

Leiqiu Hu

EDUCATION	2014, Ph.D. in Geography Department of Geography, University of Kansas, Lawrence, KS, USA
	2011, M.S. in Remote Sensing and Geographic Information Science Institute of Remote Sensing Applications, Chinese Academy of Sciences, Beijing, China
	2008, B.S. (Honors) in Geography School of Geography, Beijing Normal University, Beijing, China
PROFESSIONAL EXPERIENCE	2016 - Present, Assistant Professor Department of Atmospheric Science, University of Alabama in Huntsville, AL, USA
	2014 - 2016, Postdoctoral Fellow, Advanced Study Program Research Applications Laboratory, National Center of Atmospheric Research (NCAR), Boulder, CO, USA
AWARDS & HONORS	2014-2016 Advanced Study Program Postdoctoral Fellowship, NCAR, USA 2014 Dissertation Defense with Honors, University of Kansas 2008 Graduate with Honors, Beijing Normal University (China)
VISITING EXPERIENCE	2013 May-Aug. Graduate Visitor Scholarship, Advanced Study Program, the National Center for Atmospheric Research
PUBLICATIONS	<hr/> <p style="text-align: right;">Pending Peer-reviewed Articles</p> <p style="text-align: center;">* <i>Corresponding author</i>; † <i>equal contribution</i>; - <i>Advisee</i></p> <p>[33] 2021 Yu, Z., Hu, L., Sun, T., Albertson, J., Li, Q., Impact of Heat Storage on Remote-Sensing Based Quantification of Anthropogenic Heat in Urban Environments, <i>Environmental Science & Technology</i>, under review</p> <p>[32] 2020 Liu, et al., Urban Heat Islands Significantly Reduced by COVID-19 Lockdown, <i>Science Advances</i>, under review</p> <p>[31] 2020 Wang, D., Chen, Y., Hu, L., Voogt, J., Krayenhoffe, S., Wang, J., Lagouarde, J.-P., Modeling the angular effect of MODIS LST in urban areas: a case study of Toulouse, France, <i>Remote Sensing of Environment</i>, revision under review</p> <p>[30] 2020 Hong, F., Zhan, W., Gttsche, F. M., Lai, J., Liu, Z., Hu, L., Fu, P., Huang, F., Li, J., Li, H., Wu, H., A simple yet robust framework to estimate accurate daily mean land surface temperature from thermal observations of tandem polar orbiters. <i>Remote Sensing of Environments</i>, under review</p> <p>[29] 2020 Cui, Y., Hu, L., Wang, Z., Li, Q., Urban nocturnal cooling mediated by bluespace., <i>Theoretical and Applied Climatology</i>, under review</p> <p>[28] 2020 Jiang, L., Zhan, W., Hu, L., Huang, F., Hong, F., Liu, Z., Lai, J., Wang, C., Assessment of Different Kernel-driven Models for Daytime Urban Thermal Anisotropy Simulation, <i>Remote Sensing of Environments</i>, under review</p> <p>[27] 2020 Vo, T., Hu, L.*: Diurnal Evolution of Urban Tree Temperature at a City Scale, <i>Scientific Reports</i>, under review</p> <p>[26] 2020 Hu, L.*: Global Assessment of Coastal Marine Heat Waves and Their Relation with Coastal Urban Thermal Environment Changes, <i>Geophysical Research Letters</i>, under review</p> <hr/>

Peer-reviewed Journal Publications

- [25] 2020 Lai, J., Zhan, W., Voogt, J., Quan, J., Huang, F., Zhou, J., **Hu, L.**, & Cao, C.: Meteorological Controls on Daily Variations of Nighttime Surface Urban Heat Islands, *Remote Sensing of Environment*, 253, 112198 (Link)
- [24] 2020 **Hu, L.***, Sun, Y., Collins, G., Fu, P., Improved Estimates of Monthly Land Surface Temperature from MODIS using a Diurnal Temperature Cycle (DTC) Model, *ISPRS Journal of Photogrammetry and Remote Sensing*, 168, 131-140. 10.1016/j.isprsjprs.2020.08.007
- [23] 2020 Huang, F., Zhan, W., Wang, Z., Voogt, J., **Hu, L.**, Quan, J., Liu, C., Zhang, N., & Lai, J., Satellite identification of atmospheric-surface-subsurface urban heat islands under clear sky, *Remote Sensing of Environment*, 250, 112039, 10.1016/j.rse.2020.112039
- [22] 2020 **Hu, L.***,[†] & Li, Q.[†], Greenspace, bluespace, and their joint influence on urban thermal environment, *Environmental Research Letters*, 10.1088/1748-9326/ab6c30 (Link)
- [21] 2019 Collins, G. Q., Heaton, M., & **Hu, L.**: Physically Constrained Spatiotemporal Modeling: Generating Clear-Sky Constructions of Land Surface Temperature from Sparse, Remotely Sensed Satellite Data *Journal of Applied Statistics*, doi.org/10.1080/02664763.2019.1681384.
- [20] 2019 Yang, J.^{*},[†], **Hu, L.***,[†], & Wang, C.: Population dynamics modify urban residents' exposure to extreme temperatures across the United States. *Science Advances* (Link) (YJ and HL have equal contributions and co-first authors)
- [19] 2019 Shao, Z., Cai, J., Fu, P., **Hu, L.**, Liu, T., Deep learning-based fusion of Landsat-8 and Sentinel-2 images for a harmonized surface reflectance product. *Remote Sensing of Environment*, 235, 111425, 10.1016/j.rse.2019.111425
- [18] 2019 Deng, C., Zhang, B., Cheng, L., **Hu, L.**, & Chen, F.: Vegetation dynamics and their effects on surface water-energy balance over the Three-North Region of China. *Agricultural and Forest Meteorology*, 275, 79-90, 10.1016/j.agrformet.2019.05.012 (Link)
- [17] 2018 **Hu, L.***, & Wendel, J.: Analysis of urban surface morphologic effects on diurnal thermal directional anisotropy, *Journal of Photogrammetry and Remote Sensing*, 148, 1-12, 10.1016/j.isprsjprs.2018.12.004 (Link)
- [16] 2018 **Hu, L.***, Wilhelmi, O., & Uejio, C.: Heat exposure in cities: combining the dynamics of temperature and population. *Science of the Total Environment*, 655, 1-12. 10.1016/j.scitotenv.2018.11.028 (Link)
- [15] 2018 Lai, J., Huang, F., Zhan, W., Quan, J., **Hu, L.**, Gao, L., Ju, W.: Does Quality Control Matter? Surface Urban Heat Island Intensity Variations estimated by Satellite-derived Land Surface Temperature Products. *Journal of Photogrammetry and Remote Sensing*, 139, 212-227, doi.org/10.1016/j.isprsjprs.2018.03.012 (Link)
- [14] 2017 Liu, W., Feddema, J., **Hu, L.**, Zung, A., Brunzell, N., Seasonal and Diurnal Characteristics of Land Surface Temperature and Major Explanatory Factors in Harris County, Texas. *Sustainability*, 9(12), 2324; doi:10.3390/su9122324. (Link)
- [13] 2017 Collins, G.Q., Heaton, M.J., **Hu, L.**, Monaghan, A.J.: Spatio-temporal, Multi-resolution Modeling to Infill Missing Areal Data and Enhance the Temporal Frequency of Infrared Satellite Images. *Environmetrics*, 28(7), DOI: 10.1002/env.2466 (Link)
- [12] 2016 Dickinson, K.L., Monaghan, A.J., Rivera, I.J., **Hu, L.**, Kanyomse, E., Alirigia, R., Adoctor, J., Kaspar, R.E., Oduro, A.R., & Wiedinmyer, C. Changing weather and climate in Northern Ghana: Comparison of local perceptions with meteorological and land cover data. *Regional Environmental Change*. 17: 915. doi:10.1007/s10113-016-1082-4 (Link)

- [11] 2016 Huang, F., Zhan, W., Voogt, J., **Hu, L.**, Wang, Z., Ju, W., & Quan J. Temporal upscaling of surface urban heat island by incorporating an annual temperature cycle model: A tale of two cities. *Remote Sensing of Environment*, 186, 1-12. doi: 10.1016/j.rse.2016.08.009. ([Link](#))
- [10] 2016 **Hu, L.***, Monaghan, A., Voogt, J., & Barlage, M., A first satellite-based observational assessment of urban thermal anisotropy. *Remote Sensing of Environment*, 181, 111-121. doi: 10.1016/j.rse.2016.03.043 ([Link](#)).
- [9] 2015 **Hu, L.***, Monaghan, A., & Brunsell, N., Investigation of urban air temperature and humidity patterns during extreme heat conditions using satellite-derived data. *Journal of Applied Meteorology and Climatology*, 54, 2245-2259. doi:10.1175/JAMC-D-15-0051.1 ([Link](#)).
- [8] 2015 **Hu, L.***, & Brunsell, N., A new perspective to assess the urban heat island through remotely sensed atmospheric profiles. *Remote Sensing of Environment*, 158, 393-406. doi:10.1016/j.rse.2014.10.022.([Link](#))
- [7] 2015 Oleson, K., Monaghan, A., Wilhelmi, O., Barlage, M., Brunsell, N., Feddema, J., **Hu, L.**, & Steinhoff, D., Interactions between urbanization, heat stress, and climate change. *Climatic Change*, 129(3-4), 525-541. doi:10.1007/s10584-013-0936-8 ([Link](#)).
- [6] 2014 Monaghan, A., **Hu, L.**, Brunsell, N., Barlage, M., & Wilhelmi, O., Evaluating the impact of urban morphology configurations on the accuracy of urban canopy model temperature simulations with MODIS. *Journal of Geophysical Research: Atmospheres*, 119(11), 6376-6392. doi:10.1002/2013JD021227 ([Link](#))
- [5] 2014 **Hu, L.***, Brunsell, N., Monaghan, A., Barlage, M., & Wilhelmi, O., How can we use MODIS land surface temperature to validate long-term urban model simulations? *Journal of Geophysical Research: Atmospheres*, 119(6), 3185-3201. doi:10.1002/2013JD021101.([Link](#))
- [4] 2013 **Hu, L.***, & Brunsell, N., The impact of temporal aggregation of land surface temperature data for surface urban heat island (SUHI) monitoring. *Remote Sensing of Environment*, 134, 162-174. doi:10.1016/j.rse.2013.02.022 ([Link](#)).
- [3] 2010 **Hu, L.***, Liu, Y., Ren, Y., Chen, C., Wei, C., Research on the extraction method of coral reef at Spratly Islands using SPOT5. *Remote Sensing Technology and Application*, 25(4), 493-501. (in Chinese) ([Link](#))
- [2] 2009 Ren, Y., Liu, Y., Wei, C., **Hu, L.**, Study on information extraction method to road damage in Wenchuan earthquake based on high-resolution remote sensing images. *Remote Sensing Technology and Application*, 24(1), 52-56. (In Chinese) ([Link](#))
- [1] 2008 Liu, Y., Zhang, Y., Ren, Y., Li Z., **Hu, L.**, Zhang, F., He, H., Ma, H., Chen, J., Highway damage monitoring and assessment for Wenchuan earthquake based on remote sensing and its information integration. *Journal of Remote Sensing*, 12(6), 933-941. (In Chinese) ([Link](#))

Published Book Chapters/Conference Proceedings

- 2013 Brunsell, N., & **Hu, L.**, The role of scale in determining surface energy fluxes from remote sensing. in *Remote Sensing of Land Surface Turbulent Fluxes and Soil Surface moisture Content: State of the Art*, ed: G. Petropoulos. ([Link](#))
- 2012 Liu, Y., Ren, Y., **Hu, L.**, Liu, Z., Study on highway geological disasters knowledge base for remote sensing images interpretation. IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2012), Munich, Germany. doi:10.1109/IGARSS.2012.6352208
- 2011 Ren, Y., Liu Z., **Hu, L.**, Liu, Y., Design and implementation of spatial database system for seasonal influenza. Geoinformatics 2011, Shanghai, China. doi:10.1109/GeoInformatics.2011.5980703

- 2011 Ren, Y., Liu, Y., Hu, L., Fan, J., Li, X., Association of influenza virus isolation with environmental factors in mainland China based on remote sensing and GIS. Proceedings Volume 8203, Remote Sensing of the Environment: The 17th China Conference on Remote Sensing; doi.org/10.1117/12.910431
- 2010 **Hu, L.**, Liu, Y., Zhang, Y., Ren, Y., Liu, Z., Review of using remote sensing monitoring and assessing road hazard. 17th China Symposium on Remote Sensing, Hangzhou, China. (In Chinese)
- 2009 Fan, J., Liu, Y., Ren, Y., **Hu, L.**, Interpretation feature database design for typical objects based on remote sensing images after Wenchuan earthquake. The 30th Asian Conference on Remote Sensing, Beijing.
- 2007 Sun, Y., **Hu, L.**, Liu, H., A GIS-based approach for comparative analysis of potential fire risk assessment. Geoinformatics 2007, SPIE-Volume 6754, Nanjing, China. doi:10.1117/12.764645

Other publications

- 2020 **Hu, L.**, Better Measures of Land Surface Temperatures Improve Monitoring for Drought, Stressed Crops, and Crop Productivity, USAID Agrilinks, <https://www.agrilinks.org/post/1st>

Selected Conference Presentations and Invited Seminars

PRESENTATIONS

** indicates invited presentation*

- 2020 **Hu, L.**, Interactive Influence of Greenspace and Bluespace on Diurnal and Seasonal Urban Thermal Environments. AGU annual meeting
- 2020* **Hu, L.**: Understanding the Urban Thermal Environment: Changes, Impact and Mitigation under Climate Extremes, seminar talk, Georgia State University, Jan. 2020
- 2020 **Hu, L.**: Improved estimate of monthly land surface temperature from MODIS using diurnal temperature cycle (DTC) model. Jan. 8-12., AMS Annual Meeting, Boston, USA
- 2020 **Hu, L.** & Qi Li: Joint Influence of Green Space and Blue Space on Urban Outdoor Comfort by Using a Dense Urban Observational Network. Jan. 8-12., AMS Annual Meeting, Boston, USA
- 2019* **Hu, L.**: Urban Thermal Exposure: Combining the Dynamics of Temperature and Population, UAH/NASA seminar series, Oct., 2019
- 2019 **Hu, L.** & Yang, J: Dynamic urban residents' exposure to temperature extremes in US Cities. Jan. 6-10., AMS Annual Meeting, Phoenix, USA
- 2018 **Hu, L.** & Wendel, J: Effects of urban surface morphology on directional radiative temperature. Dec., AGU Annual Meeting, Washington D.C., USA
- 2018 **Hu, L.** & Wilhelmi O., Uejio, C: Assessment of heat exposure in cities: Connecting the dynamics of temperature and population. Aug. 6-10, International Conference on Urban Climate 10th (ICUC10), New York City, USA
- 2017 **Hu, L.** & Wilhelmi O., Uejio, C: Heat exposure in cities: Connecting the dynamics of temperature and population. Dec. 13, AGU Annual Meeting, New Orleans, USA
- 2017 **Hu, L.** & Wilhelmi O., Heat exposure in cities: Connecting the dynamics of temperature and population. Jan. 25, 97 AMS Annual Meeting, Seattle, USA
- 2017 **Hu, L.**, Monaghan, A., Voogt, J., & Barlage, A first satellite-based observational assessment of urban thermal anisotropy. Jan. 25, 97 AMS Annual Meeting, Seattle, USA
- 2016* **Hu, L.**, Heat exposure in cities: Connecting the dynamics of temperature and population. Nov. 16th, Alabama A&M University, AL, USA.
- 2016* **Hu, L.**, A first satellite-based observational assessment of urban thermal anisotropy. August 17th, University of Alabama in Huntsville, USA.
- 2016* **Hu, L.**, Hot topic: Satellite remote sensing of the urban heat island. May 19th, University of Alabama in Huntsville, USA.

2016 **Hu, L.**, The urban heat island in the hottest days: A remotely sensed study of cities in CONUS. European Geoscience Union General Assembly, April 18-22, Vienna, Austria.

2016* **Hu, L.**, Hot topic: Satellite remote sensing of the urban heat island. Overseas Young Geographers Forum, April 9th. East China Normal University, China.

2016 **Hu, L.**, Monaghan, A., Voogt, J., & Barlage, M., A first satellite-based observational assessment of urban thermal anisotropy. Association of American Geographers Annual Meeting (AAG). March 29 - April 2. San Francisco, CA.

2016* **Hu, L.**, Hot topic: Satellite remote sensing of the urban heat island. Boise State University, Boise, Idaho, USA.

2015* **Hu, L.**, The opportunities and challenges of urban heat island climatology research from satellite observations. European Institute for Energy Research, Karlsruhe, Germany.

2015 **Hu, L.**, Monaghan, A., & Brunzell, N., Investigation of urban air temperature and humidity patterns during extreme heat conditions. International Conference on Urban Climate 9 (ICUC9). July 21-24, Toulouse, France.

2014 **Hu, L.**, Monaghan, A., & Brunzell, N., Investigation of urban air temperature and humidity patterns during extreme heat conditions. American Geophysical Union: AGU Annual Meeting. December 15-19, San Francisco, CA.

2013 **Hu, L.**, Brunzell, N., Monaghan, A., Barlage, M., & Wilhelmi O. V., How can we use MODIS land surface temperature to validate long-term urban model simulations? American Geophysical Union: American Geophysical Union Annual Meeting. December 9-13, San Francisco, CA.

2012 **Hu, L.**, & Brunzell, N., The impact of temporal aggregation of land surface temperature data for urban heat island monitoring. American Geophysical Union Annual Meeting. 3-9 December, San Francisco, CA.

FUNDING

		Current Funded Projects
USAID	2018-2021	Harnessing big data and machine learning to feed the future, Award Amount: \$1,300,000, Chris Barrett (PI), Hu, L., Sun Y., Matteson D., and Liu, Y.(Co-PIs)
NASA	2020-2023	Connecting Urbanization to Patterns of Heat and Precipitation Risk: Linking Mechanistic Understanding to Quantification by Remote Sensing, Award Amount: \$1,468,268, John D. Albertson (PI), Hu, L., Li, Q., Wang, Z., and Xu, Y. (Co-PIs)
AL State	2021	Rural Employment and the need for an Alabama Irrigated Acreage Survey, Demand Estimate & Forecast, Award Amount \$172,073, Cameron Handyside (PI), Hu, L. et al (Co-I)
NASA	2021-2025	Evaluating Urban Heat Island Mitigation Strategies on Diurnal Heat Exposure and Health Outcomes, Award Amount: \$499,999, Christopher Uejio (PI) and Leiqiu Hu (Co-PI)
		Past Funded Projects
UAH	2020	Harness satellite observations and machine learning to identify the irrigated fields in AL, Research or Creative Experience for Undergraduates (RCEU) Program Award Amount: \$3,200, Leiqiu Hu (PI) with Zhang H., and Handyside, C.
UAH	2018	Thermal observations of urban heat, RCEU Program, Award Amount: \$3,200, Leiqiu Hu (PI)
UAH	2018	Enhancement of detecting irrigated field from remotely sensed images, RCEU Program, Award Amount: \$3,200, Leiqiu Hu (PI)
UAH	2017	Heat exposure risk mapping in cities: connecting the dynamics of temperature and population, UAH New Faculty Research Program, Award Amount: \$9,784, Leiqiu Hu(PI)

UAH	2017	Impact of urban geometry on outdoor thermal comfort, RCEU Program, Award Amount: \$3,200, Leiqiu Hu (PI)
NCAR	2014-2016	Advanced Study Program Postdoc Fellowship, Award Amount: \$120,000, Leiqiu Hu (PI)
NCAR	2015	External travel funding for ICUC 2015 in Toulouse, France, Award Amount: \$3,500

TEACHING

Course	Title	Level
University of Alabama in Huntsville		
ESS 676	Remote Sensing of the Environment	G
ESS 370	Introduction to Remote Sensing	U
ESS 313/413/513	Introduction to GIS	U/G
ESS 415/515	Advanced Topics in GIS	U/G
ESS 498	Research & Professional Development Capstone	U
University of Kansas		
GEOG 526	Remote Sensing of Environment I Lab	G
GEOG 558	Intermediate GIS Lab	G

ADVISING

		Thesis Advisor
Trang Vo	Ph.D. in Atmospheric Science	2019 - present
Michelle Dornath-Mohr	M.S. in Earth System Science	finished in 2020
Lisa-Marie Meister	M.S., U. of Applied Sciences, Germany	finished in 2015
Thesis Committee		
EssenceRaphael	M.S. in Earth System Science	-
Kelsey Herndon	M.S. in Earth System Science	finished in 2018
Thailynn Munroe	M.S. in Earth System Science	finished in 2018
Timothy Klug	M.S. in Earth System Science	finished in 2017
Graduate/Undergraduate Research Advisor		
Hayden Hunley	B.S. in Computer Sciences	RCEU (2020S)
Jenny Wood	B.S. in Earth System Science	RCEU (2018S)
George Richert	B.S. in Physics	RCEU (2018S)
Casey Calamaio	M.S. in Earth System Science	Capstone(2018F)
Julian Longoria	B.S. in Earth System Science	Capstone (2017F,2018S), RCEU (2017S)
Raymond Lee	B.S. in Electronic Engineering	2017S

NATIONAL AND INTERNATIONAL PROFESSIONAL ORGANIZATIONS

American Geophysical Union (AGU);
 American Meteorological Society (AMS);
 Association of American Geographers (AAG)
 International Association for Urban Climate (IAUC);
 European Geophysical Union (EGU)

REVIEWER

Manuscript Reviewer (50+)
Advances in Atmospheric Sciences; Agricultural and Forest Meteorology; Bulletin of the American Meteorological Society (BAMS);

Building and Environment;
 Climate and Atmospheric Science;
 Computers, Environment and Urban Systems;
 Earth Interaction;
 Environmental Earth Sciences;
 Environmental Research;
 Environmental Research Letters;
 Environmental Science & Technology;
 Geoscience and Remote Sensing Letters;
 GIScience & Remote Sensing;
 International Journal of Remote Sensing;
 ISPRS Journal of Photogrammetry and Remote Sensing;
 Professional Geographer;
 Pure and Applied Geophysics;
 Remote Sensing;
 Remote Sensing of Environment;
 Science of the Total Environment;
 Scientific Reports;
 Sustainability;
 Sustainable Cities and Society;
 Urban Climate;
 Weather, Climate and Society

Proposal Reviewer

NSF Graduate Research Fellowship Program;
 NSF CBET Environmental Sustainability;

Use Case

2016 EPA Using EnviroAtlas to identify locations for urban heat island abatement

EDITORSHIP

Journals

Topic Editor	<i>Frontiers in Environmental Science: Urban Thermal Environments: Physical Processes, Cross-scale Dynamics, and Mitigation Strategies</i>	2020/11-2021/8
Guest Editor	<i>City and Environment Interactions: Urban resilience: adapting city to climate change and sustainability</i>	2020/2-2021/2

SELECTED SERVICES

2019 - present	UAH Faculty Senate, Undergraduate Scholastic Affairs Committee
2019 - 2020	Department Curriculum Assessment Committee
2018 - 2019	Department Earth System Science Ph.D. Program Development Committee
2018 - 2019	President of Phi Kappa Phi Honor Society at UAH Chapter
2017 - 2018	Vice-president of Phi Kappa Phi Honor Society at UAH Chapter
2017- 2019	Department Research Horizons Abstract Selection Committee

WORKSHOP AND CERTIFICATION

2017	Integrate GIS in Atmospheric Science (NCAR)
2016	Introduction to Bayes (NCAR)
2016	Incorporating Weather and Climate into GIS curricula (NCAR)
July 2013	WRF Tutorial (NCAR)
2010	International Project Manager Professional Certificate: IPMA Level D (Certified Project Management Associate)

MEDIA INTERVIEWS

Scienceline; AL.com; NextCity; New Scientist