

Curtis Walker

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Education:

- 2018 Ph.D. Earth and Atmospheric Sciences; University of Nebraska-Lincoln
Dissertation: “Road Weather Impact Based Decision Support
Applications: Developing a Department of Transportation Winter Severity Index”
- 2014 M.S. Earth and Atmospheric Sciences; University of Nebraska-Lincoln
Thesis: “Cloud Impacts on Pavement Temperature and Shortwave Radiation”
- 2012 B.S. Meteorology (Summa Cum Laude); State University of New York (SUNY), College at
Oneonta

Professional Experience:

- 2023–present: Project Scientist II, Research Applications Laboratory, National Center for Atmospheric
Research; Boulder, Colorado
- 2022–present: Section Lead, University Partnerships; Education, Engagement, and Early Career
Development (EdEC) Center of Excellence, National Center for Atmospheric Research;
Boulder, Colorado
- 2019–2024: Adjunct Instructor, Department of Earth and Atmospheric Sciences, University of
Northern Colorado; Greeley, Colorado
- 2020–2023: Project Scientist I, Research Applications Laboratory, National Center for Atmospheric
Research; Boulder, Colorado
- 2018–2020: Postdoctoral Fellow, Advanced Study Program, National Center for Atmospheric
Research; Boulder, Colorado
- 2019: Weather Operations Intern, Division of Maintenance and Operations, Colorado
Department of Transportation; Denver, Colorado
- 2016–2018: Adjunct Instructor, Department of Environmental and Earth Sciences, Doane University;
Crete, Nebraska
- 2012–2018: Graduate Research Assistant, Department of Earth and Atmospheric Sciences, University
of Nebraska-Lincoln; Lincoln, Nebraska
- 2016–2017: Instructor, Department of Earth and Atmospheric Sciences; University of Nebraska-
Lincoln; Lincoln, Nebraska
- 2014–2015: Meteorologist, Perfect Storm; Boulder, Colorado
- 2013: Research Intern, National Center for Atmospheric Research – Research Applications
Laboratory; Boulder, Colorado
- 2010–2013: Significant Opportunities in Atmospheric Research and Science (SOARS) Intern,
University Corporation for Atmospheric Research; Boulder, Colorado
- 2009–2012: Academic Team Member, SUNY College at Oneonta; Oneonta, New York

Research Publications (peer-reviewed):

1. Masterson, A. (undergraduate mentee), P. Patil, N. Brown, Z. Asher, J. F. Rojas, A. Siems-Anderson, **C. L. Walker**, and A. Rabinowitz, 2024: Engineering Requirements that Address Real World Hazards from Using High-Definition Maps, GNSS, and Weather Sensors in Autonomous Vehicles. *SAE International Technical Paper 2024-01-2044*, doi:10.4271/2024-01-2044.
2. **Walker, C. L.**, A. J. Khattak, M. U. Farooq, J. Cecava, and M. Anderson, 2024: Investigation of Winter Weather Crash Injury Severity Using Winter Storm Classification Techniques. *Transportation Research Interdisciplinary Perspectives*, **24**, doi: 10.1016/j.trip.2024.101073.
3. Elyoussoufi, A. (undergraduate mentee), **C. L. Walker** (corresponding author), A. W. Black, and G. J. DeGirolamo, 2023: The Relationships between Adverse Weather, Traffic Mobility, and Driver Behavior. *Meteorology*, **2**, 489–508, doi: 10.3390/meteorology2040028.
4. **Walker, C. L.**, A. Siems-Anderson, E. Towler, A. Dugger, A. Gaydos, and G. Wiener, 2023: Development of a Roadway Flood Severity Index. *Permanent International Association of Road Congresses (PIARC) XXVII World Road Congress*.
5. Kadav, P. (doctoral candidate mentee), N. A. Goberville, K. Prins, A. Siems-Anderson, **C. L. Walker**, F. Motallebiaraghi, K. Carow, J. F. Rojas, G. Y. Hong, and Z. Asher, 2023: Road Snow Coverage Estimation Using Camera and Weather Infrastructure Sensor Inputs. *SAE International Technical Paper 2023-01-0057*, doi: 10.4271/2023-01-0057.
6. Goberville, N. A. (doctoral candidate mentee), K. R. Prins, P. Kadav, **C. L. Walker**, A. R. Siems Anderson, and Z. D. Asher, 2023: Snow Coverage Estimation Using Camera Data for Automated Driving Applications. *Transportation Research Interdisciplinary Perspectives*, **18**, doi: 10.1016/j.trip.2023.100766.
7. Chang, J. (high school student mentee), and **C. L. Walker** (corresponding author), 2022: Correlating Machine Learning Classification of Traffic Camera Images with Snow-Related Vehicular Crashes in New York State. *Prevention and Treatment of Natural Disasters*, **1 (2)**, doi: 10.54963/ptnd.v1i2.65.
8. Winters, A.C., and **C. L. Walker**, 2022: A Jet-Centered Framework for Investigating High Plains Winter Storm Severity. *Journal of Applied Meteorology and Climatology*, **61 (6)**, 709–728, doi: 10.1175/JAMC-D-21-0211.1.
9. Morales, A., **C. L. Walker**, D. L. Carroll-Smith, and M. A. Burt, 2021: Code-switching and assimilation in STEM culture. *American Geophysical Union, Eos*, **102**, doi: 10.1029/2021EO161232.
10. **Walker, C. L.**, B. Boyce, C. Albrecht, and A. Siems-Anderson, 2020: Will Weather Dampen Self-Driving Vehicles? *Bulletin of the American Meteorological Society*, **101(11)**, E1914-E1923, doi: 10.1175/BAMS-D-19-0035.1.
11. Siems-Anderson, A. R., **C. L. Walker** (corresponding author), G. Wiener, W. P. Mahoney III, and S. E. Haupt, 2019: An Adaptive Big Data Weather System for Surface Transportation. *Transportation Research Interdisciplinary Perspectives*, **3**, doi: 10.1016/j.trip.2019.100071.

Research Publications (peer-reviewed, cont.):

12. **Walker, C. L.**, D. Steinkruger, P. Gholizadeh, S. Hasanzadeh, M. R. Anderson, and B. Esmaili, 2019: Developing a Department of Transportation Winter Severity Index. *Journal of Applied Meteorology and Climatology*, **58** (8), 1779–1798, doi: 10.1175/JAMC-D-18-0240.1.
13. Gholizadeh, P., **C. L. Walker**, M. R. Anderson, and B. Esmaili, 2019: Application of Unsupervised Machine Learning to Increase Safety and Mobility on Roadways after Snowstorms. *2019 ASCE International Conference on Computing in Civil Engineering*, doi: 10.1061/9780784482445.045.
14. Dao, B., S. Hasanzadeh, **C. L. Walker** (corresponding author), D. Steinkruger, B. Esmaili, and M. R. Anderson, 2019: Current practices of winter maintenance operations and perceptions of winter weather conditions. *Cold Regions Engineering*, **33** (3), doi: 10.1061/(ASCE)CR.1943-5495.0000191.
15. **Walker, C. L.**, S. Hasanzadeh, B. Esmaili, M. R. Anderson, and B. Dao, 2019: Developing A Winter Severity Index: A Critical Review. *Cold Regions Science and Technology*, **160**, 139–149, doi: 10.1016/j.coldregions.2019.02.005.
16. **Walker, C. L.**, and M. R. Anderson, 2016: Cloud impacts on pavement temperature and shortwave radiation. *Journal of Applied Meteorology and Climatology*, **55**, 2329–2347, doi: 10.1175/JAMC-D-16-0094.1.
17. Creighton, T. T., **C. L. Walker**, and M. R. Anderson, 2014: Coverage of Black versus White Males in Local Television News Lead Stories. *Journal of Mass Communication and Journalism*, **4**, doi: 10.4172/2165-7912.1000216.
18. **Walker, C. L.**, E. Potter, N. Esposito, and M. Godek, 2012: An Assessment of the Relationship between Air Mass Frequency and Extreme Drought in the Midwest United States. *The Compass: Earth Science Journal of Sigma Gamma Epsilon*, **84**, Available at: <http://digitalcommons.csbsju.edu/compass/vol84/iss2/5>.

Research Publications (in review):

19. **Walker, C. L.**, F. Lacey, T. Juliano, R. Kumar S. Cohn, 2023: Modeling Road Construction Air Quality Impacts. *Atmosphere*, under revision.
20. DeGirolamo, G., and **C. L. Walker** (corresponding author), 2023: Meteorological Conditions and Behavioral Spatial Cognition: A Critical Review for Decision-Making Amid Environmental Risk. *International Journal of Disaster Risk Reduction*, under revision.
21. **Walker, C. L.**, A. Siems-Anderson, E. Towler, A. Dugger, A. Gaydos, and G. Wiener, 2023: Development of a Roadway Flood Severity Index. *Transportation Research Interdisciplinary Perspectives*, revisions submitted.

Research Publications (in prep):

22. **Walker, C. L.**, and A. W. Black, 2023: United States Railroad Network Exposure to Weather and Climate Impacts. *Climate Risk Management*, submission anticipated January 2024.
23. **Walker, C. L.**, and A. W. Black, 2023: Geographic Information Systems for Decision Support and Driver Awareness of Road Weather Hazards. *Journal of Transport Geography*, in prep.
24. Petzke, W., T. Brummet, **C. L. Walker** (corresponding author), S. Linden, G. Wiener, P. McCarthy, and A. Siems-Anderson, 2023: Using Machine Learning for Inclement Weather Travel Time Prediction in the Colorado Rockies. *Journal of Big Data Analytics in Transportation*, in prep.
25. **Walker, C. L.**, S. E. Haupt, T. McCandless, and A. Siems-Anderson, 2023: Machine Learning to Predict Vehicular Crash Severity from Weather Conditions. *Artificial Intelligence for the Earth Systems*, in prep.
26. **Walker, C. L.**, and L. M. Walker-Hannon, 2023: Natural Language Processing to Predict National Weather Service Products from Winter-Related Transportation Incidents. *Computers and Geosciences*, in prep.

Non-Refereed Publications:

27. Villwock-Witte, N., **C. L. Walker**, L. Fay, S. Landolt, G. Wiener, and K. Clouser, 2021: Weather-Severity Indices – Key Issues and Potential Paths Forward. Aurora Program Report No. Aurora Project 2020-03. Available online at <https://aurora-program.org/research/in-progress/ongoing-issues-with-winter-weather-severity-indices/>.
28. Anderson, M. R., A. J. Khattak, M. U. Farooq, J. Cecava, and **C. L. Walker**, 2020: Investigation of Weather Conditions and Their Relationship to Crashes. Nebraska Department of Transportation Report No. SPR-21 (20) M097. Available online at <https://dot.nebraska.gov/media/114448/investigation-of-weather.pdf>.
29. Anderson, M. R., **C. L. Walker**, N. Barnhardt, N. Rick, and C. Wunderlin, 2020: Correlation Analysis of MDSS and NEWINS. Nebraska Department of Transportation Report No. M081. Available online at https://dot.nebraska.gov/media/113479/final_report-spr_p1-19-m081.pdf.
30. **Walker, C. L.**, M. R. Anderson, and B. Esmaeili, 2018: Development of the Nebraska Department of Transportation Winter Severity Index. Nebraska Department of Transportation Report No. M054. Available online at <https://dot.nebraska.gov/media/12698/final-report-m054.pdf>.

Research Presentations (given):

1. *Artificial Intelligence and Roadway Friction Modeling*, (2024), Curtis Walker, Thomas Brummet, Seth Linden, and Laura Fay, Transportation Research Board 103rd Annual Meeting, Washington, D.C. [oral]
2. *Weather, Automated Vehicles, and Society*, (2023), Curtis Walker, 2023 American Meteorological Society Washington Forum, Washington, D.C. [panelist]
3. *A Jet-Centered Framework for Examining Synoptic Environments Conducive to High Plains Winter Weather Events*, (2023), Curtis Walker, Andrew Winters, 2023 Annual Meeting of the American Association of Geographers, Denver, Colorado [oral]
4. *Addressing Barriers to Minoritized Scholars' Advancement and Success in Physical Geography Fields*, (2023), Curtis Walker, 2023 Annual Meeting of the American Association of Geographers, Denver, Colorado [panelist]
5. *Scenario-based COMET Training for Careers in the Weather, Water and Climate Industry*, (2023), Curtis Walker, Elizabeth Page, Andrea Smith, Stephen Bennett, Adam Hirsch, and Sue Ellen Haupt, American Meteorological Society 103rd Annual Meeting, 32nd Conference on Education, Denver, Colorado [oral]
6. *Energy Efficient Autonomous Vehicle Operation During Various Weather Conditions*, (2023), Curtis Walker, Amanda Siems-Anderson, Zachary Asher, Parth Kadav, Farhang Motallebiaraghi, Nicholas Brown, and Johan Rojas, American Meteorological Society 103rd Annual Meeting, 39th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Denver, Colorado [oral]
7. *Development of a Roadway Flood Severity Index*, (2023), Curtis Walker, Amanda Siems-Anderson, Erin Towler, Aubrey Dugger, Andrew Gaydos, Gerry Wiener, Kyle Titlow, and Ed Strocko, American Meteorological Society 103rd Annual Meeting, 37th Conference on Hydrology, Denver, Colorado [oral]
8. *Development of a Roadway Flood Severity Index*, (2022), Curtis Walker, Amanda Siems-Anderson, Erin Towler, Aubrey Dugger, Andrew Gaydos, Gerry Wiener, Kyle Titlow, and Ed Strocko, American Meteorological Society 102nd Annual Meeting, 38th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Houston, Texas [oral/virtual due to COVID19]
9. *Quantifying Traffic Mobility Impacts During Adverse Weather Using Big Data*, (2021), Curtis Walker, Matt Barkley. 17th Annual Colorado Transportation Symposium, Denver, Colorado [oral]
10. *Will Weather Dampen Self-Driving Vehicles?*, (2021), Curtis Walker, Brenda Boyce, Christopher Albrecht, and Amanda Siems-Anderson, American Meteorological Society 101st Annual Meeting, 37th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), New Orleans, Louisiana, [oral/virtual due to COVID19]
11. *Machine Learning to Predict Vehicular Crash Severity from Weather Conditions*, (2020), Curtis Walker, Sue Ellen Haupt, Tyler McCandless, and Amanda Siems-Anderson, Annual Meeting of the American Association of Geographers, Denver, Colorado, [oral/virtual due to COVID19]

Research Presentations (cont.):

12. *Machine Learning to Predict Vehicular Crash Severity from Weather Conditions*, (2020), Curtis Walker, Sue Ellen Haupt, Tyler McCandless, and Amanda Siems-Anderson, American Meteorological Society 100th Annual Meeting, 36th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Boston, Massachusetts, [oral]
13. *Development of a Department of Transportation Winter Severity Index*, (2019), Curtis Walker, Dylan Steinkruger, Mark Anderson, Sue Ellen Haupt, Amanda Siems-Anderson, Pouya Gholizadeh, Sogand Hasanzadeh, Behzad Esmaeili, and Bac Dao, American Meteorological Society 99th Annual Meeting, 35th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Phoenix, Arizona, [oral]
14. *Development of the Nebraska Department of Transportation Winter Severity Index*, (2018), Curtis Walker, 20th Annual High Plains Conference, American Meteorological Society, National Weather Association, Hastings, Nebraska, [oral]
15. *Developing a Winter Severity Index to Improve Safety and Mobility*, (2018), Curtis Walker, Dylan Steinkruger, Pouya Gholizadeh, Bac Dao, Sogand Hasanzadeh, Mark Anderson, and Behzad Esmaeili, American Meteorological Society 98th Annual Meeting, 34th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Austin, Texas, [oral]
16. *Measuring Winter Maintenance Operations Performance*, (2017), Bac Dao, Curtis Walker, Sogand Hasanzadeh, Dylan Steinkruger, Behzad Esmaeili and Mark R. Anderson, Mid-Content Transportation Research Symposium, Ames, Iowa, [poster]
17. *Developing a Winter Severity Index to Improve Safety and Mobility*, (2017), Curtis Walker, Bac Dao, Sogand Hasanzadeh, Mark Anderson, and Behzad Esmaeili, American Meteorological Society 97th Annual Meeting, 33rd Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Seattle, Washington, [oral]
18. *Cloud Impacts on Road Pavement Temperature and Mobile Vehicle Observations*, (2016), Curtis Walker and Mark Anderson, American Meteorological Society 96th Annual Meeting, 32nd Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), New Orleans, Louisiana, [oral]
19. *Cloud Impacts on Road Pavement Temperature and Surface Radiation*, (2015), Curtis Walker and Mark R. Anderson Intelligent Transportation Society 22nd World Congress, Bordeaux, France, [oral]
20. *Cloud Impacts on Pavement Temperature in Energy Balance Models*, (2015), Curtis Walker, Mark R. Anderson, Jun Wang, and Clinton Rowe, American Meteorological Society 95th Annual Meeting, 31st Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Phoenix, Arizona, [oral]

Research Presentations (cont.):

21. *Cloud Impacts on Pavement Temperature in Energy Balance Models*, (2014), Curtis Walker, Mark R. Anderson, Jun Wang, and Clinton Rowe, Intelligent Transportation Society 21st World Congress, Detroit, Michigan, [oral]
22. *Cloud Impacts on Pavement Temperature in Energy Balance Models*, (2014), Curtis Walker, Mark R. Anderson, Jun Wang, and Clinton Rowe, American Meteorological Society 94th Annual Meeting, 30th Conference on Environmental Information Processing Technologies (EIPT – formerly IIPS), Atlanta, Georgia, [oral]
23. *The Impact of Cloud Type on Surface Radiation and Road Pavement Temperature*, (2013), Curtis Walker, Amanda Anderson, Michael Chapman, and Sheldon Drobot, American Meteorological Society 93rd Annual Meeting, 29th Conference on Environmental Information Processing Technologies (formerly IIPS), Austin, Texas, [oral]
24. *The Impact of Cloud Type on Surface Radiation and Road Pavement Temperature*, (2012), Curtis Walker, Amanda Anderson, Michael Chapman, and Sheldon Drobot, American Geophysical Union Annual Meeting, San Francisco, California, [poster]
25. *An Analysis of the Sensitivity of Pavement Temperature to the Makeup of the Road*, (2012), Curtis Walker, Michael Chapman, and Sheldon Drobot, Annual Meeting of the Association of American Geographers, New York, New York, [oral]
26. *An Analysis of the Sensitivity of Pavement Temperature to the Makeup of the Road*, (2012), Curtis Walker, Michael Chapman, and Sheldon Drobot, American Meteorological Society 11th Annual Student Conference, New Orleans, Louisiana, [poster]
27. *The Relationship Between Air Mass Frequency and Extreme Drought in the Midwest United States from 2000-2010*, (2011), Curtis Walker, Erin Potter, Nicholas Esposito and Melissa Godek, American Geophysical Union Annual Meeting, San Francisco, California, [poster]
28. *Intelligent Transportation Systems to Mitigate Impacts of Adverse Weather Conditions*, (2011), Curtis Walker and Michael Chapman, Intelligent Transportation Society 18th World Congress, Orlando, Florida, [poster]
29. *Image Processing Algorithms to Remove Aerosols from Solar Coronal Images*, (2010), Curtis Walker, Scott Sewell, and Steve Tomczyk, Center for Multi-Scale Modeling of Atmospheric Processes, Colorado State University, Fort Collins, Colorado, [poster]

Invited Presentations:

1. *Nebraska DOT Weather Decision Support: Winter Severity and Weather Outlook*, (2022), Nebraska Department of Transportation 2022 Annual Operations and Maintenance Conference, Kearney, Nebraska, [oral]
2. *Climate Resilient Roads Now and in the Future*, (2022), Permanent International Association of Road Congresses (PIARC) XVI World Winter Service and Road Resilience Congress, Calgary, Canada, [panelist/virtual due to COVID19]
3. *Meteorology and the Transportation Industry*, (2022), Jackson State University, Spring 2022, MET 209 – Introduction to Professional Meteorology, Jackson, Mississippi, [oral/virtual due to COVID19, guest lecture]
4. *Winter Weather, Crashes, and Winter Severity*, (2021), Nebraska Department of Transportation 2021 Annual Operations and Maintenance Conference, Kearney, Nebraska, [oral]
5. *Assessment of Climate Change Impacts and Adaptation for Inland Transport: Perspectives from Surface Transportation Meteorology Decision Support and Emerging Technologies*, (2021), United Nations Economic and Social Council, Economic Commission for Europe, Inland Transport Committee, Geneva, Switzerland, [oral/virtual due to COVID19]
6. *Surface Transportation Meteorology: Emerging Technologies and Challenges*, (2021), InterMET.digital Seminar Series, [oral/virtual due to COVID19]
7. *Surface Transportation Meteorology: Weather Decision Support*, (2020), Department of Atmospheric and Oceanic Sciences Seminar Series, University of Wisconsin – Madison, Madison, Wisconsin, [oral/virtual due to COVID19]
8. *Surface Transportation Meteorology: Weather Decision Support*, (2020), Department of Atmospheric and Oceanic Sciences, Joint Earth Seminar Series, University of Colorado Boulder, Boulder, Colorado, [oral]
9. *Surface Transportation Meteorology Department of Transportation Weather Decision Support*, (2019), Denver Boulder Chapter of the American Meteorological Society, Boulder, Colorado, [oral]
10. *Surface Transportation Meteorology: Weather Decision Support*, (2019), University of Northern Colorado, Greeley, Colorado, [oral]
11. *Nebraska Winter Weather Decision Support*, (2018), Nebraska Department of Transportation 2018 Annual Operations and Maintenance Conference, Kearney, Nebraska, [oral]

Invited Presentations (cont.):

13. *Developing the Nebraska Department of Transportation Winter Severity Index (NEWINS) to Improve Safety and Mobility*, (2018), Department of Atmospheric and Environmental Sciences / Atmospheric Science Research Center Joint Colloquium Series, State University of New York, University at Albany, Albany, New York, [oral]
14. *Winter Weather Severity Index*, (2017), Nebraska Department of Transportation 2017 Annual Operations and Maintenance Conference, Kearney, Nebraska, [oral]
15. *Road Weather Impact-Based Decision Support Applications*, (2017), The Doane University Kappa Chapter of the Kappa Alpha Omicron National Environmental Science and Studies Honor Society 3rd Annual Induction Ceremony, Crete, Nebraska, [oral]
16. *Road Weather and Transportation Hazards*, (2016), Significant Opportunities in Atmospheric Research and Science (SOARS) Program 20th Anniversary Research Symposium, Boulder, Colorado, [poster]
17. *Anticipating Meteorology in 2040: A Student Perspective*, (2015), American Meteorological Society 95th Annual Meeting, Keynote Presidential Forum, Phoenix, Arizona, [oral]
<https://ams.confex.com/ams/95Annual/webprogram/Session38326.html>
18. *Road Weather and Transportation Hazards*, (2012), National Center for Atmospheric Research Science Day at the National Science Foundation, Washington, D.C., [poster]

Proposals (funded):

Project/Proposal Title: Global Centers Track 1: CLEETS – Clean Energy and Equitable Transportation Solutions

Source of Support: National Science Foundation, Global Centers Program
 Total Award Amount: \$10,000,000
 Period of Performance: 2023–2028
 Personnel: A. Sharma (PI), **C. L. Walker (NCAR PI)**
 Status: Funded, Contracting

Project/Proposal Title: Assessment of Winter Maintenance Performance Objectives Using Maintenance Decision Support System

Source of Support: Nebraska Department of Transportation
 Total Award Amount: \$258,000
 Period of Performance: 2023–2025
 Personnel: M. R. Anderson (PI), **C. L. Walker (Co-PI)**, A. Khattak (Co-PI)
 Status: Funded, In Progress

Project/Proposal Title: EAGER: Scenario-based COMET Training for Careers in the Weather, Water, and Climate Industry

Source of Support: National Science Foundation, Early-concept Grants for Exploratory Research (EAGER) Program
 Total Award Amount: \$281,037
 Period of Performance: 2022–2024
 Personnel: E. Page (PI), **C. L. Walker (Co-PI)**, A. Smith (Co-PI)
 Status: Funded, In Progress

Project/Proposal Title: Development of the Nebraska Department of Transportation Winter Severity Index – Phase II

Source of Support: Nebraska Department of Transportation
 Total Award Amount: \$183,603
 Period of Performance: 2022-2024
 Personnel: M. R. Anderson (PI), **C. L. Walker (Co-PI / NCAR PI)**
 Status: Funded, Complete

Project/Proposal Title: Modeling the Impact of Construction Activities on Air Quality

Source of Support: Colorado Department of Public Health and Environment
 Total Award Amount: \$24,987
 Period of Performance: 2022
 Personnel: **C. L. Walker (PI)**, R. Kumar (Co-PI)
 Status: Funded, Complete

Proposals (funded, cont.):

Project/Proposal Title: Development and Validation of Infrastructure-Enabled High-Quality Perception Data to Achieve Energy Efficient Autonomous Vehicle Operation through Computation Reductions and Offloading

Source of Support: Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE) Vehicle Technologies Office (VTO) FY21 Research Opportunity

Total Award Amount: \$149,953 sub-award; \$1,999,994 total award

Period of Performance: 2021–2024

Personnel: Z. Asher (PI), **C. L. Walker (Co-PI / NCAR PI)**, and A. Siems-Anderson (Co-PI)

Status: Funded, In Progress

Project/Proposal Title: Roadway Flood Severity Index, Phase I

Source of Support: United States Department of Transportation/Bureau of Transportation Statistics Emergency Planning Transportation Data Initiative

Total Award Amount: \$175,000

Period of Performance: 2021–2022

Personnel: **C. L. Walker (PI)**, A. Siems-Anderson (Co-PI), A. Dugger (Co-PI), A. Gaydos (Co-PI), G. Wiener (Co-PI)

Status: Funded, Complete

Project/Proposal Title: Roadway Friction Modeling

Source of Support: Iowa State University Institute for Transportation Aurora Program & Iowa Department of Transportation

Total Award Amount: \$166,008

Period of Performance: 2020–2022

Personnel: L. Fay (PI), G. Wiener (Co-PI), **C. L. Walker (Co-PI)**

Status: Funded, Complete

Project/Proposal Title: Developing 21st Century Approaches for Land Cover Change Data Visualization and Dissemination

Source of Support: United States Geological Survey

Total Award Amount: \$219,342

Period of Performance: 2020–2021

Personnel: J. Boehnert (PI), A. Dumont (Co-PI), K. Sampson (Co-PI), **C. L. Walker (Co-PI)**, O. Wilhelmi (Co-PI)

Status: Funded, Complete

Project/Proposal Title: Ongoing Issues with Winter Severity Indices

Source of Support: Iowa State University Institute for Transportation Aurora Program & Iowa Department of Transportation

Total Award Amount: \$40,016

Period of Performance: 2020–2021

Personnel: L. Fay (PI), G. Wiener (Co-PI), **C. L. Walker (Co-PI)**, S. Landolt (Co-I)

Status: Funded, Complete

Proposals (pending):

Project/Proposal Title: Linking Skin Allergy Outcomes to Traffic-Related Air Pollution in the Denver Metro Area

Source of Support: Health Effects Institute

Total Award Amount: \$1,124,818

Period of Performance: 2023–2026

Personnel: F. Lacey (PI), J. Crooks (Co-PI), **C. L. Walker (Co-I)**, T. Juliano (Co-I), E. Goleva (Co-I), E. Berdyshev (Co-I), D. Leung (Co-I), R. Kumar (Co-I)

Status: In Review

Fellowships:

- 2018: National Center for Atmospheric Research Advanced Study Program Postdoctoral Fellowship
 2013: National Science Foundation Graduate Research Fellowship (\$136,000)
 2012: American Meteorological Society Graduate Fellowship (\$28,000)

Awards:

- 2016: Nick Wiltgen Memorial Scholarship Award
 2015: 3rd Place Outstanding Oral Award, AMS 95th Annual Meeting
 2012: Philo C. Wilson Outstanding Senior Award
 2012: State University of New York Chancellor's Award for Student Excellence
 2012: 2nd Place Undergraduate Poster, AMS 11th Annual Student Conference
 2011: AGU Namias Travel Grant
 2011: 2nd Place Student Essay Contest, Intelligent Transportation Society of America
 2010: Robert F. Caputo '84 Scholarship
 2009: Philo C. Wilson Book Award
 2008: Presidential Scholarship Award

Professional Organizations:

- Association of American Geographers (AAG)
- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- American Society of Civil Engineers (ASCE)
- Intelligent Transportation Society of America (ITSA)

Journal / Proposal Reviewer:

- 2023–2024: Reviewer, Artificial Intelligence Review
 Reviewer, Bulletin of the American Meteorological Society
 Reviewer, Climate
 Reviewer, Atmospheric Research
 Reviewer, Transportation Research Record: Journal of the Transportation Research Board (TRR Journal)
- 2021–2024: National Cooperative Highway Research Program Panel (NCHRP), Transportation Research Board
- 2022: Reviewer, IEEE Internet Computing
- 2019–2021: Proposal Review Panels, National Science Foundation
- 2021: Reviewer, Sensors Journal
- 2020: Reviewer, International Journal of Pavement Engineering
 Reviewer, Journal of Climate Services
 Reviewer, American Association for the Advancement of Science Journal: Science Advances
- 2019: Reviewer, Transportation Research Record: Journal of the Transportation Research Board (TRR Journal)

Mentoring Experience:

- 2022–2024: University of Nebraska-Lincoln; Department of Earth and Atmospheric Sciences, Master’s Thesis Committee Member: Thomas Kauzlarich
- 2020–present: Western Michigan University; Doctoral Candidates Co-Mentored: Nick Goberville (2020–2022), Parth Kadav (2021–present)
- 2021–2023: Significant Opportunities in Atmospheric Research and Science (SOARS) Program, University Corporation for Atmospheric Research; Boulder, Colorado; Students Mentored: Ayman Elyoussoufi (2021, 2022, 2023)
- 2020–2022: University in the High School (UHS) Science Research Program, State University of New York (SUNY) University at Albany; Albany, New York; Students Mentored: Joshua Chang (Irvington High School, 2020–2022)

Professional Service:

- 2023–present: American Meteorological Society Equity Assessment Task Force
- 2023–present: American Meteorological Society Committee on Effective Communication of Weather, Water, and Climate Information (CECWCI)
- 2023–present: American Meteorological Society Committee on Mind the Gap
- 2023–present: Transportation Research Board AME 70 – Standing Committee on Transportation and Public Health
- 2023–present: Transportation Research Board AKR 50 – Standing Committee on Road Weather
- 2023–present: Transportation Research Board AED 40 – Standing Committee on Geographic Information Science, Diversity, Equity, and Inclusion Lead
- 2022–present: Research Applications Laboratory Diversity, Equity, and Inclusion Strategic Plan Development Committee, National Center for Atmospheric Research
- 2021–present: Colorado 119 Diagonal Highway Safety, Mobility, and Bikeway Community Advisory Committee, Boulder County, Boulder, Colorado
- 2021–present: Research Applications Laboratory Communications Committee, National Center for Atmospheric Research
- 2021–present: Intelligent Transportation Society of America, Sustainability and Resilience Committee
- 2021–present: Intelligent Transportation Society of America, Automated Vehicles Committee
- 2019–present: American Society of Civil Engineers, Cold Regions Engineering Division, Transportation and Infrastructure Committee
- 2018–present: Advisory Board, Southern Plains Transportation Center, University of Oklahoma
- 2012–present: American Meteorological Society Intelligent Transportation Systems/Surface Transportation (ITS/ST) Committee
- 2012–present: American Meteorological Society Intelligent Transportation Systems/Surface Transportation (ITS/ST) Mobile Observations Subcommittee
- 2020: Work From Home Task Force, Pandemic Response, University Corporation for Atmospheric Research
- 2019: Strategic Plan Steering Committee, Directorate and Executive Committee, National Center for Atmospheric Research
- 2018–2020: Professional Development Committee, Advanced Study Program, Fellows Association, National Center for Atmospheric Research
- 2018: Director Search Committee, Early Career Scientist Assembly, National Center for Atmospheric Research

University Service:

- 2016–2018: University of Nebraska-Lincoln Representative, City of Lincoln Internal Liquor Committee; Lincoln, Nebraska
- 2016–2017: Advisor, Graduate Student Assembly, University of Nebraska-Lincoln
- 2016–2017: Instructor, Department of Earth and Atmospheric Sciences; University of Nebraska-Lincoln
- 2016: Executive Vice Chancellor for Academic Affairs / Provost Search Committee, University of Nebraska-Lincoln
- 2014–2016: Senator, Association of Students of the University of Nebraska, University of Nebraska-Lincoln
- 2014–2016: President, Graduate Student Assembly, University of Nebraska-Lincoln
- 2014–2016: Academic Planning Committee, University of Nebraska-Lincoln
- 2014–2016: Graduate Council, University of Nebraska-Lincoln
- 2013–2014: Social Committee Chair, Graduate Student Association, University of Nebraska-Lincoln
- 2011–2012: Earth Science Student Advisory Council, SUNY College at Oneonta

Specialized Training:

- 2020: The Community WRF-Hydro Modeling System Virtual Training, University Corporation for Atmospheric Research, Boulder, Colorado
- 2020: Artificial Intelligence for Earth System Science (AI4ESS) Summer School, University Corporation for Atmospheric Research, Boulder, Colorado
- 2019: Media Training for Scientists, University Corporation for Atmospheric Research, Boulder, Colorado
- 2018: Weather Research and Forecasting (WRF) Model Tutorial, National Center for Atmospheric Research, Boulder, Colorado
- 2018: Grant Development National Science Foundation & Department of Defense Workshop, Grant Training Center, University Corporation for Atmospheric Research, Boulder, Colorado
- 2018: Write Winning Grant Proposals, Grant Writers' Seminars and Workshops, University of Nebraska-Lincoln, Lincoln, Nebraska
- 2017: Nebraska Integrated Warning Team (IWT) Workshop, University of Nebraska-Lincoln, Lincoln, Nebraska
- 2016: Nebraska Integrated Weather Team (IWT) Workshop, Buffalo County Extension, Kearney, Nebraska
- 2015: Expert Witness Training Academy (EWTA), Mitchell Hamline School of Law; St. Paul, Minnesota

Research Interests:

Road Weather / Surface Transportation Meteorology
 Weather Impacts and Risk Communication / Mitigation
 Mesoscale and Convective Societal / Transportation Hazards
 Climate Risk Assessment
 Intelligent Transportation / Connected and Autonomous Vehicle Systems
 Boundary Layer Meteorology
 Land Surface-Atmosphere Interactions
 Remote Sensing of Surface Energy Balance

Courses Taught:

General Meteorology (MET 205; UNCO)
 General Oceanography (OCN 200; UNCO)
 Introduction to Meteorology (GEO 107; Doane)
 Introduction to Meteorology Laboratory (GEO 107L; Doane)
 Physical Geography (GEG 112; Doane)
 Our Violent Atmosphere (MET 110; UNCO)
 Weather and Climate (METR 100; UNL)

Teaching Load:

2024: 4 semester hours
 2021: 7 semester hours
 2020: 4 semester hours
 2019: 3 semester hours
 2016-2018: 14 semester hours per year

Technical Skills:

ArcGIS 10.X	Microsoft Office
Adobe Creative Cloud Suite	NCAR Command Language (NCL)
Banner (Student Database / Advising)	NLOGIT
Interactive Data Language (IDL)	Python
Linux Environment / UNIX commands	Statistical Analysis Software (SAS)
Machine Learning Algorithms	R Statistical Programming Language
MATLAB	