POUYA VAHMANI, Ph.D.

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EDUCATION

- **PhD, Civil and Environmental Engineering: Hydrology and Water Resources (major) and Atmospheric Sciences (minor)**, University of California, Los Angeles, 2010 to 2014, GPA - 3.97
- **M.S., Environmental Engineering**, California State University of Los Angeles, 2008 to 2010, GPA – 4.00
- **B.S., Civil Engineering,** Shahid Bahonar University of Kerman (Iran), Feb.2002 to Feb.2006

PEER- REVIEWED PUBLICATIONS

Vahmani, P., Xuan L., Jones, A. D., & Hong T., (2022). Anthropogenic heating of the urban environment: An investigation of feedback dynamics between urban micro-climate and decomposed anthropogenic heating from buildings. Building and Environment, 213, (2022), 108841, https://doi.org/10.1016/j.buildenv.2022.108841

Vahmani, P., Jones, A. D., & Li, D. (2022). Will anthropogenic warming increase evapotranspiration? Examining irrigation water demand implications of climate change in California. Earth's Future, 10, e2021EF002221, https://doi.org/10.1029/2021EF002221

Xuan L., **Vahmani P.,** Hong T., and Jones A. (2020), City-Scale Building Anthropogenic Heating during Heat Waves, ***Atmosphere,*** 2020, 11(11), 1206; https://doi.org/10.3390/atmos11111206

Maina, F. Z., Siirila-Woodburn, E. R., and **Vahmani, P.** (2020), Sensitivity of meteorological-forcing resolution on hydrologic variables, ***Hydrol. Earth Syst. Sci.***, 24, 3451–3474, https://doi.org/10.5194/hess-24-3451-2020.

Vahmani, P., A. D., Jones, C. M., Patricola, (2019), Interacting implications of climate change, population dynamics, and urban heat mitigation for future exposure to heat extremes, ***Environ. Res. Lett.*** https://doi.org/10.1088/1748-9326/ab28b0

Ullrich, P. A., Xu, Z., Rhoades, A. M., Dettinger, M. D., Mount, J. F., Jones, A. D., & **Vahmani, P.** (2018). California's drought of the future: A midcentury recreation of the exceptional conditions of 2012–2017. ***Earth's Future***, doi:10.1029/2018ef001007.

Vahmani, P., A. D., Jones (2017), Water conservation benefits of urban heat mitigation, ***Nature Communications***, doi:10.1038/s41467-017-01346-1.

Epstein S. A., S.-M. Lee, A. S. Katzenstein, M. Carreras-Sospedra, X. Zhang, S. C. Farina, P. **Vahmani, P.** M. Fine, and G. Ban-Weiss (2017), Air-quality implications of widespread adoption of cool roofs on ozone and particulate matter in southern California, ***PNAS***, doi: 10.1073/pnas.1703560114.

Vahmani, P., F., Sun, A., Hall, and G. Ban-Weiss (2016), Investigating the climate impacts of urbanization and the potential for cool roofs to counter future climate change in Los Angeles, ***Environ. Res. Lett.***, 11 124027, doi: 10.1088/1748-9326/11/12/124027.

Vahmani, P., and G. Ban-Weiss (2016), Climatic consequences of adopting drought-tolerant vegetation over Los Angeles as a response to California drought, ***Geophys. Res. Lett.***, 43, 8240–8249, doi:10.1002/2016GL069658.

Vahmani, P., and G. Ban-Weiss (2016), Impact of Remotely Sensed Albedo and Vegetation Fraction on Simulation of Urban Climate in WRF-UCM: A Case Study of the Urban Heat Island in Los Angeles. ***J. Geophys. Res. Atmos.,*** 120, doi: 10.1002/2015JD023718.

Vahmani, P., and T. S., Hogue (2015), Urban irrigation effects on WRF-UCM summertime forecast skill over the Los Angeles metropolitan area, ***J. Geophys. Res. Atmos.***, 120, doi:10.1002/2015JD023239.

Vahmani, P. and T. S., Hogue (2014), Incorporating an Urban Irrigation Module into the Noah Land Surface Model Coupled with an Urban Canopy Model, ***J. Hydrometeor.,*** 15, 1440–1456, doi:10.1175/JHM-D-13-0121.1.

Vahmani, P. and T. S., Hogue (2014), High-resolution land surface modeling utilizing remote sensing parameters and the Noah UCM: a case study in the Los Angeles Basin, ***Hydrol. Earth Syst. Sci.***, 18, 1–16, doi:10.5194/hess-18-4791-2014.

PROFESSIONAL EXPERIENCE

- Since August 2019, Lawrence Berkeley National Lab
  Research Scientist
  Conducting research on urban land-atmosphere interactions and micro-climate modeling; urban flooding and groundwater recharge; urban climate resilience and adaptation; climate change and weather extremes in cities; and building anthropogenic heating and energy demand.
- March 2016 – August 2019, Lawrence Berkeley National Lab
  Postdoctoral Fellow (co-PIs: Dr. Andrew Jones and Dr. William Collins)
  Conducting research on urban climate adaptation, extreme heat risk in cites, and land-atmosphere interactions in urban areas.
- September 2014 – March 2016, University of Southern California, Los Angeles
  Postdoctoral scholar and research associate (PI: Dr. George Ban-Weiss)
  Conducted research on the interaction between climate and human activities and climate adaptation in urban areas.
- September 2010 – August 2014, University of California, Los Angeles
  Graduate Student Researcher (PI: Dr. Terri Hogue)
  Performed research on urban micro-climate modeling, urban irrigation, and remote sensing of urban land surface.
- May 2009 – June 2010, The Center for Energy & Sustainability, CSULA, Los Angles, California
  Graduate Student Researcher (PI: Dr. Chris Khachikian)
  Performed research on soil weathering due to CO_2 exposure and other environmental engineering research projects.

INVITED TALKS

- Vahmani, P., Xuan L., Hong T., A.D. Jones (2021), **"Anthropogenic Heating of the Urban Environment under Extreme Heat Conditions",** Invited Talk at 2021 Fall Meeting, AGU, New Orleans, Louisiana.
- Vahmani, P., A.D. Jones (2019), **"Evolution of Extreme Heat Risk in Cities: Interacting Implications of Climate Change, Population Dynamics, and Urban Heat Mitigation",** Invited Talk at 2019 Fall Meeting, AGU, San Francisco, Calif.
- Vahmani, P. (2018), ***"Process-based Urban Hydro-climate Modeling with Applications in Climate Change, Extremes, and Adaptation"***, University of California Irvine, Civil and Environmental Engineering Department, November 2018.

CONFERENCE PRESENTATIONS

Anthropogenic Heating of the Urban Environment under Extreme Heat Conditions, Oral Presentation at the *AGU Fall Meeting*, 2021

Local and Global Drivers of Irrigation Water Demand in California: Interacting Implications of Climate Change and Adaptation, Oral Presentation at the *AGU Fall Meeting*, 2020.

Evolution of Extreme Heat Risk in Cities: Interacting Implications of Climate Change, Population Dynamics, and Urban Heat Mitigation, invited talk at the *AGU Fall Meeting,* 2019.

Future of Urban Water Demand in California: Can Heat Mitigation Efforts Offset Climate Change?, *Oral Presentation* at the *10th International Conference on Urban Climate/14th Symp. on the Urban Environment,* 2018.

Implications of cool roofs for future exposure to heat extremes in California, *poster* presented at the *AGU Fall Meeting,* 2018.

Water conservation benefits of urban heat mitigation and anthropogenic warming impacts on water demand, *Oral Presentation* at the *Cities and Climate Change Science Conference,* 2018.

Water conservation benefits of urban heat mitigation: can cooling strategies reduce water consumption in California? *Oral Presentation* at the *AGU Fall Meeting,* 2017.

Interactions between cool roofs and urban irrigation: Do Cooling Strategies Reduce Water Consumption in the San Francisco Bay Area? *poster* presented at the *AGU Fall Meeting,* 2016.

Satellite-Supported Modeling of the Relationships between Urban Heat Island and Land Use/Cover Changes, *poster* presented at the *AGU Fall Meeting,* 2015.

WRF-UCM Modeling of Urban Land-Atmosphere Interactions with a Focus on Landscape Irrigation in the Los Angeles Metropolitan Area, *poster* presented at the *AGU Fall Meeting,* 2014.

Integrating Remote Sensing Data in Noah-UCM Parameterization and Validation: A Case Study for the Los Angeles Metropolitan Area, *poster presented at the AGU Fall Meeting,* 2013.

Vahmani, P. and T. S., Hogue (2013), Modelling and analysis of the impact of urban irrigation on land surface fluxes in the Los Angeles metropolitan area, Climate and Land Surface Changes in Hydrology *Proceedings of H01, IAHS-IAPSO-IASPEI Assembly*, Gothenburg, Sweden, July 2013, IAHS Publ. 359.

Development of an Anthropogenic Soil Moisture Contribution Module in the NOAH-UCM for the Los Angeles Metropolitan Region, *Oral presentation, at AGU Fall Meeting*, 2012.

Development and Validation of the Noah-Urban Canopy Model for Two Distinct Urban Climates in the Los Angeles Basin, *poster* presented at the *AGU Fall Meeting,* 2011.

Microtextural analysis of weathering in CO_2 saturated soils, *poster presented at the Spring ACS National Convention*, 2010.

AWARDS AND FELLOWSHIPS

- Early Career Enrichment Program (ECEP) participant, Earth and Environmental Sciences Area, Lawrence Berkeley National Lab, 2020.
- The Berkeley Lab's Top Science Story of 2019: *Cool Roofs Can Help Shield California's Cities Against Heat Waves*: https://newscenter.lbl.gov/2019/12/16/berkeley-labs-top-10-science-stories-of-2019/
- Nominated for Laboratory-Directed Research and Development (LDRD) Early Career Award by Earth and Environmental Sciences Area, 2019.
- *IAHS Best Early Career Scientist Paper Award*, the Gothenburg Assembly, 2013.
- *NASA Earth System Science Fellowship (NESSF)*, University of California, Los Angeles, 2012 and 2013.

- *Bridge to the Doctorate Fellowship*, the Center for Energy and Sustainability/California State University, Los Angeles, 2010.
- *Special Recognition in Graduate Studies*, CSULA 2010 Honors Convocation.
- *Outstanding Poster Presentation Award in Engineering*, 2010 CSULA Student Symposium.
- *Graduate Student Fellowship*, the Center for Energy and Sustainability/California State University, Los Angeles, 2009.
- *Graduate Student Scholarship*, Shahid Bahonar Uni. of Kerman (Iran), 2006.
- *First Ranked Graduating Student* in Civil Eng. Class, Shahid Bahonar Uni. of Kerman (Iran), 2006.

REVIEWER FOR

PLOS ONE, Earth's Future, Geophysical Research Letters; Journal of Geophysical Research – Atmospheres; Science of the Total Environment; Remote Sensing; Urban Climate; Urban Forestry & Urban Greening; Journal of Hydrology; Climate; and Sustainability.

PROFESSIONAL SOCIETIES

American Geophysical Union (AGU); American Meteorological Society (AMS); and American Society of Civil Engineers (ASCE)

TEACHING/WORK EXPERIENCE

- Fall and Winter 2015, Civil and Environmental Engineering, University of Southern California, ***Guest Lecturer****:*
  Responsibilities: Prepared and delivered guest lectures on topics such as land surface-atmosphere interactions, climate change mitigation, and urban climate.
- Winter 2011, Civil and Environmental Engineering, University of California, Los Angeles, ***Teacher Assistant****: Introduction to Water Resources Engineering,*
  Responsibilities: Prepared and taught weekly 1-hour lectures for a class of 75 undergraduates. Held weekly office hours. Helped with the design of assignments and course exams.
- From January 2008 to February 2009, ANM Eng. Inc., Sherman Oaks, California, ***Structural Engineer****,*
  Responsibilities: Designed residential buildings. Performed the structural drafting and required inspections.