

CURRICULUM VITAE

OLGA WILHELMI, PH.D.

Project Scientist, Research Applications Laboratory
National Center for Atmospheric Research
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EDUCATION

Ph.D. Natural Resource Science	University of Nebraska-Lincoln, 1999 Chair: Dr. Donald Wilhite
M.S. Agricultural Meteorology	University of Nebraska-Lincoln, 1996 Chair: Dr. Timothy Arkebauer
B.S. (Diplom) Geography	Lomonosov Moscow State University, 1993 Thesis Advisor: Dr. Elena Milanova

RESEARCH INTERESTS

Human-environment interactions, Weather hazards, Climate change, Geographic Information Systems, Environmental health, Societal vulnerability, Adaptive capacity, Risk and resilience, Stakeholder engagement, Usable science.

PROFESSIONAL EXPERINECE

2013-present	Project Scientist III, Research Applications Laboratory, NCAR
2001-present	Head, Geographic Information Science Program, NCAR
2008-present	Associate Faculty, Environmental Studies Program, Univ. of Colorado-Boulder
2017	Deputy Director, Climate Science and Applications Program, RAL/NCAR
2009-2013	Project Scientist II, Research Applications Laboratory, NCAR
2006-2009	Project Scientist II, Institute for the Study of Society and Environment, NCAR
2002-2006	Project Scientist I, Environmental and Societal Impacts Group, NCAR
2001-2002	Visiting Scientist, Environmental and Societal Impacts Group, NCAR
2002-2003	Adjunct Assistant Professor, MEng-GIS Program, College of Engineering and Applied Sciences, University of Colorado at Denver
1999-2001	Postdoctoral Fellow, Advanced Study Program, NCAR
1993-1999	Research Assistant, School of Natural Resource Sciences, University of Nebraska
1991-1993	Research Assistant, Department of Geography of the World and Geoecology, Lomonosov Moscow State University, Moscow, Russia

PUBLICATIONS

In Review - Refereed Publications

2019 Sailor, D., A. Baniassadi, C.R. O'Lenick, **O.V. Wilhelmi**, Growing Threat of Heat Disasters, *Environmental Research Letters* (in review).

de Sherbinin, A., A. Bukvic, G. Rohat, M. Gall, B. McCusker, B. Preston, A. Apotsos, C. Fish, S. Kienberger, P. Muhonda, **O. Wilhelmi**, D. Macharia, W. Shubert, R. Sliuzas, B. Tomaszewski, S. Zhang, Climate Change Vulnerability Mapping: A Systematic Review and Future Prospects, *WIREs Climate Change* (in review).

Refereed Publications

2019 O’Lenick, C.R., **O.V. Wilhelmi**, R. Michael, M.H. Hayden, A. Baniassadi, C. Wiedinmyer, A. Monaghan, P.J. Crank, D.J. Sailor, 2019. Urban heat and air pollution: a framework for integrating population vulnerability and indoor exposure in health risk analyses, *Science of the Total Environment*.

Heaton, M.J., C.R. O’Lenick and **O.V. Wilhelmi**, 2019. Age-specific Distributed Lag Models for Heat-related Mortality, 2019. *Environmetrics* (in press).

Hu, L., **Wilhelmi, O.V.** and Uejio, C., 2019. Assessment of heat exposure in cities: Combining the dynamics of temperature and population. *Science of the Total Environment*, 655, pp.1-12.

Dilling, L., M. Daly, D. Kenney, R. Klein, K. Miller, A. Ray, W. Travis, and **O. Wilhelmi**, 2019. Drought in urban water systems: Learning lessons for climate adaptive capacity, *Climate Risk Management*, (in press).

2018 Michael, R., C. O’Lenick, A. Monaghan, **O. Wilhelmi**, C. Wiedinmyer, M. Hayden, M. Estes, 2018. Application of geostatistical approaches to predict the spatiotemporal distribution of ozone in Houston, Texas, *Journal of Exposure Science and Environmental Epidemiology*, p. 1.

Demuth, J.L. R. E. Morss, L.Palen, K.M. Anderson, J. Anderson, M. Kogan, K.Stowe, M. Bica, H. Lazrus, **O. Wilhelmi**, J. Henderson, 2018. “sometimes da #beachlife ain't always da wave”: Understanding People’s Evolving Hurricane Risk Assessments and Responses Through a Qualitative Analysis of Twitter Narratives, *Weather, Climate, and Society*.

Dilling, L., Morss, R. and **Wilhelmi, O.**, 2018. Learning to Expect Surprise: Hurricanes Harvey, Irma, Maria, and Beyond. *Journal of Extreme Events*, p.1771001.

Mortensen, J.W., Heaton, M.J. and **Wilhelmi, O.V.**, 2018. Urban heat risk mapping using multiple point patterns in Houston, Texas. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, 67(1), pp.83-102.

Marsha, A., Sain, S.R., Heaton, M.J., Monaghan, A.J. and **Wilhelmi, O.V.**, 2018. Influences of climatic and population changes on heat-related mortality in Houston, Texas, USA. *Climatic Change*, 146(3-4), pp.471-485.

2017 Morss, R.E., Demuth, J.L., Lazrus, H., Palen, L., Barton, C.M., Davis, C.A., Snyder, C.,

- Wilhelmi, O.V.**, Anderson, K.M., Ahijevych, D.A. and Anderson, J., 2017. Hazardous weather prediction and communication in the modern information environment. *Bulletin of the American Meteorological Society*, December 2017.
- Hayden, M.H., **Wilhelmi, O.V.**, Banerjee, D., Greasby, T., Cavanaugh, J.L., Nepal, V., Boehnert, J., Sain, S., Burghardt, C. and Gower, S., 2017. Adaptive Capacity to Extreme Heat: Results from a Household Survey in Houston, Texas. *Weather, Climate, and Society*, 9(4), pp.787-799.
- 2016 Romero-Lankao, P., Gnatz, D.M., **Wilhelmi, O.** and Hayden, M., 2016. Urban Sustainability and Resilience: From Theory to Practice. *Sustainability*, 8(12), p.1224.
- Boehnert, J., J. G. Dobson, and **O. Wilhelmi**, 2016. Teaching the integration of geography and atmospheric sciences, *Eos*, 97, doi:10.1029/2016EO046011.
- Wilhelmi, O.**, J. Boehnert, and K. Sampson, 2016. Visualizing the climate's future, *Eos*, 97, doi:10.1029/2016EO042207.
- Monaghan, A.J., Morin, C.W., Steinhoff, D.F., **Wilhelmi, O.**, Hayden, M., Quattrochi, D.A., Reiskind, M., Lloyd, A.L., Smith, K., Schmidt, C.A. and Scalf, P.E., 2016. On the seasonal occurrence and abundance of the Zika virus vector mosquito *Aedes aegypti* in the contiguous United States. *PLoS currents* 8.
- Conlon, K., Monaghan, A., Hayden, M. and **Wilhelmi, O.**, 2016. Potential Impacts of Future Warming and Land Use Changes on Intra-Urban Heat Exposure in Houston, Texas. *PLoS one*, 11(2), p.e0148890.
- Anderson, J., M. Kogan, M. Bica, L. Palen, K. Anderson, R. Morss, J. Demuth, H. Lazrus, **O. Wilhelmi**, and J. Henderson, 2016. Far Far Away in Far Rockaway: Responses to Risks and Impacts during Hurricane Sandy through First-Person Social Media Narratives. Full Research Paper, *13th International Conference on Information Systems for Crisis Response and Management*, Rio de Janeiro, Brazil May 22-25, 2016.
- 2015 Dilling, L., Daly, M.E., Travis, W.R., **Wilhelmi, O.V.** and Klein, R.A., 2015. The dynamics of vulnerability: why adapting to climate variability will not always prepare us for climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 6(4), pp.413-425.
- Oleson, K.W., Monaghan, A., **Wilhelmi, O.**, Barlage, M., Brunsell, N., Feddema, J., Hu, L. and Steinhoff, D.F., 2015. Interactions between urbanization, heat stress, and climate change. *Climatic Change*, 129(3-4), pp.525-541.
- Heaton, M.J., Sain, S.R., Monaghan, A.J., **Wilhelmi, O.V.** and Hayden, M.H., 2015. An analysis of an incomplete marked point pattern of heat-related 911 calls. *Journal of the American Statistical Association*, 110(509), pp.123-135.
- 2014 Hu, L., Brunsell, N. A., Monaghan, A. J., Barlage, M., and **Wilhelmi, O.V.**, 2014. How can we use MODIS land surface temperature to validate long-term urban model simulations? *Journal of Geophysical Research: Atmospheres*, 119(6), 3185–3201.

- Monaghan, A.J., Hu, L. N.A. Brunsell, M.P. Barlage, and **O.V. Wilhelmi**, 2014. 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
- Heaton, M.J., Sain, S.R., Greasby, T.A., Ueijo, C.K., Hayden, M.H., Monaghan, A.J., Boehnert, J., Sampson, K., Banerjee, D., Nepal, V., and **Wilhelmi, O.V.**, 2014. Characterizing urban vulnerability to heat stress using a spatially varying coefficient model, *Spatial and Spatial-Temporal Epidemiology*, 8, 23-33.
- 2013 Thomas, D.S.K., **O. V. Wilhelmi**, T. Fennessey, and V. Deheza, 2013. A comprehensive framework for tourism and recreation drought vulnerability reduction, *Environmental Research Letters*, 8, 044004.
- 2012 **Wilhelmi, O. V.** and R. E. Morss. 2012. Integrated analysis of societal vulnerability in an extreme precipitation event: A Fort Collins case study. *Environmental Science & Policy*, doi: 10.1016/j.envsci.2012.07.005.
- 2011 Morss, R.E., **Wilhelmi, O.**, Meehl, G., and Dilling, L., 2011. Improving societal outcomes of extreme weather in a changing climate: An integrated perspective, *Annual Review of Environment and Resources*, Vol. 36 DOI: 10.1146/annurev-environ-060809-100145
- Ueijo, C.K., **Wilhelmi, O.V.**, Golden, J.S., Mills, D.M., Gulino, S.P., and Samenow, J.P. 2011. Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment, socioeconomics, and neighborhood stability. *Health & Place*, 17(2): 498–507.
- Hayden M.H., H. Brenkert-Smith and **O. Wilhelmi**. 2011. Differential adaptive capacity to extreme heat: A Phoenix, AZ. case study. *Weather, Climate and Society*, 3(4): 269-280.
- 2010 **Wilhelmi O.V.** and Hayden M.H. 2010. Connecting people and place: a new framework for reducing urban vulnerability to extreme heat. *Environmental Research Letters*, 5 014021. doi: 10.1088/1748-9326/5/1/014021
- 2008 Groot, N.E., J. van de Vegte, W.-J. Som de Cerff, G. H. J. van den Oord, R. Sluiter, I. A. van der Neut, M. Plieger, R.M. van Hees, R.A.M. de Jeu, M.E. Schaepman, M.R. Hoogerwerf, B. Domenico, S. Nativi, and **O.V. Wilhelmi**, 2008. Atmospheric Data Access for the Geospatial User Community (ADAGUC), *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*. Vol. XXXVII. Part B7: 41-44.
- Wilhelmi, O.V.**, M.J. Hayes, D.S.K. Thomas. 2008. Managing drought in mountain resort communities: Colorado's experiences. *Disaster Prevention and Management* 15(5):672-680.
- 2005 Downton, M., R.E. Morss, **O.V. Wilhelmi**, E. Grunfest, and M. Higgins. 2005. Flood-related decisions and scientific uncertainty: Estimates of extreme precipitation in the Colorado Front Range. *Environmental Hazards*, Vol. 6, pp. 134-146.

- Morss, R.E., **O. V. Wilhelmi**, M. W. Downton, and E. Gruntfest, 2005. Flood risk, uncertainty, and scientific information for decision-making: Lessons from an interdisciplinary project. *Bulletin of American Meteorological Society*, Vol. 86, No. 11, pp. 1593–1601.
- Wilhelmi, O. V.** and T. L. Betancourt 2005. Evolution of NCAR GIS Initiative: Demonstration of GIS Interoperability. *Bulletin of American Meteorological Society*, 86(2): 176-178.
- 2004 **Wilhelmi, O.V.**, K.L. Purvis, and R.C. Harriss. 2004. Designing a geospatial information infrastructure for the mitigation of heat wave hazards in urban areas. *Natural Hazards Review*, 5(3): 147-158.
- Hayes, M. J., **O.V. Wilhelmi**, and C.L. Knutson. 2004. Reducing drought risk: Bridging theory and practice. *Natural Hazards Review*, 5(2):106-113.
- 2003 **Wilhelmi, O.V.** and J.C. Brunskill. 2003. GIS in Weather, Climate and Impacts. *Bulletin of American Meteorological Society*, 84(10): 1409-1414.
- Lamarque, J.-F., D. P. Edwards, L. K. Emmons, J. C. Gille, **O. Wilhelmi**, C. Gerbig, D. Prevedel, M. N. Deeter, J. Warner, D. C. Ziskin, B. Khattatov, G. L. Francis, V. Yudin, S. Ho, D. Mao and J. Chen, J. R. Drummond. 2003. Identification of CO plumes from MOPITT data: Application to the August 2000 Idaho-Montana forest fires. *Geophysical Research Letters*, 30(13):1688, doi: 10.1029/2003GL017503.
- 2002 **Wilhelmi, O.V.**, K.G. Hubbard, and D.A. Wilhite. 2002. Spatial representation of agroclimatology in a study of agricultural drought. *International Journal of Climatology*. 22(11):1399-1414.
- Wilhelmi, O.V.** and D.A. Wilhite. 2002. Assessing vulnerability to agricultural drought: a Nebraska case study. *Natural Hazards*, 25(1):37-58.
- 1999 Hayes, M.J., M.D. Svoboda, D.A. Wilhite, and **O. Vanyarkho (Wilhelmi)**. 1999. Monitoring the 1996 Drought Using the Standardized Precipitation Index. *Bulletin of the American Meteorological Society*, 80: 429-438.

Books and book chapters

- 2018 Coffel, E.D., de Sherbinin, A., Horton, R.M., Lane, K., Kienberger, S. and **Wilhelmi, O.**, 2018. The Science of Adaptation to Extreme Heat. In *Resilience* (pp. 89-103).
- Romero-Lankao, P., **O. Wilhelmi** and M. Chester, 2018. Living in cities in a changing world: Dynamics of urban risk and vulnerability to climatic hazards. Chapter in *Urban Planet: Knowledge Towards Livable Cities* (Elmqvist et al. Eds), Cambridge University Press.
- 2016 **Wilhelmi, O.** and M. Hayden, 2016. Reducing Vulnerability to Extreme Heat through

- Interdisciplinary Research and Stakeholder Engagement. In: *Extreme Weather, Health, and Communities. Interdisciplinary Engagement Strategies* (S. Steinberg and W. Sprigg, Eds.): 165-186. Springer Press.
- 2015 Jedd, T., A. Seidl, and **O. Wilhelmi**, 2015. Chapter 9- Outdoor Recreation and Tourism Sector. In *Colorado Climate Change Vulnerability Study*, edited by Eric Gordon and Dennis Ojima. University of Colorado, Boulder, CO and Colorado State University, Fort Collins, CO.
- Armstrong, L., K. Butler, J. Settelmaier, T. Vance and **O. Wilhelmi**, 2015. “Mapping and Modeling Weather/Climate with GIS.” Esri Press, Redlands, California.
- Wilhelmi, O.**, K. Sampson, and J. Boehnert, 2015: Exploring Future Climates in a GIS, In: *Mapping and Modeling Weather/Climate with GIS* (Armstrong et al. Eds.), Esri Press, Redlands, California.
- Boehnert, J. and **O. Wilhelmi**, 2015: Meteorological data in a geodatabase, In: *Mapping and Modeling Weather/Climate with GIS* (Armstrong et al. Eds.), Esri Press, Redlands, California.
- Boehnert, J., A. Monaghan, and **O. Wilhelmi**, 2015: The Shape of Earth: Spatial Referencing in Weather and Climate Models, In: *Mapping and Modeling Weather/Climate with GIS* (Armstrong et al. Eds.), Esri Press, Redlands, California.
- 2012 **Wilhelmi, O.**, de Sherbinin, A., and M. Hayden, 2012. Exposure to heat stress in urban environments: Current status and future prospects in a changing climate. Chapter 12 in *Ecologies and Politics of Health*, B. King and K. Crews, Eds., Routledge Press.
- 2006 Thomas, D., **Wilhelmi O.** and M. Hayes. 2006. *Disaster Reduction, Drought, and the Resort Community*. Chapter 14 In: T. Clark, A. Gill and R. Hartmann (Eds.), *Mountain Resort Planning and Development in an Era of Globalization*. Cognizant Communication Corporation, NY, USA.
- Barlow, M., H. Cullen, B. Lyon, and **O. Wilhelmi**. 2006. *Drought disaster in Asia*, Chapter 1 in Arnold, M., R. S. Chen, U. Deichmann, M. Dilley, A. L. Lerner-Lam, R. E. Pullen, and Z. Trohanis. *Natural Disaster Hotspots Case Studies*. Washington, D.C.: World Bank Publications.
- 2000 Wilhite D.A., and **O. Vanyarkho (Wilhelmi)**. 2000. Drought: Pervasive Impacts of a Creeping Phenomenon (Chapter 18). In: D.A. Wilhite (ed.), *Drought: A Global Assessment*, Natural Hazards and Disasters Series. Routledge Publishers, UK.

Non-Referred Publications

- 2018 **Wilhelmi, O.**, J. Declat-Barreto, and K. Johnson, 2018. *Mapping Extreme Heat Vulnerability in Support of the District of Columbia’s Climate Adaptation Plan*. (Policy brief; available online: <https://thrivingearthexchange.org/wp-content/uploads/2016/03/TEX-DC-Policy-Brief-2018-01-31.pdf>)

- Wilhelmi, O.** and M. Hayden. 2018. *Extreme Heat and Health and Houston* (Policy brief; prepared for stakeholder meeting at the Houston Mayor's Office on February 20, 2018).
- 2014 **Wilhelmi, O.**, A. Monaghan, M. Hayden, S. Sain, J. Feddema, K. Oleson, M. Barlage and N. Brunsell, 2014. System for Integrated Modeling of Metropolitan Extreme heat Risk (SIMMER), Final Report to NASA.
- Thomas, D. and **O. Wilhelmi**. "Drought Assessment for Recreation & Tourism: Phase II Colorado Statewide Report" August, 2014.
- 2013 Hart, H., Gower S., **Wilhelmi, O.** and Yagouti A. 2013. Integrated Models For Heat-Health Decision Making: Linking Complex Science to Policy for Heat-Health Decision Making. SIMMER Workshop Report, Toronto (Canada), 40 pp. online at: <http://ral.ucar.edu/csap/events/heat-health-decision-making/>
- 2012 Thomas, D.S.K., and **O.V. Wilhelmi**, 2012, *Drought Assessment for Recreation & Tourism: Southwestern Colorado*, Report to Colorado Water Conservation Board. July 2012
- Wilhelmi, O.**, A. J. Monaghan, M. H. Hayden, S. Sain, J. J. Feddema, M. Barlage, K. Oleson, N. Brunsell. System for Integrated Modeling of Metropolitan Extreme Heat Risk (SIMMER), Progress Report, May 2011-April 2012. University Corporation for Atmospheric Research, NASA Award #NNX10AK79G.
- Wilhelmi, O.** 2012. Evaluating influence of water rights on drought vulnerability in Colorado: Spatio-temporal analysis of water use in a variable climate. Progress Report: February 2011-January 2012, NOAA COOP grant NA06OAR4310119
- Wilhelmi, O.** 2012. NCAR contribution to the NIDIS Upper Colorado River Basin (UCRB) Pilot project within Assessment of Gaps in Drought Monitoring: Analysis of the UCRB water demand: characteristics, spatial patterns and assessment of potential vulnerabilities, Progress Report: February 2011-January 2012, NOAA COOP grant NA06OAR4310119
- 2011 Morss, R.E. and **Wilhelmi, O.V.** 2011, Extreme Weather and Society: An Integrated Perspective, *Weather and Society Watch*, 5(3), April 2011. A Publication of NCAR's Societal Impacts Program (SIP). On-line: <http://www.sip.ucar.edu/news/>
- Wilhelmi, O.**, K. Sampson, and J. Boehnert. 2011 Spatial and temporal distribution of water demand: knowledge gaps. Contribution to Chapter: *Gaps in Our Understanding of Drought Past, Present, and Future*. NIDIS UCRB Monitoring Gaps Report.
- Wilhelmi, O.**, K. Sampson, and J. Boehnert. 2011 Spatial analysis of water demand and its linkages to sources of supply. Contribution to Chapter: *Analyses Needed for Better Identification of Gaps in Drought Monitoring*, NIDIS UCRB Monitoring Gaps Report.
- Wilhelmi, O.** 2011. System for Integrated Modeling of Metropolitan Extreme Heat Risk (SIMMER). Progress Report for NASA Award #NNX10AK79G; period of performance August 2010 - April 2011.

- 2010 **Wilhelmi, O.** and H. Brenkert-Smith, 2010, Disaster Risk Assessment in Current and Future Climates, Understanding Risk: Innovation in Disaster Risk Assessment, *Proceedings from the 2010 UR Forum*, The World Bank, pp 10-13.
- 2009 Romero Lankao, P., **O. Wilhelmi**, M. Borbor Cordova, S. Sain, R. Nawrotzky, K. Sampson, E. Behrentz, D. Parra, A. León, P. Matus, P. Aldunce, K. Caneo, L. Dawidowski, R. Abrutsky. 2009. Adaptation to the Health Impacts of Air Pollution and Climate Extremes in Latin American Cities. Second year project report, prepared for: Inter-American Institute for Global Change Research.
- 2007 Wilhite, D.A., D. M. Diodato, K. Jacobs, R. Palmer, B. Raucher, K. Redmond, D. Sada, K. Helm Smith, J. Warwick, **O. Wilhelmi**. 2007. "Managing Drought: A Roadmap for Change in the United States". On-line at <http://geosociety.org/meetings/06drought/roadmap.pdf>
- 2006 **Wilhelmi, O.** 2006. Report from the 2nd NCAR Workshop on *GIS in Weather, Climate and Impacts*, NCAR, Boulder, CO. On-line at: <http://www.gis.ucar.edu/05workshop/pdf/summary.pdf>
- 2005 **Wilhelmi, O.V.**, D.S.K. Thomas, and M. J. Hayes. 2005. Colorado resort communities and the 2002-2003 drought: Impacts and lessons learned. Quick Response Research Report 174. Boulder, CO: Natural Hazards Research and Applications Information Center, University of Colorado. On-line at: <http://www.colorado.edu/hazards/qr/qr174/qr174.html>
- 2003 Barlow, M., H. Cullen, B. Lyon, and **O. Wilhelmi**, 2003. Toward calculation of global drought hazard: a pilot study for Asia. Report for the World Bank - Columbia University project: Identification of Natural Disaster Risk Hotspots.
- 2003 Betancourt, T. L. and **O. Wilhelmi**. 2003. Final report on GIS Demonstration Project. Report to NSF. October 1, 2003. On-line: <http://www.gis.ucar.edu/FinalReport.pdf>

Theses

- 1999 **Wilhelmi, O.V.** 1999. Methodology for Assessing Vulnerability to Agricultural Drought: A Nebraska Case Study. Ph.D. Dissertation. University of Nebraska, Lincoln, Nebraska. Advisor: Dr. Donald Wilhite
- 1996 **Vanyarkho (Wilhelmi), O.V.** 1996. Changes in Vegetative Characteristics and Gas Exchange Properties of *Phragmites australis* and *Scirpus acutus* in a Mid-Latitude Prairie Wetland ecosystem. M.S. Thesis. University of Nebraska-Lincoln. Advisor: Dr. Timothy Arkebauer
- 1993 **Vanyarkho (Wilhelmi), O.V.** 1993. Present status of landscapes and the process of desertification in the region of Egypt and Sudan. Diplom Thesis. Lomonosov Moscow State University, Russia. Advisor: Dr. Elena Milanova.

RECOGNITION & HONORS

- 2017 UCAR Outstanding Accomplishment Award for Diversity.
- 2017 UCAR Outstanding Accomplishment Award for Publication (Monaghan et al. 2016, On the seasonal occurrence and abundance of the Zika virus vector mosquito *Aedes aegypti* in the contiguous United States. *PLoS currents*).
- 2016 Invited participant, Meeting of the *Committee on Advancing Social and Behavioral Science Research and Application within the Weather Enterprise*, National Academies of Sciences, Engineering, and Medicine, Boulder, CO.
- 2015 UCAR Outstanding Accomplishment Award for Education and Outreach.
- 2014 Invited Participant, *Developing Sustainable Networks of Women Scientists for Addressing Issues of Disasters Related to Weather and Changing Climate*, Montego Bay, Jamaica.
- 2013 Member of NCAR Strategic Planning Council
- 2011 Invited participant, Workshop on Urban Meteorology, *Board on Atmospheric Sciences and Climate*, National Academies of Sciences, Engineering, and Medicine, Woods Hole, Massachusetts.
- 2005 Selected participant, NCAR/UCAR Leadership Academy
- 2005 Special Achievement in GIS Award. ESRI International User Conference
- 2001 Selected participant, American Meteorological Society Summer Policy Colloquium
- 1999-2001 Advanced Study Program Post-Doctoral Fellowship, NCAR, Boulder, CO
- 1997 Student Travel Award, Summer Colloquium on: A Systems Approach to ENSO. NCAR, Boulder, CO.
- 1994 Student Travel Award, NASA-NOAA Summer school for Earth sciences. Processes of Global Change. CALTECH, Pasadena, CA.
- 1991 Student Travel Award, International Congress of Scientists and Engineers “Challenges”, Science and Peace in a Rapidly Changing Environment, Berlin, Germany.

RESEARCH SUPPORT

External

- 2018-2021 Belmont Forum: “Building Capacity for Integrated Governance at the Food-Water-Nexus in Cities on the Water”, co-PI (J. Wendel, European Institute for Energy Research PI), Total award amount: \$2.2M, NCAR award amount from National Science Foundation: \$490,283
- 2018-2019 ESRI: “Consultancy Agreement with Esri”, PI, Award amount: \$49,999
- 2017-2018 ESRI: “Consultancy Agreement with Esri”, PI, Award amount: \$50,000

- 2015-2019 Western Water Assessment: “NCAR Contribution to Research on the Dynamics of Vulnerability”, NCAR PI, Award amount: \$40,000
- 2015-2019 Environmental Protection Agency / Indoor Air and Climate Change: “Determinants of Indoor and Outdoor Exposure to Ozone and Extreme Heat in a Warming Climate and Health Risks for and Aging Population”, co-PI (D. Sailor, ASU - PI), Award amount: \$999,635
- 2015-2018 NOAA: “Drought Prediction and Risk Analysis: NCAR Drought Center Contribution”, co-PI (M. Hayes, U. Nebraska-Lincoln – PI); NCAR award amount: \$86,311
- 2014 USDA: “Agriculture in a Changing Climate: Enhancing diversity in research, education, and decision-making across scales”, Co-PI (L. Buja, NCAR – PI), Award amount: \$10,000.
- 2013-2019 National Science Foundation Hazards SEES Type 2: Hazard Prediction and Communication Dynamics in the Modern Information Environment, National Science Foundation, co-PI (R. Morss, NCAR – PI), Award amount: \$3,067,993
- 2013-2014 Colorado Water Conservation Board: “Drought Assessment for Recreation & Tourism: Phase 2”, co-PI (D. Thomas, U. Colorado-Denver - PI), Award amount: \$12,432.
- 2012-2013 National Science Foundation Inter-American Institute for Global Change: “Joint IAI-NCAR Colloquium: Knowledge Innovation at the Science-Policy Interface”, Co-PI (PI: Lawrence Buja, NCAR), Award amount: \$250,000.
- 2011-2013 NOAA: “Evaluating Influence of Water Rights on Drought Vulnerability in Colorado: Spatio-Temporal Analysis of Water Use in a Variable Climate”, PI. Award Amount: \$95,037.
- 2011-2012 Colorado Water Conservation Board / University of Colorado at Denver: “Drought Assessment for Recreation and Tourism (DART): Southwestern Colorado. Co-PI (D. Thomas, U. Colorado-Denver – PI). Award amount: \$15, 881.
- 2010-2013 NASA ROSES-2009 Interdisciplinary Research in Earth Science: “System for Integrated Modeling of Metropolitan Extreme Heat Risk (SIMMER)” PI. Award amount: \$1,490,036.
- 2010-2013 NASA/Kiksapa Consulting: “Preparing Indian Country for Climate Change through Technology, Education and Research”, NCAR co-PI (PI: Bull Bennett). Award amount: \$58,152.
- 2010-2012 NOAA SARP: “Evaluating adaptive policies for urban water resource management: Interactions between short-term drought responses and long-term climate change adaptation strategies” co-PI (L. Dilling, U. Colorado - PI). Award Amount: \$37,313.

- 2010 Colorado Department of Natural Resources/AMEC: “Drought Vulnerability Assessment; Drought Mitigation and Response Plan Revision”, collaborator (Graeme Aggett, AMEC - PI). Award amount: \$7,630.
- 2010 National Science Foundation Inter-American Institute for Global Change: “Joint IAI-NCAR Colloquium. Knowledge Integration at the Science-Policy Interface”, co-PI (Peter Backlund, NCAR - PI). Award amount: \$105,000.
- 2009-2010 NOAA NIDIS: “Analysis of the UCRB water demand: characteristics, spatial patterns and assessment of potential vulnerabilities”, PI. Award amount: \$110,130.
- 2007-2009 National Science Foundation Inter-American Institute for Global Change: “Adaptation to the health impacts of air pollution and climate extremes in Latin American cities (ADAPTE)” co-PI (Alejandro Leon, U. Chile - PI), Award amount: \$160,000.
- 2008-2009 Norwegian Research Council: “The Potentials of and Limits to Adaptation in Norway”, Collaborator (K. O’Brien, U. Oslo – PI). Total award amount: \$4.3 M, NCAR award amount: \$43,654.
- 2006-2008 RGI (Space for Geo-Information, the Netherlands): “Atmospheric Data Access for the Geospatial User Community”, Collaborator (J. van de Vegte, KNMI – PI). Total award amount: \$944,000.
- 2003 Quick Response grant, Natural Hazards Center in cooperation with the NSF: “Assessing the Impacts of ‘The Worst Drought in the History of Colorado’ on the Ski Industry” PI. Award amount: \$2,700.
- 2002-2003 National Science Foundation: “Exploration and Demonstration of GIS Interoperability Technologies for the International H₂O Project”, co-PI (T. Betancourt, NCAR - PI). Award amount: \$219,138.

Internal RAL/NCAR

- 2018-2019 NCAR Research Applications Laboratory Opportunity fund: Wide Interoperability Nexus for Data Organized Workflows (WINDOW), co-PI (J. Boehnert, PI), Award amount: \$50,000.
- 2018 NCAR Directorate Education and Outreach Fund: “NCAR GIS Program BRIGHT E Workshop Series 2018: Envisioning Risk of Hurricane Storm Surge and Sea Level Rise, PI. Award amount: \$40,000.
- 2017 Research Applications Laboratory Diversity Fund: “NCAR GIS Program BRIGHT E Workshop Series 2017. Integrating GIS and atmospheric sciences”, PI. Award amount: \$10,000.

- 2017 NCAR Directorate Diversity Fund: “NCAR GIS Program BRIGHTTE Workshop Series 2017. Integrating GIS and atmospheric sciences”, PI. Award amount: \$21,000.
- 2016-2018 NCAR Weather and Climate Assessment Program: “Exploring Uncertainty in Vulnerability and its Usability in Decision-Making”, PI. Award amount: \$150,054
- 2015-2016 NCAR Directorate Diversity Fund: “NCAR GIS Program BRIGHTTE Workshop Series 2016. Incorporating weather and climate into GIS curricula”, PI. Award amount: \$45,998.
- 2015 United States Department of Agriculture: “Climate Change, Global Food Security, and the U.S. Food System”. Co-PI (L. Buja, NCAR – PI). Award amount: \$50,000.
- 2015 Research Applications Laboratory Diversity Fund: “NCAR GIS Program BRIGHTTE Workshop Series 2015. Incorporating GIS into the Atmospheric Science Curriculum, PI. Award amount: \$33,000.
- 2014-2015 NCAR’s Weather and Climate Impact Assessment Science Program: “Integration of Urban Modeling with GIS and Decision-Making”, PI. Award amount: \$90,494.
- 2012 NCAR NSF Diversity Funding: Workshop on “Enhancing diversity in climate change science and applications: from models to adaptation”, PI. Award amount: \$60,000.
- 2009-2013 NCAR Weather and Climate Impacts Assessment Program: “Urban modeling, land use and future heat waves”, co-PI (J. Feddema, U. Kansas - PI). Award amount: \$141,322.
- 2003-present NCAR: “NCAR GIS Program”, PI. *Annual* award amount: ~\$300,000.
- 2001-2002 NCAR Strategic Initiative Fund: “NCAR GIS Strategic Initiative”, PI. Award amount: \$20,000

EDUCATION & OUTREACH

Educational affiliations

- 2008-present Research Associate, Environmental Studies Program, University of Colorado, Boulder
- 2002 Adjunct Assistant Professor. “Introduction to Geographic Information Systems.” MEng-GIS Program, College of Engineering and Applied Sciences, University of Colorado at Denver.

Teaching

- 2018 Creating Usable Science: Theory and Practice (Fall 2018, ENVS 5100-004) Environmental Studies Program at University of Colorado-Boulder (co-teaching with L. Dilling and R. Morss).

Mentoring and Advising Postdoctoral Researchers

2011-present Cassandra O'Lenick, Kevin Ash, Jennifer Henderson, Ryan Michael, Theresa Jedd, Leiqiu Hu, Katie Conlon, Matthew Heaton, Tamara Greasby

Mentoring and Advising Students

2018-present Gina Li, "Forecasting Heat-Related Death Risk in Virginia Climate Divisions" (MS Thesis Committee Member; Advisor: Colleen Reid, University of Colorado-Boulder)

2018-present Guillaume Rohat, "Integration of socioeconomic scenarios and adaptation options/pathways in assessments of future urban vulnerability to heat stress" (One-year research fellowship at NCAR; PhD Program at University of Geneva / University of Twente)

2016-2017 Martina Cavoli, "Healthcare and Disaster Management: a Geographical Approach", PhD Program, Sant'Anna School of Advanced Studies in Pisa, Italy (Advisor: Guido Cervone, Penn State University)

2014-2015 Anthony Michelon, "Measuring the effects of drought and associated risks on Colorado's Recreational activities through Park's visitation", MS Program in Hydro Hazards, University of Grenoble, France (Advisor: Isabelle Ruin, CRNS, France)

2014-2015 Galatea Terti, "Forecasting of flash flood impacts: Integrating the space-time distribution of social vulnerability", PhD program at the University of Grenoble, France (Advisors: Isabelle Ruin, CNRS, France and Jonathan Gourley, NOAA, Norman, Oklahoma)

2013-2014 Ursula Lauper, "Risk Factors for Heat-Related Health Symptoms among Older Adults in Houston", MPH Practicum for Colorado School of Public Health (preceptor)

2014 Annie Davis, Neighborhood vulnerability to extreme heat in Denver, CO, Science research seminar at Boulder High School.

Guest Lectures

2017 Population vulnerability to weather extremes and climate change, *Climate Change and Health*, Geography Department, University of Colorado-Boulder

2017 Geographic Information Systems. *Bridge to the Geosciences program*. NCAR, Boulder, CO June 23.

2017 Geographic Information Systems and Policy, *Quantitative Methods for Policy Analysis*, Environmental Studies program, University of Colorado-Boulder.

- 2015 Extreme Heat and Human Health: Reducing Future Impacts, *Disasters, Climate Change and Health*, Department of Geography & Environmental Sciences, University of Colorado-Denver (with Mary Hayden)
- 2014 Extreme Heat and Population Vulnerability in a Changing Climate: Knowledge Integration and Science-Policy Interface, *Disasters, Climate Change and Health*, Department of Geography & Environmental Sciences, University of Colorado-Denver (with Mary Hayden)
- 2013-2014 Climate Change, Impacts and Vulnerability: integrating Physical and Social Sciences. *NASA Summer Research Experience for Tribal College Undergraduates and Faculty*, Haskell Indian Nations University, Lawrence, KS
- 2013 Population vulnerability in a changing climate: Urban heat and human health, *Disasters, Climate Change and Health*, Department of Geography & Environmental Sciences, University of Colorado-Denver (with Mary Hayden)
- 2013 Urban Heat, Societal Vulnerability and Human Health, *Cities and the Environment*, Environmental Studies Program, University of Colorado-Boulder
- 2012 Weather, Climate and Health, *Disasters, Climate Change and Health*, Department of Geography & Environmental Sciences, University of Colorado-Denver (with Mary Hayden)
- 2011-2012 Introduction to climate change: from models to adaptation (part I). Assessing Vulnerability (part II). *NASA Summer Research Experience for Tribal College Undergraduates and Faculty*, Haskell College, Lawrence, KS.
- 2011-2012 Urban Heat and Societal Vulnerability in a Changing Climate. Research Experience for Teachers Institute (RETI), NCAR, Boulder CO
- 2010-2011 Risk and vulnerability assessments: Knowledge integration from physical and social sciences, *Disasters, Climate Change and Health*, Department of Geography & Environmental Sciences, University of Colorado-Denver (with Mary Hayden)
- 2008 GIS in Weather, Climate and Impacts. University of Wyoming, Laramie, WY
- 2007 Geospatial Technologies in Hazards Research and Management, *Geographic Information Systems (GIS)*, University of Oslo, Norway
- 2001 Anthropogenic Climate Change, *Global Physical Climatology*, Program in Atmospheric & Ocean Sciences, University of Colorado, Boulder.

Other Educational Activities

- 2016-2019 American Meteorological Society annual meeting student presentations judge
- 2012-2018 Lecturer at the GIS Program BRIGHTTE workshop series, Boulder CO

- 2017 Presenter at the American Meteorological Society Student Conference, Seattle, WA
- 2016 Presenter about Climate Change in 5th grade at Blue Mountain Elementary School, Longmont, CO (with C. Ammann)
- 2011-2014 Instructor at NASA Summer Research Experience for Tribal College Undergraduates and Faculty, Haskell Indian Nations University, Lawrence, KS (with M. Hayden and J. Boehnert)
- 2012-2013 Lecturer/Instructor. IAI/NCAR Colloquium, Knowledge Integration at Science – Policy Interface (Santo Domingo, Dominican Republic and Quito, Ecuador)
- 2012 Panel member at NCAR Undergraduate Leadership Workshop, Boulder, CO
- 2011-2012 Mentor to Research Experience for Teachers Institute (RETI) interns, NCAR
- 2010 Lecturer/Instructor. IAI/NCAR Colloquium, Knowledge Integration at Science – Policy Interface, San Jose, Costa Rica
- 2009 Science Mentor, Significant Opportunities in Atmospheric Research and Science (SOARS) Program, Boulder, CO (with I. Ruin)
- 2007 Participant in Access Data Workshop “Global Climate Change and International Polar Year” and co-author of TERC's Earth Exploration Toolbook chapter on Decision making using GIS climate change simulation data (with L. Buja, D. Smith, C. Cranganu, and J. Boehnert)
- 2005-2007 Lecturer/Instructor. WAS*IS, Boulder, CO.
- 2005-2006 Science Mentor, Significant Opportunities in Atmospheric Research and Science (SOARS) Program, Boulder, CO (with Rebecca Morss)
- 2001 Science Mentor, Significant Opportunities in Atmospheric Research and Science (SOARS) Program, Boulder, CO (with Bob Harris)

SCIENCE LEADRESHIP & SERVICE

Program Development and Management

- 2001-present Head/Program Manager, NCAR GIS Program
- 2017 Deputy Director, Climate Science and Applications Program, NCAR

Workshops, Conferences, and Colloquia Organization

- 2019 Convener, Session, “The Food – Water – Energy Nexus in an Urban Context”, the American Association of Geographers (AAG) Annual Meeting, April 2019

- 2018 Stakeholder workshop, “Extreme Heat and Ozone in Houston: Reducing Future Health Risks of Older Houstonians”, September 6, 2018, Houston, Texas
- 2018 Envisioning Risk of Hurricane Storm Surge and Sea Level Rise (BRIGHT Workshop series), July 31-August 2, 2018, Boulder, Colorado
- 2017 Convener/Chair, Session on GIS in Weather and Climate, the American Association of Geographers (AAG) Annual Meeting, April 2017
- 2016 NCAR Diversity Program Workshop, Incorporating weather and climate into GIS curricula, Boulder, USA
- 2016 USDA-NCAR Workshop, Climate Change, Global Food Security, and the US Food System Boulder, USA
- 2016 Stakeholder workshop, “Extreme Heat and Ozone in Houston: Assessing Health Risks of Older Houstonians”, February 10, 2016 Houston, Texas
- 2015 NCAR RAL Diversity Incorporating GIS into the atmospheric science curriculum, Boulder, USA
- 2014 USDA workshop on “Agriculture in a Changing Climate across Scales: Broadening Participation in Research and Decision-Making”, August 25-28 2014, NCAR, Boulder, CO
- 2013 Stakeholder Workshop: Integrated Models For Heat-Health Decision Making Linking Complex Science to Policy for Heat-Health Decision Making, October 24-25, Toronto, Canada
- 2013 Stakeholder workshop: Heat and Health in Houston, August 29, 2013
- 2012-2013 IAI-NCAR Colloquia “Knowledge Integration at the Science-Policy Interface” Santo Domingo, Dominican Republic (CO2012) and Quito, Ecuador (CO2013)
- 2012 NCAR Workshop “Enhancing diversity in climate change science and applications: from models to adaptation” Boulder, CO
- 2010-2013 “System for Integrated Modeling of Metropolitan Extreme heat Risk (SIMMER)” science team annual workshops, Boulder, CO
- 2010 IAI-NCAR Colloquium “Knowledge Innovation at the Science-Policy Interface”, San José, Costa Rica
- 2010 Session “Innovation in Disaster Risk Assessment in Current and Future Climates” at Understanding Risk Conference, World Bank, Washington DC
- 2009-2011 American Geophysical Union Fall Meeting, Session “GIScience”, San Francisco, CA
- 2006-2007 *Geological Society of America Conference: “Managing Drought in the 21st Century: Research, Policy, and Practice”*, Longmont, Colorado
- 2002, 2005 NCAR Community Workshops “GIS in Weather, Climate and Impacts”, Boulder, CO

- 2003-2008 European Geophysical Union Session “GIS in Meteorology and Climatology”, Nice, France and Vienna, Austria
- 2004-2008 Atmospheric Data Modeling Workshops (in conjunction with the AMS annual meetings)

Service: External

- 2017-present Board Member, American Meteorological Society Board on Societal Impacts
- 2018 Invited participant, NSF *Coastline and People* scoping session.
- 2016-2018 Chair of American Meteorological Society Annual Meeting Symposium on Societal Applications (with Kathy Sherman Morris)
- 2016-2018 Editor, *Weather, Climate and Society*
- 2015-2018 Science Partner, Washington DC Government’s Challenge on Mitigating Extreme Heat in the District of Columbia, American Geophysical Union Thriving Earth Exchange / ICLEI – Local Governments for Sustainability (with J. Declat-Barreto).
- 2015-2016 Guest Editor, *Sustainability*
- 2014-2015 Member of NC CSC Adaptation Working Group
- 2013 Expert reviewer for IPCC AR5 WG II Chapter 11 “Human Health”
- 2011-2014 Member of NASA Socioeconomic Data and Applications Center (SEDAC) User Working Group (UWG)
- 2012-2014 Member of External Advisory Committee for NSF EPSCoR Track 2 Research Infrastructure Improvement program, “Cyberinfrastructure to Advance High Performance Water Resource Modeling” lead by Brigham Young University
- 2012 Member of program committee for “Conference on Intelligent Data Understanding”, NCAR
- 2011 Invited participant of the National Climate Assessment Societal Indicators Workshop, Washington DC.
- 2004-2006 NCAR representative/member in COST 719, European Science Foundation Initiative on GIS in Meteorology and Climatology
- 2003-present Reviewer (*various years*): Applied Geography; Bulletin of American Meteorological Society; Climate Risk Management; Computers, Environment and Urban Systems; Current Opinion in Environmental Sustainability; Development and Sustainability; Environment; Environmental Health Perspectives; Environmental Research; Environmental Research Letters; International Journal of Biometeorology;

International Journal of Climatology; International Journal of Geographic Information Science; International Journal of Wildland Fire; Journal of Applied Meteorology and Climatology; Journal of Environmental Management; Journal of Selected Topics in Earth Observations and Remote Sensing; Meteorological Applications; Natural Hazards; Natural Hazards Review; Population and Environment; Science of the Total Environment; Transactions in GIS; Urban Climate.

2004-present Reviewer (*various years*): National Science Foundation (NSF), National Institutes of Health (NIH), National Oceanic and Atmospheric Administration (NOAA); National Aeronautics and Space Administration (NASA), Inter-American Institute for Global Change Research (IAI); U.K. Medical Research Council.

Service: Internal RAL/NCAR/UCAR

2018-present NCAR Human Subjects Committee

2018-present NCAR Innovator Program Core Committee

2007-present NCAR Library Advisory Board

2017-2018 UCAR Diversity and Inclusion Strategic Planning Committee

2015-2016 NCAR Data Stewardship Engineering Team (DSET)

2012-2013 NCAR Strategic Planning Council

2012-2017 Research Application Laboratory Visitor Committee

2008-09 NCAR Workforce Management Plan Subcommittee on Staff and Visitor Balance

2008 NCAR ISSE Strategic Plan Committee

2008 ISSE Awards Committee

2007-2008 ISSE Visitor Committee

2006 SERE Associate Director Evaluation Committee

2006–2007 NCAR ISSE Scientist II/III Search Committee

2005-2006 NCAR Data Center Project Committee

2003-2005 NCAR Institute for the Study of Society and Environment Student Internship Program coordinator

2001-2003 NCAR GIS Seminar series coordinator

2000-2003 Environmental and Societal Impacts Group Coffee Talks seminar series, coordinator

SELECTED PRESENTATIONS (last 12 years)

* denotes invited presentation

2019 Exploring Uncertainty in Vulnerability and its Usability in Decision-Making, *American Meteorological Society Annual Meeting* (with P. Romero Lankao and I. Puchardo), Phoenix, AZ, January 7, 2019.

2018 Extreme Heat and Ozone in Houston: Assessing and Reducing Health Risks, *AGU Fall Meeting*, (with D. Sailor, C. O'Lenick, R. Michael, M. Hayden, A. Baniassadi, A. Monaghan, C. Wiedinmyer, P. Crank), Washington DC December 11, 2018

Vulnerability to Extreme Heat and Ozone: Results from Houston Household Survey, *Heat and Ozone in Metropolitan Environments: Assessing Indoor Risks (HOME AIR)* Stakeholder workshop, Houston, TX, September 6, 2018.

Urban Vulnerability to Extreme Heat in a Changing Climate, *International Geographical Union thematic conference: Practical Geography and XXI Century Challenges*, (with M. Hayden, A. Monaghan, M. Heaton, K. Oleson and J. Boehnert), Moscow, Russia, June 6, 2018.

Visualizing Hurricane Storm Surge Forecast: Results from Focus Groups Research. *American Association of Geographers Annual Meeting* (with J. Boehnert, H. Lazrus, R. Morss, J. Gambill), New Orleans, LA, April 13, 2018.

Envisioning flood risk: Communicating storm surge forecast through maps and 3D visualizations, *American Meteorological Society Annual Meeting*, (with J. Boehnert, H. Lazrus, J. Gambill, J. Demuth, R. Morss, K. Dickinson, C. Langemeier), Austin, TX, January 9 2018.

2017 New approaches for visualizing hurricane and storm surge risk, *Association of American Geographers Annual Meeting*, Boston MA April 9, 2017 (with J. Boehnert, H. Lazrus, J. Demuth and R. Morss).

*Reducing Vulnerability to Extreme Heat through Interdisciplinary Research and Stakeholder Engagement, *12th Symposium on Societal Applications: Policy, Research and Practice*, 97th American Meteorological Society Annual Meeting, 22-26 January 2017 (with M. Hayden).

*Geographic Information Systems, *16th Annual AMS Student Conference*, 97th American Meteorological Society Annual Meeting, 22-26 January 2017.

*Observations of Communities *Special Symposium on Individual, Social, and Cultural Observations in Weather and Climate Contexts*, 97th American Meteorological Society Annual Meeting, 22-26 January 2017.

Hazards and Storm Surge Risk. *ESRI International User Conference*, San Diego, CA, July 2017 (with J. Boehnert, H. Lazrus, J. Gambill, J. Demuth, R. Morss, K. Dickinson)

Communicating storm surge risk through 2D and 3D visualizations, *Esri Ocean GIS Forum*, Redlands, CA November 2, 2017 (with J. Boehnert, H. Lazrus, J. Gambill, R. Morss)

- *GIS and Spatially Enabled Web Applications. NCAR/CDC Workshop on Weather, Climate and Health, Boulder, CO. July 19, 2017.
- Representing climate in spatial vulnerability assessments. *BRIGHTE Workshop Series: Integration GIS with Atmospheric Sciences*, June 7 2017.
- 2016 Extreme Heat and Human Health in North American Cities, *Association of American Geographers Annual Meeting*, March 30 2016, San Francisco, CA (with M. Hayden and A. Monaghan)
- Convergence Research Opportunities, RAL Advisory Panel, Boulder Colorado, November 8, 2018.
- NCAR GIS Program, *Incorporating Weather and Climate into GIS Curriculum* (BRIGHTE workshop), July 6, 2016, Boulder, CO
- Representing Climate in Spatial Vulnerability Assessments, *Esri International User Conference*, San Diego, CA.
- *Best Practices in Representing Climate Exposure, *SESYNC Pursuit on Climate Vulnerability Mapping Workshop* 17-19 February 2016, Annapolis, MD.
- Extreme Heat and Human Health: Integrated Modeling of Metropolitan Extreme heat Risk (SIMMER), *Extreme Heat and Ozone in Houston: Assessing Health Risks of Older Houstonians Workshop*, February 10, 2016 Houston, Texas
- 2015 *Putting Climate on a Map, *Climate and Human Security Symposium*, 3 - 4 June 2015 University of Colorado at Boulder, Boulder, CO (with J. Boehnert and K. Sampson)
- *Interdisciplinary science, spatial data interoperability, and knowledge sharing using GIS, *Open Geospatial Consortium Technical Committee/ Policy Committee Meetings*, 1 - 4 June 2015 NCAR, Boulder CO (keynote)
- *Understanding Population Risk to Weather Disasters in a Changing Climate. *Understanding Risk Boulder*, October 23, 2015, Boulder, CO (keynote)
- Extreme heat and human health: using GIS in an interdisciplinary project. *Incorporating GIS into the Atmospheric Science Curriculum NCAR GIS Program BRIGHTE Workshop Series*, June 24-26, 2015, NCAR, Boulder, CO
- 2014 Extreme Heat Risk and Human Health. Society of Risk Analysis Annual Meeting, December 8, Denver, CO (with M. Hayden, J. Boehnert, S. Gower, and D. Banerjee).
- *NCAR Climate Science and Application Program, Homeland Infrastructure Foundation-Level Data (HIFLD) Working Group, *Climate Data and Mapping for Infrastructure Resilience Conference*, November 13-14, 2013, USGS, Reston, VA and Virtual Meeting (with L. Buja).

Building Local Capacity for Heat Hazard Mitigation and Climate Change. *Esri International User Conference*, San Diego, CA.

*NCAR GIS Program: Interdisciplinary Effort to Foster Collaborative Science, Spatial Data Interoperability, and Knowledge Sharing, The National Research Council of Thailand / NCAR Meeting, 20 April, 2014, Boulder CO.

Extreme Heat and Human Health: Science-Policy Interface, *Stanley A. Changnon Symposium, the AMS 94th Annual Meeting*, 4 February 2014, Atlanta, GA (with M. Hayden, J. Boehnert, and U. Lauper).

2013 Extreme Heat and Human Health: Science-Policy Interface, *SIMMER Workshop: Linking Complex Science to Policy for Heat-Health Decision Making*, October 24-25, Toronto, Canada (with M. Hayden, J. Boehnert, and U. Lauper).

Current and Future Vulnerability of Population to Extreme heat In Houston, Extreme Heat and Health in Houston: Reducing Future Impacts. Stakeholder Workshop, August 29, 2013, Houston, TX (with M. Hayden, A. Monaghan, K. Oleson, J. Feddema, N. Brunsell, S. Sain, M. Barlage, M. Heaton, T. Greasby, C. Uejio, J. Boehnert, K. Sampson, D. Banerjee, and V. Nepal).

*Vulnerability of Urban Population to Heat Stress. NCAR Climate and Health Colloquium, July 12, 2013, Boulder CO.

*Managing Drought Risk: an Integrated Approach. NCAR/UCAR Industry Day Summit, July 2, 2013, Boulder, CO

Modeling of Metropolitan Extreme Heat Risk. NASA Terrestrial Ecology Science Team meeting, April 30-May 2, 2013, La Jolla, CA

GIS applications in research and governance: Urban Health Response and Interventions, *LAI-NCAR colloquium on Knowledge Integration at Science Policy Interface and Governance CO2013*, April 12, 2013, Quito, Ecuador.

Governance and GIS, *LAI-NCAR colloquium on Knowledge Integration at Science Policy Interface and Governance CO2013*, April 9, 2013, Quito, Ecuador.

*System for Integrated Modeling of Metropolitan Extreme Heat Risk, *Annual Meeting of Society for Applied Anthropology*, March 22, 2013, Denver CO (with M. Hayden, T. Greasby, and J. Pelzman).

System for Integrated Modeling of Metropolitan Extreme Heat Risk, *AMS Annual Meeting, Fourth Conference on Environment and Health* January 8, 2013, Austin, TX (with M. Hayden, A. Monaghan, T. Greasby, S. Sain, K. Oleson, M. Heaton, J. Pelzman, C. Uejio, D. Banerjee, and V. Nepal).

- 2012 Knowledge Integration in Climate and Health Applications: Integrated Modeling of Metropolitan Extreme Heat Risk, *LAI-NCAR Colloquium "Knowledge Integration at the Science Policy Interface C2012"* November 14, 2012, Santo Domingo, Dominican Republic.
- Evaluating influence of water rights on drought vulnerability in Colorado: Spatio-temporal analysis of water use in a variable climate, *CWCB Drought Conference: Building a Drought Resilient Economy through Innovation*, September 19, 2012, Denver CO (with Sampson, T. Fowler, J. Boehnert, K. Miller, T. Hutchins-Cabibi).
- *Usable climate information: integrating GIS and climate science, *Unidata workshop: Navigating Earth System Science Data* July 11, 2012, Boulder, Colorado.
- *Extreme Heat and Societal Vulnerability in a Changing Climate. *Geography Colloquium*, University of Colorado in Boulder, April 13, 2012, Boulder, CO.
- Extreme Weather and Societal Vulnerability in a Changing Climate, *American Meteorological Society Annual Meeting*, January 2012 New Orleans, LA (with Morss, M. Hayden, L. Dilling, G. Meehl).
- 2011 *Usable climate information, *AGU Fall Annual Meeting*, San Francisco CA, December 7, 2011 (with J. Boehnert and B. Domenico).
- *Tools for Analyzing Societal Impacts of Climate Change, *GEOSS Workshop XLIII: Sharing Climate Information & Knowledge*, Boulder CO, September 23, 2011 (with J. Boehnert).
- *GIS in Meteorology and Climate Science. *African Weather and Climate: Unique Challenges and Application of New Knowledge*, 4 August 2011, NCAR, Boulder, CO (with J. Boehnert)
- *Extreme Heat and Societal Vulnerability in a Changing Climate, *The National Academies, Board on Atmospheric Sciences and Climate, Urban Meteorology: Scoping the Problem, defining the needs, Summer 2011 Community Workshop*, July 27, 2011, Wood Hole, MA.
- *GIS, Climate and Health, *CDC / NCAR Fourth Biannual Colloquium on Climate and Health*, July 15, 2011, Boulder, CO (with J. Boehnert)
- Urban heat and human health: GIS applications in global climate modeling, *Esri International User Conference*, July 12, 2011, San Diego, CA (with J. Boehnert and K. Oleson).
- *Advancing interdisciplinary research and usable science. *University Consortium for Geographic Information Science, Summer Assembly*, June 22, 2011, Boulder, Colorado (keynote)
- Spatio-temporal distribution of societal water demand in Colorado. *NIDIS: Upper Colorado River Basin Pilot Project - Weekly Climate, Water and Drought Assessment*, June 14, 2011, Boulder CO (with K. Sampson).
- *Extreme Heat and Societal Vulnerability in a Changing Climate, *NCAR Colloquium on Statistical Assessment of Extreme Weather Phenomena under Climate Change*, June 9 2011, Boulder, CO.

- Spatial analysis of water demand in the Upper Colorado River Basin. *National Integrated Drought Information System Upper Colorado River Basin Pilot Update Meeting*, NOAA David Skaggs Research Center, Boulder, Colorado, February 24, 2011 (with Sampson, J. Boehert, K. Miller).
- Heat health risk awareness and responses among vulnerable urban residents: a Phoenix case study. *Preparing for the Health Impacts of Increased Heat: A Workshop for Community Decision-Makers*, Phoenix, Arizona, February 23, 2011.
- Heat health risk awareness and responses among vulnerable urban residents: a Phoenix case study. *American Meteorological Society annual meeting*, Seattle, Washington, January 2011 (with M. Hayden, H. Brenkert-Smith, S. Harlan, K. Komatsu, S. Santana, D. Pauzauskie)
- 2010 Adaptation to heat health risk among vulnerable urban residents: a multi-city approach. *AGU Fall Meeting* San Francisco, California, December, 2010.
- *Societal vulnerability and adaptive capacity to extreme heat. *Washington AVOID workshop*, American Geophysical Union, Washington, DC, September 14-16, 2010.
- *Innovation in Disaster Risk Assessment in Current and Future Climates, *Understanding Risk Conference, World Bank*, Washington DC June 1-3, 2010 (with H. Brenkert Smith).
- *Bridging social and geo-sciences data with GIS, *Advanced Study Program Seminar*, NCAR, Boulder, Colorado May 19 2010.
- Assessment of local-level vulnerability and adaptive capacity to extreme heat, Maricopa County Department of Public Health, May 12 2010, Phoenix, AZ (with M. Hayden, H. Brenkert-Smith).
- Risk and vulnerability assessments: Knowledge integration from physical and social sciences, *Joint LAI-NCAR Colloquium "Knowledge Innovation at the Science-Policy Interface"* San José, Costa Rica, April 14 2010 (with M. Hayden).
- *Spatial assessment of local level Vulnerability and adaptive capacity to extreme heat: Integrating Phoenix household surveys into a GIS-based assessment, *AMS Annual Meeting / First Environment and Health Symposium*, Atlanta, Georgia January 20, 2010 (M. Hayden, S. Harlan, K. Komatsu, S. Santana).
- Upper Colorado River Basin spatial analysis of water demand *NIDIS meeting*, NOAA Boulder, Colorado, January 11 2010 (with K. Sampson, J. Boehert).
- 2009 *Bridging social and geo-sciences data with GIS, *AGU Fall Meeting* San Francisco, California December 14 2009 (with M. Hayden).
- *Assessing Heat Health Risk, *NCAR Climate and Health Colloquium*, NCAR, Boulder, Colorado July 13 2009.

*Climate change and GIS, *Tribal Colleges/NCAR meeting*, NCAR Boulder, Colorado, June 30, 2009 NCAR (with J. Boehnert).

Adaptation to the health impacts of air pollution and climate extremes in Latin American cities (ADAPTE) *LAI Joint Principal Investigator's Meeting*, Montevideo, Uruguay, 24-26 June 2009.

*GIS, Weather and Society. *NOAA Earth System Research Laboratory and NCAR Societal Impacts Program Seminar Series*, NOAA, Boulder, CO, January 26, 2009.

Global Assessment of Urban Heat Island Effect and Future Heat waves: GIS Applications in Urban Climate Modeling. *American Meteorological Society Annual Meeting*, Phoenix, AZ, January 13, 2009 (with J. Boehnert, K. Oleson, J. Feddema, T. Jackson).

2008 A Framework for Spatial Assessment of Local Level Vulnerability and Adaptive Capacity to Extreme Heat. *American Geophysical Union Fall Meeting*, San Francisco, CA, December 2008 (with M. Hayden, S. Harlan, D. Ruddell, K. Komatsu, B. England, C. Uejio).

*Meteorology and GIS. Heterogeneous data access and use for geospatial user communities, December 4-5, 2008, VU University Amsterdam, The Netherlands (with B. Domenico).

Geospatial dimension of vulnerability. Adaptation to the health impacts of air pollution and climate extremes in Latin American cities (ADAPTE) project workshop, NCAR, Boulder, CO. November 17, 2008.

Spatial Patterns of Societal Risk and Vulnerability to Extreme Heat. NCAR 3rd Community Workshop on GIS in Weather, Climate and Impacts, Boulder, CO, October 28, 2008.

*Climate and Society: a GIS approach to linking natural and social systems, University of Colorado, Geography Colloquium, Boulder, September 26, 2008.

*GIS in Weather and Society, WAS*IS Summer workshop, August 13, 2008.

*Towards visualization and analysis of multidimensional data in ArcGIS: Progress in Atmospheric Data Modeling, ESRI International User Conference, San Diego, CA, August, 2008.

*Climate Change and Societal Vulnerability. National Energy and Utility Affordability Conference, Denver, CO June 16, 2008.

Elements of a flood disaster: The role of vulnerability in disaster risk Reduction, 3rd Symposium on Policy and Socio-Economic Research, American Meteorological Society Annual Meeting, 20-24 January 2008, New Orleans, Louisiana (with I. Kelman).