

# XINYI SHEN, Ph.D.

Civil and Environmental Engineering  
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## PROFESSIONAL EXPERIENCE

Aug. 2022-present	Assistant Professor	School of Freshwater Science <b>University of Wisconsin, Milwaukee</b>	Milwaukee, WI
Jan. 2017-Aug. 2022	Assistant Research Professor	Department of Civil & Environmental Engineering <b>University of Connecticut</b>	Storrs, CT
Jan. 2015-Dec. 2016	Post-doc	Department of Civil & Environmental Engineering <b>University of Connecticut</b> Advisor: <b>Emmanouil N. Anagnostou</b>	Storrs, CT
Jan. 2013-Jan. 2015	Post-doc	Advanced Radar Research Center, National Weather Center, <b>University of Oklahoma</b> School of Civil Engineering and Environmental Science, <b>University of Oklahoma</b> Advisor: <b>Yang Hong</b>	Norman, OK
Dec. 2009-Jan. 2011	Visiting Student	School of Civil Engineering and Environmental Science, <b>University of Oklahoma</b> Institute of Computational Earth Science <b>University of California, Santa Barbara</b>	Norman, OK Santa Barbara, CA

## TEACHING EXPERIENCE

2013.10	Guest Lecturer	“Microwave remote sensing on soil moisture retrieval” in Remote Sensing Hydrology CEES5020	University of Oklahoma
2016.3-5	Guest Instructor	Radar Remote Sensing of Precipitation, ET and Soil Moisture”	University of Connecticut
2018.9-12	Instructor	Hydrometeorology	University of Connecticut
2021.9-12	Instructor	Hydrometeorology	University of Connecticut

## AWARDS

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Outstanding Reviewer (2016), *Atmospheric Research*  
Outstanding Reviewer (2017), *Journal of Hydrology*

## SERVICE

### Editorial Board

Associate Editor, *Journal of Hydrology*

Guest Editor for *Water*

SI title “Assessment of Current and Future Vulnerability of Flooding with Hydrologic Modeling and Remote Sensing Techniques” (2018-2019)

Guest Editor for *Frontiers in Environmental Science*

SI title “Rivers, science and society: the role of numerical models, remote-sensing and citizen-science in flood risk management” (2020-2021)

Guest Editor for *Remote Sensing*

SI title “Flood Vulnerability Assessment with Hydrologic/Hydraulic Modeling and Remote Sensing Techniques” (2021-2022)

Value Added User of International Disaster Charter under UN (for flood mapping)

### Peer Reviewer

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*General*

*Scientific Report*  
*Stochastic Environmental Research and Risk Assessment*  
*Hydrology & Meteorology*  
*Advances in Meteorology*  
*Atmosphere Research*  
*Journal of Hydrology*  
*Journal of Water Resources Planning and Management*

*Remote Sensing & Environment*

*Science of the Total Environment*

*Environmental Research Letters*

*Remote Sensing*

*Remote Sensing of Environment*

*IEEE Transactions on Geoscience and Remote Sensing*

*IEEE Geoscience and Remote Sensing Letters*

*IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*

*International Journal of Remote Sensing*

*Photogrammetric Engineering & Remote Sensing*

*Journal of Remote Sensing Technology*

*Electromagnetics*

*Radio Science*

**Technical Program Committee of**

*The 3rd International Conference on Civil Engineering and Urban Planning, Dec. 2013 Wuhan, China.*

**Proposal Reviewer of**

NASA Experimental Program to Stimulate Competitive Research (EPSCoR).

National Science Foundation Early Career (NSF/EAR)

National Science Foundation of Czech Republic

## **PROJECT EXPERIENCE**

### **Pending Grants: \$2.67M (\$2.02M as the PI)**

1. 2022-2024, “Characterizing long-term ecological drought through mapping the population and structure of a desert climate sentinel-saguaro cactus”, *NOAA/NIDIS Coping with Drought: Ecological Drought*, Role PI, \$676,000
2. 2022.9-2023.8, “Planning for Climate Resilient and Fish-Friendly Road/Stream Crossings in Westchester County, NY”, Long Island Sound Futures Fund/National Fish and Wildlife Foundation, Role: PI, \$24,000.

### **Funded/Approved Grants \$3.22M (total), as the PI (total-\$2.32M, active-\$0.875M, federal-\$0.875M)**

1. 2022.7-2027.6, “Accelerate the Exploitation of Satellite Observations to Improve Flooding and Inundation Monitoring and Forecasts”, *NOAA CIGLR*, \$800,000. Role: PI.
2. 2022-2025 “TraitsCape: Understanding the role of microrefugia in buffering fynbos from global change”, *NASA ROSES-A.7 Biodiversity: Marine, Freshwater, and Terrestrial Biodiversity Survey of the Cape (BioSCape) Airborne Campaign Science Team*. Role: CoI (PI: Cory Merow), \$600,000.
3. 2022.7-2025.6, “Predicting compound hurricane damages in Connecticut caused by flood and high wind”, Emergency Management Performance Grant (EMPG) Program, *Division of Emergency Management and Homeland Security (DEHMS)/Federal Emergency Management Agency (FEMA)*, Role: PI, \$450,000.
4. 2022.6-2023.5, “Planning for Climate Resilient and Fish-Friendly Road/Stream Crossings in Berkshire Valley”, \$21,000. *Berkshire Valley Association*, Role: PI.

5. 2022.2-2024.1, “The development of numerical models to improve the accuracy of the weather forecasts initiative”, National Center for Meteorology – *NCM (former General Authority of Meteorology and Environmental Protection -GAMEP)*, Kingdom of Saudi Arabia, Role CoI, \$320,000, (PI Emmanouil Anagnostou).
6. 2020.3-2022.2. “Collaborative Research: Near term forecasts of global plant distribution, community structure, and ecosystem function”, \$443,592, *National Science Foundation/Data Harness Revolution (NSF-HDR)*, Role: Senior Personnel (PI: Brian Enquist, Institutional PI: Cory Merow).
7. 2016-2023, “Evaluation of Substations Vulnerability of Flooding in Current and Climate Change Scenarios in Connecticut, Massachusetts, and New Hampshire” \$976,500, *Eversource Energy Service Co.* Role: PI.
8. 2016.3-2021.8, “Planning for Climate Resilient and Fish-Friendly Road/Stream Crossings in New York State”, \$136,000 (renewed annually). *Housatonic Valley Association*, Role: PI.
9. 2018.9-2019.3, “Sewer Backup Risk Score”, \$45,000, *Travelers*, Role, PI.
10. 2019.1-2019.12, “Pumped-hydroelectric energy storage from water supply reservoirs in New England: potential, challenges and opportunities” (Phase A), 150,000, *Aquarion*, Role: Co-I.
11. 2016-2021, “Taming water in Ethiopia – A collaborative multidisciplinary research to improve human security in a water dependent emerging region”, NSF-Partnerships for International Research and Education (PIRE), \$4.3M, Role: member in US research team, (<http://pire.engr.uconn.edu/>).
12. 2016.1-2018.12, “Municipal Resilience Planning Assistance Project”, \$170,000, *Connecticut Department of Housing & Urban Development (HUD)*, (<http://circa.uconn.edu/projects/municipal-resilience-planning/>), Role: Named Personnel
13. 2015.1-2016.12, “Flood Vulnerability Analysis of Connecticut Inland River Network”, \$205,000, sponsored by *Connecticut Institute for Resilience & Climate Adaptation (CIRCA)* and *Connecticut Department of Energy & Environmental Protection (CT DEEP)*, Role: Named Personnel, (<http://circa.uconn.edu/projects/flood-prediction/>).
14. 2016.3-2017.2 “Resiliency Analysis to Storm Surge for I-95 Right-of-Way at Long Wharf / New Haven, CT”, \$90,000. *Connecticut Department of Transportation (CTDOT)*, Awarded/Active, Role: Collaborator.

## PUBLICATIONS

### Peer Reviewed Journal Articles

(1<sup>st</sup> /correspondent\*)

#### 2020-2021

1. Qing Yang, **Xinyi Shen\***, Feifei Yang, Emmanouil Anagnostou, Kang He, Chongxun Mo, Hojjat Seyyedi, Albert J. Kettner, and Qingyuan Zhang, “Predicting Flood Property Insurance Claims over CONUS, Fusing Big Earth Observation Data”, *Bulletin of American Meteorological Society*, doi: [10.1175/BAMS-D-21-0082.1](https://doi.org/10.1175/BAMS-D-21-0082.1).
2. Rehenuma Lazin, **Xinyi Shen\***, Emmanouil Anagnostou, “Predicting flood damaged crop lands using Convolutional Neural Network (CNN)”, *Environmental Research Letters*, vol. 16 (5) pp. 054011 doi: [10.1088/1748-9326/abeba0](https://doi.org/10.1088/1748-9326/abeba0).
3. Qing Yang, **Xinyi Shen\***, Emmanouil Anagnostou, Jack Eggleston, and Albert Kettner “A High-Resolution Flood Inundation Archive (2016–the Present) from Sentinel-1 SAR Imagery over CONUS”, *Bulletin of the American Meteorological Society*, [DOI:10.1175/BAMS-D-19-0319.1](https://doi.org/10.1175/BAMS-D-19-0319.1).
4. **Xinyi Shen\***, Chenkai Cai<sup>#</sup>, Qing Yang<sup>#</sup>, Emmanouil Anagnostou, and Hui Li, “COVID-19 Pandemic in the Flood Season” *Science of the Total Environment*, vol. 755, pp. 142634, [DOI:10.1016/j.scitotenv.2020.142634](https://doi.org/10.1016/j.scitotenv.2020.142634).
5. **Xinyi Shen\***, Chenkai Cai, Hui Li, “Satellite reveals socioeconomic restrictions slowdown COVID-19 far more effectively than favorable weather”, *Science of the Total Environment*, vol. 748, pp. 141401, [DOI:10.1016/j.scitotenv.2020.141401](https://doi.org/10.1016/j.scitotenv.2020.141401).
6. Rehenuma Lazin, **Xinyi Shen\***, and Emmanouil N. Anagnostou “Evaluation of the Hyper-Resolution

Model-Derived Water Cycle Components over the Upper Blue Nile Basin”, *Journal of Hydrology*, DOI:10.1016/j.jhydrol.2020.125231

#### 2017-2019

7. **Xinyi Shen\***, Dacheng Wang, Kebiao Mao, Emmanouil Anagnostou, and Yang Hong. (2019) “Inundation Extent Mapping by Synthetic Aperture Radar: A Review”, *Remote Sensing*, 11, 879, DOI: [10.3390/rs11070879](https://doi.org/10.3390/rs11070879), (ESI highly cited)
8. **Xinyi Shen\***, Emmanouil N. Anagnostou, George H. Allen, Robert G. Brakenridge and Albert J. Kettner (2019). “Near-Real Time Non-obstructed Inundation Mapping by Synthetic Aperture Radar” *Remote Sensing of Environment*, vol. 221, 302-315. DOI: [10.1016/j.rse.2018.11.008](https://doi.org/10.1016/j.rse.2018.11.008)
9. **Xinyi Shen\*** and Emmanouil Anagnostou (2017) “A Framework to Improve Hyper-Resolution Hydrologic Simulation in Snow-Affected Regions”, *Journal of Hydrology*, vol.552, pp.1-12, DOI:10.1016/j.jhydrol.2017.05.048.
10. **Xinyi Shen**, Yiwen Mei and Emmanouil N. Anagnostou\*, (2017). “A Comprehensive Flood Events Database in Continental United States” *Bulletin of the American Meteorological Society*, 98 (7), 1493-1502, DOI: [10.1175/BAMS-D-16-0125.1](https://doi.org/10.1175/BAMS-D-16-0125.1).
11. **Xinyi Shen\***, Emmanouil N. Anagnostou\*, Yiwen Mei and Yang Hong (2016), “A Global Distributed Basin Morphometric Dataset”, *Scientific Data*, 4:160124, DOI: [10.1038/sdata.2016.124](https://doi.org/10.1038/sdata.2016.124).
12. **Xinyi Shen**, Humberto J. Vergara, Efthymios I. Nikolopoulos, Emmanouil N. Anagnostou\*, Yang Hong, Zengchao Hao, Ke Zhang and Kebiao Mao, (2017) “GDBC: A Tool for Generating Global-Scale Distributed Basin Morphometry”, *Environmental Modelling & Software*, vol. 83, pp. 212–223, DOI: [10.1016/j.envsoft.2016.05.012](https://doi.org/10.1016/j.envsoft.2016.05.012).

#### 2012-2016

13. **Xinyi Shen**, Yang Hong\*, Ke Zhang, and Zengcao Hao (2016), “Refining a Distributed Linear Reservoir Routing Method”, *Journal of Hydrologic Engineering*, vol. 22 (3), DOI: [10.1061/\(ASCE\)HE.1943-5584.0001442](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001442).
14. **Xinyi Shen**, Yang Hong\*, Qiming Qin, Jeffery Basara and Kebiao Mao (2015). “A Semi-Physical Microwave Surface Emission Model for Soil Moisture Retrieval” *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 53(7), pp. 4079-4090, DOI: [10.1109/TGRS.2015.2390219](https://doi.org/10.1109/TGRS.2015.2390219).
15. **Xinyi Shen**, Yang Hong\*, Qiming Qin, Weilin Yuan (2013). “Bare surface soil moisture estimation using double-angle and dual-polarization L-band radar data”, *IEEE Transaction on Geoscience and Remote Sensing*, vol.51(7), pp.3931-3942. DOI:10.1109/TGRS.2012.2228209.
16. **Xinyi Shen**, Qiming Qin\*, Yang Hong and Guifu Zhang, (2012). “A matrix inversion approach of computing T-matrix for axially symmetrical particles of extreme shape and dielectrically large dimension”, *Radio Science* vol. 47, RS5005, RS5005, pp. 14, DOI: [10.1029/2011RS004906](https://doi.org/10.1029/2011RS004906).
17. **Xinyi Shen**, Yang Hong\*, Qiming Qin, Weilin Yuan, Sheng Chen, Trevor Grout, and Shaohua Zhao, (2011). “Orientation angle calibration for bare soil moisture estimation using fully polarimetric SAR data”, *IEEE Transaction on Geoscience and Remote Sensing*, vol. 49(12), pp. 4987-4996, vol 17(7), DOI: [10.1109/TGRS.2011.2158583](https://doi.org/10.1109/TGRS.2011.2158583).

#### (led by a student/post-doc)

18. Xi Chen, **Xinyi Shen**, Huan Li, Yaokui Cui, Baojian Liu, Weizhen Fang, Qing Yang, and Yang Hong (2019). “Construct Channel Network Topology from Remote Sensing Images by Morphology and Graph Analysis”. *IEEE Geoscience and Remote Sensing Letters*, pp. 1163 – 1167, DOI: [10.1109/LGRS.2019.2942107](https://doi.org/10.1109/LGRS.2019.2942107).
19. Sage Hardesty, **Xinyi Shen**, Efthymios Nikolopoulos, Emmanouil Anagnostou (2018), “A Numerical Framework for Evaluating Flood Inundation Risk under Different Dam Operation Scenarios”, *Water*, 10 (12), 1798, DOI:10.3390/w10121798.
20. Yiwen Mei, **Xinyi Shen** and Emmanouil N. Anagnostou, (2017). “A Synthesis of Space-time Variability in Multi-component Flood Response” *Hydrology and Earth System Sciences*, vol. 21, pp.2277-2299.
21. Mei, Y., E.N. Anagnostou, **X. Shen**, and E.I. Nikolopoulos (2017). “Decomposing the satellite precipitation error propagation through the rainfall-runoff processes”, *Advances in Water Resources*,

109, 253-266, [doi:10.1016/j.advwatres.2017.09.012](https://doi.org/10.1016/j.advwatres.2017.09.012).

(co-authored journal papers)

22. Mariam Khanam, Giulia Sofia, Marika Koukoura, Rehenuma Lazin, Efthymios I Nikolopoulos, **Xinyi Shen**, Emmanouil N Anagnostou, (2021) “Impact of compound flood event on coastal critical infrastructures considering current and future climate”, *Natural Hazards and Earth System Sciences*, 21(2), pp. 587-605, doi:[10.5194/nhess-21-587-2021](https://doi.org/10.5194/nhess-21-587-2021).

(Coauthored)

**2020-2021**

23. Yibo Yan, Kebiao Mao, **Xinyi Shen**, Mengmeng Cao, Tongren Xu, Zhonghua Guo, Qing Bao, “Evaluation of the influence of ENSO on tropical vegetation in long time series using a new indicator”, *Ecological Indicators*, vol. 129, 107872, DOI: [10.1016/j.ecolind.2021.107872](https://doi.org/10.1016/j.ecolind.2021.107872).
24. Xiangjin Meng, Kebiao Mao, Fei Meng, Jiancheng Shi, Jiangyuan Zeng, **Xinyi Shen**, Yaokui Cui, Lingmei Jiang, Zhonghua Guo “A fine-resolution soil moisture dataset for China in 2002–2018”, *Earth System Science Data*, vol. 13 (7), pp. 3239-3261, DOI: [10.5194/essd-13-3239-2021](https://doi.org/10.5194/essd-13-3239-2021).
25. Zhi Li, Mengye Chen, Shang Ga, , Jonathan J Gourley, Tiantian Yang, **Xinyi Shen**, Randall Kolar, Yang Hong, (2021). “A multi-source 120-year US flood database with a unified common format and public access”, *Earth System Science Data Discussions*, 1-25.
26. Mengye Chen, Zhi Li, Shang Gao, Xiangyu Luo, Oliver L. Wing, **Xinyi Shen**, Jonathan J. Gourley, Randall L. Kolar, Yang Hong (2020) “A comprehensive flood inundation mapping for Hurricane Harvey using an integrated hydrological and hydraulic model”, *Journal of Hydrometeorology*, DOI: [10.1175/JHM-D-20-0218.1](https://doi.org/10.1175/JHM-D-20-0218.1)
27. Mengmeng Cao, Kebiao Mao, **Xinyi Shen**, Tongren Xu, Yibo Yan and Zijin Yuan (2020) “Monitoring the spatial and temporal variations in the water surface and floating algal bloom areas in dongting lake using a long-term modis image time series”, *Remote Sensing*, 12, 3622; [doi:10.3390/rs12213622](https://doi.org/10.3390/rs12213622)
28. Y Yan, K Mao, J Shi, S Piao, **X Shen**, J Dozier, Y Liu, H Ren, Q Bao, (2020) “Driving forces of land surface temperature anomalous changes in North America in 2002–2018”, *Scientific Reports*.
29. Meijian Yang, Guiling Wang\*, Rehenuma Lazin, **Xinyi Shen**, and Emmanouil Anagnostou “Impact of planting time soil moisture on cereal crop yield in the Upper Blue Nile Basin: a novel insight towards agricultural water management”
30. Diego Cerrai, Qing Yang, **Xinyi Shen**, Marika Koukoura, and Emmanouil N. Anagnostou “Brief communication: Hurricane Dorian: automated near-real-time mapping of the unprecedented flooding on the Bahamas using SAR”, *Natural Hazards and Earth System Sciences*
31. Nusseiba NourEldeen, Kebiao Mao\*, Zijin Yuan, **Xinyi Shen**, Tongren Xu and Zhihao Qin (2020). “Analysis of the Spatiotemporal Change in Land Surface Temperature for a Long-Term Sequence in Africa (2003–2017)”. *Remote Sensing*. , 12(3), 488; [DOI:10.3390/rs12030488](https://doi.org/10.3390/rs12030488)

**2019**

32. Xiangjin Meng, Kebiao Mao\* , Fei Meng, **Xinyi Shen**, Tongren Xu, (2019). “Long-Term Spatiotemporal Variations in Soil Moisture in North East China Based on 1-km Resolution Downscaled Passive Microwave Soil Moisture Products”, *Sensors*, E3527. [DOI: 10.3390/s19163527..](https://doi.org/10.3390/s19163527)
33. Kebiao Mao, Zijin Yuan, Zhiyuan Zuo, Tongren Xu, **Xinyi Shen**, and Chunyu Gao, (2019). “Changes in Global Cloud Cover Based on Remote Sensing Data from 2003 to 2012”, *Chinese Geographical Science*, 29: 306. [DOI:10.1007/s11769-019-1030-6](https://doi.org/10.1007/s11769-019-1030-6).

**2015-2018**

34. Kebiao Mao, Zhiyuan Zuo, **Xinyi Shen**, Tongren Xu, Chunyu Gao, and Guang Liu, (2018). “Retrieval of Land-surface Temperature from AMSR2 Data Using a Deep Dynamic Learning Neural Network”, *Chinese Geographical Science*, 28: 1. [DOI.10.1007/s11769-018-0930-1](https://doi.org/10.1007/s11769-018-0930-1)
35. Kebiao Mao, **Xinyi Shen**, Zhiyuan Zuo, Ying Ma, Guang Liu and Huajun Tang, (2017). “An Advanced Radiative Transfer and Neural Network Scheme and Evaluation for Estimating Water Vapor Content from MODIS Data”, *Atmosphere*, vol. 8(139), [doi:10.3390/atmos8080139](https://doi.org/10.3390/atmos8080139).
36. K.B. Mao, Y. Ma, X.L. Tan, **X.Y. Shen**, G Liu, ZL Li, J.M. Chen and L. Xia, (2016). “Global surface

temperature change analysis based on MODIS data in recent twelve years”, *Advances in Space Research*. vol. 20(18), [DOI: 10.1016/j.asr.2016.11.007](https://doi.org/10.1016/j.asr.2016.11.007).

37. Zengchao Hao, Fanghua Hao, Vijay P Singh, Youlong Xia, Wei Ouyang and **Xinyi Shen**, (2016). “A Theoretical Drought Classification Method for The Multivariate Drought Index Based on Distribution Properties of Standardized Drought Indices”, *Advances in Water Resources*, 92, 240-247.
38. Zengchao Hao, Fanghua Hao, Youlong Xia, Vijay P Singh, Yang Hong, **Xinyi Shen** and Wei Ouyang, (2015) “A statistical method for categorical drought prediction based on NLDAS-2”, *Journal of Applied Meteorology and Climatology*, [DOI: 10.1175/JAMC-D-15-0200.1](https://doi.org/10.1175/JAMC-D-15-0200.1).
39. K.B. Mao, Y. Ma, T.R. Xu, Q. Liu1, J.Q. Han, L. Xia, **X. Y. Shen**, T. J. He (2015). “A New Perspective about Climate Change”, *Scientific Journal of Earth Science*, vol. 5 (1), pp.12-17.
40. Diandong Ren, Lance M. Leslie, **Xinyi Shen**, Yang Hong, Qingyun Duan, Rezaul Mahmood, Yun Li, Gang Huang, Weidong Guo, Mervyn J. Lynch (2015). “The Gravity Environment of Zhouqu Debris Flow of August 2010 and Its Implication for Future Recurrence”, *International Journal of Geosciences*, 2015, 6, 317-325.
41. Sheng Chen, Yang Hong, Qing Cao, Yudong Tian, Junjun Hu, Xinhua Zhang, Weiyue Li, Nicholas Carr, **Xinyi Shen**, and Lei Qiao, (2015). “Intercomparison of Precipitation Estimates from WSR-88D Radar and TRMM Measurement Over Continental United States”, *IEEE Transactions on Geoscience And Remote Sensing*, 53(8), 4444-4456.
42. L. Xia, F. Zhao, Y. Ma\*, Z. W. Sun, **X. Y. Shen**, and K. B. Mao\*, (2015). “An Improved Algorithm for the Detection of Cirrus Clouds in the Tibetan Plateau Using VIIRS and MODIS Data”, *Journal of Atmospheric and Oceanic Technology*, vol. 32, pp. 2125-2129, [DOI: 10.1175/JTECH-D-15-0063.1](https://doi.org/10.1175/JTECH-D-15-0063.1).
43. Lang Xia, Kebiao Mao\*, Ying Ma, Fen Zhao, Lipeng Jiang, **Xinyi Shen** and Zhihao Qin, (2014). “An Algorithm for Retrieving Land Surface Temperatures Using VIIRS Data in Combination with Multi-Sensors”, *Sensors*, Vol. 14, pp.21385-21408; [doi:10.3390/s14112138](https://doi.org/10.3390/s14112138).

#### 2012-2014

44. K.B. Mao, Y. Ma, L. Xia, W.Y. Chen, **X.Y. Shen**, T.J.He, T.R. Xu, (2014). “Global aerosol change in the last decade: An analysis based on MODIS data”, *Atmospheric Environment*, 94, 680-686.
45. Mao Kebiao, Ma Ying, Xia Lang, **Shen Xinyi**, Sun Zhiwen, He Tianjue, Zhou Guanhua (2014). “A neural network method for monitoring snowstorm: A case study in southern China”, *Chinese Geographical Science*, vol. 24(5), pp. 599-606, [doi: 10.1007/s11769-014-0675-4](https://doi.org/10.1007/s11769-014-0675-4).
46. Kebiao Mao, Ying Ma, **Xinyi Shen**, Baopu Li, Chunyue Li, Zhaoliang Li, (2012). “Estimation of Broadband Emissivity (8-12um) from ASTER Data by Using RM-NN”, *Optics Express*, 20(18): 20096-20101.
47. ZHAO Shao-hua, Qin qi-ming, **SHEN Xin-yi**, et.,al. (2010). “Review of microwave remote sensing on soil moisture monitoring”, *Journal of Microwave*, vol. 26(2), pp. 90-96 (in Chinese).
48. YU Fan, ZHAO Ying-shi, and **SHEN Xin-yi**, “Research on microwave two-scale scattering model for conducting random rough surface”, *Journal of China University of Mining & Technology*, 39(3), pp.459-464 (in Chinese).
49. YAO Yun-jun, QIN Qi-ming, ZHAO Shao-hua, **SHEN Xin-yi** and SUI Xin-xin. “New index for soil moisture monitoring based on  $\Delta T_s$ -albedo spectral information”, *Spectroscopy and Spectral Analysis*, 31(6), pp.1557-1561 (in Chinese).

#### Conferences & Book Chapters

1. **Xinyi Shen**, Guannan Liang, Amanda Allen, and Xiao Feng, “An automated decadal survey of saguaro population using deep learning”, *Advances in Remote Sensing for Monitoring Biodiversity Change*, (2021) *AGU2021 Fall Meeting*, New Orleans.
2. “Predicting Flood Damages on Properties and Croplands In CONUS By Fusing Hydrometeorological And Remote Sensing Datasets” *CyWater Annual Meeting 2021 (invited)*
3. Chapter 12, Xinyi Shen, Emmanouil Anagnostou “Inundation mapping by remote sensing techniques” *Extreme Hydroclimatic Events and Multivariate Hazards in a Changing Environment*, Edited by:

- Viviana Maggioni and Christian Massari, DOI: [doi:10.1016/B978-0-12-814899-0.00012-2](https://doi.org/10.1016/B978-0-12-814899-0.00012-2).
4. Kang He, Xinyi Shen\*, Emmanouil Anagnostou, Cory Merow and Efthymios Nikolopoulos, “A framework for predicting impact of wildfires validated based on 20-years of historical data in Australia”, 2020 AGU Fall Meeting, H095-07.
  5. Qing Yang, Xi Chen, **Xinyi Shen\***, Emmanouil N. Anagnostou, Jack R. Eggleston, Albert J. Kettner, and G. Robert Brakenridge, “A Near-Real-Time Flood Mapping Chain using Synthetic Aperture Radar Imagery”, Global Flood Partnership Annual Meeting, June 11-13. 2019, Sun Yat-Sen University (oral presentation). Guangzhou, China.
  6. **Xinyi Shen** and Emmanouil Anagnostou (2018) “Rapid SAR-based Flood-Inundation Extent/Depth Estimation” AGU Fall Meeting 2018, Washington D.C., H51B-04 (oral presentation).
  7. Rehenuma Lazin, **Xinyi Shen**, Marika Koukoulou, Zoi Dokou, Efthymios Nikolopoulos, Emmanouil Anagnostou, “Evaluation of Hyper-Resolution Model Derived Water Budget Components Over the Upper Blue Nile”, AGU Fall Meeting 2018, D.C..
  8. Qing Yang, **Xinyi Shen\***, Efthymios Nikolopoulos, and Anagnostou Emmanouil, “A novel methodology to perform regional flood frequency analysis based on hydrological modeling and Fourier transformation”, AGU Fall Meeting 2018, D.C..
  9. Yiwen Mei, Efthymios I. Nikolopoulos, Emmanouil N. Anagnostou and **Xinyi Shen**, “Controls on Event-based Catchment Flood Response over Continental United States”, AGU Fall Meeting 2017.
  10. **Xinyi Shen &** Emmanouil N. Anagnostou, (2019). Chapter 9, “Inundation Mapping By Remote Sensing Techniques” in *Extreme Hydroclimatic Events and Multivariate Hazards in a Changing Environment*, edited by Viviana Maggioni and Christian Massari, Elsevier.
  11. Yiwen Mei, Efthymios I. Nikolopoulos, Emmanouil N. Anagnostou and **Xinyi Shen**, “Controls on Event-based Catchment Flood Response over Continental United States”, AGU Fall Meeting 2017.
  12. **Xinyi Shen\*** Emmanouil N Anagnostou, Ziyue Zeng, Albert Kettner, Yang Hong (2017) “What is missing? An operational inundation mapping framework by SAR data”, AGU Fall Meeting 2017, H53J-1603.
  13. **Xinyi Shen\***, Rehenuma Lazin, Emmanouil N. Anagnostou, and Robert G. Brakenridge (2017). “Mapping the recent US Hurricanes Triggered Flood Events in Near Real Time”, AGU Fall Meeting 2017, Late-breaking.
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1. Kang He, Qing Yang, **Xinyi Shen\***, and Emmanouil Anagnostou, “Potential cropland damages in the 2021 European flood”, (submitted to *Natural Hazards and Earth System Sciences*).
2. Rehenuma Lazin, **Xinyi Shen\***, Semu Moges, and Emmanouil Anagnostou, “Future Climate Impacts on the Water Cycle and Hydropower Generation in the Upper Blue Nile Basin” (under review by *Earth Future*)
3. Chenkai Cai; Jianqun Wang; Zhijia Li; **Xinyi Shen** (2020) "A robust reservoir management framework to minimize the propagation of precipitation forecasting uncertainties" *Journal of Hydrology* (under revision).

#### **Manuscripts in preparation**

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1. **Xinyi Shen\***, Xiao Feng, Guannan Liang, Cory Merow, and Emmanouil Anagnostou, “An automated decadal survey of saguaro population in the national park using deep learning” (**in prep**)
2. **Xinyi Shen\***, Kang He, Cory Merow, Emmanouil Anagnostou, Adam Wilson, Rachael Gallagher, and Brian Enquist, “Future floods exacerbate fire recovery in New South Wales”
3. Chenkai Cai, **Xinyi Shen\***, et al. “A data-driven approach of Regional flood frequency Analysis (RFFA) over the CONUS”
4. Qing Yang and **Xinyi Shen\*** “The sensitivity of CONUS flood vulnerability on climate variabilities”
5. Chenkai Cai, **Xinyi Shen\***, and Emmanouil Anagnostou, “The CONUS inland flood frequency in a changing climate”.
6. Kang He, **Xinyi Shen\*** et. al., “A 10-m US and 90-m Global Basin Morphometric Dataset”.

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#### **EDUCATION**

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Ph.D. 2012	<i>Institute of Remote Sensing and GIS</i> , Peking University in Geography and Cartology	Beijing, China
B.S. 2007	<i>School of Remote Sensing and Information Engineering</i> , Wuhan University Major: Remote Sensing Science and Technology (Honored Graduate)	Wuhan, China
Visiting Dec. 2009- Jan. 2011	School of Civil Engineering and Environmental Science, <b>University of Oklahoma</b>  Institute of Computational Earth Science <b>University of California, Santa Barbara</b>	Norman, OK    Santa Barbara, CA

#### **RESEARCH INTERESTS**

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Interactions of Humans, disasters, and the built environment under climate change  
Flood-inundation modeling and observatory using hydrological modeling and remote sensing  
AI applications in natural hazards and climate change  
AI applications in desert biodiversity under climate change  
Remote sensing, Photogrammetry, and GIS