Ariane Middel, Ph.D.

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Education

Dr.-Ing./Ph.D. Computer Science, University of Kaiserslautern, Germany, 2008

Dipl.-Ing. **Geodetic Engineering (equivalent to B.Sc. and M.Sc. in Engineering), University of Bonn, Germany, 2003**
Majors: Geographic Information Systems (GIS), Cartography, Photogrammetry
Minors: Urban Planning, Statistics, Physical and Mathematical Geodesy, Surveying

Appointments

2023 – present **Associate Professor**
2023–2025: School of Arts, Media and Engineering | Computing and Augmented Intelligence
2025–present: The GAME School | School of Geographical Sciences and Urban Planning
Arizona State University

2018 – present **Global Futures Scientist,** *Global Futures Laboratory*
Faculty Affiliate, *School of Geographical Sciences and Urban Planning | School of Sustainability | The Design School*
Graduate Faculty, *School of Sustainability | School of Geographical Sciences and Urban Planning | Civil, Environmental and Sustainable Engineering | Computer Engineering*
Honors Faculty*, Barrett Honors College*

2018 – 2023 **Assistant Professor**
School of Arts, Media and Engineering | School of Computing and Augmented Intelligence, Arizona State University

2017 – 2018 **Assistant Professor**
Geography and Urban Studies Department, Temple University

2015 – 2017 **Assistant Research Professor**
School of Geographical Sciences and Urban Planning, Arizona State University

2013 – 2014 **Climate Solutions Center Staff**
Walton Sustainability Solutions Initiative, Arizona State University

2009 – 2013 **Postdoctoral Research Fellow**
Decision Center for a Desert City, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University

Research Interests

urban climate, human biometeorology, urban climate informatics, modeling and simulation, extreme heat, heat mitigation, human thermal exposure, microclimate, climate-sensitive urban form and design, sustainable cities, climate adaptation and mitigation, geovisualization

Awards and Fellowships

2025	Eva Mayr-Stihl Fellowship, Integrating human mobility and agency in urban heat exposure models (8.332,49 €)
2024	AAG Media Achievement Award (American Association of Geographers)
2023	Timothy Oke Award, International Association for Urban Climate (IAUC) Award for early-to mid-career researchers for excellence in research and leadership
2022	"Innovative Transportation Solutions Project of the Year" award, recognizing outstanding contributions of women in advancing transportation excellence, Phoenix's Cool Pavement Program
2022	"Arizona Forward Crescordia Award" in the Climate Action Solutions, Phoenix's Cool Pavement Program
2021	John Russell Mather Paper of the Year Award, AAG Climate Specialty Group, for paper "Solar reflective pavements—A policy panacea to heat mitigation"
2020	NSF CAREER: Human thermal exposure in cities – Novel sensing and modeling to build heat-resilience

Grants (Funded)

05/2026– 12/2026	**Heat-Safe Mobility: User-Centered Design of Cool Routing and Emergency Support (ASU internal grant)** PI (100%), ISSR, with Isaac Buo, $7,961.77.
05/2026 – 10/2027	**TUHAN (Transatlantic Urban Heat Adaptation Network)** Collaborator, Networking and Feasibility Study Project within the framework of „BMFTR INITIATES: Research with North America 2025", PI: Matthias Mauder (TU Dresden), 53,112.46 €.
04/2026 – 03/2027	**Cooling the Commute: Heat Safe Routes to School** Co-PI (30%), US Department of Transportation (DOT), with Allison Poulos (PI), Jennifer Vanos, $100,000.
12/2024 – 05/2025	**Career-Life Balance** PI (100%), NSF, $52,824.
05/2024 – 05/2025	**Center for HeatReady Communities** Co-PI (17%), UCLA (NOAA), with Sara Meerow (PI), Jennifer Vanos, Glenn Sheriff, $227,002.
06/2024 – 05/2025	**Supporting recess in the heat: A case study of six Arizona elementary schools (ASU internal grant)** Co-PI (33%), College for Health Solutions seed grant, with Allison Poulos (PI) and Jennifer Vanos (Co-PI), $49,910.
03/2024 – 02/2026	**Global Centers Track 2: Heat Adaptation** Co-PI (33%), National Science Foundation, with Jennifer Vanos (PI), Melissa Guardaro, $249,999.

01/2024 – 05/2024 **REU Supplement for CAREER Grant**
PI (100%), NSF, $16,000.

10/2022 – 09/2027 **Southwest Urban Corridor Integrated Field Laboratory (SW-IFL)**
Senior Personnel (4%), Department of Energy, with David Sailor (PI), Enrique Vivoni, Matei Georgescu, Patricia Solis, $25,000,000.

12/2022 – 11/2028 **LTER: CAP V: Investigating how relationships between urban ecological infrastructure and human-environment interactions shape the structure and function of urban ecosystems**
Senior Personnel (1%), National Science Foundation, with Daniel Childers (PI), Rebecca Ball, Nancy Grimm, Kelli Larson, Billie Turner, $7,649,990.

09/2022 – 08/2026 **NSF LEAP-HI: Dynamic sensing and computational approaches to assess individual-level heat risk across diverse populations**
Co-PI (33%), National Science Foundation, with Konrad Rykaczewski (PI), Jennifer Vanos, $2,000,000.

11/2021 – 04/2023 **City of Phoenix: Cool Pavement pilot program phase 2**
PI (40%), City of Phoenix, with Jennifer Vanos, Kamil Kaloush, David Sailor, David Hondula, $161,722.

08/2021 – 07/2023 **MRI: Acquisition of a high heat compatible sweating thermal manikin**
Co-PI (12%), National Science Foundation, with Konrad Rykaczewski (PI), Jennifer Vanos, David Sailor, Stravos Kavouras, Dongwoo Yeom, $500,000.

07/2021 – 06/2022 **2021 FSE Strategic Interest Seed Funding Program: New lab-based and computational methods for simulating extreme hot weather and its impacts on human energy balance and performance (ASU internal grant)**
Co-PI (33%), Fulton Schools of Engineering, with Konrad Rykaczewski (PI), Jennifer Vanos, $25,000.

07/2021 – 08/2022 **Healthy Urban Environments Initiative (HUE): Online decision-making tool for active shade management in the Southwest (ASU internal grant)**
PI (33%), HUE, with Braden Kay, Paul Coseo, Katja Brundiers, $34,972.21.

01/2021 – 06/2021 **SunBlock**
Co-PI (20%), National Endowment for the Arts (NEA)/City of Phoenix, with David Hondula (PI), Jennifer Vanos, Paul Coseo, and Melissa Guardaro, $35,001.

11/2020 – 06/2023 **Cool Kids, Cool Places, Cool Futures: Community-based, arts-enhanced, and youth-focused approach for equitable urban cooling and emergency management**
Senior Personnel (0%), Robert Wood Johnson Foundation, with Paul Coseo (PI), Katja Brundiers, Wanda Dalla Costa, Maria Jackson, $109,995.

07/2020 – 06/2021 **Developing urban cooling strategies for a hot metropolis (ASU internal grant)**
Co-PI (30%), ZIMIN Foundation, with David Sailor (PI), Richard King, $85,999.

07/2020 – 06/2021 **City of Phoenix: Cool Pavement pilot program (ASU internal grant)**
PI (20%), HUE, with Jennifer Vanos, Kamil Kaloush, David Sailor, David Hondula, $24,647.

07/2020 – 06/2021 **City of Phoenix: Cool Pavement pilot program**
PI (20%), City of Phoenix, with Jennifer Vanos, Kamil Kaloush, David Sailor, David Hondula, $99,998.

07/2020 – 06/2021 **Impact of sustainable design on microclimate and building energy use (ASU internal grant)**
PI (100%), Herberger Research Council and APS Endowment for Sustainable Design Research, $28,210.

06/2020 – 05/2021 **Healthy Urban Environments Initiative (HUE): Zoo parking heat and water sustainability project (ASU internal grant)**
Co-PI (33%), HUE, with Ray Quay (PI) and Nancy Grimm, $50,000.

06/2020 – 05/2025 **CAREER: Human thermal exposure in cities – Novel sensing and modeling to build heat-resilience**
PI (100%), National Science Foundation, $524,999.

05/2020 – 04/2021 **JST: SCC-PG: Understanding heat resiliency via physiological, mental, and behavioral health factors for indoor and outdoor urban environments**
Co-PI (50%), National Science Foundation, with Suren Jayasuriya (PI), Jamie Mullins (University of Massachusetts, Amherst), Tauhidur Rahman (University of Massachusetts, Amherst), $70,000.

04/2020 – 03/2021 **Healthy Urban Environments Initiative (HUE): Heat maps for decision-making in Tempe (ASU internal grant)**
Senior Personnel (20%), with Paul Coseo (PI), David Hondula, Jennifer Vanos, Katja Brundiers, Braden Kay, $25,000.

10/2019 – 10/2020 **AWS: Cloud credits for ASU campus mapping**
PI (100%), Amazon Web Services, $30,000.

10/2019 – 09/2021 **CNH2-L: Toward a theory of urban trees as living infrastructure**
Co-PI (30%), National Science Foundation, with George D. Jenerette (UC Riverside PI), Meghan Avolio, Theodore Eisenman, Stephanie S. Pincetl, Mikhail Chester, David Hondula, $420,000 (ASU component $60,000).

09/2019 – 08/2020 **Arterial walls and thermal comfort in the City of Tempe**
PI (50%), Urban Sustainability Directors Network (USDN), with Paul Coseo, Braden Kay (City of Tempe), $12,418.

07/2019 – 01/2020 **Health Impact Project, Tempe**
Co-PI (25%), City of Tempe and PEW Charitable Trust, with Paul Coseo (PI), David Hondula, Jennifer Vanos, $49,986.

07/2019 – 12/2020 **Healthy Urban Environments Initiative (HUE): The right shade in the right place (ASU internal grant)**
PI (100%), HUE, $49,995.

05/2019 – 08/2019 **Urban Climate Research Center Seed Funding to support MaRTy observational field work (ASU internal grant)**
PI (100%), Urban Climate Research Center, $3,221.

05/2019 – 01/2020 **CAP IV Faculty Summer Salary: OpenMRT—Human-scale modeling of thermal urban environments using big data (ASU internal grant)**
PI (100%), National Science Foundation, $4,833.

12/2018 – 11/2022 **Long-Term Ecological Research Program (LTER) CAP IV - Investigating urban ecology and sustainability through the lens of urban ecological infrastructure**
Senior Personnel (2%), National Science Foundation, with Daniel Childers (PI), Billie L. Turner II, Abigail York, Nancy Grimm, Sharon Hall, Paige Warren, $4,507,998.

11/2017 – 03/2018 **American Forests: Thermal Comfort Assessment**
Co-PI (50%), City of Tempe, with David Hondula (PI), Bonnie Richardson (City of Tempe), $4,003.00.

09/2017 – 12/2018 **SCC – Planning Proposal: Too Hot, Too Cold, or Just Right?**
Co-PI (30%), National Science Foundation, with Paul Coseo (PI), David Hondula (Co-PI), $100,000.

07/2017 – 06/2018 **Cool Roofscapes @ the Solar Lab: Thermal Performance of Cool Roof Strategies in Hot Arid Climates (ASU internal grant)**
Co-PI (30%), Herberger Research Council and APS Endowment for Sustainable Design Research, with Paul Coseo (PI) and Jennifer Vanos, $10,796.00.

12/2016 – 11/2018 **LTER CAP IV: Design with nature**
Senior Personnel (2%), National Science Foundation, with Daniel Childers (PI), Billie L. Turner II, Abigail York, Nancy Grimm, Sharon Hall, Paige Warren, $2,253,984.00.

08/2016 – 07/2020 **CMMI: A simulation platform to enhance infrastructure and community resilience to extreme heat events**
Co-PI (20%), National Science Foundation, with Mikhail Chester (PI), David Hondula, and David Eisenman, $450,000.

08/2016 – 07/2017 **Optimal deployment of trees to mitigate pedestrian heat exposure: Novel measurements and high-resolution modeling**
Co-PI (25%), Roskind Small Grants, with Matei Georgescu (ASU PI), Evyatar Erell (Ben-Gurion Univrsity, Israel PI), Scott Krayenhoff, $10,000.

07/2016 – 08/2016 **Impact of interior temperatures of shaded and unshaded vehicles on children's health – A case study in Phoenix, AZ**
PI (100%), CAP LTER, REU summer 2016, with Jennifer Vanos, $4,000.

04/2016 – 04/2020 **SRN: The Urban Water Innovation Network (U-WIN): Transitioning toward sustainable urban water systems**
Senior Personnel, National Science Foundation, with Mazdak Arabi (PI), Matei Georgescu, $12,000,000 (ASU component $1,191,572).

05/2015 – 06/2016 **City of Tempe - Tree and shade**
Co-PI (25%), City of Tempe, with Gerald O'Neill (PI), Anne Reichman, Bonnie Richardson, $28,310.

01/2015 – 12/2022 **Microclimate data collection, analysis, and visualization**
PI (100%), Computer Graphics and HCI Group, TU Kaiserslautern, $158,101.

08/2014 – 07/2015 **Informing emergency and risk management climate knowledge in arid regions**
Co-PI (20%), NOAA OAR-CPO-2013-2003445, with Nalini Chhetri (PI), Kenneth J. Galluppi, Nancy J. Selover, $98,443.

05/2014 – 06/2016 **Microclimate impacts of photovoltaic canopy structures**
Co-PI (33%), Arizona State University Lightworks and Strategic Solar Energy, LLC, with Nalini Chhetri (PI) and Nancy J. Selover, $15,000.

05/2014 – 08/2016 **Arizona Building Resilience Against Climate Effects (BRACE)**
Senior Personnel, Subcontract to Arizona State University for development of Arizona Climate and Health Profile, CDC Building Resilience Against Climate Effects (BRACE) program, agreement #ADHS15-077418, with Nalini Chhetri (PI), Matthew Roach, David Hondula, Nancy J. Selover, $125,000.

08/2012 – 07/2017 **Understanding impacts of desert urbanization on climate and surrounding environments to foster sustainable cities using remote sensing and numerical modeling**
Co-PI (20%), NASA ROSES-NNH11ZDA001N, with Soe W. Myint (PI), Ronald Rindfuss, Huei-Ping Huang, Anthony J. Brazel, Dan Blumberg, $928,987.

07/2011 – 06/2012 **Impact of microclimate on residential energy consumption and water use**
Co-PI (50%), Decision Center for a Desert City, Julie Ann Wrigley Global Institute of Sustainability, with Subhrajit Guhathakurta (PI), $49,303.

10/2010 – 12/2014 **Urban form and energy use explored through dynamic networked infrastructure model**
Co-PI (33%), National Science Foundation, with Subhrajit Guhathakurta (PI) and Eric Williams, $350,213.

Grants (Declined)

07/2026 – 06/2027 **Robotic Outdoor Cooling Mechanisms for Hot Urban Deserts**
Co-PI (50%), ASU Women and Philanthropy, with Spring Berman (PI), $50,000.

03/2026 – 02/2029 **Collaborative Research: A Multi-Robot Control and Path Planning Framework**
Co-PI (50%), NSF, with Spring Berman (PI), $762,181.

07/2025 – 06/2026 **Investigating Air Pollution, Heat, and Early Biobehavioral Development in Infants**
Co-I (14%), Burroughs Wellcome Fund, with Megan Petrov (PI), Corrie Whisner, Li Liu, $49,987.

07/2025 – 06/2030 **Investigating Air Pollution, Heat, and Early Biobehavioral Development in Infants**
Co-PI (14%), NIH, with Megan Petrov (PI), Corrie Whisner, Jennifer Vanos, Li Liu, $3,925,286.

01/2025 – 12/2028 **Exploring Urban Air Quality and Heat Stress in U.S. Metropolitan Areas**
Co-PI (33%), NASA, with Jiwei Li (PI), Sean Bryan, $588,057.

08/2024 – 07/2029 **Schmidt Science Polymath Program**
PI (100%), Schmidt Futures, $2,500,000.

04/2024 – 03/2025 **Urban Heat Navigator: A Human-Centric Heat Stress Forecasting and Routing System for Climate-Resilient Cities**
PI (100%), AWS, $131,136.

09/2023 – 08/2024 **Impacts of climate change on sleep and gut microbiome development, and weight gain in infancy**
Co-PI (16%), HHS: National Institutes of Health (NIH), with Megan Petrov (PI), Li Liu, Alex Mohr, Jennifer Vanos, Corrie Whisner, $551,261.

07/2023 – 06/2026 **Developing and Testing Plans, Policies, and Actions for Cooling Riyadh**
Co-PI (25%), Kingdom of Saudi Arabia: Royal Commission for Riyadh City (RCRC), with David Sailor (PI), Amy Frazier, Paul Coseo, $1,768,421.

10/2023 – 09/2026 **Exploring LCLUC impacts on the urban heat and air quality in U.S. metropolitan areas**
Co-PI (33%), NASA, with Jiwei Li (PI), Sean Bryan, $707,998.

07/2023 – 06/2026 **High-resolution climate modeling to characterize future heat wave dynamics across southwestern US urban environments**
Senior Personnel (15%), NOAA, with Matei Georgescu (PI), Francisco Salamanca Palou, Mohamed Moustaoui, $594,467.

07/2023 – 06/2026 **YFA Beat the heat: Photovoltaic shade to create local cool islands**
PI (100%), DOD-DARPA, $900,197.

09/2023 – 08/2026 **ETD: ExtremeHeat: Middle School Teacher Professional Development with Sustainability**
Co-PI (20%), National Science Foundation, with Suren Jayasuriya (PI), Andreas Spanias, Terri Kurz, $499,997.

01/2023 – 12/2025 **NSF PDM: Projecting extreme summer urban rainfall under climate change and urban expansion**
Co-PI (33%), National Science Foundation, with Matei Georgescu (PI), Francisco Salamanca, $749,202.

09/2022 – 08/2027 **NSF Engineering Research Center (ERC) for Urban Thermal Justice (UTJ)**
Co-PI (11%), subcontract with Georgia Tech (National Science Foundation), with David Sailor (PI), Matei Georgescu, Melissa Guardaro, David Hondula, Kamil Kaloush, Richard King, Edward Vargas, ASU Component $6,511,449.

09/2022 – 08/2025 **NSF PDM: Projecting extreme summer urban rainfall under climate change and urban expansion**
Co-PI (33%), with Matei Georgescu (PI), Francisco Salamanca, $688,919.

06/2022 – 05/2027 **URoL:EN Rules that govern biodiversity-ecosystem function in changing urban socioecological networks**
PI (100%), subcontract with Temple University (National Science Foundation), with Hamil Pearsall (PI), $14,931.

05/2022 – 04/2027 **NSF CSSI Frameworks: Unified Ubiquitous Urban (U3) modeling and design**
PI (100%), subcontract with University of Purdue, with Daniel Aliaga (PI), $374,693.

05/2022 – 04/2025 **EPA-G2021-STAR-H1: Navigating heat and air pollution exposure tradeoffs by guiding community transportation action plans**
Co-PI (16%), with Mikhail Chester (PI), Danae Hernandez-Cortes, David Hondula, David Sailor, Jennifer Vanos, $1,350,000.

01/2022 – 12/2024 **Tiny machine learning to address impact of extreme heat & air quality in Arizona**
Co-PI (30%), QualComm, with Suren Jayasuriya (PI), Andreas Spanias, $1,215,002.

01/2022 – 04/2024 **Developing and testing plans, policies, and actions for Cooling Riyadh**
Co-PI (33%), Kingdom of Saudi Arabia: Royal Commission for Riyadh City (RCRC), with David Sailor (PI), Paul Coseo, $1,316,456.

01/2022 – 12/2025 **SCC-IRG Track 1: Community-driven residential sensing networks**
Senior Personnel (12%), NSF, with Zoe Hamstead (University of Buffalo PI), David Hondula (ASU PI), Katja Brundiers, Paul Coseo, Melanie Gall, David Sailor, Jennifer Vanos, Dongwoo Yeom, ASU Component $854,085.

01/2022 – 12/2022 **SCC-PG: Building heat resilience in manufactured and mobile home communities**
Senior Personnel (8%), NSF, with David Hondula (PI), Paul Coseo, Melanie Gall, Brian Gerber, Melissa Guardaro, Anastasia Kuznetsov, Patricia Solis, Elisabeth Wentz, $149,689.

10/2021 – 09/2026 **SRS-RN Track 1: ReSET: Regional social-ecological-technological systems: Interdependencies, vulnerabilities, disruptions, and solutions for regional resilience to extreme events**
Senior Personnel (1%), NSF, with Nancy Grimm (PI), Mikhail Chester, $15,000,000.

01/2021 – 12/2025 **AI Institute: Institute of GeoAI and Augmented Mapping for Resilience**
Senior Personnel (5%), NSF, with Patricia Solis (PI), Gregory Asner, Wenwen Li, $19,087,714.

08/2020 – 12/2021 **Connecting neighborhoods: Understanding the impact of green active transportation**
PI (100%), University of Arizona (Prime Sponsor: National Institute for Transportation and Communities, with Nicole Iroz-Elardo (PI), $9,997.

06/2020 – 05/2023 **NASA: Understanding diurnal cycles of the surface urban heat island effect and influences of urban landscape composition and configuration**
PI (85%), University of New Hampshire (Prime Sponsor: National Science Foundation, PI Jingfeng Xiao), with Billie Lee Turner, $447,329.

03/2020 – 02/2024 **SCC-IRG Track 1: Convergent networks for thermally-comfortable and equitable communities**
Co-PI (20%), NSF, with Paul Coseo (PI), David M Hondula, Nikolas Smilovsky, Jennifer Vanos, Emmanuel Frimpong Boamah (University of Buffalo), Zoe Hamstead (University of Buffalo), $3,861,528.

02/2020 –02/2022 **Urban Climate Informatics (UCI) for human thermal exposure modeling**
PI (100%), SLOAN Foundation, $75,000.

10/2019 – 09/2022 **CPS Small: Heat sensing and thermal routing for increased urban resilience**
PI (50%), National Science Foundation, with Suren Jayasuriya, $499,999.

08/2019 – 07/2022 **RIDIR: Real-time assessment of urban thermal environments**
Co-PI (30%), NSF, with David Sailor (PI), WenWen Li, $1,295,675.

08/2019 – 07/2022 **Advancing methods to assess individual-level ultraviolet radiation exposure during physical activity**
Co-PI (43%), NIH, with Jennifer Vanos (PI), $1,129,007.

06/2019 – 05/2022 **GSS: Social and biophysical drivers of climate regulation in New Urbanist and conventional neighborhoods**
ASU PI (100%), NSF, with V. Kelly Turner (UCLA PI), John Connors (TAMU PI), $400,000 (ASU component $113,574).

07/2018 – 06/2021 **Beat the heat: Big data approach to heat modeling for climate smart cities**
PI (100%), Johnson & Johnson WiSTEM2D Scholars Award Program, $150,000.

08/2017 – 07/2020 **CNH-S: Outdoor physical activity and sustainability practices in the hot city**
Co-PI (22%), NSF, with David Hondula (PI), David Iwaniec, David Sailor, Amber Wutich, $498,539.

05/2017 – 04/2019 **Temperature matters: Enhancing weather readiness in the Pac-12**
Co-PI (30%), Pac-12 Conference, with David Hondula (PI), Randall Cerveny, Nancy Selover, Joshua Beaumont, Ben McMahan, Jennifer Vanos, $399,404.

04/2017 – 03/2020 **GP-IMPACT: Bridge into geosciences graduate studies**
Co-PI (12%), NSF, with David Sailor (PI), Randall Cerveny, Trisalyn Nelson, Ian Walker, $398,668.

03/2017 – 08/2020 **CHAMP ASU ISA**
Co-PI (23%), Arizona Department of Health Services, with David Hondula (PI), Nalini Chhetri, Nancy Selover, $100,000.

01/2017 – 06/2018 **Thermal performance of cool roof strategies in hot arid climates**
Co-PI (35%), The American Institute of Architects (AIA), with Paul Coseo (PI), Harvey Bryan, Jennifer Vanos, $29,799.

11/2016 – 10/2019 **Global network for urbanization and the environment (GNUE)**
Co-PI (5%), NSF, with Christopher Boone (PI), Rimjhim Aggarwal, Mikhail Chester, Corrie Griffith, Kevin Gurney, Sharon Hall, Kelli Larson, Jose Lobo, Soe Myint, David Sailor, Billie Turner, Mark Watkins, Abigail York, $961,352.

02/2016 – 01/2017 **Project beat the heat – Mapping a city's outdoor thermal comfort**
PI (100%), Google, Inc., $69,010.

Publications

(*) indicates lead and/or corresponding authorship. Underscore in the author list denotes a mentored student. Metrics in brackets: [Impact Factor (IF) in year of publication, acceptance rate in percent]

Peer-Reviewed Journal Articles

[J132] Xinjie Huang, Qinqin Kong, Zhi-Hua Wang, Matthew Huber, Marialena Nikolopoulou, Peiyuan Li, **Ariane Middel**, Dan Li, Andreas Matzarakis, Jennifer K. Vanos, Jiyun Song, Gabriele Manoli, Anna Laura Pisello, Elie Bou-Zeid. (in press). Divergent heat assessments across thermal stress and sensation metrics, *Earth's Future* [IF 8.2, acceptance rate 22%]

[J131] Isaac Newton Kwasi Buo, Waqar Hassan Khan, Evan Crabtree, Fletcher Emmott, Devbrat Hariyani, **Ariane Middel** .(2026). Cool Routes: Real-Time Human Thermal Exposure Routing, *Building and Environment* https://doi.org/10.1016/j.buildenv.2026.114622 [IF 8.4, acceptance rate 14%]

[J130] Parker King, Jennifer K. Vanos, Zachary Van Tol, Jose Medina Campillo, **Ariane Middel***. (2026). Beyond Surface Cooling: Comprehensive Field Assessment, *Building and Environment* https://doi.org/10.1016/j.buildenv.2026.114373 [IF 8.4, acceptance rate 14%]

[J129] Allison Poulos, Umar Hassan, Kylie Wilson, Jennifer K. Vanos, **Ariane Middel**. (2026). Differences in children's physical activity during outdoor and indoor school recess in hot weather, *Journal of Physical Activity & Health* https://doi.org/10.1123/jpah.2025-0448 [IF 2.6]

[J128] Gisel Guzman-Echavarria, **Ariane Middel**, Daniel Vecellio, Jennifer K. Vanos. (2026). The Heat Stress Compensability Classification (HSCC) applied within the United States: Model Update and Code Availability, *International Journal of Biometeorology* 70:83 https://link.springer.com/article/10.1007/s00484-026-03135-2 [IF 2.6]

[J127] Jennifer K. Vanos, Melissa Guardaro, **Ariane Middel**, Nicholas Ravanelli, Zachary J. Schlader, James Smallcombe, Nicole Vargas, Gisel Guzman-Echavarria, KarLee Lefebvre, Carson Metzler, Kendra Rentz, Mary Munoz Encinas, Luc Souilla, David Kaiser, Simon Bilodeau, Tudor Matei, Caroline Metz, Sarah M. Munoz, Angela Grobstein, Yousra Ouazaa, Daniel Gagnon. (2026). Hot Topics: Building Capacity for Extreme Heat Adaptation Through Transdisciplinary Training, *BAMS* 107(3): E386–E395 https://doi.org/10.1175/BAMS-D-25-0341.1 [IF 5.9]

[J126] Ankit Joshi, Konrad Rykaczewski, Muhammad Abdullah, Jennifer Vanos, **Ariane Middel**, Shri Viswanathan, Cibin Jose. (2026). Turbulence of airflow matters in human thermophysiological response in the heat: The journal Temperature toolbox, *Temperature* 13(1), 2–14 https://doi.org/10.1080/23328940.2026.2620979 [IF N/A]

[J125] Yijuan Sang, Xiao Qin, Hai Yan, Renwu Wu, Fan Yang, **Ariane Middel**, Xinge Nan, Lin Zhu, Jiangnan Shi. (2025). Dynamic changes of urban street thermal environment from the pedestrian perspective and their impacts on pedestrians' walking behaviors, *Sustainable Cities and Society* 135:106971 https://doi.org/10.1016/j.scs.2025.106971 [IF 11.7, acceptance rate 10%]

[J124] Xinge Nan, Huaizhen Zhu, Ye Shu, Hai Yan, **Ariane Middel**, Aoxiang Ning, Zhiyi Bao. (2025). Assessing the impact of urban form on river-cooling dynamics: An empirical study in Hangzhou, China, *Urban Climate* 64:102697 https://doi.org/10.1016/j.uclim.2025.102697 [IF 6.9, acceptance rate 20%]

[J123] Aubrey Deanna Benson, Ben R. Crawford, John M. Frank, **Ariane Middel**, George P. Valentine, Travis Warziniack, Melissa R. McHale. (2025). Bridging accuracy and efficiency: Advancing mean radiant temperature measurement in Urban Ecology, *International Journal of Biometeorology* 69: 3515–3525 https://doi.org/10.1007/s00484-025-03038-8 [IF 3.6]

[J122] Floris Wardenaar, Megha Budruk, Parker Kooima, Josh Boeckman, **Ariane Middel**, Frank LoVecchio, Stavros Kavouras. (2025). Individuals with higher risk perception report more heat stress and thirst after hiking in a hot and dry environment without other differences in physiological measurements, *Environmental Research: Health* 3(4):045006 https://doi.org/10.1088/2752-5309/ae11cf [IF N/A, acceptance rate 46%]

[J121] Fengtao Qian, Hai Yan, Renwu Wu, Fan Yang, **Ariane Middel**, Lin Zhu, Jiangnan Shi. (2025). Do Children Face Greater Outdoor Heat Risks? A Comparative Study of Pedestrian-Scale Vertical Thermal Environment on Different Urban Land Covers. *Building and Environment* 284:113449 https://doi.org/10.1016/j.buildenv.2025.113449 [IF 7.6, acceptance rate 14%]

[J120] Pranav Pandya, Maider Llaguno-Munitxa, Martin Gareth Edwards, Emilie Lacroix, Gabriele Manoli, **Ariane Middel**. (2025). Environmental, psychological, and physiological data for urban outdoor thermal comfort assessments: A systematic review, *International Journal of Biometeorology* 69(8):1819–1841 https://doi.org/10.1007/s00484-025-02942-3 [IF 3.6]

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[C212] Gisel Guzman-Echavarria, **Ariane Middel**, Nicholas Ravanelli, Jose-Benito Rosales Chavez, Aaron Caldwell, Carson Metzler, Kendra Rentz, Mary Munoz, Melissa Guardaro, Jennifer K. Vanos Who Can Avoid the Heat? Inter-Individual Differences in 24-h Heat Exposure Reveal Disparities in Heat Adaptation and Stress, *UCRC Poster Symposium*, Tempe, Arizona, March 26, 2026.

[C211] Pouya Shaeri, **Ariane Middel**, Urban Surface Cooling during Extreme Heat Varies by Climate: Evidence from Five U.S. Cities, *UCRC Poster Symposium*, Tempe, Arizona, March 26, 2026.

[C210] Parker King, Muhammad Abdullah, **Ariane Middel**, Jennifer K. Vanos, Modeling Long Term Performance of Reflective Pavement Coatings in Phoenix, Arizona, *UCRC Poster Symposium*, Tempe, Arizona, March 26, 2026.

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[C203] Pouya Shaeri, Yasaman Mohammadpour, **Ariane Middel**, Data-driven analysis of playground use under varying weather conditions using MaRTiny, *28th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 16, 2026.

[C202] Isaac Buo, Waqar Hassan Khan, Evan Crabtree, Fletcher Emmott, Devbrat Hariyani, **Ariane Middel**, Cool Routes: Real-time human thermal exposure routing, *28th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 16, 2026.

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[C185] Pouya Shaeri, Saud R. AlKhaled, **Ariane Middel**, Mean Radiant Temperature Modeling Using Deep Learning, *UCRC Poster Symposium*, Tempe, Arizona, February 3, 2025.

[C184] Parker King, **Ariane Middel**, Jennifer Vanos, Kamil Kaloush, Jose Medina, David Sailor, Jolina Karam, Linus Napogbong, Portia Lartey, Mohammed Alhozaimy, Mansour Alhazmi, Zachary Van Tol, Gisel Guzman, Enhancing Urban Resilience through Innovative Cool Pavement Technologies: Insights from the Cool Pavement Pilot Program, *UCRC Poster Symposium*, Tempe, Arizona, February 3, 2025.

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[C176] Gisel Guzman-Echavarria, **Ariane Middel**, Nichollas Ravanelli, Jose-Benito Rosales Chavez, Kendra Rentz, Carson Metzler, Mary Munoz Encinas, Melissa Guardaro, Jennifer Vanos, Unfolding the Individual Adaptative Response: Insights from Summertime Personal Heat Exposure in Older Adults in Phoenix, Arizona, *AGU Fall Meeting 2024*, Washington, D.C., December 9–12, 2024.

[C175] Umar Hassan, Jennifer Vanos, **Ariane Middel**, Allison Poulos, The impact of extreme heat exposure during recess on children's physical activity and readiness to learn in Arizona, ASU's ISSR Poster Symposium, Fall 2024.

[C174] Gisel Guzman-Echavarria, Jennifer Vanos, Daniel Vecellio, **Ariane Middel**, A Physiological-based Extreme Heat Categorization to Determine Regional Personal Cooling Needs, *AAG Annual Meeting*, Honolulu, HI, April 16–20, 2024.

[C173] Zachary Van Tol, Jennifer K. Vanos, **Ariane Middel**, Kristin M Ferguson, Reducing Heat and Air Pollution Risk for People Experiencing Homelessness: Leveraging Existing Data Sets to Optimize Resource Allocation in Phoenix, Arizona, *AAG Annual Meeting*, Honolulu, HI, April 16–20, 2024.

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[C171] Pouya Shaeri, Saud AlKhaled, Florian A. Schneider, Isaac Buo, Ariane Middel, WebMRT: A Web-based Tool to Predict Summertime Mean Radiant Temperature in Desert Southwest Cities, US, Using Machine Learning, *UCRC Poster Symposium*, Tempe, Arizona, March 21, 2024.

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[C168] **Ariane Middel**, How to keep gardeners safe in extreme heat: Sensing for urban gardens design and operation, *NSF Smart Urban Gardens Workshop,* Tempe, Arizona, November 30, 2023.

[C167] Devbrat Hariyani, **Ariane Middel**, Drought Prediction using Machine Learning, *FURI Poster Symposium*, Tempe, Arizona, November 17, 2023.

[C166] **Ariane Middel**, Nature-based and engineered solutions to overcome urban overheating – Lessons learned from a living laboratory in the Desert Southwest US, *International Workshop on Geography and Sustainability 2023 (GEOSUS 2023)*, Beijing, China, October 26–29, 2023.

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[C163] **Ariane Middel**, Matthew Huff, Scott Krayenhoff, Ananth Udupa, Florian Schneider, PanoMRT: Panoramic Infrared Thermography to Model Human Thermal Exposure and Comfort, *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023.

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11th International Conference for Urban Climate (ICUC-11), Sydney, Australia, August 28 – September 1, 2023.

[C161] Forrest Meggers, **Ariane Middel**, Radiant temperature errors and opportunities: The failures of globe thermometer corrections and metrics that turn Watts into Degrees, *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023.

[C160] Zachary Van Tol, **Ariane Middel**, Florian Arwed Schneider, Johny Cordova, Jennifer Vanos, David Sailor, Evidence-based guidance on reflective pavement for urban heat mitigation in Arizona, *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, Sydney, Australia, August 28 – September 1, 2023.

[C159] Gisel Guzman-Echavarria, Jennifer Vanos, **Ariane Middel**, David Sailor, Quantifying indoor heat stress and strain across climate contexts and adaptive capacities, Poster presented at *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023.

[C158] **Ariane Middel**, Anthony Brazel, Use of the Arizona Meteorological Network for Urban Analysis, *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023.

[C157] Mansoureh Gholami, **Ariane Middel**, Daniele Torreggiani, Patrizia Tassinari, Alberto Barbaresi, A digital twin to simulate microscale human thermal exposure and comfort in urban environments, *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023.

[C156] **Ariane Middel**, Alvin Varquez, Antonio Carlos Oscar Júnior, Gerald Mills, Simone Kotthaus, Future of IAUC between global challenges, sustainability and community engagement, Panelist at *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023.

[C155] **Ariane Middel**, Florian A. Schneider, Erin Epel, Science-Policy Disconnect: Perspectives on Co-benefits, Trade-offs, and Disservices of Heat Mitigation Strategies, *International Congress for Biometeorology (ICB)*, Tempe, Arizona, May 14–17, 2023.

[C154] Ahmet Cilek, Müge Unal Cilek, **Ariane Middel**, Optimizing urban landscapes to reduce human thermal exposure in hot-arid environments: The role of 2-D and 3-D landscape metrics in Phoenix, Arizona, *UCRC Poster Symposium*, Tempe, Arizona, April 20, 2023.

[C153] Trevor Johnson, Jennifer Vanos, **Ariane Middel**, How should nozzle sizes be chosen to balance water usage and thermal comfort?, *UCRC Poster Symposium*, Tempe, Arizona, April 20, 2023.

[C152] Ankit Joshi, Shri Viswanathan, Konrad Rykaczewski, Sai Guddarti, Jennifer Vanos, **Ariane Middel**, Novel approach to measure the effect of urban microclimate on human health using advanced thermal manikin, *UCRC Poster Symposium*, Tempe, Arizona, April 20, 2023.

[C151] Gisel Guzman-Echavarria, **Ariane Middel**, Jennifer Vanos, Beyond heat exposure: Modeling diverse pathways to heat stress and strain, *UCRC Poster Symposium*, Tempe, Arizona, April 20, 2023.

[C150] Zachary Van Tol, Jennifer Vanos, **Ariane Middel**, and Kristin Ferguson. The climate consequences of privatizing public spaces, *25th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2023.

[C149] Müge Unal Cilek, **Ariane Middel**. Thermal comfort evaluation of green space geometries in different local climate zone: The case of hot-arid climate, *25th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2023.

[C148] Peter Price, Paul Coseo, **Ariane Middel**. Understanding the ecological design benefits and limitations of rooftop green spaces to reduce heat exposure for vulnerable residents, *25th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2023.

[C147] Rui Li, Mikhail V. Chester, **Ariane Middel**, Jennifer K. Vanos, Danae Hernandez-Cortez, Isaac Newton Buo, and David M. Hondula. Effectiveness of travel behavior and infrastructure change to mitigate heat exposure, *25th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2023.

[C146] Gisel Guzman-Echavarria, Jennifer Vanos, Daniel Vecellio, **Ariane Middel**, Dry-Humid Warm-Hot Climate Classification Across the U.S from a Human Thermal Physiological Perspective, *103rd AMS Annual Meeting*, Denver, CO, January 8–12, 2023.

[C145] Huan Doan, **Ariane Middel**, Urban Climate Data Visualization and Exploration Tool, *FURI Poster Symposium*, Tempe, Arizona, November 18, 2022.

[C144] Yuliya Dzyuban, David M Hondula, Jennifer K Vanos, **Ariane Middel**, Paul Coseo, Evan R Kuras, Charles L Redman, Evidence of alliesthesia during a neighborhood thermal walk in a hot and dry city, *IAUC Virtual Poster Session*, August 30 – September 1, 2022.

[C143] Gisel Guzman-Echavarria, **Ariane Middel**, Jennifer Vanos, Quantifying personal thermal exposures for diverse populations and climate contexts across space and time, *IAUC Virtual Poster Session*, August 30 – September 1, 2022.

[C142] Isaac Buo, Valentina Sagris, Jaak Jaagus, **Ariane Middel**, Extensive validation of SOLWEIG for regional-scale thermal exposure mapping in Phoenix, Arizona, USA, *IAUC Virtual Poster Session*, August 30 – September 1, 2022.

[C141] Jason Ching, Gerald Mills, Benjamin Bechtel, Matthias Demuzere, Daniel Aliaga, Chao Ren, Michael Wong, Dev Niyogi, **Ariane Middel**, Marina Neophytou, Iain Stewart, Linda See, Sarav Arunachalam, Yuan Shi, Highlights of the WUDAPT Decade, *IAUC Virtual Poster Session*, August 30 – September 1, 2022.

[C140] Dragan Milosevic, **Ariane Middel**, Panagiotis Sismanidis, Stevan Savic, Benjamin Bechtel, Matthias Demuzere, Jelena Dunjic, Vidya Anderson, Multi-source micrometeorological data acquisition for the assessment of heat mitigation strategies in Novi Sad (Serbia), *IAUC Virtual Poster Session*, August 30 – September 1, 2022.

[C139] Rui Li, Mikhail Chester, David M. Hondula, **Ariane Middel**, Jennifer K. Vanos, Lance Watkins, Ben Brownlee, Repurposing Mesoscale Traffic Models for Insights into Traveler Heat Exposure Mitigation: ICARUS and the case of Phoenix, *International Symposium for Sustainable Systems and Technology (ISSST)*, Pittsburgh, Pennsylvania, June 21–23, 2022.

[C138] Scott Krayenhoff, Jacob Lachapelle, Eric Ken, **Ariane Middel**, Cooling benefits of street tree planting depend on scale and existing tree cover, *EGU General Assembly*, Vienna, Austria, May 23–27, 2022.

[C137] Shreya Banerjee, **Ariane Middel**, Subrata Chattopadhyay, Validating ENVI-met for Relative Humidity (RH) in high-density temporary encroachment spaces in the streets of tropical Indian megacities, *EGU General Assembly*, Vienna, Austria, May 23–27, 2022.

[C136] Maya Muir, Ross Maciejewski, **Ariane Middel**, A decision support system for urban canopy selection, *FURI Poster Symposium*, Tempe, Arizona, April 22, 2022.

[C135] Kayshavi Bakshi, **Ariane Middel**, Improvements of the MaRTiny: A low cost thermal sensing device, *FURI Poster Symposium*, Tempe, Arizona, April 22, 2022.

[C134] Isaac Buo, Valentina Sagris, Jaak Jaagus, **Ariane Middel**, High-resolution shade and sky view factor maps from LiDAR for cool corridor planning, *24th Annual CAP LTER Poster Symposium*, Tempe, Arizona, March 25, 2022.

[C133] Gisel Guzmán-Echavarría, Jennifer Vanos, **Ariane Middel**, Can a reliable personal heat exposure assessment encompass more than a "one-size-fits-all" thermal index approach?, *24th Annual CAP LTER Poster Symposium*, Tempe, Arizona, March 25, 2022.

[C132] Christine B. Phillips, Akshar Patel, Alison Cantley, **Ariane Middel**, Marc A. Adams, An artificial intelligence approach to conducting pedestrian streetscape audits for physical activity, *International Society of Behavioral Nutrition and Physical Activity (ISBNPA) Conference*, Phoenix, AZ, May 18–21, 2022.

[C131] **Ariane Middel**, Biometeorological sensing of human thermal exposure in cities: Meet MaRTy!, *AGU Fall Meeting*, New Orleans, December 13–17, 2021.

[C130] Yue Chang, Jingfeng Xiao, Xuxiang Li, **Ariane Middel**, Yunwei Zhang, Zhaolin Gu, Yiping Wu, Shan He, Exploring diurnal thermal variations in urban local climate zones with ECOSTRESS land surface temperature data, *AGU Fall Meeting*, New Orleans, December 13–17, 2021.

[C129] Rubab Saher, **Ariane Middel**, Sajjad Ahmad, Haroon Stephen, Numerical approach to understanding the microclimate effects and irrigation water requirements in urban landscapes, *AGU Fall Meeting*, New Orleans, December 13–17, 2021.

[C128] Morgan Rogers, V. Kelly Turner, **Ariane Middel**, Jon Ocón, Florian Schneider, Yujia Zhang, Matthew Stiller, Evaluating microscale cooling interventions through community engaged microclimate modeling, *2021 ACSP 61st Annual Conference*, virtual, October 21–23, 2021.

[C127] Dragan Milošević, **Ariane Middel**, Stevan Savić, Jelena Dunjić, Kevin Lau, Rastislav Stojsavljević, Mask wearing behavior in hot urban spaces of Novi Sad during the COVID-19 pandemic, *22nd International Congress of Biometeorology, Connecting Our World: Biometeorology 2021*, virtual, September 20–22, 2021.

[C126] **Ariane Middel**, Thermal Technologies for heat sensing in built and natural environments, *22nd International Congress of Biometeorology, Connecting Our World: Biometeorology 2021*, virtual, September 20–22, 2021.

[C125] Florian A. Schneider, Johny Cordova, **Ariane Middel**, Jennifer K. Vanos, David J. Sailor, David M. Hondula, Kamil Kaloush, Jose Medina, COPE Phoenix – COol Pavement Evaluation Phoenix, *22nd International Congress of Biometeorology, Connecting Our World: Biometeorology 2021*, virtual, September 20–22, 2021.

[C124] V. Kelly Turner, Morgan Rogers, **Ariane Middel**, Florian A. Schneider, Yujia Zhang, Jonathan P. Ocón, Megs Seeley, Matthew Stiller, Hyper local land systems: Synergies and trade-offs between regional heat island mitigation and pedestrian thermal comfort, *3rd World Conference of the Society for Urban Ecology (SURE) 2021*, Poznań, Poland, July 7–9, 2021.

[C123] Mansoureh Gholami, Alberto Barbaresi, **Ariane Middel**, Daniele Torreggiani, Patrizia Tassinari. Evaluating the impact of urban trees on thermal comfort in Imola, Italy and Tempe, USA, *23rd Annual CAP LTER Poster Symposium*, Tempe, Arizona, May 6, 2021.

[C122] Tim Aiello, Scott Krayenhoff, **Ariane Middel**, Jon Warland A seasonal assessment of urban outdoor thermal exposure in a humid continental climate using the MaRTy observational platform, *vEGU General Assembly 2021*, April 19–30, 2021.

[C121] Valéry Masson, Estelle de Coning, Alexander Baklanov, Jorge Amorim, Clotilde Augros, Stéphane Bélair, Andreas Christen, Gilles Foret, Charmaine Franklin, Jorge Gonzalez-Cruz, Sue Grimmond, Martial Haeffelin, Simone Kotthaus, Humphrey Lean, Aude Lemonsu, Sylvie Leroyer, Peter Li, **Ariane Middel**, Amandine Rosso, and Scott Swerdlin, WMO Research Demonstration Project "Paris 2024 Olympic Games": An international initiative towards 100m-resolution meteorological and air quality forecasting in urban areas, *vEGU General Assembly 2021*, April 19–30, 2021.

[C120] **Ariane Middel**, Human-scale measurements and modeling of heat exposure, *18th Annual Climate Prediction Applications Science Workshop*, Phoenix, Arizona, April 20–22, 2021.

[C119] Morgan Rogers, V. Kelly Turner, **Ariane Middel**, Jon Ocon, Matthew Stiller, Evaluating micro-scale cooling interventions, *AAG Annual Meeting 2021*, virtual, April 7–11, 2021.

[C118] **Ariane Middel**, Solar reflective pavements—A policy panacea to heat mitigation, Climate Specialty Group John Russell Mather Paper of the Year Presentation, *AAG Annual Meeting 2021*, virtual, April 7–11, 2021.

[C117] Paul Coseo, Braden Kay, Katja Bundiers, **Ariane Middel**, Jennifer Vanos, David Hondula, Grace Logan, Heat & health maps for decision-making: Climate action for resilience to extreme heat in Tempe, Arizona, *CELA 100+1 Resilience Conference*, March 17–20, 2021.

[C116] Peter J. Crank, Mary K. Wright, **Ariane Middel**, David Hondula, David J. Sailor, Responding to shade: Connecting ecological and social landscapes to the thermal environments of neighborhoods in Phoenix, Arizona, *101st AMS Annual Meeting*, Virtual, January 10–15, 2021.

[C115] Dustin L. Herrmann, David M. Hondula, Meghan L. Avolio, Mikhail V. Chester, Stephanie S. Pincetl, Theodore S. Eisenman, **Ariane Middel**, Diane E. Pataki, Sharon L. Harlan, and G. Darrel Jenerette, "Right tree, right place, right purpose": Linking governance and biotechnical capacities in addressing climate change through urban trees. *2020 AGU Fall Meeting*, December 7–11, 2020.

[C114] Matthew Huff, **Ariane Middel**, OpenMRT model development and validation using thermal images, *Annual UCRC Poster Symposium*, Tempe, AZ, October 15, 2020.

[C113] Florian A. Schneider, Johny Cordova, **Ariane Middel**, COPE Phoenix – COol Pavement Evaluation Phoenix, *Annual UCRC Poster Symposium*, Tempe, AZ, October 15, 2020.

[C112] Ananth Udupa, Florian Schneider, **Ariane Middel**, Thermal panoramas for urban climate applications, *Annual UCRC Poster Symposium*, Tempe, AZ, October 15, 2020.

[C111] Marc A. Adams, A.D. Patel, H. Hook, T-Y Yu, **Ariane Middel**, Ross Maciejewski, V. Berardi, Christine B. Phillips, Deep learning and Google Street View: Automating microscale audits of street intersection features for physical activity. 2020 *Annals of Behavioral Medicine*, 54, S99.

[C110] Yuliya Dzyuban, David Hondula, **Ariane Middel**, Exploring pedestrian thermal comfort in hot climates, *EGU General Assembly 2020*, Vienna, Austria, May 3–8, 2020.

[C109] Shreya Banerjee, **Ariane Middel**, Subrata Chattopadhyay, Bio-meteorological assessment of outdoor micro-entrepreneurial informal communities in extreme heat- A case of two tropical Indian megacities, *EGU General Assembly 2020*, Vienna, Austria, May 3–8, 2020.

[C108] Mehdi P. Heris, Kenneth Bagstad, Austin Troy, **Ariane Middel**, National urban ecosystem accounting: A pilot study of heat mitigation and rainfall interception benefits of urban trees, *AAG Annual Meeting*, Denver, Colorado, April 6–10, 2020.

[C107] **Ariane Middel**, Florian A. Schneider, Saud AlKhaled, Paul Coseo, Björn Hagen, The right shade in the right place: Thermal assessment of natural and engineered shade in Tempe, AZ, *EDRA51*, Tempe, AZ, April 4–7, 2020.

[C106] Saud AlKhaled, **Ariane Middel**, Paul Coseo, Cooling potentials of rooftop shade: Potentials of an effective promising retrofitting strategy for reducing urban induced heating in Kuwait's residential neighborhoods, *EDRA51*, Tempe, AZ, April 4–7, 2020.

[C105] Paul Coseo, Braden Kay, **Ariane Middel**, Jennifer Vanos, David Hondula, Zoe Hamstead, Emmanuel Frimpong Boamah, Nicholas Rajkovich, Saud AlKhaled, City-university partnerships for thermally-resilient communities, *EDRA51*, Tempe, AZ, April 4–7, 2020.

[C104] Ananth Udupa, **Ariane Middel**, Pedestrian thermal exposure in urban parks in Tempe, AZ, Poster presented at the *AAAS Annual Meeting*, Seattle, Washington, February 13–16, 2020.

[C103] Mark Adams, Akshar Patel, Hannah Hook, **Ariane Middel**, Ross Maciejewski, Vincent Berardi, Christine Phillips, Training computers to see the built environment: Automated detection of intersection features using computer vision and Google Street View images, *Active Living Conference 2020*, Orlando, Florida, February 2–5, 2020.

[C102] Stephen R. Elser, Nancy B. Grimm, **Ariane Middel**, Growing shade: Daytime cooling ecosystem services of common street trees in Phoenix. *22nd Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 17, 2020.

[C101] Mary K. Wright, Peter J. Crank, **Ariane Middel**, David M. Hondula, David J. Sailor, A comprehensive assessment of the thermal environment of two PASS Neighborhoods. *22nd Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 17, 2020.

[C100] Lara Lebeiko, Paul Coseo, **Ariane Middel**, Jennifer Vanos, David Hondula, Braden Kay, Florian A. Schneider, Saud AlKhaled, Ananth Udupa, Jianni Labato, Liza Kurtz, Abdullah Aldakheelallah, Adapting urban infrastructure for local and global climate change: Climate action planning for extreme heat in urban environments. *22nd Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 17, 2020.

[C99] **Ariane Middel**, V. Kelly Turner, Florian A. Schneider, Yujia Zhang, Matthew Stiller, Thermal performance of cool pavements in Los Angeles residential neighborhoods: A pedestrian perspective, *100th AMS Annual Meeting*, Boston, Massachusetts, January 12–16, 2020.

[C98] V. Kelly Turner, **Ariane Middel**, Florian A. Schneider, Yujia Zhang, Matthew Stiller, Transformative Climate Communities (TCCs): Informing adaptation planning through cool urban design interventions in Southern California, *100th AMS Annual Meeting*, Boston, Massachusetts, January 12–16, 2020.

[C97] Jason Ching, Dan Aliaga, Gerald Mills, Alberto Martilli, Jimmy Fung, Benjamin Bechtel, Matthias Demuzere, **Ariane Middel**, Marina Neophytou, Chao Ren, Johan Feddema, Valery Masson, N. Buckley, C. Reinhart, Linda See, Yuan Huang, Fei Chen, Nigel Tapper, Alexander Baklanov, Ed Ng, Yoshiki Yamagata, Kevin Lau, Michael F. Wong, Fredrik Lindberg, Xuemei Wang, Weiwen Wang, M. F. Andrade, Oscar Brousse, Helge Simon, Tim Kropp, Shiguang Miao, Qiaodong He, Denise Duarte, P. Mouzourides, Julia Hidalgo, Yelva Roustan, YoungSeob Kim, L.S. Ferreira, L. Zhao, N. Zhang, Bob Bornstein, Jorge Gonzales-Cruz, Dev Niyogi, The WUDAPT approach towards supporting multi-scale fit for purpose intra-urban atmospheric modeling and analyses applications, *100th AMS Annual Meeting*, Boston, Massachusetts, January 12–16, 2020.

[C96] Yuliya Dzyuban, David Hondula, Maggie Messerschmidt, Jennifer Vanos, **Ariane Middel**, Paul Coseo, Heat walk: Perception of thermal comfort in relation to street infrastructure, *100th AMS Annual Meeting*, Boston, Massachusetts, January 12–16, 2020.

[C95] Jacob Lachapelle, Nicole Menheere, Scott Krayenhoff, **Ariane Middel**, Ashley Broadbent, TUF-Pedestrian: A three-dimensional microscale model for pedestrian thermal exposure in urban environments, *100th AMS Annual Meeting*, Boston, Massachusetts, January 12–16, 2020.

[C94] Paul Coseo, Braden Kay, **Ariane Middel**, Jennifer Vanos, David Hondula, Zoe Hamstead, Nicholas Rajkovich, City-university partnerships to reduce thermal vulnerability: A living labs approach for more thermally-comfortable and equitable communities. *2019 AGU Fall Meeting*, San Francisco, December 9–13, 2019.

[C93] Jacob Lachapelle, Nicole Menheere, Scott Krayenhoff, **Ariane Middel**, Ashley Broadbent, TUF-Pedestrian: A three-dimensional microscale model for pedestrian thermal exposure in urban environments, *CAGONT 2019*, Department of Geography, Environment and Geomatics, University of Guelph on October 25–26.

[C92] **Ariane Middel**, Matthias Demuzere, Urban Climate Informatics – An emerging research field, *8th Belgian Geographers Day*, Ghent, October 18, 2019.

[C91] Jennifer Vanos, David Hondula, **Ariane Middel**, H. Ambrose, Alanna Kaiser, Mary Wright, Motivations to use water for thermal comfort: the influence of evaporative mister systems on thermal comfort in outdoor eateries. *1st European Biometeorologists' Regional Meeting*, Warsaw, Poland, May 22–24, 2019.

[C90] Peter Crank, Melissa Wagner, **Ariane Middel**, Dani Hoots, Martin Smith, Anthony J. Brazel, An evaluation of mean radiant temperature estimations in an arid urban climate, *Annual ISSR Poster Symposium*, Tempe, Arizona, April 24, 2019.

[C89] Yujia Zhang, **Ariane Middel**, Billie L. Turner II, Evaluating the effect of 3D urban form on land surface temperature using Google Street View and geographically weighted regression, *Global Land Program, 4th Open Science Meeting 2019*, Bern, Switzerland, April 24–26, 2019.

[C88] **Ariane Middel**, Urban Climate Informatics – an emerging research field. *EGU General Assembly 2019*, Vienna, Austria, April 7–12, 2019.

[C87] Florian A. Schneider, **Ariane Middel**, Saud AlKhaled, Björn Hagen, Paul Coseo, 50 Grades of Shade – Assessment of engineered and natural shade in hot dry communities. *EGU General Assembly 2019*, Vienna, Austria, April 7–12, 2019.

[C86] Saud AlKhaled, Paul Coseo, Chingwen Cheng, Anthony J. Brazel, **Ariane Middel**, Predictors of urban induced heating under the full evolution of the diurnal cycle, *2nd annual Urban Climate Research Center Poster Symposium*, Tempe, Arizona, March 27, 2019.

[C85] Florian A. Schneider, **Ariane Middel**, Saud AlKhaled, Björn Hagen, Paul Coseo, 50 Grades of shade –Assessment of engineered and natural shade in hot dry communities, *2nd annual Urban Climate Research Center Poster Symposium*, Tempe, Arizona, March 27, 2019.

[C84] Yujia Zhang, **Ariane Middel**, Billie L. Turner II, Evaluating the effects of vertical urban forms on diurnal land surface temperatures using Google Street View images. *21st Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 11, 2019.

[C83] Yuliya Dzyuban, Maggie Messerschmidt, Heather Fischer, Angela Ellsworth, Patricia Solis, Jennifer Vanos, **Ariane Middel**, David Hondula, Mapping thermal comfort in Edison Eastlake

Neighborhood with citizen scientists. *21st Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 11, 2019.

[C82] Yuliya Dzyuban, David M. Hondula, Charles Redman, **Ariane Middel**, Analyzing transit-based heat exposure, and behaviors to enhance urban climate adaptation and mitigation strategies in the southwest USA. *21st Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 11, 2019.

[C81] Yuliya Dzyuban, David M. Hondula, **Ariane Middel**, Analyzing public transit-based heat exposure, perception, and behaviors to enhance climate adaptation and mitigation strategies in the Southwest USA, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C80] Yujia Zhang, **Ariane Middel**, Billie L. Turner II, Evaluating the effects of vertical urban forms on diurnal land surface temperatures using Google Street View images, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C79] Christopher G. Hoehne, David M. Hondula, Mikhail Chester, David Eisenman, **Ariane Middel**, Andrew Fraser, Lance E. Watkins, Katrina Gerster, Heat exposure during outdoor activities in the United States varies significantly by city, demography, and activity, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C78] David Hondula, Mikhail Chester, **Ariane Middel**, Andrew Fraser, David Eisenman, Christopher G. Hoehne, Lance E. Watkins, Katrina Gerster, Simulating personal heat exposure in cities with the ICARUS model, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C77] Samuel Meltzer, Matei Georgescu, Ashley M. Broadbent, Jennifer Vanos, **Ariane Middel**, Impact of trees on urban canyon microclimate, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C76] Lolya A. McWest, Ashley M. Broadbent, Jennifer Vanos, Matei Georgescu, **Ariane Middel**, Impacts of urban tree canopy and water features on the thermal environment, Poster presented at the *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C75] Jennifer Vanos, Robert D. Brown, **Ariane Middel**, Makoto Yokahari, Eichi Kosaka, and Akiko Iida, The Tokyo 2020 Olympic marathons: Spectator thermal comfort and health in the face of extreme heat, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019.

[C74] Peter J. Crank, Melissa Wagner, Anthony Brazel, **Ariane Middel**, Martin Smith, Dani Hoots, An evaluation of mean radiant temperature estimations in an arid urban climate, Poster presented at the *2018 AGU Fall Meeting*, Washington, D.C., December 10–14, 2018.

[C73] Matthias Demuzere, Benjamin Bechtel, Jason Ching, **Ariane Middel**, Gerald Mills, Frieke Van Coillie, Marie-Leen Verdonck, Local Climate Zones and their potential as a heat assessment tool, *2018 AGU Fall Meeting*, Washington, D.C., December 10–14, 2018.

[C72] Bjoern Hagen, Saud AlKhaled, Paul Coseo, **Ariane Middel**, 50 Grades of shade – Assessment of engineered and natural shade in hot dry communities, Poster presented at the *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.

[C71] **Ariane Middel**, Jonas Lukaczyk, Scott Krayenhoff, Ross Maciejewski, Level 1 UCP data from Google Street View and applications in biometeorology, *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.

[C70] Anthony J. Brazel, **Ariane Middel**, Built environment contributions to the mean radiant temperature variations in downtown Tempe, Arizona on an extreme heat day, *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.

[C69] Scott E. Krayenhoff, Ashley M. Broadbent, Evyatar Erell, Lei Zhao, Matei Georgescu, Alberto Martilli, **Ariane Middel**, David Sailor, James A. Voogt, Urban cooling from heat mitigation strategies: Systematic review of the numerical modeling literature, *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.

[C68] Mehdi P. Heris, **Ariane Middel**, Do planning and design strategies and procedures matter in microclimate management and urban heat mitigation? *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.

[C67] Jason Ching, Dan Aliaga, Gerald Mills, Valery Masson, Linda See, Marina Neophytou, **Ariane Middel**, Alexander Baklanov, Chao Ren, Ed Ng, Jimmy Fung, Michael Wong, Yuan Huang, Alberto Martilli, Oscar Brousse, Iain Stewart, Xiaowei Zhang, Aly Shehata, Shiguang Miao, Xuemei Wang, Weiwen Wang, Yoshiki Yamagata, Denise Duarte, Yuguo Li, Johan Feddema, Benjamin Bechtel, Julia Hidalgo, Yelva Roustan, YoungSeob Kim, Helge Simon, Tim Kropp, Michael Bruse, Fredrik Lindberg, Sue Grimmond, Matthias Demuzere, Fei Chen, Chen Li, Jorge Gonzales-Cruz, Bob Bornstein, Qiaodong He, Tzu-Ping Lin, Adel Hanna, Evyatar Erell, Nigel Tapper, R.K. Mall, Dev Niyogi, Characterizing and generating WUDAPT Level 1 UCP data, *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.

[C66] Lolya A. McWest, Ashley M. Broadbent, **Ariane Middel**, Jennifer Vanos, Matei Georgescu, Impacts of urban tree canopy and water features on a semi-arid thermal environment, Poster presented at the *UWIN Annual Meeting*, Colorado State University – Fort Collins, Colorado, July 30 – August 1, 2018.

[C65] Samuel Meltzer, Matei Georgescu, Jennifer Vanos, **Ariane Middel**, Ashley M. Broadbent, David Hondula, Impact of trees on urban canyon microclimate, Poster presented at the *UWIN Annual Meeting*, Colorado State University – Fort Collins, Colorado, July 30 – August 1, 2018.

[C64] Zoé Hamstead, Paul Coseo, Josh Wilson, Braden Kay, Gregory Gill, David Hondula, Rosa Inchausti, **Ariane Middel**, Bianca Shaw, Grace Kelly, Nick Rajkovich, RI-8: Special Session: Thermal extremes, smart & connected management of thermal extremes (Panel Discussion), *International Symposium for Sustainable Systems and Technology (ISSST)* 2018, Buffalo, New York, June 25-28, 2018.

[C63] Mehdi Aminipouri, Kirsten Zickfeld, Anders Knudby, **Ariane Middel**, Scott Krayenhoff, Urban microclimate modelling for evaluating the impact of heat mitigation measures on pedestrian thermal comfort: case of Vancouver's local climate zones, *EGU General Assembly 2018*, Vienna, Austria, April 8–13, 2018.

[C62] Chuyuan Wang, Soe Myint, **Ariane Middel**, Shai Kaplan, Anthony Brazel, Jonas Lukasczyk, Assessing Local Climate Zones in arid cities: The case study of Phoenix, Arizona and Las Vegas, Nevada, *AAG Annual Meeting*, New Orleans, Louisiana, April 10–14, 2018.

[C61] **Ariane Middel**, Jonas Lukasczyk, Urban form and composition of street canyons: A human-centric big data and deep learning approach, *AAG Annual Meeting*, New Orleans, Louisiana, April 10–14, 2018.

[C60] Yujia Zhang, **Ariane Middel**, B.L. Turner II, Evaluating the effects of vertical urban forms on local climate variations using Google Street View, *AAG Annual Meeting*, New Orleans, Louisiana, April 10–14, 2018.

[C59] Yujia Zhang, **Ariane Middel**, Billie L. Turner II, Evaluating the effects of vertical urban forms on land surface temperature using Google Street View, *20th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 5, 2018.

[C58] Jennifer Vanos, Robert Brown, Eichi Kosaka, Akiko Lida, Makato Yokohari, Kaoru Matsuo, **Ariane Middel**, Projected heat stress along the 2020 Olympic marathon route in Tokyo, Japan, and the

role of microclimatic design, *International Congress of Biometeorology*, Durham, UK, September 5, 2017.

[C57] David Hondula, Mario Chavez, **Ariane Middel**, Jennifer Vanos, John Harlow, Erik Johnston, Lance Watkins, Impact of heat on public transportation use and satisfaction in Phoenix, AZ: A mixed methods assessment, *American Public Health Association (APHA) 2017 Annual Meeting & Expo*, November 4–8, 2017.

[C56] **Ariane Middel**, Jonas Lukasczyk, Sky view factor footprints from synthetic fisheye photos for urban canopy parameterization, *UWIN Annual Meeting*, Fort Collins, Colorado, July 31–August 2, 2017.

[C55] Mary Wright, David Hondula, **Ariane Middel**, Jennifer Vanos, Matei Georgescu, Tiffany Justice, Usha Bhalla, The influence of urban landscape on thermal comfort in the city, *UWIN Annual Meeting*, Fort Collins, Colorado, July 31 – August 2, 2017.

[C54] Michelle N. Poletti, **Ariane Middel**, Jennifer Vanos, Impact of interior temperatures of shaded and unshaded vehicles on children's health: A case study in Phoenix, AZ, *Ecological Society of America (ESM) Annual Meeting*, Portland, Oregon, August 6–11, 2017.

[C53] **Ariane Middel**, Chuyuan Wang, Shai Kaplan, Jonas Lukasczyk, Soe Myint, Anthony J. Brazel, Local Climate Zones in arid cities–An assessment for Phoenix, AZ and Las Vegas, NV, USA, *AAG Annual Meeting*, Boston, Massachusetts, April 5–9, 2017.

[C52] Anthony J. Brazel, **Ariane Middel**, Microclimate 1930 to now in Tempe, AZ, *AAG Annual Meeting*, Boston, Massachusetts, April 5–9, 2017.

[C51] David M. Hondula, Mario Chavez, John Harlow, **Ariane Middel**, Erik W. Johnston, Jennifer K. Vanos, Thermal comfort and shade provision at City of Phoenix bus stops, *AAG Annual Meeting*, Boston, Massachusetts, April 5–9, 2017.

[C50] **Ariane Middel,** Thermal comfort, mean radiant temperature, and shade in hot dry climates, *5th Jeffrey Cook Workshop on Desert Architecture*, Ben-Gurion University of the Negev, Israel, March 8, 2017.

[C49] **Ariane Middel,** Scott Krayenhoff, Directional contributions to the radiant temperature environment measured during record-breaking extreme heat in Tempe, AZ, *97th AMS Annual Meeting*, Seattle, Washington, January 22–26, 2017.

[C48] Kathrin Feige, **Ariane Middel**, Scott Krayenhoff, Benjamin L. Ruddell, Tim Albring, Nicolas R. Gauger, Evaluating SU2 for simulation of urban canopy layer flow, *97th AMS Annual Meeting*, Seattle, Washington, January 22–26, 2017.

[C47] Melissa Davidson, Elizabeth Cook, David M. Iwaniec, Marta Berbes, Matt Boylan, Matei Georgescu, Nancy B. Grimm, Scott Krayenhoff, Xiaoxiao Li, **Ariane Middel**, Brandon Ramirez, David A. Sampson. Exploring outcomes and assessing tradeoffs of co-developed sustainable future scenarios for the central Arizona-Phoenix region. *19th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2017.

[C46] **Ariane Middel,** Jonas Lukasczyk, Pedestrian thermal comfort maps from synthetic fisheyes – A case study in Phoenix, Arizona, *ACSP 56th Annual Conference*, Portland, November 3-6, 2016.

[C45] **Ariane Middel**, Nancy J. Selover, Björn Hagen, Nalini Chhetri, Impact of photovoltaic canopy shade on outdoor thermal comfort in a hot desert city, *EGU General Assembly 2016*, Vienna, Austria, April 17–22, 2016.

[C44] Zoe Cayetano, Ryan Taylor, Christian Monahan, Elijah Campbell, Kelsey O'Brien, Rebecca Lydford, Amy Dicker, **Ariane Middel**, Björn Hagen, The influence of vegetation and built environments on midday summer thermal comfort, *18th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 15, 2016.

[C43] **Ariane Middel**, Nancy J. Selover, Björn Hagen, Nalini Chhetri, How to stay cool in the desert - The benefits of photovoltaic canopy shade, *AAG Annual Meeting*, San Francisco, California, March 29–April 2, 2016.

[C42] Anthony Brazel, **Ariane Middel**, Evaluation of an urban network (AZMET) in the Phoenix Metro Area, *AAG Annual Meeting*, San Francisco, California, March 29–April 2, 2016.

[C41] **Ariane Middel**, Jennifer Vanos, Benjamin L. Ruddell, Time-detrending surface temperature observations from mobile transects – A sensitivity analysis, *96th AMS Annual Meeting*, New Orleans, Louisiana, January 10–14, 2016.

[C40] Nancy J. Selover, **Ariane Middel**, Nalini Chhetri, Ben Mackowski, C.J. Sisodiya, How much can solar shade structures reduce interior automobile temperatures? *96th AMS Annual Meeting*, New Orleans, Louisiana, January 10–14, 2016.

[C39] Melissa Wagner, Anthony J. Brazel, **Ariane Middel**, Thermal comfort and extreme heat: A summertime assessment of RayMan model sensitivity in downtown Tempe, AZ, *96th AMS Annual Meeting*, New Orleans, Louisiana, January 10–14, 2016.

[C38] **Ariane Middel**, Xiaoxiao Li, Remote sensing of the surface urban heat island and land architecture in Phoenix, Arizona: Combined effects of land composition and configuration and cadastral-demographic-economic factors, Poster presented at *AGU Fall Meeting*, San Francisco, December 14–16, 2015.

[C37] Subhrajit Guhathakurta, **Ariane Middel**, Energy and urban form explored through dynamic networked infrastructure model, *ACSP 55th Annual Conference*, Houston, Texas, October 22–25, 2015.

[C36] **Ariane Middel**, Nancy J. Selover, Nalini Chhetri, Björn Hagen, Outdoor thermal comfort under photovoltaic canopies – A seasonal field study at Arizona State University, 9*th International Conference on Urban Climate (ICUC9),* Toulouse, France, July 20–24, 2015.

[C35] Jennifer Vanos, **Ariane Middel**, Benjamin L. Ruddell, Evan Kuras, A multiscalar thermal analysis of urban playgrounds, 9*th International Conference on Urban Climate (ICUC9),* Toulouse, France, July 20–24, 2015.

[C34] Kathrin Häb, **Ariane Middel**, Benjamin L. Ruddell, Relationship between land use and microclimate based on mobile transect measurements, 9*th International Conference on Urban Climate (ICUC9),* Toulouse, France, July 20–24, 2015.

[C33] Anthony J. Brazel, Katherine Crewe, **Ariane Middel**, Shai Kaplan, Mill Avenue, Tempe, AZ Downtown microclimate – An APA-designated best street. 9*th International Conference on Urban Climate (ICUC9),* Toulouse, France, July 20–24, 2015.

[C32] **Ariane Middel**, Benjamin L. Ruddell, Kathrin Häb, Seasonal and diurnal desert microclimate Dynamics of various shade tree and surface cover combinations. *AAG Annual Meeting*, Chicago, Illinois, April 21–25, 2015.

[C31] Kathrin Häb, **Ariane Middel**, Benjamin Ruddell, Classifying urban microclimate patches based on multitemporal mobile transect observations. *AAG Annual Meeting*, Chicago, Illinois, April 21–25, 2015.

[C30] Bjoern Hagen, Ariane Middel, David Pijawka, The longitudinal impact of climate related hydro-meteorological disasters on public perception of climate change in the United States. *AAG Annual Meeting*, Chicago, Illinois, April 21–25, 2015.

[C29] Nancy J. Selover, **Ariane Middel**, Nalini Chhetri, Benjamin Mackowski, Chhatrapalsinh Sisodiya, Impact of solar shade structures on automobile's interior temperatures. *AAG Annual Meeting*, Chicago, Illinois, April 21–25, 2015.

[C28] **Ariane Middel**, Nancy Selover, Nalini Chhetri, Björn Hagen, Benjamin Mackowski, Chhatrapalsinh Jaydevsinh Sisodiya, Microclimate effects of photovoltaic canopies: Ongoing research projects, *17th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 16, 2015.

[C27] Kathrin Häb, Benjamin L. Ruddell, **Ariane Middel**, Sensor lag correction for mobile air temperature measurements in an urban microclimate context, *17th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 16, 2015.

[C26] **Ariane Middel**, Nancy Selover, Nalini Chhetri, Björn Hagen, Outdoor thermal comfort under photovoltaic canopy structures – A field study at Arizona State University, *Sixth Conference on Environment and Health, 95th AMS Annual Meeting*, Phoenix, Arizona, January 4–8, 2015.

[C25] Kenneth Galluppi, Hana Putnam, Nalini Chhetri, Nancy Selover, **Ariane Middel**, Informing emergency and risk management with climate knowledge in arid urban areas, *10th Symposium on Societal Applications: Policy, Research and Practice, 95th AMS Annual Meeting*, Phoenix, Arizona, January 4–8, 2015.

[C23] Kathrin Häb, **Ariane Middel**, Benjamin L. Ruddell, Hans Hagen, Visual analytics and microclimate analysis: A use case for a visualization tool developed for mobile measurements, *31st Conference on Environmental Information Processing Technologies, 95th AMS Annual Meeting*, Phoenix, Arizona, January 4–8, 2015.

[C263] Donna A. Hartz, Ronald Pope, Gelas M. Simiyu, **Ariane Middel**, Peter Cheboss, Philip Raburu, Air quality and health impacts: A novel approach to an international cooperative monitoring project in Uasin Gishu County, Kenya, *Sixth Conference on Environment and Health, 95th AMS Annual Meeting*, Phoenix, Arizona, January 4–8, 2015.

[C22] Soe W. Myint, Baojuan Zheng, Chao Fan, Shai Kaplan, Anthony Brazel, **Ariane Middel**, Martin Smith, Exploring the influence of built and vegetative features on urban warming and cooling: Does spatial arrangement matter?, *20th Conference on Satellite Meteorology and Oceanography, 95th AMS Annual Meeting*, Phoenix, Arizona, January 4–8, 2015.

[C21] Matthew C. Roach, Nalini Chhetri, Wen-Ching Chuang, Nancy Selover, David. M. Hondula, **Ariane Middel**, Alex Karner, Building resilience against climate effects in Arizona: Lessons learned implementing CDC's BRACE framework. *Sixth Conference on Environment and Health, 95th AMS Annual Meeting*, Phoenix, Arizona, January 4–8, 2015.

[C20] Soe W. Myint, Baojuan Zheng, Chao Fan, Shai Kaplan, Anthony Brazel, **Ariane Middel**, Martin Smith, Does the spatial arrangement of vegetation and anthropogenic land cover features matter? Case studies of urban warming and cooling in Phoenix and Las Vegas. *AGU Fall Meeting*, San Francisco, California, December 15–19, 2014.

[C19] **Ariane Middel**, Shai Kaplan, Kathrin Häb, Anthony J. Brazel, The daytime oasis effect of desert cities - The case study of Las Vegas, NV. *UGEC*, Taipei, Taiwan, November 6–9, 2014.

[C18] **Ariane Middel**, Shai Kaplan, Anthony J. Brazel, Impact of land cover on local climate - The case study of Las Vegas, NV. *AAG Annual Meeting*, Tampa, Florida, April 8–12, 2014.

[C17] Björn Hagen, **Ariane Middel**, David Pijawka, The impact of recent climate-related hydro-meteorological disasters on public perception of climate change in the US. *AAG Annual Meeting*, Tampa, Florida, April 8–12, 2014.

[C16] Kathrin Häb, **Ariane Middel**, Benjamin L. Ruddell, Source area computation for microclimate Measurements in the Urban Canopy Layer. *AAG Annual Meeting*, Tampa, Florida, April 8–12, 2014.

[C15] **Ariane Middel**, Kathrin Häb, Anthony J. Brazel, Chris A. Martin, Benjamin L. Ruddell, Linking shading patterns of trees in Phoenix, AZ to thermal comfort. Poster presented at the *11th Symposium on the Urban Environment, 95th AMS Annual Meeting*, Atlanta, Georgia, February 2014.

[C14] **Ariane Middel**, Kathrin Häb, Benjamin L. Ruddell, Anthony J. Brazel, Chris A. Martin, Understanding the physical dynamics of microclimate: Ongoing research projects. *16th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 17, 2014.

[C13] Kathrin Häb, **Ariane Middel**, Benjamin L. Ruddell, Visualizing urban transect data. *16th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 17, 2014.

[C12] Stephanie Schweitzer, **Ariane Middel**, Wenwen Zhang, Urban transport energy consumption explored through 3D arc maps. *IEEE VisWeek 2013*, October 13–18, Atlanta, Georgia, 2013.

[C11] Björn Hagen, **Ariane Middel,** David Pijawka, The importance of public climate change perceptions for the successful implementation of mitigation and adaptation planning strategies to improve resiliency. *Planning for Resilient Cities and Regions, AESOP/ACSP Congress*, July 15–19, Dublin, Ireland, 2013.

[C10] Björn Hagen, **Ariane Middel,** David Pijawka, Rick van Schoick, Bi and multinational partnership models for sustainability education: What works? *CONAHEC's 15th North American Higher Education Conference*, Edmonton, Canada, May 1–3, 2013.

[C9] **Ariane Middel,** Kathrin Häb, Anthony J. Brazel, Chris Martin, Subhrajit Guhathakurta, Impact of urban form and design on mid-afternoon microclimate in Phoenix neighborhoods. *15th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 11, 2013.

[C8] **Ariane Middel,** Kathrin Häb, James P. Erickson, Anthony J. Brazel, Chris Martin, Subhrajit Guhathakurta, Impact of microclimate on residential energy consumption in different Phoenix Arizona neighborhood types. *PhD Design, Environment, and the Arts Student Research Poster Exhibit*, Tempe, Arizona, October 4, 2012.

[C7] **Ariane Middel**, Anthony Brazel, Shai Kaplan, Soe Myint, Summer nighttime cooling and cooling efficiency in Phoenix. *14th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2012.

[C6] Stephane Frijia, Subhrajit Guhathakurta, Eric Williams, **Ariane Middel**, Re-examining the Life cycle energy of residences: Functional unit, technological dynamics, and scaling. *COURS Poster Session*, Arizona State University, Tempe, Arizona, 2011.

[C5] Stephane Frijia, Subhrajit Guhathakurta, Eric Williams, **Ariane Middel**, Scaling behavior of the life cycle energy of residences. Poster presented February 20, 2011 at the *Decision Making Under Uncertainty (DMUU) Session of the AAAS Annual Meeting*, Washington, DC, 2011.

[C4] Stephane Frijia, Eric Williams, Subhrajit Guhathakurta and **Ariane Middel**, Scaling behavior of the life cycle energy of residential buildings and impacts on greenhouse gas emissions. *13th Annual CAP LTER Poster Symposium*, Tempe, Arizona, January 13, 2011.

[C3] **Ariane Middel**, Peter-Scott Olech, Re-tooling urban planners - Google Earth as planning support tool, *8th International Symposium (UPE 8) of the International Urban Planning and Environment Association*, March 23–26, Kaiserslautern, Germany, 2009.

[C2] **Ariane Middel**, Robert Pahle, Peter-Scott Olech, Hans Hagen, Policy-driven visualization of urban forms for planning support, Poster presented at *IEEE VisWeek 2008*, Visualization, Oct. 19–24, Columbus, Ohio, 2008.

[C1] **Ariane Middel**, Visualizing urban futures, *3rd Annual IRTG Workshop on "Visualization of Large and Unstructured Data Sets"*, September 29, Kaiserslautern, Germany, 2008.

Patents

Karthik Kashinath Kulkarni, Suren Jayasuriya, Ariane Middel, Tejaswi Gowda, Florian A. Schneider. (2023). Biometeorological sensing device with embedded computer vision. US Patent App. 17/962,460

Invited Presentations

12/2025	**Modeling and Sensing Heat at Human Scales: Living Lab Examples from Phoenix, Arizona, USA** *Seminar, UC Louvain, Bruxelles, Belgium, December 4, 2025*
11/2025	**Next-Generation Urban Heat Exposure: Novel Sensing and Modeling** *Colloquium, University of Bochum, November 26, 2025*
08/2025	**From Sensors to Solutions: Building Heat-Resilient Cities** *Seminar, University of Freiburg, Department of Earth and Environmental Sciences, August 15, 2025*
07/2025	**Heat Exposure in Cities: Novel Sensing and Modeling to Build Heat Resilience** *Seminar, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, July 29, 2025*
06/2024	**Nature-Based and Engineered Solutions for urban heat mitigation and heat justice: research and pathways** *Online Seminar and Summer School, Nanjing University, June 26–28, 2024*
06/2024	**From Shade to Cool Pavement: Strategies towards healthier, more livable cities** *Urban Infrastructure Seminar, Singapore Management University (SMU), Singapore, June 21, 2024*
06/2024	**Mitigating the Urban Heat Island Effect** *Urban Climate Leadership Certificate, Yale University, Online Guest Speaker*
04/2024	**Reducing Extreme Heat and Supporting Thermal Comfort with Schoolyard Forests** *Green Schoolyards Webinar Series, Lecture #6, with V. Kelly Turner and Jennifer Vanos, April 4, 2024* https://youtu.be/iB75OIc5pf0

03/2024 **Phoenix, Arizona: A Living Laboratory for Heat Mitigation Research**
2024 Association of University Landscape Architects Conference, Tempe, Arizona, March 21, 2024

09/2023 **Urban Tree Canopy to Mitigate Heat**
Panelist at conference "Urban Forestry: Solutions for a Changing Climate", September 16, 2023, Hixon Center for Urban Sustainability, Yale University

07/2023 **The Heat is On! Heat Exposure Assessment in the Desert Southwest US**
Seminar, Nanjing University, July 22, 2023

06/2023 **The City of Phoenix Cool Pavement Pilot Program**
Webinar for USDN, June 29, 2023

01/2023 **The New Age of Urban Meteorology: How Data is Transforming the Science of Cities**
Presidential Panel, AMS Conference, Denver, Colorado, January 11, 2023

01/2023 **Urban Climate Workshop Part 1**
Panelist, AMS Conference, Denver, Colorado, January 11, 2023

09/2022 **How geographers ("urban climatologists") help beat the heat!**
Invited Presentation and MaRTy demo, University High School in Tolleson, September 12, 2022

09/2022 **Urban Climate Informatics – An emerging direction in urban climate research**
Invited keynote, IAUC Virtual Poster Session, September 1, 2022

07/2022 **Advancements in Urban climate: Thermal environment modeling and sensing for heat mitigation**
Invited Speaker, Virtual Research Seminar, School of Geography and Ocean Science, Nanjing University, July 11, 2022

03/2022 **Biometeorological Sensing of Human Thermal Exposure: Meet MaRTy!**
Denver Urban Field Station (DUFS) Meeting, March 4, 2022

01/2022 **The City of Phoenix cool pavement pilot program**
Invited Speaker, National Asphalt Pavement Association (NAPA) Annual Meeting, Scottsdale, Arizona, January 24, 2022

12/2021 **Biometeorological sensing of human thermal exposure in cities: Meet MaRTy!**
Invited Speaker, AGU Fall Meeting, Urban Areas and Global Change session, December 15, 2021

11/2021 **Arizona heat and the MaRTy project**
SensMACH Plenary talk, November 9, 2021

11/2021 **Sensable heatscapes: Exploring heat mitigation strategies from a pedestrian perspective**
SGSUP Colloquium, November 1, 2021

09/2021 **Phoenix, Arizona: A living laboratory for heat mitigation**
EBC Climate Change Webinar, September 30, 2021

09/2021 **Thermal technologies for heat sensing in built and natural environments**
Invited Speaker, 22nd International Congress of Biometeorology, virtual, September 21, 2021

04/2021 **Artificial turf & heat**
Presentation to CEAG Member Municipalities, April 13, 2021

04/2021 **Solar reflective pavements—A policy panacea to heat mitigation**
Climate Specialty Group John Russell Mather Paper of the Year Presentation, AAG Annual Meeting 2021, virtual, April 7–11, 2021

03/2021 **2021 FSE NSF CAREER Workshop**
Panelist, March 26, 2021

03/2021 **Urban Heat (Island)**
Presentation for AZ Sustainability Alliance, March 20, 2021

02/2021 **Global Heat Health Information Network (GHHIN) Masterclass 5.1 - Understanding urban heat: Urban climate science background**
Webinar presenter (with Edith de Guzman, Matthias Roth, Heinke Schlünzen, Jennifer Vanos), February 17, 2021

10/2020 **Human thermal exposure in cities: The role of urban design**
ARCH7130 Research Studio, Northeastern University, Boston

10/2020 **Human thermal exposure in cities - Novel sensing and modeling to build heat-resilience**
SCaRP Fall Research Seminar Series, School of City & Regional Planning, GeorgiaTech

09/2020 **Heat exposure in the Southwest: Exploring mitigation strategies from a pedestrian perspective**
Presenter at the Climate Adaptation Research Symposium, UCLA Luskin Center for Innovation, September 21, 2020

09/2020 **Case critical series: Killer heat in COVID times**
Webinar moderator and presenter (with Juan Declet-Barreto, Mark Hartman, Masavi Parea), September 3, 2020

04/2019 **Urban Climate Informatics – an emerging research field**
Invited Keynote, Session "Urban climate, urban biometeorology, and science tools for cities", European Geophysical Union, Vienna, Austria, April 2019.

01/2019 **Healthy urban environments: A review of ASU heat, air, and water research**
Panelist, Healthy Urban Environments Initiative, Arizona State University, Memorial Union, January 29, 2019

10/2018 **Urban heatscapes explored — From human experience to big data**
Seminar, Future Cities Lab, National University of Singapore, November 1, 2018

09/2018 **Neighborhood shade for a walking intervention: Use of Google Street View**
Invited Attendee and Co-Presenter, Exercise Science and Skin Cancer Prevention Research Meeting, National Cancer Institute (NCI), Shady Grove, MD, September 26-27, 2018

10/2017 **Outdoor thermal comfort explored**
Invited Speaker, CHAOS Lab, Princeton University, School of Architecture and Andlinger Center for Energy and the Environment, October 18, 2017

09/2017 **Urban form and thermal comfort**
ASU-City of Phoenix (COP) Cooler Phoenix Symposium, City of Phoenix, September 29, 2017

03/2017 **Thermal comfort, mean radiant temperature, and shade in hot dry climates**
5th Jeffrey Cook Workshop on Desert Architecture, Ben-Gurion University of the Negev, Israel, March 8, 2017

02/2017 **Beat the heat: Urban climate research to build climate smart cities**
Department of Geography and Environmental Sustainability, University of Oklahoma, February 27, 2017

05/2016 **Impact of urban form and vegetation on microclimate and thermal comfort in hot desert environments**
Seminar, Nanjing University, China, May 25, 2016

03/2016 **How to stay cool in the desert: Urban climate research at the local and microscale**
Information Science and Technology Seminar Speaker Series, Los Alamos National Lab, March 7, 2016

Teaching

Fall 2023 **Introduction to Grand Urban Challenges**
AME 394, Arizona State University

Spring 2023 **Object Oriented Programming and Data Structures**
CSE 205, Arizona State University

Spring 2023 **ThinkFour**
7 online video segments recorded

Fall 2022 **ThinkFour**
4 online video segments recorded

Fall 2022 **Sensable Heatscapes**
AME 494, SOS 494, GPH 494/598, Arizona State University

Spring 2022 **Object Oriented Programming and Data Structures**
CSE 205, Arizona State University

Fall 2021 **Object Oriented Programming and Data Structures**
CSE 205, Arizona State University

Spring 2021 **Digital Culture Capstone I & II**
AME 485/486, Arizona State University

Fall 2020 **Sensable Heatscapes**
AME 494, SOS 494, GPH 494/598, Arizona State University

Spring 2020	**Sensable Heatscapes** *AME 494/598, Arizona State University*
Spring 2020	**Urban Climate Informatics** *CSE 591, Arizona State University*
Spring 2019	**Sensable Heatscapes** *AME 494/598, Arizona State University*
Spring 2018	**Geovisualization** *GUS 5073, Temple University*
Fall 2017	**Fundamentals of GIS** *GUS 5062, Temple University*
Fall 2015	**Climatology and Planning** *GPH/PUP 498/591, Arizona State University*
Spring 2012	**Research Methods for PhD Students** *Department of Computer Science, University of Kaiserslautern, Germany*

Guest Lectures and Presentations at ASU

06/2024	**From turf to trees: MaRTy and ANDI test heat mitigation solutions in Phoenix** SCN Green Infrastructure & Climate and Resilience Workgroup Meeting, June 11, 2024
04/2024	**Human thermal exposure in cities: Strategies towards healthier and more livable urban environments** College for Health Solutions Innovations Talk, April 11, 2024
04/2024	**The UHI and sustainability science: Causes, impacts, and solutions** *PUP 190/SOS 111: Sustainable Cities*
11/2023	**Extreme Heat: A Grand Urban Challenge** *EDS 301: Sustainable Community Design and Practices*
10/2023	**Urban Climate Informatics: Introduction to the SHaDE Lab** *CSE 691: Fulton Fellows Training Seminar*
10/2023	**Urban adaptation to Heat** *SOS 532: Sustainable Urban Dynamics*
09/2023	**Shade lecture** *LDE 621: Advanced Landscape Architectural Studio III*
09/2023	**Meet MaRTy!** *GPH 413/513: Meteorological Instrumentation*
08/2023	**Sensing human thermal environments in cities** *Webinar, AMS monthly climate briefings*
04/2023	**ASU Open Door** *Booth with ANDI and MaRTy*

04/2023, 11/2023	**The UHI and sustainability science: Causes, impacts, and solutions** *PUP 190/SOS 111: Sustainable Cities*
02/2023	**Solutions-focused Heat Mitigation in Action** *SOS 494/598: Healthy Urban Environments*
11/2022	**Meet MaRTy!** *GPH 413/513: Meteorological Instrumentation*
11/2022	**Impact of sustainable design on microclimate and building energy use** *HIDA Research Showcase, November 16, 2022*
11/2022	**The UHI and sustainability science: Causes, impacts, and solutions** *PUP 190/SOS 111: Sustainable Cities*
10/2022	**Phoenix, Arizona: A Living Laboratory for Heat Research** *Mirabella Lifelong Learning Signature Lecture Series, October 20, 2022*
03/2022	**Healthy urban environments: Solutions-focused heat mitigation in action!** *SOS 494/598: Healthy Urban Environments*
11/2021	**MaRTy the biometeorological cart** *GPH 413/513: Meteorological Instrumentation*
07/2021	**Sensable heatscapes** *IGD 603 Methods – Research Global Development*
11/2020	**Novel sensing and modeling to build heat-resilience** *SenSIP Seminar Series*
11/2020	**Human thermal exposure in cities** *Hydrosystems Engineering Seminar Series, School of Sustainable Engineering and the Built Environment*
11/2019	**Sustainable urban design in hot desert cities** *SOS 510: Perspectives on Sustainability*
10/2019	**The Tokyo 2020 Olympic marathons: Spectator thermal comfort and health in theface of extreme heat** *Faculty Cross Talk: Design and Sports, Global Sports Institute*
03/2019	**How to stay cool in the desert: Examples of bioclimatic research in Phoenix** *GPH 213: Climate and Weather*
02/2019	**Sensable heatscapes** *Visiting students from PennDesign, University of Pennsylvania*
11/2018	**Sensable heatscapes – Introduction to the SHADE research lab** *Digital Culture Speaker Series*
10/2018	**The UHI and sustainability science: Causes, impacts, and solutions** *SOS 111: Sustainable Cities*
10/2018	**Sensable heatscapes – Introduction to the SHADE research lab** *CEE 591: Environmental Engineering*
02/2018 & 11/2017	**The UHI and sustainability science: Causes, impacts, and solutions** *PUP 190/SOS 111: Sustainable Cities*

02/2017 & 11/2016	**The UHI and sustainability science: Causes, impacts, and solutions** *PUP 190/SOS 111: Sustainable Cities*
09/2016	**Impact of urban form, design, and landscaping on microclimate and comfort: Microclimate modeling and field observation studies in Phoenix** *PUP 442: Environmental Planning*
03/2016 & 11/2015	**The UHI and sustainability science: Causes, impacts, and solutions** *PUP 190/SOS 111: Sustainable Cities*
10/2015	**The hot and cold of it: Environmental research in extreme climates** *GPH 212: Introduction to Meteorology*
09/2015	**Urban Heat Island mitigation** *PUP 598: Environmental Planning*
04/2015	**Impact of urban form, design, and landscaping on microclimate and comfort: Microclimate modeling and field observation studies** *PUP 591: Cool Cities*
11/2014	**Impact of vegetation and urban form on neighborhood microclimate and water use: Examples of modeling and field observation studies in Phoenix** *GPH 591: Urban Climate*
11/2014	**Urbanization and the Urban Heat Island (UHI)** *Guest Lecture, GPH 314: Global Change*
10/2014	**The UHI and sustainability science: Causes, impacts, and solutions** *Guest Lecture, PUP 190/SOS 111: Sustainable Cities*
04/2014	**Planning for cooler cities: Heat mitigation in Phoenix through landscape and urban design** *Guest Lecture, PUP 591: Cool Cities*
04/2013	**Planning for cooler cities: Microclimate modeling** *Guest Lecture, PUP 591: Cool Cities*
10/2012	**Climate modeling in urban planning** *Guest Lecture, PUP 571*

Mentoring

Current Graduate Advisees (+ = advanced to candidacy)

Maryam Shafiee Shakib, PhD 2027, Geography, Arizona State University (committee member)
Protik Bose Pranto, Ph.D. 2027, Computer Science, Arizona State University (chair)
Waqar Hassan Khan, Ph.D. 2027, Computer Science, Arizona State University (chair)
Pouya Shaeri, Ph.D. 2028, Computer Science, Arizona State University (chair)
Muhammad Abdullah, Ph.D. 2027, Sustainability, Arizona State University (co-chair)
Edwin Alejandro Ramirez+, Ph.D., 2027, Geography, Arizona State University (committee member)
Peter Price+, Ph.D, 2027, Landscape Architecture, Arizona State University (co-chair)

PhD students graduated

Shri Harri Viswanathan, Ph.D. 2026, Mechanical Engineering, Arizona State University (committee member)
Gisel Guzman, Ph.D. 2026, Geography, Arizona State University (co-chair)
Zachary Van Tol, Ph.D. 2025, Sustainability, Arizona State University (co-chair)
Ali Alyakoob, Ph.D. 2024, Sustainable Engineering, Arizona State University (co-chair)
Florian Arwed Schneider, Ph.D. 2023, Sustainability, Arizona State University (chair)
Mary Wright, Ph.D. 2023, Geography, Arizona State University (committee member)
Mansoureh Gholami, Ph.D. 2022, Ag Engineering, University of Bologna, Italy (committee member)
Rui Li, PhD. 2022, Sustainable Engineering, Arizona State University (committee member)
Peter Crank, Ph.D. 2021, Geography, Arizona State University (committee member)
Fernando Piyum, Ph.D. 2020, Arts, Media and Engineering, Arizona State University (committee member)
Saud AlKhaled, Ph.D. 2019, Architecture, Arizona State University (committee member)
Mehdi Aminipouri, Ph.D. 2019, Geography, Simon Fraser University (committee member)
Mehdi P. Heris, Ph.D. 2018, Geography, University of Colorado Denver (committee member)
Yujia Zhang, Ph.D. 2018, Geography, Arizona State University (committee member)
Kathrin Häb, Ph.D. 2015, Computer Science, University of Kaiserslautern (co-chair)

MS students graduated

Mahima Gupta, M.S. 2024, Mechanical Engineering, Arizona State University (committee member)
Maya Muir, M.S. 2023, Computer Science, Arizona State University (co-chair)
Hayley Steiner, MA 2022, Arts, Media and Engineering, Arizona State University (co-chair)
Timothy Aiello, M.Sc. 2022, Environmental Sciences, University of Guelph (committee member)
Karthik Kashinath Kulkarni, M.S. 2021, Computer Engineering, Arizona State University (co-chair)
Dania Tahir Alarfaj, MA, 2020, Interior Architecture, Arizona State University (committee member)
Abdullah Ali A Aldakheelallah, M.S. 2019, Architecture, Arizona State University (committee member)
Nicole Burkard, M.S. 2019, Computer Science, University of Kaiserslautern (co-chair)
Sophie Zakrzewski, M.S. 2017, Computer Science, University of Kaiserslautern (co-chair)
Kaylee Colter, M.S. 2016, Applied Biological Sciences, Arizona State University (committee member)
Stephanie Schweitzer, M.S. 2013, Computer Science, University of Kaiserslautern (committee member)

Current Undergraduate Advisees

Fletcher Emmott, B.S., 2027, Computer Science and Barrett, Arizona State University (student volunteer, Honors thesis)

Past Undergraduate Advisees

Devbrat Hariyani, B.S., 2025, Computer Science, Arizona State University (FURI)
Andrew Yang, B.S., 2027, Computer Science, Arizona State University (student volunteer)
Advait Yadav, B.S., 2027, Computer Science, Arizona State University (student volunteer)
Namir Sabuwala, B.S., 2026, Electrical Engineering, Arizona State University (student volunteer)
Charmi Patel, B.S., 2025, Computer Science, Arizona State University (student volunteer)
Huan Doan, B.S., 2023, Computer Science, Arizona State University (student worker)
Erin Epel, B.A. 2023, Barrett Honors College, Arizona State University (internship advisor)
Trevor Johnson, B.S. 2023, Barrett Honors College, Arizona State University (internship advisor)
Neha Balamurugan, B.S. 2024, Computer Science, Arizona State University (student volunteer)
Garrett Storey, B.S. 2023, Barrett Honors College, Arizona State University (internship advisor)
Kayshavi Bakshi, B.S. 2023, Barrett Honors College, Arizona State University (internship advisor)

Completed Undergraduate Theses

Nandana Bellamkonda, B.S., 2026, Barrett Honors College (thesis co-director)
Paige Rearick, B.S., 2025, Barrett Honors College (thesis co-director)

Shrey Garg, B.S., 2024, Computer Science, Arizona State University (chair)
Trevor Johnson, B.S. 2023, Barrett Honors College, Arizona State University (co-chair)
Maya Muir, B.S. 2022, Computer Science, Arizona State University (co-chair)
Jason Manuel, B.S., 2022, Barrett Honors College, Arizona State University (committee member)
Jacob Lachapelle, B.S., 2021, Environmental Sciences, University of Guelph (committee member)
Alex Minotto, B.A. 2021, Barrett Honors College, Arizona State University (chair)
Julia Marturano, B.A. 2021, Barrett Honors College, Arizona State University (chair)
Ema Shqalsi, B.A. 2017, Barrett Honors College, Arizona State University (co-chair)

REUs

Ryan Woo, B.S. 2025, Computer Science, Arizona State University (REU, 2024)
Roshni Deb, B.S. 2024, Computer Science, Arizona State University (REU, 2021)
Katharina Roth, B.S. 2020, Computer Science, University of Kaiserslautern, Germany (REU, 2020)
Eric Kinner, B.S. 2019, Computer Science, University of Kaiserslautern, Germany (REU, 2019)
Lolya McWest, B.S. 2020, Environmental Science, Rutgers University (REU, 2018)
Samuel Meltzer, B.S. 2019, Geography, Arizona State University (REU, 2018)
Michelle Poletti, B.S. 2019, Civil Engineering, Florida International University (REU, 2016)

Visiting Students/Researchers Supervised

Chen Bin, Nanjing University, China (visiting scholar, 2025-2026)
Saud AlKhaled, Assistant Professor, Kuwait University, Kuwait (visiting scholar, 2023–2024)
Hai Yan, Assistant Professor, College of Landscape Architecture, Zhejiang A&F University, China (visiting scholar, 2023–2024)
Milica Pecelj, Assistant Professor, Department of Geography, University of East Sarajevo, Bosnia and Herzegovina (visiting scholar, 2023)
Ahmet Çilek, Assistant Professor, Landscape Architecture, Çukurova Üniversitesi, Turkey (visiting scholar, 2022–2023)
Müge Ünal Çilek, Post-Doctoral Scholar, Landscape Architecture, Çukurova Üniversitesi, Turkey (visiting scholar, 2022–2023)
Shuang Liu, Ph.D. 2023, Landscape Architecture, South China University of Technology (visiting scholar, 2022)
Isaac Newton Kwasi Buo, Ph.D. 2022, Geoinformatics, University of Tartu, Estonia (visiting scholar, 2021-2022)
Mansoureh Gholami, Ph.D. 2021, Ag Engineering, University of Bologna, Italy (visiting scholar, 2021)
Lasya Sreenivasan, 12th grade, Paradise Valley Highschool District (intern, summer 2020)
Shreya Banerjee, Ph.D. 2020, Architecture, IIT Kharagpur, India, (visiting scholar, 2019)
Jonas Lukasczyk, Ph.D. 2019, Computer Science, University of Kaiserslautern (visiting scholar, 2015-2018)
Kathrin Feige, Post-Doc, Computer Science, University of Kaiserslautern (visiting scholar, 2015-2017)

Student Groups Supervised

Computer Science Capstone group “Lenzya”, SCAI (Fall 2023/Spring 2024)
Computer Science Capstone group “Cool Routes”, SCAI (Fall 2022/Spring 2023)
Digital Culture Capstone group “Thermal Threat VR”, AME (Fall 2019)
Digital Culture Capstone group “Mobile Smart Garden”, AME (Spring 2019)
“Cows are cute” elementary school robotics group, Christ the King Catholic School, Mesa (Fall 2019)
NASA Develop group “Thermal Landscapes and Greening Initiatives in Tempe”, Arizona (Fall 2018)
Digital Culture Capstone group “LightBike”, AME (Fall 2018)
NASA CubeSat mission, co-advisor for UG “science team”, SESE, Arizona State University (2016-2017)
PUP 190/SOS 101 Honors student recitation (Fall 2015)
Engineering Projects in Community Service (EPICS), Arizona State University (Fall 2013)

Student Workers/GRAs/Volunteers Supervised

Ameya Ajitraj Shahane, M.S., Arizona State University, EPICS volunteer (07/2024 – 03/2025)
Yasaman Mohammadpour, M.S., Arizona State University, GRA (12/2024 – 05/2025)
Sawyer Routt, Discovery Fellow, SWIFL Project (05/2024 – 08/2024)
Evan Crabtree, M.S., Computer Science, Arizona State University (08/2023 – 05/2024)
Sowmik Sunil, M.S., Robotics, Arizona State University (11/2021 – 05/2023)
Sherly Hartono, B.S., Computer Science, Arizona State University (10/2021 – 12/2021)
Ananth Udupa, B.A., Barrett Honors College, Arizona State University (08/2019 – 12/2021)
Matthew Huff, B.S. 2020, Computer Science, Arizona State University (07/2020 – 12/2023)
Johny J. Cordova, B.S. 2021, Civil Engineering, Arizona State University (08/2020 – 05/2021)
Maddie Potts, B.A. 2022, Barrett Honors College, Arizona State University (08/2020 – 08/2021)
Deepti Paul, M.S. 2021, Software Engineering, Arizona State University (06/2020 – 10/2020)
Megs Seeley, Ph.D. 2023, Geography, Arizona State University (summer 2020)
Gautamdev Chaudhary, M.S. 2020, Computer Science, Arizona State University, (02/2020 – 04/2020)
Lei Zhang, M.S. 2019, Computer Science, Arizona State University (06/2018 – 05/2019)
Aman Srivastava, M.S. 2017, Software Engineering, Arizona State University (03/2017 – 09/2017)
Ben Mackowski, B.S. 2016, Engineering, Arizona State University (06/2014 – 01/2016)

Post-Docs Supervised

Isaac Buo, AME, 01/2025 – present
Parker King, SOS, 10/2024 – present

Undergraduate Advisees (for academic credit) & Honors Contracts
Ash Soriano, Honors Contract, Fall 2023
Shrey Garg, HON 498, Fall 2023
Garrett Storey, HON 498, Spring 2022
Sabah Ashfeen, Honors Contract, CSE 205, Fall 2021
Gant Miller, Honors Contract, CSE 205, Fall 2021
Haarika Atluri, Honors Contract, CSE 205, Fall 2021

Fulton Undergraduate Research Initiative (FURI)

Devbrat Hariyani, Computer Science, "Drought Prediction using Machine Learning", November 2023
Huan Doan, Computer Science, "Urban Climate Data Visualization and Exploration Tool", November 2022
Kayshavi Bakshi, Barrett Honors College, Arizona State University, "Improvement of the MaRTiny: A low cost thermal sensing device", Spring 2022
Maya Muir, Computer Science, "A Decision Support System for Urban Canopy Selection", Arizona State University, Fall 2021, Spring 2022

Student Success

Paige Rearick	2026 UCRC Student Poster Competition: 1st place in undergraduate category
Gisel Guzman	ASU Faculty Women's Association Distinguished Graduate Student Award, 2026 ASU Graduate Fellowship, 2026 Rising Tide Faculty Recruitment Program, Georgia Institute of Technology, 2025 SGSUP Melvin Marcus Memorial Fellowship, 2025 SGSUP Professional Development Award 2024/2025 Winner, AGU GeoHealth 2024 Data Visualization Competition SGSUP Matthew G. Bailey Scholarship Award, 2024 CAPLTER Graduate Grant, 2024 2023 UCRC Annual Poster Competition: 2nd place in graduate student category SGSUP Anthony J. Brazel Research Award, 2023

Waqar Hassan Khab	Best Poster Award, ISSR Poster Symposium, Fall 2025
Ryan Woo	Outstanding Undergraduate Poster Award, CAP LTER Poster Symposium, Spring 2025
Zachary Van Tol	SOS Research Achievement Award, Spring 2024
Pouya Shaeri	Best Poster Award (3rd place), ASU's UCRC, Spring 2024
Maya Muir	Outstanding Graduate, Computer Science, Spring 2022
Hayley Steiner	Outstanding Graduate in Entrepreneurship, HIDA, Spring 2022
Florian Schneider	Outstanding SOS Graduate Student, Spring 2023 Dissertation Completion Fellowship (AY 2022/2023) Graduate and Professional Student Association (GPSA) President (AY 2022/2023)
Jacob Lachapelle	AMS Annual Meeting, Oral Presentation Award, January 2020
Ananth Udupa	2020 AAAS Student E-Poster Competition: Honorable Mention in the Environment & Ecology category 2020 UCRC Student E-Poster Competition: 1st place in undergraduate category
Saud AlKhaled	2019 UCRC Annual Poster Competition: 2nd place in graduate student category 2018 UCRC Annual Poster Competition: 1st place in graduate student category
Lolya McWest	2018 UWIN Annual Poster Competition: 2nd place in undergraduate poster category
Samuel Meltzer	2018 UWIN Annual Poster Competition: 1st place in undergraduate poster category

Professional Development

08/2020 – 05/2021	**Global Futures Research Accelerator** Program helps to further develop knowledge and resources in enterprise research strategy, innovation, and competitiveness
03/2019	**Fulton Schools of Engineering NSF CAREER workshop**
08/2018 – 05/2019	**KEEN New Faculty Teaching Workshop** Fulton Schools of Engineering's professional development workshop to support effective teaching and instructional practices

Professional Memberships

2026 – present	**ACM** (Association for Computing Machinery)
2016, 2019 – present	**EGU** (European Geosciences Union)
2015 – present	**ISB** (International Society of Biometeorology)
2015 – 2017, 2021, 2026	**AGU** (American Geophysical Union)
2013 – present	**AMS** (American Meteorological Society)
2012 – present	**IAUC** (International Association for Urban Climate)
2012 – present	**AAG** (Association of American Geographers)
2011 – 2024	**IEEE** (Institute of Electrical and Electronics Engineers)

2012 – 2016	**APA** (American Planning Association)
2001 – present	**DVW** (German Surveying Association)

Reviewer

Advances in Atmospheric Sciences, Annals of GIS, Atmosphere, Buildings, Climatic Change, Computers, Environment and Urban Systems, Energies, Environment and Planning B, Environmental Health Perspectives, Environmental Research, EnvirVIS conference, EuroVis Conference, Eurographics, Geo-spatial Information Science, IEEE Symposium on Visualization, International Journal of Biometeorology, International Journal of Climatology, Israel Science Foundation (ISF), ISPRS International Journal of Geo-Information, Journal of Digital Earth, Journal of Horticulture and Forestry, Journal of Sustainable Development, Journal of Urban Ecology, Journal of Urban Forestry and Urban Greening, Journal of Urban Technology, Landscape and Urban Planning, Landscape Research, National Science Foundation, Remote Sensing, Science of the Total Environment, Sustainability, The Egyptian Journal of Remote Sensing and Space Sciences, Theoretical and Applied Climatology, Urban Climate, Urban Forestry and Urban Greening, Wellcome Trust

Professional Service

2026	Co-Convener, *AGU Annual Meeting*, Session "Synergistic Optimization and Governance of Urban Green Infrastructure: Social-Ecological Effects and Trade-offs in a Changing Climate", San Francisco, CA, December 7–11, 2026
2026	Instructor, Bochum Urban Climate Summer School (BUCSS), Ruhr-Universität Bochum, September 14–18, 2026
2026	Co-Convener, *EGU General Assembly 2026*, Session "Urban Climate Science and Services: Observations, Modeling, Tools, and Action for Resilient Cities", Vienna, Austria, May 3–8, 2026
2025	Session Co-Chair, *12th International Conference for Urban Climate (ICUC-12)*, Sessions "Biometeorology of Living Organisms in the Urban Environment", "Nature-Based Solutions for Urban Heat Mitigation and Heat Justice", Rotterdam, The Netherlands, July 7 – July 11, 2025
2025	Co-Convener, *EGU General Assembly 2025*, Session "Urban climate: observations, modeling, science tools and climate action for cities," Vienna, Austria, April 27–May 2, 2025
2025	Session Co-Chair, 24th Conference on Artificial Intelligence for Environmental Science, *105th AMS Annual Meeting*, New Orleans, January 12–16, 2025
2024	Co-Convener (with Rafiq Hamdi, Daniel Fenner, Gaby Langendijk, Julia Hidalgo), *EGU General Assembly 2024*, Session "Urban climate, urban biometeorology, and science tools for cities," Vienna, Austria, April 14–19, 2024
2024	Session Chair, *AAG Annual Meeting*, Honolulu, HI, April 16–20, 2024
2024	Session Chair, Environment and Health, *104th AMS Annual Meeting*, Baltimore, January 26 – February 1, 2024
2023	Session Co-Chair, Urban sustainability: coupling social-ecological systems to overcome climate and biodiversity crises, *International Workshop on Geography and Sustainability 2023 (GEOSUS 2023)*, Beijing, China, October 26–29, 2023.

2023	Session Co-Chair, Urban climate methods: Urban climate informatics, *11th International Conference for Urban Climate (ICUC-11)*, Sydney, Australia, August 28 – September 1, 2023
2023	Local Organizing Committee, International Congress for Biometeorology (ICB), Tempe, Arizona, May 14–17, 2023
2023	Session Chair, Urban environment and Health Impacts I &2, *103rd AMS Annual Meeting*, Denver, January 8–12, 2023
2022	Bochum Urban Climate Summer School (BUCSS), Ruhr-Universität Bochum, September 26–29, 2022, Instructor
2022 – 2026	President, International Association for Urban Climate (IAUC)
2022	Session Chair, Heat in the City: Science and Solutions, *102nd AMS Annual Meeting*, Houston/virtual, January 24–27, 2022
2021 – 2022	IAUC Virtual Poster Conference, August 30 – September 1, 2022, Organizing Committee (Keynote Committee)
2021	Session Chair, Actionable Heat and Health Science for Improved Decision-Making, *101st AMS Annual Meeting*, New Orleans (virtual), Louisiana, January 10–14, 2021
2020 – 2022	Guest editor, Frontiers Special Topic Collection "Urban Climate informatics"
2020 – present	Board member, AMS Built Environment (BUE)
2020	Session Co-Chair, Outcome-Focused Urban Climate Research for Community Resilience, *100th AMS Annual Meeting*, Boston, Massachusetts, January 12–16, 2020
2019 – 2022	Executive Board member (Treasurer), International Association for Urban Climate (IAUC)
2019	Session Co-Chair, Phoenix as a Sandbox for Studying Urban Climate in Arid Regions, *99th AMS Annual Meeting*, Phoenix, Arizona, January 6–10, 2019
2018	Session Chair, Biometeorology IV, *10th International Conference on Urban Climate (ICUC-10)*, New York, August 6–10, 2018.
2017	Workshop Co-chair, EnvirVIS 2017, Barcelona, Spain, June 12-16, 2017
2016 – 2019	Elected Board member, International Association for Urban Climate (IAUC)
2016 – present	Leadership team member, Urban Climate Research Center, Arizona State University
2016	Workshop Co-chair, EnvirVIS 2016, Groningen, Netherlands, June 6-10, 2016
2015	Workshop Co-chair, EnvirVIS 2015, Cagliari, Italy, May 25-26, 2015
2014	Program Committee, EnvirVIS 2014, Swansea, UK, June 9-13, 2014
2013	Scientific Committee, CUPUM 2013, Utrecht, Netherlands, July 2-5, 2013
2011	Co-organizer, Annual IRTG Workshop, Kaiserslautern, Germany, June 10-11, 2011
1998 – 2003	Board member of the German Geodesy student society ARGEOS

Arizona State University Service

2024 – 2026 GAME Personnel Committee

2023 – 2024 Assistant Director of Research, Global Futures Laboratory

2023 – 2024 AME/ECEE Faculty Search Committee, AI

2022 – 2023 SCAI Faculty Search Committee, Urban and Social Computing

2022 – 2025 SCAI Undergraduate Program Committee for Computer Science

2021 – 2022 SCAI Working Group on Instructional Innovation

2021 AME Charter Committee

2020 – 2021 AME Director Search Advisory Committee

2019 – 2020 Faculty Search Committee, Architecture

2019, 2020, 2023 Poster Judge, ASU Urban Climate Research Center, Student Poster Competition

2019, 2020 Poster Judge, CAP LTER Annual Poster Symposium

2016 – present Urban Climate Research Center Leadership Team

Public Service

[M200] PBS Resolve to Solve with Miles O'Brien (August 26, 2026)
https://www.pbs.org/show/resolve-to-solve/

[M199] AZ Family (June 2026): Cool Routes tool maps shadiest walking paths on ASU Tempe campus
https://www.azfamily.com/2026/06/25/cool-routes-tool-maps-shadiest-walking-paths-asu-tempe-campus/

[M198] Grist (June 2026): Desperate for shade on your walk? There's (almost) an app for that.
https://grist.org/cities/desperate-for-shade-on-your-walk-theres-almost-an-app-for-that/

[M197] Planetizen (June 16, 2026): Cool Routes app plots shady walks in arid Arizona
https://www.planetizen.com/news/2026/06/137813-cool-routes-app-plots-shady-walks-arid-arizona?amp

[M196] ASU News (June 2026): New series with veteran science journalist Miles O'Brien to feature ASU researchers
https://news.asu.edu/20260612-environment-and-sustainability-new-series-veteran-science-journalist-miles-obrien-feature

[M195] PopularScience (June 2016), Arizona students design app that calculates least-sweaty walking route
https://www.popsci.com/technology/cool-routes-walking-app-arizona/

[M194] ASU News (June 2026): New 'Cool Routes' app maps shadiest routes for your walk
https://news.asu.edu/20260610-environment-and-sustainability-new-cool-routes-app-maps-shadiest-routes-your-walk

[M193] ASU News (April 2026): How life changes as global heat records intensify
https://news.asu.edu/b/20260325-extreme-heat-wave-climate-phoenix

[M192] The State Press (April 2026): Rising temperatures bring greater usage to ASU's heat mitigation resources, strategies
https://www.statepress.com/article/2026/04/university-heat-mitigation-strategies#

[M191] Blaze Radio Online (October 2025): When Phoenix temperatures Rise, Communities Answer With More Trees
https://www.blazeradioonline.com/article/2025/10/em3uoi5z0p0esve

[M190] KJZZ/NPR (August 2025): Sweating manikin helps ASU researchers learn how to make working in the heat safer
https://www.kjzz.org/the-show/2025-08-26/sweating-manikin-helps-asu-researchers-learn-how-to-make-working-in-the-heat-safer

[M189] ASU News (August 2025): Helping elementary school kids stay active, even in the heat
https://news.asu.edu/20250804-health-and-medicine-helping-elementary-school-kids-stay-active-even-heat

[M188] Spectrum Local News (July 2025): What are 'urban heat islands' and what causes them?
https://spectrumlocalnews.com/nys/central-ny/news/2025/07/26/what-are--urban-heat-islands--and-what-causes-them-

[M187] The Atlantic (July 2025): Like AC for the Outdoors
https://www.theatlantic.com/ideas/archive/2025/07/shade-climate-change/683578/

[M186] AZPM (July 2025) Extreme heat hits unhoused Arizonans hardest
https://news.azpm.org/p/news-topical-nature/2025/7/18/225634-extreme-heat-hits-unhoused-arizonans-hardest/

[M185] KJZZ (May 2025): Is all shade created equal?
https://www.kjzz.org/the-show/2025-05-21/is-all-shade-created-equal-different-types-can-cool-a-heat-island-and-boost-your-mental-health

[M184] ASU News (November 2024): ASU tops $900 million in research expenditures
https://news.asu.edu/20241127-university-news-asu-tops-900-million-research-expenditures

[M183] KJZZ (November 2024): Cool pavement could be a way to reduce the impacts of extreme heat — but it comes with trade-offs
https://www.kjzz.org/the-show/2024-11-18/cool-pavement-could-be-a-way-to-reduce-the-impacts-of-extreme-heat-but-it-comes-with-trade-offs

[M182] PBS Weathered (October 2024): The Heat is On
https://video.kansascitypbs.org/video/the-heat-is-on-8ffzis/

[M181] ABC News (September 2024): Phoenix's streak of over 100-degree temperatures reaches 100th day
https://abcnews.go.com/US/phoenix-arizonas-streak-100-degree-temperatures-reaches-100th/story?id=113359196

[M180] Inside Climate News (September 2024): Finding a Fix for Playgrounds That Are Too Hot to Touch
https://insideclimatenews.org/news/24092024/arizona-fix-for-playgrounds-too-hot-to-touch/

[M179] Bloomberg (September 2024): Workers Want Flexible Heat Standard as OSHA Eyes Trigger Temp
https://news.bloomberglaw.com/daily-labor-report/workers-want-flexible-heat-standard-as-osha-eyes-trigger-temp

[M178] NASA Earth Observatory (August 2024): Running Through Paris Heat
https://earthobservatory.nasa.gov/images/153178/running-through-paris-heat

[M177] NZZ Neue Züricher Zeitung (August 2024): Too hot even for cactuses: Phoenix offers a taste of heat's dangers
https://www.nzz.ch/english/climate-baked-phoenix-offers-a-foretaste-of-heats-dangers-ld.1841765
https://www.nzz.ch/report-und-debatte/besuch-im-hitzelabor-phoenix-wo-es-selbst-fuer-kakteen-zu-heiss-ist-ld.1840815

[M176] CNN (August 2024): Icy body bags and mobile coolers: Here's what it takes now to survive outside in America's hottest city
https://www.cnn.com/2024/08/01/climate/phoenix-heat-ice-body-bags-unhoused/index.html

[M175] AZ PBS (July 2024): ASU Scientists unveil MaRTy Weather Research Tool
https://azpbs.org/horizon/2024/07/asu-marty-weather-research-tool/

[M174] ASU News (July 2024): Saving Lives from an Invisible Killer
https://news.asu.edu/20240729-environment-and-sustainability-saving-lives-invisible-killer

[M173] The Latin Times (July 2024): Inside Phoenix's 'heat island', where building layouts create temperatures so high it's almost unlivable
https://www.latintimes.com/inside-phoenixs-heat-island-where-building-layouts-create-temperatures-so-high-its-almost-556416

[M172] The Los Angeles Times (July 2024): Blazing hot surfaces risk causing catastrophic burn injuries in the urban desert
https://www.latimes.com/world-nation/story/2024-07-05/blazing-hot-surfaces-are-a-danger-for-catastrophic-burn-injuries-in-the-urban-desert

[M171] 12News (July 2024): 'Those neighborhoods get really, really hot': Phoenix's heat island is no paradise
https://www.12news.com/article/weather/heat/phoenixs-heat-island-raising-temperature-by-several-degrees-study-shows/75-84be27fe-e5ac-4dcb-94a3-1da0284afbba

[M170] National Geographic (July 2024): These tried-and-true tips will help you stay cool on a hot day
https://www.nationalgeographic.com/science/article/stay-cool-heat-wave

[M169] AZ Central (July 2024): Sensing heat: How scientists in Phoenix study summer's deadliest invisible threat
https://www.azcentral.com/story/news/local/arizona-environment/2024/07/10/how-phoenix-is-paving-the-way-on-urban-heat-research-and-mitigation/74198321007/

[M168] WSB Radio (July 2024): Blazing hot surfaces are a danger for catastrophic burn injuries in the urban desert Southwest
https://www.wsbradio.com/news/health/blazing-hot-surfaces/WAY4APGXTBH7ZNRQGNR6LC7MDM/

[M167] Sky News (July 2024): Millions under heat health alerts in US - as hidden dangers of soaring temperatures revealed
https://news.sky.com/story/millions-under-heat-health-alerts-in-us-as-hidden-dangers-of-soaring-temperatures-revealed-13162827

[M166] ABC15 (July 2024): Sizzling sidewalks, unshaded playgrounds pose risk for surface burns over searing Southwest summer
https://www.abc15.com/news/local-news/sizzling-sidewalks-unshaded-playgrounds-pose-risk-for-surface-burns-over-searing-southwest-summer

[M165] The Miner (July 2024): Blazing hot surfaces are a danger for catastrophic burn injuries in the urban desert Southwest

https://www.kdminer.com/news/blazing-hot-surfaces-are-a-danger-for-catastrophic-burn-injuries-in-the-urban-desert-southwest/article_1ba3ab3a-398b-11ef-9df4-7700499d9889.html

[M164] Washington Post (June 2024): Hajj heat wave deaths underscore climate threat for most vulnerable
https://www.washingtonpost.com/world/2024/06/23/hajj-heat-saudi-arabia-pilgrims/

[M163] ABC News (June 2024): Is air conditioning enough? Why extreme heat can still put you at risk
https://abcnews.go.com/US/air-conditioning-extreme-heat-put-risk/story?id=111256838

[M162] CBS Mornings (June 2024): Dangerous Southwest Scorcher
https://x.com/CBSMornings/status/1800515832029520202

[M161] ASU News (May 2024): ASU scientists use new technologies to monitor, mitigate heat exposure risk
https://news.asu.edu/20240529-environment-and-sustainability-asu-scientists-use-new-technologies-monitor-mitigate-heat

[M160] ASU News (February 2024): ASU faculty honored for contributions to extreme heat research
https://news.asu.edu/20240223-environment-and-sustainability-asu-faculty-honored-contributions-extreme-heat-research

[M159] WIRED UK Magazine (February 2014): Who Tests If Heat-Proof Clothing Actually Works? These Poor Sweating Mannequins
https://www.wired.com/story/heat-proof-clothing-testing-sweating-mannequins-thermetrics/

[M158] State Press (January 2014): Combating Urban Heat: The Breakthrough Research of ASU's SHaDE Lab
https://www.statepress.com/article/2024/01/shade-lab-at-asu-latest-developments

[M157] 12 News (January 2024): Why fake grass is not a good alternative for your lawn
https://www.12news.com/article/tech/science/environment/artificial-turf-dangerous-pfas/75-8d23c43d-caa4-45c0-9206-ca8c42f9b5ab

[M156] Cronkite News (October 2023): Phoenix funding trees and shade structures for underserved communities
https://cronkitenews.azpbs.org/2023/10/12/phoenix-funding-trees-shade-structures-underserved-communities/

[M155] Arizona State Press Magazine (October 2023): Hot, Hotter, Hottest: How the University is combating Arizona's historic heat
https://www.statepress.com/article/2023/10/magazine-urban-heat-robot-asu

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