Xie, Y. Sun and D. Chen, 2010.
- Texas A&M's Nominee for the Council of Graduate Schools/UMI Distinguished Dissertation Award, 2009.
- Outstanding Ph.D. of Year 2008, Dept. of Ecosystem Science and Management, Texas A&M University, 2008.
- Who′s Who Among Students in American Universities and Colleges, 2008.

- The Third Place in Student Paper Competition, SWAAG & Mid-south ASPRS Conference, 2007.
- ASPRS Leica-Geosystems Internship Award, the American Society for Photogrammetry & Remote Sensing, 2007.
- International Education Fee Scholarship, Texas A&M University, 2007.
- Departmental Travel Grants, Dept. of Ecosystem Sciences & Management, Texas A&M University, 2005 – 2008.
- International Education Week Choice Award, Texas A&M University, 2006.
- Research and Presentation Grant, Office of Graduate Studies, Texas A&M University, 2006.
- Interdisciplinary Research Recognition Award, Texas A&M University, 2006.
- Lonestar Graduate Diversity Colloquium Choice Award, Texas A&M University, 2006.

SELECTED TALKS & CONFERENCE PRESENTATIONS

1. Xu, H., Toman E., Zhao, K., and Baird, J. Mapping Ohio Till Plain Wetlands with Aerial Imagery and LiDAR Derivatives by Deep Learning, the 101st TRB Annual Meeting, Washington, DC.   January 2022.
2. Hu, T., Zhao, K., and Li, Y. Characterizing climate impacts on crop yield by integrating radiative transfer and photosynthesis process to EPIC, the AGU Fall Meeting, December 2021
3. Hu, T., Toman. E., and Zhao, K. Modeling nonlinear crop responses to climate variability in the US Using a Bayesian Approach, the AGU Fall Meeting, December 2019.
4. Li, Y. and Zhao, K. Biophysical forcings of Expanding croplands in the Eastern Corn Belt, the TDAI Fall Forum, The Ohio State University, October 2021.
5. Hu, T., Zhao, K., and Li, Y. Characterize Yield Responses to Climate Change with A Bayesian Model Framework, the TDAI Fall Forum, The Ohio State University, October 2021.
6. Wilson, A. and Zhao, K. Climate Variability and Changes in Land Use and Land Cover Across the Eastern Corn Belt, the Ohio Farm Science Review, September 2021
7. Zhao, K. Bayesian time series analysis for Remote Sensing, the 2021 IEEE Geoscience and Remote Sensing Society Summer School and the 11th Summer School on Land Surface Satellite Data Inversion and Applications, Beijing Normal University, July 2021.
8. Zhao, K. Bayesian model averaging for Remote Sensing Applications, Center for Survey Statistics and Methodology, Iowa State University, January 2021
9. Li, Y., Zhao, K. and Hu, T., 2019, December. Evaluating the Solar Zenith Angle Effect on Deciduous Broadleaf Forest in the Continental United States. In AGU Fall Meeting 2019. AGU.
10. Zone, P., Culman, S., Haden, R., Lindsey, L.E. and Zhao, K., 2019, January. Evaluating Effects of Soil Test Levels and Fertilization on Tissue Phosphorus and Potassium Concentrations in Corn and Soybean of Ohio. In SSSA International Soils Meeting. ASA, CSSA, and SSSA.
11. Zhao, K., Hu, T., Wu., Q., Toman, E. et al. Detect change-point, trend, and seasonal change in satellite time series data to track land disturbance and nonlinear dynamics: A Bayesian ensemble algorithm, the Annual Meeting of American Association of Geographers, Washington, DC, April 4, 2019.
12. Hu, T., and Zhao, K. A Bayesian Analysis of Historical Maize Yield Record in the US", Tong and Zhao, Byrd Polar and Climate Research Symposium, The Ohio State University, Columbus, March 22, 2019.
13. Zhao, K. and Hu, T. Remote sensing in support of ecological studies, Seminar series in Ecology, Evolution and Environmental Science, Cleveland State University, Cleveland, Ohio, USA, March 1st,

2019.

14. Londo, A., Hawkins, E., and Zhao, K. Using Drones for the Management of Your Lands Ohio Woodland, Water & Wildlife Conference, Mansfield, OH, March 2019.

15. Using AVIRIS-NG Imagery to Map Agricultural Systems with Binary Classifiers & Limited Field Data, Salas et al., AGU Fall meeting, Washington, DC, Dec. 2018.

16. Improving forest ecosystem characterization to advance water quality modeling at the watershed scale. Yang et al., AGU Fall meeting, Washington, DC, Dec. 2018.

17. Multi-temporal Remote Sensing for Natural Resources Monitoring, the 4th LiDAR Workshop in Forestry Applications, Beijing, China, Jun 2018.

18. Relationships Between Physical And Chemical Water Quality Across Land Uses Of Southern Ohio, Stefanik et al., Annual Meeting of Society for Freshwater Science, Salt Lake City, Utah, May 19, 2018

19. Photogrammetric UAV mapping of terrain under dense coastal vegetation: A hybrid analytical approach for classification and terrain correction. Meng et al. AAG Annual Meeting, New Orleans, Apr. 2018.

20. Local surface temperature response to land cover/land management change is driven by non-radiative processes European Geosciences Union General Assembly 2017, Mar. 2017

21. Exploring Statistical Analysis of Environmental Data, the BPCRC center, The Ohio State University, Oct. 2017

22. Mapping forest dynamics across scales using remote sensing, "Terra BGP" Start-up Meeting, September 8-9 th , 2016, Oslo, Norway

23. Track Forest Biomass Dynamics and Carbon Flux using Multitemporal Airborne Lidar Remote Sensing , Translational Data Analytics Symposium, The Ohio State University, Oct. 2016

24. Biogeochemical and biophysical climate regulation services from converting native grassland to bioenergy production in the US Midwest, AGU Fall meeting, Dec. 2015.

25. Mapping Ecosystem Dynamics and Disturbances Across US from 1981 to 2012: A Data-Driven Approach with Satellites, Translational Data Analytics Symposium, The Ohio State University, Oct. 2015

26. Use of satellite time-series to track vegetation phenology, Institute Of Botany, Chinese Academy of Sciences, Jul. 2015

27. Mapping Forest Caron Stocks and Dynamics across Scales with Remote Sensing, Chinese Academy of Forestry, Jun. 2015

28. Lidar Remote Sensing in Support of Environmental and Ecological Studies, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Jul. 2015

29. Changes in biophysical climate regulation services from converting native grassland to bioenergy production in the US Midwest with X. Zhang, M. Abraha, and I. Gelfand, , 2015 NASA Carbon Cycle and Ecosystems Joint Science Workshop, D.C., USA, May 2015

30. Lidar remote sensing of vegetation canopy structure and biophysical parameters at multiple scales with S. Popescu, R. Sheridian,& N. Ku, 2015 NASA Carbon Cycle and Ecosystems Joint Science Workshop, D.C., USA, May 2015

31. Biophysical Effects of Alternative Cellulosic Bioenergy Cropping Systems for Climate Regulation in the U.S. Midwest, The Climate, Security, Health, and Resilience Initiative (CSHR) Workshop, Mershon Center, The Ohio State Univeristy, April 2015.

32. Spatiotemporal Dynamics of Wilkins Ice Shelf and its Linkage to with Environmental Factors: A Remote Sensing Perspective with Shu Liu, 2015 AAG Annual Meeting, Chicago, April 2015

33. "Satellite vs. airborne lidar estimates of aboveground biomass and forest structure metrics at footprint scale" with S. Popescu, Sivilaser2011, University of Tasmania, Australia, 2011.
34. "Lidar remote sensing of terrestrial ecosystems from three platforms –ground, airborne and spaceborne", University of California, Merced, May 2011.
35. "Creating a More Accurate Pseudo-waveform: Integration of Spatially Coincident Airborne and Terrestrial Lidar Data" with R. Sheridan, ASPRS2011, Milwaukee, Wisconsin, USA.
36. "Where shall we grow trees for climatic benefits – an evaluation approach integrating remote sensing, eddy-covariance, and regional climate model (WRF)?", Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Mar. 2011.
37. Satellite laser altimetry for regional biomass assessment, School of Environment, Beijing Normal University, Beijing, Dec. 2010.
38. Modeling Net productivity of Forest Ecosystems Assisted with Lidar Canopy Information, Chinese Academy of Forestry, Beijing, Dec. 2010.
39. The potential of airborne Lidar for forest stand map generation (with Y Pang), Sivilaser 2010, Freiburg, Germany, 2010.
40. Using airborne lidar to retrieve crop structural parameters (with W. Fan), IGARSS2010, Honolulu, Hawaii, USA, 2010.
41. "A comparison of forest biophysical parameters assessed with lidar data on three platforms: ground, airborne, and satellite", IGARSS2010, Honolulu, Hawaii, USA, 2010.
42. "Seeing trees with a laser eye: Use lidar to study forest ecosystems", School of Forest Resources & Environmental Science, Michigan Technological University, Apr., 2009.
43. Modeling lidar waveforms over sloped terrain for retrieving forest canopy characteristics, AGU Fall conference, San Francisco, USA, 2009.
44. "Integrated use of geospatial technologies for forest inventory ", College of Natural Resources & Sciences, Humboldt State University, Feb. 2009.
45. "Mapping of LAI in a temperate Eastern Texas forest using airborne laser scanning", and "Effects of scale on fire behaviors by a simulation approach", ASPRS Conference, Baltimore, Maryland, USA, 2009.
46. "Bayesian Learning with Gaussian Processes for Classification of Hyperspectral Data", ASPRS Conference, Portland, Oregon, USA, May 2008.
47. "Scale-invariant Prediction of Forest Biomass Using Airborne Lasers", ASPRS Conference, Portland, Oregon, USA, May 2008.
48. "Hierarchical Watershed Segmentation of LiDAR-derived Canopy Height Model for Multi-scale Forest Inventory", Laser Scanning 2007 and SilviLaser 2007, Espoo, Finland, Sept. 2007.
49. "Individual Tree Identification from LiDAR Canopy Height Model with Watershed Segmentation" SWAAG/Mid-South ASPRS Conference, College Station, Texas, 2007.
50. "Integration of Airborne Profiling Lasers with Scanning LiDAR Data for Regional Forest Biomass Estimation", ASPRS Annual Conference, Tampa, FL, USA, 2007.
51. "Quantifying the uncertainty in biomass estimates from profiling LiDAR data", Silvilaser 2006, Matsuyama, Japan, Nov. 2006.
52. "Toward the real-time estimates of biophysical parameters: an on-the-fly portable airborne profiling laser system for forest inventory", ASPRS Annual Conference, Reno, NV, USA, May 2006.
53. "Canopy Height Measurement with LiDAR: Initial Steps to Automated Processing with Real-tine Estimates", SAF National Convention, Fort Worth, TX, USA, Oct. 2005.

54. "A Preliminary Investigation for Deriving On-The-Fly Profiling LiDAR Estimates of Forest Parameters", Silviscan 2005, Blacksburg, VA, USA, Sept. 2005.
55. "Remote sensing application in monitoring and modeling land hydrological processes", PGP Center for Excellence, Faculty of Mathematics and Natural Sciences, University of Oslo, Norway, Feb. 2004.

TEACHING

- ENR3700: Introduction to Spatial Information for Environment and Natural Resources (AU 2014, SP 2015, SP2016,AU2016, SP2017-SP2022)
- ENR8890: Introduction to R for Environmental Sciences (AU 2014 -AU2021)

MENTORING

- Jongmin Park (Postdoc, advisor)
- Haiqing Xu (Postdoc, advisor)
- Yang Li (PhD student, advisor)
- Wenxuan Zhao (Master student, advisor, graduated in 2021)
- Tongxi Hu (PhD, advisor, graduated in 2021)
- Yinan Feng (Master, advisor, graduated in 2020)
- Tongxi Hu (Master, advisor, graduated in 2018)
- Dan Liu (Master, advisor, graduated in 2018)
- Zhen Liu (Visiting PhD Student, 2019)
- Lei Cui (Visiting PhD Student, Nov 2019 – Nov 2022)
- Cao Wang (Visiting scholar, Apr 2019 – Apr 2020)
- Lvqing Yang (Visiting scholar, Nov 2018 – Nov 2019)
- Jiayin Song (Visiting scholar, Nov 2018 – Nov 2019)
- Shu Liu (visiting PhD student, Oct. 2014- Oct. 2015)
- Haimin Qin (visiting PhD student, Oct. 2017- Oct. 2018)
- Jianming Wang (PhD Graduate Research Assistant , Aug 2014- Jan. 2015)
- Sarah Barbee (MENR Master Student, major advisor, Jan. 2015- Jan. 206)
- Ellen Comes (Master, Advisory committee)
- Tyler A. Wong (Master, Advisory committee)
- Margaret Borders (Master, Advisory committee)
- Laura Bond (Master, Advisory committee)
- Anne Vascik (Master, Advisory Committee)
- Jordan Reding (Master, Advisory Committee)
- Phoo Zone (Master, Advisory Committee)
- Hao Wu (Master, Advisory Committee)
- Jo Kingsbury (PhD, Advisory Committee)
- Colin Sweeney (PhD, Advisory Committee)
- Arjun Venkatesan (PhD, Advisory Committee)
- Aman Bhatta (Master, Advisory Committee)
- Fuller Zane (undergraduate researcher)
- Stuti Sharma (undergraduate)
- Ziyi Sang (undergraduate)
- Anna Crouser (undergraduate researcher)
- Kevin Ellis (undergraduate researcher)

- John Kim (High-school volunteer)