Melissa A. Wagner

Boulder, CO 80309
cell: 623-398-5136
Email: melissa.wagner@colorado.edu

EDUCATION

2020 **Ph.D., Geography**
School of Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ
Dissertation: *Impact Assessments of Extreme Weather Events Using Geographical Approaches*

2011 **M.A. Geography**
School of Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ
Thesis: *Geospatial Assessment of Tornado Recovery: A Case Study of the 1999 Moore, OK Tornado*

1999 **B.S., Geography**
Department of Geography and Urban Planning**,** Wright State University, Dayton, Ohio

RESEARCH INTERESTS and SKILLS

Uncrewed Aerial Systems, Severe Storm Impacts and Dynamics, Climate Change and Resiliency, Land Use/Land Cover Change, Weather Research and Forecasting modeling, Remote Sensing, Machine Learning, Python, R, Geographic Information Systems (GIS), Google Earth Engine (GEE) Code Editor, Agisoft Metashape Professional, FAA Remote Part 107 (since 2017), UAS platforms (fixed-wings, multirotor copters) and infrastructure

PROFESSIONAL EXPERIENCE

Current and Past Appointments

2025- **Associate Director of Science,** Integrated Remote and In-Situ Sensing, University of Colorado Boulder, Boulder, CO

- Lead scientific efforts in developing and deploying UAS technologies for atmospheric research;
- Conduct innovative research and analysis of data collected from field campaigns;
- Foster innovation in measurement systems while ensuring data reliability and quality
- Identify and develop new research projects and funding opportunities to advance IRISS's mission;
- Collaborate with interdisciplinary teams to integrate atmospheric science and aerospace engineering approaches;
- Mentor early-career researchers and contribute to a culture of scientific excellence;
- Support the strategic direction and operational stability of the IRISS team in collaboration with leadership.

2022-2024 **Research Scientist 1,** Cooperative Institute of Severe and High-Impact Weather Research and Operations in support of National Severe Storm Laboratory, University of Oklahoma, Norman, OK

- Assembled and led a transdisciplinary team to investigate tornado evolution using UAS technologies, machine learning/geospatial analysis, high-resolution numerical simulations and radar analysis;
- Led UAS damage assessments and research as part of field research campaigns and stand-alone operations following high-wind events;

- Provided UAS training to Part 107 certified remote pilots and UAS safety training to visual observers;
- Interacted with NOAA Uncrewed Aerial Systems Division for UAS operation compliance;
- Collaborated with NOAA/NWS Southern Region, National Weather Service Weather Forecast Offices, FEMA IV region regarding documenting high wind impacts and data sharing;
- Acquired, cataloged and disseminated high-resolution satellite imagery of high wind impacts and coordinated with NOAA/NWS Southern Region and FEMA IV region;
- Led CIWRO/NSSL effort to develop a Cooperative Research and Development Agreement for the collection of UAS damage imagery;
- Documented, published and presented research and development results.
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2020-2021 **Postdoctoral Research Associate,** Cooperative Institute of Mesoscale Meteorological Studies in support of National Severe Storm Laboratory, University of Oklahoma, Norman, OK

- Developed UAS program and standard operating procedures specific to each platform at the National Severe Storms Laboratory;
- Developed tools and procedures for performing damage surveys using multirotor copters and fixed wing platforms;
- Advised NSSL on procurement of UAS platforms and sensors;
- Documented, published and presented research and development results.

2013-2018 **Graduate Research Assistant,** Water Sustainability & Climate Initiative NSF Grant EAR 1204774, School of Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ

2012-2021 **Meteorologist**
Weather Mission Inc, Trent Woods, NC

2008-2021 **Certified Weather Observer at Phoenix Sky Harbor International Airport**
Diversified Management Solutions, Phoenix, AZ

2009-2011 **Assistant State Climatologist**
Arizona State University, Tempe, AZ

TEACHING EXPERIENCE

School of Geographical Sciences and Urban Planning, Arizona State University

2018 Development Policy,
Fall Semester, graduate global technology and development (GTD) students

2014 Introduction to Climatology
Summer Semester, first year geography students

2014 Introduction to Climatology Laboratory
Spring and Summer Semesters, first year geography students

2013 Introduction to Meteorology Laboratory
Fall Semester, first year geography students

2009-10 Introduction to Physical Geography Laboratory
Fall and Spring Semesters, first year geography students

REFEREED PUBLICATIONS

22. 2025 Krahenbuhl, D., & Coauthors, 2025, Phoenix DUst STorm (PHX-DUST) Scale: A Cooperatively-Developed Dust Storm Scale for Phoenix, Arizona. *Bulletin of the American Meteorological Society*, Accepted pending revisions.

21. 2025 Wagner, M., Rasmussen, E., Coniglio, M.C., & Galarneau, T., 2025. Multiscale characterization of complex wind flows in the 2020 Midwest Derecho, *Weather and Forecasting*, Early Online Release available at https://doi.org/10.1175/WAF-D-24-0198.1

20. 2025 Wagner, M., Coniglio, M., Rasmussen, E., Satrio, M., Bodine, D., Candela, D., Kennedy, D., Tirone, E., 2025. Harnessing UAS and High-resolution satellite imagery to better characterize tornado damage and understand tornado behavior, *Bulletin of the American Meteorological Society*, 106(3), E492-E508. https://doi.org/10.1175/BAMS-D-23-0234.1

19. 2024 Roegner, D.T., Lombardo, F.T., Wienhoff, Z.B., Rhee, D. M., **Wagner, M.A.** and Wood, R.L., 2024. The influence of thunderstorm type on extreme near-surface wind speeds: Iowa case study. Journal of Wind Engineering and Industrial Aerodynamics, 251, 105805, https://doi.org/10.1016/j.jweia.2024.105805.

18. 2024 Kosiba, K. Lyza, A.W., Reinhart, A.E., Trapp, R.J., Rasmussen, E.N., Parker, M., Biggerstaff, M.I., Nesbitt, S.W., Weiss, C.C., Wurman, J., Knupp, K.R., Coffer, B., Chmielewski, V.C., Dawson, D.T., Bruning, E., Bell, T.M., Coniglio, M.C., Murphy, T.A., French, M., Blind-Doskocil, L., Wolff, E., Schneider, M. E., Silcott, M., Smith, E., Aikins, J., Wagner, M., Robinson, P., Wilczak, J.M., White, T., Bodine, D., Kumjian, M.E., Waugh, S.M., Alford, A.A., Elmore, K., Kollias, P.,& Turner, D.D., 2024. The Propagation, Evolution, Rotation in Linear Storms (PERiLS) Project, *Bulletin of the American Meteorological Society*, https://doi.org/10.1175/BAMS-D-22-0064.1

17. 2022 Wagner, M.A. & Doe, R.K., 2022. UAS Policies, Workflows, and Challenges in Hazard Environments, *sUAS Applications in Geography*, Geotechnologies and the Environment 24, Springer, 13-28. https://doi.org/10.1007/978-3-031-01976-0_2

16. 2022 Wagner, M.A., Stuhlmacher, M., & Wentz, E.A., 2022. Quantifying oil palm expansion in Southeast Asia from 2000 to 2015: A data fusion approach, *Journal of Land Use Science Special Issue: Women in Land Science*, 17(1), 26-46.

15. 2021 Wagner, M.A., Doe, R.K., Wang, C., Rasmussen, E., Coniglio, M.C., Elmore, K.L., Balling Jr, R.C. & Cerveny, R.S., 2021. High-resolution observations of microscale influences on a tornado track using Unpiloted Aerial Systems (UAS). *Monthly Weather Review,* 149(8), 2819-2834.

14. 2021 Chen, Z., **Wagner, M.**, Das, J., Doe, R. K., & Cerveny, R. S. (2021). Data-Driven Approaches for Tornado Damage Estimation with Unpiloted Aerial Systems. *Remote Sensing*, 13(9), 1669. https://doi.org/10.3390/rs13091669

13. 2020 Chhetri, N., Ghimire, R., **Wagner, M.**, & M., Wang, 2020. Global citizen deliberation: Case of world-wide views on climate and energy. *Energy Policy,* 147, 111892.

12. 2020 Crank, P. J., Middel, A., **Wagner, M.**, Hoots, D., Smith, M., & Brazel, A. (2020). Validation of seasonal mean radiant temperature simulations in hot arid urban climates. *Science of The Total Environment*, 141392.

11. 2020 McFarquhar, G. M., and Coauthors, 2020: Current and future uses of UAS for improved forecasts/warnings and scientific studies. *Bulletin of the American Meteorological Society*, 101, E1322–E1328, https://doi.org/10.1175/BAMS-D-20-0015.1.

10. 2019 Wagner, M., Doe, R. K., Johnson, A., Chen, Z., Das, J., & Cerveny, R. S. (2019). Unpiloted Aerial Systems (UASs) Application for Tornado Damage Surveys: Benefits and Procedures. *Bulletin of the American Meteorological Society,* 100(12), 2405-2409.

9. 2018 Clinton, N., Stuhlmacher, M., Miles, A., Uludere Aragon, N., **Wagner, M.**, Georgescu, M., ... & Gong, P. (2018). A Global Geospatial Ecosystem Services Estimate of Urban Agriculture. *Earth's Future,* 6(1), 40-60.

8. 2017 Aragon, N. U., **Wagner, M.**, Wang, M., Broadbent, A. M., Parker, N., & Georgescu, M. (2017). Sustainable Land Management for Bioenergy Crops. *Energy Procedia*, 125, 379-388.

7. 2016 **Wagner, M.,** Wang, M., Miguez-Macho, G., Miller, J., VanLoocke, A., Bagley, J. E., ... & Georgescu, M. (2016). A Realistic Meteorological Assessment of Perennial Biofuel Crop Deployment: A Southern Great Plains Perspective. *GCB Bioenergy,* 9(6), 1024-1041.

6. 2016 Wang, M., **Wagner, M.**, Miguez-Macho, G., Kamarianakis, Y., Mahalov, A., Moustaoui, M., ... & Georgescu, M. (2016). On the Long-term Hydroclimatic Sustainability of Perennial Bioenergy Crop Expansion over the United States. *Journal of Climate*, 30(7), 2535-2557.

5. 2016 **Wagner, M**., Merson, J., & Wentz, E. A. (2016). Design with Nature: Key Lessons from McHarg's Intrinsic Suitability in the Wake of Hurricane Sandy. *Landscape and Urban Planning*, 155, 33-46.

4. 2016 **Wagner, M.,** Gentile, L. E., Merson, J., & E. Wentz. (2016). Sustainable Urban Planning and Climate Change Scenarios: An Investigation of Staten Island's Urban Planning. Proceedings from *5th Fabos Conference on Landscape and Urban Planning.* Budapest, Hungary.

3. 2014 **Wagner, M**., Chhetri, N., & Sturm, M. (2014). Adaptive Capacity in Light of Hurricane Sandy: The Need for Policy Engagement. *Applied Geography*, 50, 15-23**.**

2. 2013 Svoma, B. M., Krahenbuhl, D. S., Bush, C. E., Malloy, J. W., White, J. R., **Wagner, M.A**., ... & Cerveny, R. S. (2013). Expansion of the Northern Hemisphere Subtropical High Pressure Belt: Trends and Linkages to Precipitation and Drought. *Physical Geography*, 34(3), 174-187.

1. 2012 **Wagner, M.A.**, Myint, S. W., & Cerveny, R. S. (2012). Geospatial Assessment of Recovery Rates Following a Tornado Disaster. *IEEE Transactions on Geoscience and Remote Sensing*, 50(11), 4313-4322.

REPORTS AND SAFETY MANUALS

3. 2023 Wagner, M., Wood, R. L., Lombardo, F. T., Coniglio, M.C., & Potvin, C., Multi-Scale Investigation into the Storm Processes of the 10 August 2020 Midwest Derecho, *NSF Final Report #2054677.*

2. 2023 Wagner, M., Coniglio, M.C., & Rasmussen, E., Characterizing High Wind Damage in the Southeast US via UAS Technologies. NOAA Uncrewed Research Transition to Operations (UxSRTO).

1. 2022 Wagner, M., Coniglio, M.C., & Rasmussen, E., National Severe Storms Laboratory Standard Operating Procedures for Uncrewed Aerial Systems (UAS) surveys.

INVITED TALKS and PUBLIC OUTREACH

7. 2024 Oram, T., Wagner, M., Overview of NWS/NSSL Damage Assessment Response Team (DART) Collaborative Research and Development Agreement (CRADA) Project. Advance Innovative Research Series, June 12, 2024, Norman, OK.

6. 2024 Wagner, M., NSSL UAS Damage Assessment and Science; Department of Commerce Imagery Users Groups, April 24, 2024, Norman, OK.

5. 2021 Wagner, M., Coniglio, M., Examining tornado signatures in rural areas utilizing UAS imagery, Invited Paper presented at Atmospheric Research Supported by Uncrewed Aerial Systems I, American Geophysical Union Fall Meeting; December 16, 2021, New Orleans, LA.

4. 2021 Wagner, M. Remote Sensing and How it Impacts Your Life. Smithsonian National Air and Space Museum. November 4, 2021.

3. 2019 Wagner, M. Applications and Challenges of UAS Technologies in Tornado Damage Surveys. Current and Future Uses of Unmanned Aircraft Systems (UASs) for Improved Forecasts/Warnings and Other Scientific Studies. October 29, 2019: National Weather Center, Norman, OK.

2. 2019 Wagner, M., Doe, R. Using Drones to Image Tornado Damage with Melissa Wagner and Robert Doe. AMS on the Air. April 13, 2019.

1. 2019 Wagner, M., Doe, R**.** Making Sure No Tornado Damage is Too Small**.** The Front Page of the American Meteorological Society Blog. http://blog.ametsoc.org/

CONFERENCE, SEMINAR, & WORKSHOP PRESENTATIONS

43. 2025 Wagner, M. A. & McKinney, C., Eyes in the Sky - Applying Lessons Learned in Multi-Agency Collaboration to Post-Storm Damage Assessment and Response, Paper presented at Texas Emergency Management The Conference; May 27, 2025: Fort Worth, TX.

43. 2025 Wagner, M. A., Rasmussen, E., Schwartzman, D. & Bodine, D., High-resolution analyses of the 27 February 2023 Norman OK Tornado, Paper presented at American Meteorological Society; January 14, 2025: New Orleans, LA.

43. 2024 McKinney, C., **Wagner, M. A.**, Eyes in the Sky: Advancing Multi-Agency Collaboration in Post-Storm Damage Assessment and Response, Paper presented at 72nd International Association of Emergency Managers; November 13, 2024: New Orleans, LA

41. 2024 Candela, D., **Wagner, M. A.**, & Bodine, D., Towards Understanding the Influence of Land Cover Transitions on Tornadoes through High-Resolution Simulations and Damage Analysis from UAS, Paper presented at 31st Severe Local Storms Conference; October 24, 2024: Virginia Beach, VA.

40. 2024 Wagner, M., Rasmussen, E., Coniglio, M, & Galarneau, T., Relating Embedded Vortices at Multiple Scales in the 10 August 2020 Midwest Derecho Using UAS, Satellite, and Radar Data, Paper presented at 31st Severe Local Storms Conference; October 21, 2024: Virginia Beach, VA.

39. 2024 Bodine, D., Reinhart, A. E., Gibbs, J. A., Lombardo, F. T., Candela, D., **Wagner, M. A.**, Wienhoff, Z. B. & Schueth, A., High-Resolution Simulations of Dynamical Interactions Between Residential Buildings and Tornadoes, Paper presented at 31st Severe Local Storms Conference; October 21, 2024: Virginia Beach, VA.

38. 2024 Candela, D., **Wagner, M. A.**, & Bodine, D., Towards Understanding the Influence of Land Cover Transitions on Tornadoes through High-Resolution Simulations and Damage Analysis from UAS, Paper presented at 31st Severe Local Storms Conference; October 21, 2024: Virginia Beach, VA.

37. 2024 Wagner, M.A., Damage Science at the National Severe Storms Laboratory, Research presented to Dr. Richard Spinrad and NOAA Leadership; March 20, 2024: Norman, OK

36. 2024 Candela, D., **Wagner, M.A.**, Rasmussen, E., Coniglio, M.C., Lyza, A., Sizemore, A., Characterizing Ground Markings from the 24 March 2023 Rolling Fork, MS EF4 Tornado, Paper presented at American Meteorological Society; February 1, 2024: Baltimore, MD.

35. 2024 Tirone, E., **Wagner, M.A.**, Chen, Z., Candela, D., Rasmussen, E., Coniglio, M.C., Automated Treefall Detection using Zero-Shot Deep Learning, Paper presented at American Meteorological Society; February 1, 2024: Baltimore, MD.

34. 2024 Wagner, M.A., Rasmussen, E., Bodine, D., Candela, D., Comparisons of Close-Range Radar Observations with UAS Damage Analysis of the 11 May 2023 Cole OK Tornado; Paper presented at American Meteorological Society February 1, 2024: Baltimore, MD.

33. 2024 Wagner, M.A., Doe, R.K., Uncrewed Aerial Systems (UAS) Collective Learning: Applied Research in Operational Environments, Paper presented at American Meteorological Society; January 31, 2024: Baltimore, MD.

32. 2024 Berry, K.L., Reinhart, A.E., Burke, P.C., **Wagner, M.A**., Hooper, L.J., Heinselman, P., Rasmussen, E., 19 April 2023 Severe Weather Event: How NSSL Research Can Contribute to Probabilistic IDSS, Paper presented at American Meteorological Society; January 31, 2024: Baltimore, MD.

31. 2023 Gourley, J.J., Howard, K., Wasielewski, D., Derin, Y., Kirstetter, Duarte, J.A., Vergara, H., **Wagner, M.A.**, Hempel, L., You're using Radars for What!?! Measuring Hydrologic Responses, Paper presented at 40th Conference on Radar Meteorology; August 28, 2023: Minneapolis, MN

30. 2023 Lyza, A., Alford, A., Bell, T., Chmielewski, V.C., Coniglio, M.C., Rasmussen, E.N., Reinhart, A.E., Smith, E.N., **Wagner, M.A.**, Waugh., S.M., Overview and Early Analysis of NSSL and CIWRO Observations of the 24 March 2023 Rolling Fork, Mississippi, Tornadic Storm and Environmental Evolution during PERiLS 2023 IOP 3, Paper presented at 40th Conference on Radar Meteorology; August 29, 2023: Minneapolis, MN.

29. 2023 Wagner, M., Scouring the ground for new knowledge in tornado evolution, Convective Seminar series; October 20, 2023: Norman, OK**.**

28. 2023 Lyza, T., **Wagner, M.,** Rasmussen, E., Candela, D., Ortega, K., Satrio, C., Pounds, L., & Sizemore, A., Unique Damage Instances and Characteristics in the Rolling Fork, MS, Tornado of 24 March 2023, Paper presented at Tornado Hazard Wind Assessment and Reduction Symposium (THWARTS); August 14, 2023: Champaign, IL.

27. 2023 Wagner, M., Severe Convective Observations using UAS, Radar, Simulations. virtual presentation, NOAA NWS Science Service Division. Virtual presentation, June 6, 2023.

26. 2023 Wagner, M., Satrio, M., Coniglio, M., & Rasmussen, E., Understanding the role of terrain on tornado behavior using large eddy simulation and observational damage information, Paper presented at 22nd Symposium on Meteorological Observation and Instrumentation; January 9, 2023: Denver, CO.

25. 2022 Galarneau, T., **Wagner, M.,** Coniglio, M, & Skinner, P., Mechanisms driving extreme winds in the Iowa Derecho on 10 August 2020, Paper presented at 30th Severe Local Storms Conference; October 27, 2022: Santa Fe, NM.

24. 2022 Wagner, M., Coniglio, M., Understanding damage variability of high-wind impacts and the role of land cover in rural areas using high-resolution imagery and geospatial analysis, Paper presented at 30th Severe Local Storms Conference; October 25, 2022: Santa Fe, NM.

23. 2022 Wagner, M., Coniglio, M, Improving High-Wind Damage Documentation in the Southeast United States and UAS Data-Sharing Workflows, Paper presented at 22nd Symposium on Meteorological Observation and Instrumentation; January 27, 2022: Houston, TX.

22. 2021 Wagner, M., Coniglio, M., Characterizing High Wind Damage via UAS Technologies, Paper presented at National Weather Association 46th Annual Meeting; August 24, 2021: Tulsa, OK.

21. 2021 Wagner, M., Coniglio, M., Miller, W., Potvin, C., & Wood, R., Relating high-resolution satellite and UAS-based geospatial analyses of damage from the 10 August 2020 Derecho to WSR-88D observations, Paper presented at 21st Symposium on Meteorological Observation and Instrumentation, (Virtual) New Orleans, LA, Amer. Meteor. Soc., 6.1.

20. 2020 Wagner, M., Chen, Z., Das, J., Doe, R., & Cerveny, R., Detecting and Classifying Tornado Damage Utilizing Deep Neural Networks and UAS-based Imagery. Paper presented at American Meteorological Society Annual Meeting; January 15, 2020: Boston, MA.

19. 2020 Wagner, M., Doe, R**.** Hyperspatial Multispectral Analysis of Tornado Damage in the High Plains. Paper presented at American Meteorological Society Annual Meeting; January 15, 2020: Boston, MA.

18. 2019 Wagner, M., Doe, R**.** UAS-based Multispectral Assessments of the May 28, 2019 Tipton, KS Tornado. Paper presented at 21st AMS/NWA High Plains Conference; August 07, 2019: Colby, KS.

17. 2019 Doe, R., **Wagner, M.** Tornado Pathway Dynamics Using UAS: The Influence of Topography on Tornadoes. Paper presented at American Meteorological Society Annual Meeting; January 7, 2019: Phoenix, AZ.

16. 2019 Wagner, M., Doe, R**.** UASs Policy, Practice and Procedures Related to Tornado Hazard Site Investigations. Paper presented at American Meteorological Society Annual Meeting; January 7, 2019: Phoenix, AZ.

15. 2018 Doe, R., **Wagner, M.** Tornadoes and Topography: an Enhanced Understanding of Site Dynamics using Unmanned Aerial Systems (UASs). Paper presented at American Geophysical Union Annual Meeting: December 10, 2018: Washington, D.C.

14. 2018 Wagner, M., Doe, R**.** The Utility and Workflow of Unmanned Aerial Systems (UASs) based Damage Surveys: A Case Study of the 26 June 2018 Eureka, KS Tornado. Paper presented at 20th AMS/NWA High Plains Conference; August 08, 2018: Hastings, NE.

13. 2018 Doe, R., **Wagner, M.** An Unmanned Aerial Systems (UASs) Deployment to Assess High Impact Tornado Damage to Agriculture and Forestry. Paper presented at American Association of American Geographers Annual Meeting; April 13, 2018: New Orleans, LA.

12. 2018 Doe, R., **Wagner, M.** An Unmanned Aerial Vehicle (UAV) Site Investigation of the April 29, 2017, Canton, Texas Tornado. Paper presented at American Meteorological Society Annual Meeting; January 9, 2018: Austin, TX.

11. 2018 Wagner, M., Doe, R. High Wind Damage Assessment of the June 12th Tornado Outbreak in the Northern High Plains Utilizing Unmanned Aerial Vehicles (UAV). Paper presented at American Meteorological Society Annual Meeting; January 9, 2018: Austin, TX.

10. 2017 Wagner, M., Doe, R. Using Unmanned Aerial Vehicles (UAVs) to Modeling Tornado Impacts**.** Poster presented at American Geophysical Union Fall Meeting; December 13, 2017: New Orleans, LA.

9. 2017 Wagner, M., Cox, R., Hahn, C., Doe, R. Unmanned Aerial Vehicle (UAV) Deployment for Damage Assessment of the June 12, 2017 Tornado Outbreak in the Northern High Plains. Paper presented at the 19th High Plains American Meteorological Society National Weather Association Conference; August 10, 2017: Dodge City, KS.

8. 2016 Wagner, M., Brazel, A., Benson-Lira, V., Hoots, D., Smith, M., & A. Middel. Thermal Comfort and Extreme Heat: A Summertime Assessment of Rayman Model Sensitivity in Downtown Tempe, AZ. Paper presented at American Meteorological Society Annual Meeting; January 12, 2016: New Orleans, LA.

7. 2016 **Wagner, M.,** Gentile, L. E., Merson, J., & E. Wentz. Sustainable urban planning and climate change scenarios: An Investigation of Staten Island's Urban Planning. Paper presented *at 5th Fabos Conference on Landscape and Urban* Planning; June 30, 2016: Budapest, Hungary.

6. 2015 **Wagner, M.,** Wentz, E. & S. Kelley. Assessing Tropical Storm Vulnerability in an Inland Desert: A Case Study of the 2014 Flash Flood Events in Phoenix, Arizona. Paper presented at Association of American Geographers Annual Meeting; April 22, 2015: Chicago, IL.

5. 2015 **Wagner, M.,** Myint, S. W., Kaplan, S. & R. Cerveny. Geospatial Assessment of a Tornado Disaster using high-resolution imagery. Paper presented at First International Summit on Tornadoes and Climate Change; May 25, 2014: Chania, Crete, Greece.

4. 2014 **Wagner, M.,** Wentz, E. & J. Merson. The Role of Land Use Suitability in Hurricane Sandy as Exposed by Ian McHarg's Design by Nature. Paper presented at Association of American Geographers Annual Meeting; April 2, 2014: Tampa, FL.

3. 2014 **Wagner, M.** Chetri, N. & M. Sturm. Solutions after Sandy: Engaging the Social Sciences for a Better Policy Outcome. Paper presented at American Meteorological Society Annual Meeting; January 6, 2014: Atlanta, GA.

2. 2013 Wang, M., **Wagner, M.**, Miguez-Macho, G., Mahalov, A., & Georgescu, M. Assessing hydroclimate impacts of a large-scale perennial biofuel crop expansion over the continental United States. Paper presented at American Geophysical Union Fall Meeting; December 9, 2013: San Francisco, CA.

1. 2013 **Wagner, M**., Wang, M., Miguez-Macho, G., Mahalov, A., & Georgescu, M. Hydroclimatic Impacts of Perennial Biofuel Crop Growth during an Extreme Drought Year. Paper presented at American Geophysical Union Fall Meeting; December 9, 2013: San Francisco, CA.

PROPOSALS

Co-PI, NOAA/OAR/WPO2025 Notice of Funding Opportunity, "Developing a Machine Learning Model to Infer Near-Ground Tornadic Winds from NWS Radar Data", G. Yan, E. Rasmussen, M. Wagner, Z. Hu, $1,496,622 08/2025-07/2028, (Pending).

Co-PI, Merage Foundation, "Tornado Damage Science: A proposal for the Jonathon Merage Foundation", M. Wagner, E. Rasmussen, $1,159,318, 04/2025-03/2028, (Pending).

Co-PI, NOAA Task-3, "Fire Weather Observations Analysis", T. Jones, M. Wagner, $412,987; 07/2023 – 07/2025.

Co-PI, CIWRO DDRF, "Exploring the Relationship between FFSI and FLASH using Detailed Flash Flood Surveys", S. Martinitis, & M. Wagner, $39,796; 07/2023 – 07/2024.

Co-I, NOAA UxSRTO, "Characterizing High Wind Damage in the Southeast US via Unpiloted Aerial Systems (UASs) Technologies", M. Coniglio, M. Wagner, E. Rasmussen, $194,345; 06/2020 – 05/2022.

PI (Lead), NSF-Rapid Collaborative, "Multi-Scale Investigation into the Storm Processes of the 10 August 2020 Midwest Derecho", M. Wagner, R. Wood, F. Lombardo, M. Coniglio, C. Potvin, $71,515; 8/2020-2021.

Co-PI, OAR Cloud Technology Incubator (CTI), "Bring UAS Damage Surveys to the Cloud", M. Coniglio, M. Wagner, $25,000; 06/2021-06/2022.

AWARDS AND HONORS

2024 NOAA Bronze Medal Award nomination

2020 Faculty Women Association Distinguished Graduate Student Award nomination

2018 Institute for Social Science Research Student Poster Contest

2016 Anthony J. Brazel Research Award

2008 Arizona Floodplain Management Association Scholarship

PROFESSIONAL ACTIVITIES

a. Professional Services

2024 Associate Editor *for Journal of Atmospheric and Oceanic Technology* (JTECH)

2024 Department of Commerce Imagery Users Group Contributing to the understanding of imagery workflows, analysis, and infrastructure based on agency needs and interagency collaborations.

2022-Present FEMA IV/NOAA/NASA Collaborative Group Contributing to pre-event and post-event coordination with NOAA Southern Region, NSSL, NASA, and other agencies to collect and efficiently share post-event remote sensing data (e.g., high-resolution satellite imagery, UAS data).

2022-2024 NOAA NWS/NSSL Cooperative Research and Development Agreement (CRADA) Contributing to assist in the rapid response UAS data collection following tornado events for NWS damage assessments and NSSL science objectives.

2019-Present American Society of Civil Engineers Remote Sensing Subcommittee, Co-Vice Chair Contributing to updating remote sensing standards used in detecting high wind damage and estimating wind speed of tornadoes

2014-Present Journal Reviewer
Applied Geography, Geoforum, Journal of Policy Research in Tourism, Leisure and Events, International Journal of Remote Sensing, Journal Landscape and Urban Planning, Structure and Infrastructure Engineering, Journal of Land Use Science, Remote Sensing, Journal of Applied Meteorology and Climatology

b. Professional Memberships

American Meteorological Society
American Society of Civil Engineers Remote Sensing Subcommittee (Co-Vice Chair)

c. *Educational Outreach*

National Weather Festival (2022, 2023); Mentoring undergraduate and graduate students; UAS training

REFERENCES

Dr. Erik N. Rasmussen, Division Chief, Field Observing Facilities Support — 970.985.0730
National Severe Storms Laboratory — erik.rasmussen@noaa.gov

Dr. Thomas Galarneau, Research Physical Scientist — 518.331.4131
National Severe Storms Laboratory — thomas.galarneau@noaa.gov

John R. Walker, Atmospheric Scientist — 901.493.0313
NOAA Uncrewed Aerial Systems Division — john.r.walker@noaa.gov

Dr. Elizabeth Wentz, Vice Provost and Dean of Graduate College — 480.965.7279

Arizona State University wentz@asu.edu

Dr. Randall S. Cerveny, School of Geographical Sciences and Urban Planning 480.965.7533
Arizona State University cerveny@asu.edu