Berina Mina Kilicarslan

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Website
Google Scholar

RESEARCH INTERESTS

Computational and Statistical Hydrosciences, Flood Risk Assessment, Surrogate Models

EDUCATION

2021-2024 Ph.D.: Civil, Environmental, and Ocean Engineering Department
Stevens Institute of Technology – NJ, US
- *Dissertation Title:* "Enhancing hydrologic models to support flood inundation mapping and water resources management"
- *Advisor:* Assoc. Prof. Marouane Temimi

2019-2021 Master's Degree: Civil Engineering-Water Resources Program
Middle East Technical University – Ankara, Turkey
- *Thesis:* Calibration and Evaluation of WRF-Hydro Modeling System for Extreme Runoff Simulations: Use of High-Resolution Sea Surface Temperature (SST) Data
- *Advisors:* Prof. Ismail Yucel

2013-2018 B. S., Environmental Engineering
Middle East Technical University – Ankara, Turkey

PROFESSIONAL EXPERIENCE

Jan25-Present **Postdoctoral Associate,** New York University
- Generative AI for hydroclimatic risk assessment and uncertainty quantification
- Statistical assessment of upstream inundation patterns due to culvert capacity exceedance

Sep21-Dec24 **Research/Teaching Assistant,** Stevens Institute of Technology
Integrated Spatial Modeling and Remote Sensing Technologies Laboratory
- Hydrological model simulations for streamflow and street-scale flood inundation
- Multi-satellite river ice data integration in hydrodynamic modeling for streamflow forecast (Funded by NASA Applied Sciences, Water Resources Program)

Jun23-Jul23 **Summer Institute Fellow,** NOAA-National Water Center
- Enhancing flood inundation mapping fidelity using machine learning-based surrogate modeling
- Improving HAND-FIM accuracy and evaluating surrogate model transferability across watersheds

Feb19-Sep21 **Research Assistant,** Middle East Technical University, Turkey

- Evaluation of coupled atmospheric-hydrologic modeling systems for flood events in Turkey
- Assessing the impact of high-resolution and time-varying sea surface temperature datasets on the rainfall-runoff system.

SKILLS

Programming: R, Python, Bash, MATLAB, GEE
Software: National Water Model, WRF-Hydro, Noah-MP, HEC-RAS, HEC-HMS, HEC-ResSim, WRF, ArcGIS Pro, QGIS,
Language: Turkish (Native), English (Fluent)

PUBLICATIONS

Journal Articles

Kilicarslan, B. M., Emamjomehzadeh, O., & Wani, O., "From Simple to Complex: How to Choose Your Flood Inundation Mapping Model? " *(In preparation)*

Kilicarslan, B. M., & Wani, O., "Statistical Properties of Distributed Flooding Caused by Culvert Capacity Exceedance" *(In preparation)*

Kilicarslan, B. M., Temimi, M., Abdelkader M., MacNeil, A., & Miano, P., "Integration of River Ice Information in Hydrodynamic Models for Enhanced and Continuous Streamflow Forecast" *(Under Review in Water Resource Management)*

Kilicarslan, B. M., Longyang, Q., Obi, V., Cohen, S., Meselhe, E., & Temimi, M., "Improving the Fidelity and Performance of a Conceptual Flood Inundation Mapping Approach Using a Machine Learning-Based Surrogate Model" *(Under Review in Environmental Modelling and Software)*

Kilicarslan, B. M., & Temimi, M. (2024). "Simulating block-scale flood inundation and streamflow using the WRF-Hydro model in the New York City metropolitan area." *Natural Hazards*, https://doi.org/10.1007/s11069-024-06597-y.

Kilicarslan, B. M., Yucel, I., Pilatin, H., Duzenli, E., & Tugrul, M. (2021) "Improving WRF-Hydro Runoff Simulations of Heavy Floods Through the Sea Surface Temperature Fields with Higher Spatio-Temporal Resolution." *Hydrological Processes,* https://doi.org/10.1002/hyp.14338.

Conference Proceedings

Kilicarslan, B., Abdelkader, M., & Temimi, M. (2024) "An Automated Framework to Simulate Streamflow in the Presence of River Ice Using Remote Sensing Observations and Coupled NOAA NWM and HEC-RAS Models" AGU Annual Meeting, 2024
https://agu24.ipostersessions.com/Default.aspx?s=9C-ED-19-F2-F2-54-03-00-3C-E4-9F-66-3F-C8-7A-EA
(Poster Presentation)

Kilicarslan, B., Longyang, Q., Obi, V., Cohen, S., & Meselhe, E. A. (2023) "Improving the Fidelity and Performance of NOAA Flood Inundation Mapping Framework Using a Machine Learning-Based Surrogate Model" AGU Annual Meeting, 2023
https://agu23.ipostersessions.com/default.aspx?s=98-D5-63-6D-9D-CA-D4-81-9D-08-68-E7-28-1E-CB-89
(Poster Presentation)

Temimi, M., Abdelkader, M., Bravo, J. & **Kilicarslan, B.** (2023) "A multi satellite approach to monitor river ice in northeastern US to support streamflow forecast for reservoir management" AGU Annual Meeting, 2023

Obi, V., **Kilicarslan, B.,** Longyang, Q., Meselhe, E. A., & Cohen, S. (2023) "Analysis of Stage Flow Predictions by the NOAA National Water Model and Synthetic Rating Curves" AGU Annual Meeting, 2023

Kilicarslan, B. M., Temimi, M., Kim, J. (2022). "Evaluation of the WRF-Hydro Hyper resolution modeling of Street-Scale flooding during Hurricanes Ida and Irene", AGU Frontiers in Hydrology 2022, https://fihm22-agu.ipostersessions.com/Default.aspx?s=18-09-BE-84-55-E0-5B-86-D3-E7-65-95-AF-3B-5B-56. (Oral Presentation)

Kilicarslan, B. M., Duzenli, E., Pilatin, H., Yucel, I., and Yilmaz, M. T. (2020) "Evaluation of a Hydro-Meteorological Model System for Flood Forecasting of a Mediterranean Basin in Turkey", *EGU General Assembly 2020*, https://doi.org/10.5194/egusphere-egu2020-519. (Oral Presentation)

Duzenli, E., Pilatin, H., Yucel, I., **Kilicarslan, B. M.,** and Yilmaz, M. T. (2020) "Evaluation of the performance of WRF model in extreme precipitation estimation concerning the changing model configuration and the spatial and temporal variations", *EGU General Assembly 2020,* https://doi.org/10.5194/egusphere-egu2020-1026.

HONORS

Awards
National Water Center Innovators Program Summer Institute Award (2023)
Runner-Up Winner, AGU Michael H. Freilich Data Visualization Competition (2023)
Honor Roll, Environmental Engineering Department, METU (2017)

Grants
ThinkSwiss Summer School Grant by Embassy of Switzerland in USA (2024)
AMS Annual Meeting Student Travel Grant (2024)
CIROH Training and Developers Conference Travel Scholarship (2023)

TEACHING EXPERIENCE

Teaching Assistant: Probability and Statistics with Data Science Applications, Stevens Institute of Technology (2023)

2023-2024	**Research Mentor** for Stevens Institute of Technology Undergraduate Student: Julie Garry
2025-Present	**Research Mentor** for Indian Institute of Technology, Kanpur Undergraduate Student: Vighnesh Patidar
2025-Present	**Research Mentor** for New York University, Tandon School of Engineering Master Student: Junchi Liu

EXTRA-CURRICULAR

Jan25-Present	**Committee Member,** American Geophysical Union (AGU) Hydrology Section Student Subcommittee (H3S) A group under AGU-domain strives to provide student and early career hydrologists with opportunities for professional developments..

Dec15-Apr17 **Founding Member/Content Developer,** Change for Climate (C4C), Turkey
An organization designed to combat climate change, attempting to evolve the collective perception through education and outreach.

- Designed climate change workshops utilizing non-formal education techniques through a system thinking approach.

SERVICES

2023-Present Peer Review for *Water Resources Research, Natural Hazards, Environmental Monitoring and Assessment*

Mar22 Volunteer in NASA SMAP Validation Experiment-Intensive Observation Period-I, Millbrook, NY