

Zachary Van Tol

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EDUCATION

Arizona State University, School of Sustainability Expected May 2025
Doctor of Philosophy (Ph.D.) Tempe, AZ

*Dissertation: The crossroads of homelessness, climate, and media in Phoenix, Arizona:
Distilling dynamics, risks, and potential solutions*

Virginia Polytechnic Institute and State University May 2021
Master of Science in Geography Blacksburg, VA

Thesis: Analysis of Urban Heat Island Intensity Through Air Mass Persistence

Virginia Polytechnic Institute and State University December 2019
Bachelor of Science in Meteorology, Magna Cum Laude Blacksburg, VA

Geography Minor, Leadership and Social Change Minor

RESEARCH EXPERIENCE

Graduate Research Assistant Fall 2021-Fall 2022
Arizona State University, School of Arts, Media and Engineering, SHaDE Lab Tempe, AZ

- Utilized biometeorological instruments (spectrometers, net radiometers, etc.) to measure thermal comfort within the urban landscapes.
- Developed a four-height resistance temperature detector (RTD) array to measure temperature gradients above heat-mitigating technologies.

Graduate Service Assistant Summer 2022
Arizona State University, School of Social Work Tempe, AZ

- Assisted in the collection of over 200 community-targeted surveys.
- Applied a ‘social determinants of health’ framework to needs-match services among homeless youth in Maricopa County, AZ.

Undergraduate Research Assistant Sept. 2017-Dec. 2018
Virginia Polytechnic and State University, Department of Geography Blacksburg, VA

- Utilized the Spatial Synoptic Classification system to identify variability in synoptic scale air mass persistence from 1958-2017 in the United States.

TEACHING EXPERIENCE

Graduate Teaching Assistant Spring 2023-Current
Arizona State University, School of Public Affairs Tempe, AZ

- Courses taught: Science Technology, and Public Affairs

Social Cohesion Student Fellow Fall 2022
Arizona State University, Center for the Study of Race and Democracy Tempe, AZ

- Co-facilitated public dialogue on the books “Made in China” by Anna Qu and “I’ve Been Here all the While” by Alaina Roberts

Graduate Teaching Assistant Jan. 2020-May 2021
Virginia Polytechnic and State University, Department of Geography Blacksburg, VA

- Courses taught: Intro to Earth’s Climate, Climate Dynamics I & II, Geography of Wine, and Sustainable Urbanization

Undergraduate Teaching Assistant Sept. 2017-Dec. 2018
Virginia Polytechnic and State University, Department of Geography Blacksburg, VA

- Courses taught: Digital Planet (use of GIS)

PUBLICATIONS

Mayberry N.K. and **Van Tol Z.** “Antarctica’s Future: How Empire Lurks Below the Ice of the World’s Most Protected Place” In: *Annals of the American Association of Geographers*. Under Review.

Van Tol Z., Vanos J.K., Middel A., and Ferguson K.M. (2024). “Concurrent Heat and Air Pollution Exposures Among People Experiencing Homelessness” In: *Environmental Health Perspectives*.

Van Tol Z. and Ellis A.W. (2023). “Analysis of Urban Heat Island Intensity Through Air Mass Persistence: A Case Study of Four United States Cities” In: *Urban Climate*.

Ramseyer C.A., Stanfield T.J., **Van Tol Z.**, Gingrich T., Henry P., Forister P., Lamkin B.F., Stackhouse S., and Samrin S.S. (2022). “Identifying Eastern U.S. Atmospheric River Types and Evaluating Historical Trends” In: *Journal of Geophysical Research-Atmospheres*.

REPORTS

Turner V. K., Middel A., Rogers M., Engel R., Schneider F.A., and **Van Tol Z.** (May 2023). *Site Design and Human Heat Burden in Pacoima, California*. UCLA Luskin Center for Innovation.

<https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/luskin-pacoima-extreme-heat-report.pdf>

PRESENTATIONS AND POSTERS

Van Tol Z., Vanos J.K., Middel A., and Ferguson K. (April 2024). “Reducing Heat and Air Pollution Risk for People Experiencing Homelessness: Leveraging Existing Data Sets to Optimize Resource Allocation in Phoenix, Arizona”. 2024 AAG Annual Meeting, Honolulu, HI. Oral Presentation. *Accepted*

Schneider F.A., Cordova-Ortiz J., Vanos J.K., Sailor D.J., Middel A., and **Van Tol Z.** (Aug. 2023). “Evidence-based guidance on reflective pavement for urban heat mitigation in Arizona”. 11th International Conference on Urban Climate (ICUC11), Sydney, Australia. Oral Presentation.

Van Tol Z., Vanos J.K., and Middel A. (May 2023). “Reflective Pavements as an Urban Heat Mitigation Strategy: What is still to be understood?”. 2023 International Congress on Biometeorology, Tempe, AZ.

Van Tol Z. (Feb. 2023). “The Right to the City”: Reclaiming access to public spaces to reduce climate exposure. Local to Global Justice 22nd Annual Forum & Festival, Tempe, AZ. Oral Presentation.

Van Tol Z., Vanos J.K., Middel A., and Ferguson K. (Jan. 2023). “The Climate Consequences of Privatizing Public Spaces”. Central Arizona-Phoenix Long-Term Ecological Research Twenty-Fifth Annual All Scientists Meeting and Poster Symposium, Scottsdale, AZ.

Van Tol Z. (Oct. 2022). ‘The Right to the City’ – How does the interdiction of public spaces alter climate exposures among those experiencing homelessness? Sustainability Seminar Series at ASU, Tempe, AZ. Oral Presentation.

Wu S., Ervin B., Hartmark-Hill J., **Van Tol Z.**, Tuskai C., Vieira J., & Lotten A. (Sept. 2022). “Social Determinants of Health Among Young Adults Experiencing Homelessness”. 2022 Arizona Health Equity Conference. Oral Presentation.

Ramseyer C.A., Stanfield T.J., **Van Tol Z.**, Gingrich T., Henry P., Forister P., Lamkin B.F., Stackhouse S., and Samrin S.S. (Mar. 2022). “Atmospheric River Types and Historical Trends in Moisture Transport in the Eastern and Central U.S.” 1st Annual Southern Appalachian Weather and Climate Workshop, Asheville, NC.

Ramseyer C.A., Stanfield T.J., **Van Tol Z.**, Gingrich T., Henry P., Forister P., Lamkin B.F., Stackhouse S., and Samrin S.S. (Feb. 2022). “Eastern U.S. Atmospheric River Types and Trends”. 118th American Association of Geographers Annual Meeting, Virtual Meeting.

Van Tol Z. and Ellis A.W. (Jan. 2022). “Analysis of Urban Heat Island Intensity Through Air Mass Persistence”. 102nd Annual American Meteorological Society Meeting, Virtual Meeting

Ellis A.W., Marston M.L., and **Van Tol Z.** (Apr. 2018). “Long-Term Variability and Change in the Persistence of Synoptic-Scale Air Masses Across the United States”. 114th American Association of Geographers Annual Meeting, New Orleans, LA. Oral Presentation.

MEDIA AND PRESS

ASU College of Global Futures. (Spring 2023). "Heat and health risks: a multifaceted human problem". *Global Futures: Futurecast*, 25-31. https://issuu.com/asuoked/docs/gfl_2023_future_cast_vol4

Girke, J. (Oct. 2022). *Extremwetter in den USA Obdachlose sind Hitze und Flut ausgeliefert*. ZDF. <https://www.zdf.de/nachrichten/panorama/usa-hitze-obdachlosigkeit-klimawandel-100.html>

Consensus Digital Media. (April 2022). *How America's Hottest City is Handling the Heat | American Innovators* [Video]. YouTube. <https://www.youtube.com/watch?v=hrDHPYmJJ-A>

AWARDS

GPSA Professional Development Grant Arizona State University (\$700)	April 2024
GPSA Travel Grant Arizona State University (\$950)	August 2023
2023 Graduate Grant Central Arizona-Phoenix Long-Term Ecological Research (\$4,876.21)	May 2023
GPSA Founders Award Arizona State University (\$500)	May 2023
Global Education Office: Go Global Grant Arizona State University (\$1,500)	Dec. 2022
Scholarship from the Office of the President: Antarctica 2022 Arizona State University (\$13,450)	Dec. 2022
Graduate and Professional Student Association Jumpstart Grant Arizona State University (\$641)	Nov. 2022
2022 Arizona Health Equity Conference-Scholarship AZ Health Equity (\$50)	Sept. 2022
Graduate College Travel Award Arizona State University (\$185)	Jan. 2022
Graduate and Professional Student Association Travel Grant Arizona State University (\$950)	Jan. 2022
Dean's International Study Abroad Scholarship Virginia Polytechnic Institute and State University (\$1,200)	Apr. 2018

SERVICE AND ACTIVITIES

Research Teams

Social Determinants of Health Associated with Homelessness Arizona State University, School of Social Work	June 2022-August 2022
Cool Pavement Pilot Program City of Phoenix and Arizona State University, Urban Climate Research Center	Aug. 2021-Dec. 2022
Central Arizona-Phoenix Long-Term Ecological Research Flood Control District of Maricopa County	Oct. 2021

Professional

Interdisciplinary PhD Workshop in Sustainable Development (IPWSD) Columbia University's Sustainable Development Doctoral Society, New York City, NY	April 2024
Graduate Student Advocacy Conference GPSA in Washington, D.C. to engage with Arizona's congressional delegation	Nov. 2021; March 2022; March 2023
Esri GIS Analyst Internship Selection Covid-19 dissolved the program	Summer 2020
Esri Student Assistantship Federal GIS Conference in Washington, D.C.	Feb. 2020
University Libraries Geospatial Services Intern Virginia Tech University Libraries	Aug. 2019-Dec. 2019
National Weather Service Student Volunteer NWS Wakefield, VA	June 2019-Aug. 2019

University

GPSA Supreme Court Justice , ASU Graduate and Professional Student Association	May 2023-Present
<ul style="list-style-type: none">• Ensure a fair, equitable, and impartial means of adjudicating disputes arising under the GPSA Constitution and Bylaws for all ASU graduate and professional students.	
Chief of Staff , ASU Graduate and Professional Student Association	May 2022-May 2023
<ul style="list-style-type: none">• Facilitate effective communication, advocacy, and action within the office of the GPSA President at Arizona State University on behalf of 30,000 graduate students.	
Research Grant Reviewer , ASU Graduate and Professional Student Association	Aug. 2021-May 2023
<ul style="list-style-type: none">• Evaluate 2-3 graduate research, publication, and travel grant applications monthly.	
Study Abroad , Arizona State University Global Education Office	Winter 2022
<ul style="list-style-type: none">• 19-day exhibition including the Falklands, South Georgia, and the Antarctic Peninsula, with a focus on human geography and ecosystem preservation.	
Assembly Member At-Large , ASU Graduate and Professional Student Association	Aug. 2021-May 2022
<ul style="list-style-type: none">• Co-created the organization's advocacy agenda for the academic year in the External Affairs and Justice, Equity, Diversity, and Inclusion committees.	
Banquet Chair , Virginia Tech Class of 2020 Leadership Team	2017-2020
<ul style="list-style-type: none">• Selected out of a 200-person applicant pool to co-organize class events and be independently responsible for a budget of over \$25,000.	
Vice President , Gamma Phi Beta Honor Society	2019
<ul style="list-style-type: none">• Organized meetings and community engagement activities for 300+ members.	
Study Abroad , Virginia Tech College of Natural Resources and Environment	Aug. 2018
<ul style="list-style-type: none">• Curated a blog documenting climate change and public policy in the Dominican Republic based on 2 weeks of immersion.	

PROFESSIONAL AFFILIATIONS

American Meteorological Society	Aug. 2021-Present
International Society of Biometeorology	Aug. 2021-Present