

Curriculum Vitae

Joseph Karanja

Ph.D. Student (GIScience) and Research Assistant
School of Geographical Sciences and Urban Planning, Arizona State University

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EDUCATION

- 2021-Present **Ph.D. GIScience, Arizona State University (ASU)**, Tempe, Arizona.
- Thesis: The Role of Geographical Context, Populational Attributes , and Locational Characteristics in Influencing Heat Vulnerability.
 - Committee: Dr. Matei Georgescu (co-chair), Dr. Amy Frazier (co-chair), Dr. David Hondula, and Dr. Jennifer Vanos.
- 2019-2021 **M.S. Geosciences (geography concentration), Georgia State University (GSU)**, Atlanta, Georgia
- Thesis: *Evolution of Composite Heat Vulnerability Indices in Atlanta using Multiple Weighting Mechanics.*
 - Committee: Dr. Lawrence Kiage (chair), Dr. Dajun Dai, and Dr. Ricardo Nogueira.
- Postgraduate Certificate in GIS, Georgia State University** Atlanta, Georgia.
- 2014-2017 **M.S. Environmental Science (Climate Change and Sustainability), Kenyatta University (KU)**, Nairobi.
- Thesis: Quality of Geothermal Effluents and Emissions from Climate Change Resilient Technologies in Eburru and Olkaria, Nakuru County.
 - Committee: Dr. Daniel Mang'urui (chair) and Dr. Ezekiel Ndunda.
- 2009-2013 **Bachelor of Environmental Planning and Management, Kenyatta University**
Attained **First Class Honours**.
- Project: Understanding Settlement Challenges in Kihoto Informal Settlement along the Lake Naivasha Floodplain.
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RESEARCH INTERESTS

- Heat vulnerability: generating metrics for social vulnerability, heat-hazard exposure, and their composites.
 - Geographic Information Science: scale issues, data visualization, spatial data transformations, and the integration of GIS in heat-health studies.
 - Heat-Hazard characterization: comparing satellite and meteorological datasets to study spatial-temporal dynamics associated with heat and resultant health outcomes
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Google Scholar: <https://scholar.google.com/citations?user=KJ9DFtYAAAAJ&hl=en>

Twitter: <https://twitter.com/sirjoekaranja>

LinkedIn: <https://www.linkedin.com/in/joseph-karanja-36805742/>

PUBLICATIONS (PEER-REVIEWED)

1. **Karanja, J.**, Kiage, L.M. Scale implications and evolution of a social vulnerability index in Atlanta, Georgia, USA. *Nat Hazards* (2022). <https://doi.org/10.1007/s11069-022-05324-9>
 2. **Karanja, J.**, Kiage, L., & Wanyama, D. (2021). Weighting Mechanics and the Spatial Pattern of Composite Metrics of Heat Vulnerability in Atlanta, Georgia, USA. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2021.151432>
 3. **Karanja, J.**, & Kiage, L. (2021) Perspectives on Spatial Representation of Urban Heat Vulnerability. *Science of the Total Environment*. Vol 774 (220). <https://doi.org/10.1016/j.scitotenv.2021.145634>
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MANUSCRIPTS IN PREPARATION

1. Francisco S., Bohumil S., James W., Damian I., Gonzalo M., **Joseph K.**, Matei G. (2023). Modeling Salt-Verde Watershed Winter Precipitation Using Convection-Permitting WRF-Simulations with Water Vapor Tracers. Submitted to the *Journal of Geophysical Research-Atmospheres*.
 2. **Karanja, J.**, Georgescu, M., Svoma, B., & J., Walter. Southwest US Winter Precipitation Variability: Reviewing the Roles of Oceanic Teleconnections (Under review). Submitted to *Environmental Research Letters*
 3. **Karanja, J.**, Vanos, J., Georgescu, M., & D. Hondula. Methodological Rationale for Heat Vulnerability Indices as Predictor Variables of Heat-Health Outcomes.
 4. Garima, J., Malladi, T., & **J. Karanja**. Spatial Vulnerability: Conceptual Positioning and Application for Decision-Making (under review).
 5. Karanja, J., Vanos, J., Vieira, Jaime. Thermal Comfort for Unhoused Communities using different Tent Materials. Submitted to the *Journal of Public Health*
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NON-PEER REVIEWED REPORTS

1. **Karanja, J.**, (2013). Assessing settlement challenge in Kihoto informal settlement along the lake Naivasha flood plain (KU library).
 2. Assessing land-use conflicts to the sustainability of land use of Maasai Mara ecosystem. February 2013 (KU library)
 3. Assessing the effectiveness of Community Forest Associations (CFAs) in forest management in Kieni East district. October 2012 (KU library).
 4. Sustainable spatial plan of Nyahururu municipality to the year 2030. September 2011. (KU library).
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GRANTS AND FELLOWSHIPS

- Research America Civic Engagement Microgrant 2023. Amount awarded \$2,300

- Recipient of the Bill Anderson Fund, fellow cohort 2022-2023
- Graduate College individual travel grant Fall 2022. Award amount \$950.
- ASU FLAGSHIP program award 2022. Future Leaders and Geoscience High Road Internship. Award amount \$1300.
- Recipient of Interdisciplinary enrichment fellowship 2021-2022, ASU. Award amount \$47,925
- ASU graduate college conference award 2021-2022. Award amount \$245

HONORS AND AWARDS

- Geography graduate student of the year 2020-2021, GSU
- Geosciences teaching assistant of the year 2020-2021, GSU
- Nominated for International Student of the year 2020-2021, GSU

POSITIONS HELD

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| 2023 | <p>Graduate Research Assistant, Arizona State University</p> <ul style="list-style-type: none"> ▪ Working on the National Oceanic and Atmospheric Administration pathfinder project on the intersection of health, air pollution, and heat vulnerability. Also, involved in stakeholder engagement for value chain identification for the next-generation GeoXo satellites. |
| 2022-
Present: | <p>Teaching Assistant, Arizona State University</p> <ul style="list-style-type: none"> ▪ Instructor of Record for Introduction to Meteorology, Fall 2022 |
| 2021-2022 | <p>Graduate Research Assistant, Arizona State University</p> <ul style="list-style-type: none"> ▪ Examined the effects of a warmer climate on future Salt-Verde watershed winter precipitation using convection-permitting regional climate models. A joint project between ASU and Salt River Project (SRP). ▪ I analyzed precipitation data (1951-2021) to determine contemporary winters for simulations to the year 2100. ▪ Worked on a systematic review article as the lead author exploring climate modes in the Pacific and Atlantic oceans and how they impact southwest USA winter precipitation. |
| 2020-2021 | <p>Lead Teaching Assistant, Georgia State University</p> <ul style="list-style-type: none"> ▪ In charge of 12 teaching assistants (TAs) and 29 labs (approximately 28 students per lab). ▪ Steered the weather and climate lab innovation plan for the department of Geosciences. ▪ Aligned the lab modules with culturally responsive pedagogy and transitioned to online delivery during the Covid-19 pandemic. |
| 2019-2021 | <p>Teaching Assistant, Georgia State University</p> <ul style="list-style-type: none"> ▪ Courses taught: Weather and climate
Introduction to GIS |

- Advanced GIS
Introduction to remote sensing
- 2017-2019 **Manager, M&N Enterprises, Naivasha**
- Implemented a business management system, and output grew five-fold under my leadership.
- 2012-2013 **Trainee at Kenya Electricity Generating Company, Naivasha**
- Sections attached: meteorology, occupational safety and health, community liaison, environmental laboratory, and GIS lab.
 - Monitored daily air quality and noise levels, and conducted statutory inspections of worksites and toxicity analysis for geothermal effluents.

LEADERSHIP ROLES

- 2023 ▪ Graduate student representative to the faculty committee on graduate affairs, School of Geographical Sciences and Urban Planning, ASU.
- 2023 ▪ Committee member for the writing group, Bill Anderson Fund Fellowship program
- 2023 ▪ Co-chair of the session on Urban Environment and Health Impacts I during the AMS annual meeting, in Denver, Colorado, January, 2023.
- 2020-2021 ▪ President, Geosciences Graduate Students Alliance, Georgia State University.
- Student representative to the Graduate Council, College of Arts and Sciences, GSU.
- Student member to the curriculum committee. Participated in the review of the college curriculum and voted on committee issues.

PROFESSIONAL PRESENTATIONS (bolded author name presented)

- 2023 ▪ **Karanja, J.**, Georgescu, M., Svoma, B., & J., Walter. Southwest US Winter Precipitation Variability: Reviewing the Role of Oceanic Teleconnections. American Meteorological Society Annual Meeting 2023, Denver, Colorado.
- 2022 ▪ **Karanja, J.**, Wanyama, D., Kiage, L. Weighting Mechanics and the Spatial Pattern of Composite Metrics of Heat Vulnerability in Atlanta, Georgia, USA. International Association for Urban Climate (IAUC) August 2022.
- 2021 ▪ **Karanja, J.**, Vanos, J., Georgescu, M., & D. Hondula. Methodological Rationale for Heat Vulnerability Indices as Predictor Variables of Heat-Health Outcomes. American Association of Geographers (AAG) Annual Meeting, 2022.

PROFESSIONAL CERTIFICATIONS

- Certificate on Policy and Science sponsored by Research America and training offered by the Federation of American Societies for Experimental Biology, March 2023.

- Certified associate expert for environmental impact assessment, Kenya. Certificate issued by National Environmental Management Authority since September 2016.
 - Certificate in transformational leadership skills awarded by Kenyatta University, December 2013.
 - Certificate on entrepreneurial promotion sponsored by Kenyatta University, University of Lüneburg (Germany), and UNESCO (United Nations Educational, Scientific, Cultural Organization), November 2012.
 - Introduction to GIS and remote sensing certification awarded by Regional Center for Mapping of Resources for Development, Nairobi, April 2012.
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PROFESSIONAL ASSOCIATIONS

- Member, Board of Urban Environment, American Meteorological Society (AMS)
 - Student member, American Association of Geographers (AAG)
 - Student member, International Conference of Biometeorology (ICB)
 - Student member, International Association on Urban Climate (IAUC)
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MEDIA AND SCIENCE COMMUNICATION

- Research highlight on Phoenix most heat vulnerable communities
<https://provost.asu.edu/shedding-light-phoenixs-most-heat-vulnerable>
 - Environmental injustice and inequality in downtown Phoenix
<https://aaronstigile.weebly.com/articles.html>
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OTHER COMPETENCIES

- Proficiency in ArcMap, ArcGIS Pro, QGIS, Erdas Imagine, and SPSS software
 - Python Programming (Introduction)
 - R-Programming (Introduction)
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COMMUNITY WORK/VOLUNTEERING

- Unibuddy Student Ambassador, ASU.
 - Counselor, Naivasha District Hospital. Volunteered at the comprehensive care center for HIV-infected people and checked their daily progress.
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