David F. Muñoz
Assistant Professor – Department of Civil and Environmental Engineering, Virginia Tech
Google Scholar: https://scholar.google.com/citations?user=bS44baIAAAAJ&hl=en&oi=ao
Lab website: https://coral-lab-vt.github.io/

EDUCATION

August 2018 – September 2021

Ph.D. Civil, Construction and Environmental Engineering. The University of Alabama.

September 2015 – September 2017

MSc. Earth and Environment. Wageningen University & Research. The Netherlands.

October 2007 – February 2013

Bachelor's in Civil Engineering. University of Cuenca. Cuenca, Ecuador.

HONORS AND AWARDS

March 2023

2023 Faculty Mentoring Grant. Blacksburg, VA.

July 2022

2022 NHERI RAPID Facility Intensive Hands-On Training Workshop. Travel grant. Seattle WA.

April 2022

2022 Outstanding Dissertation Award. Department of Civil, Construction and Environmental Engineering, The University of Alabama. Tuscaloosa, AL. April 2022.

June 2019

National Water Center Innovators Program – Summer Institute. Consortium of Universities for the Advancement of Hydrologic Science (*CUAHSI*) and National Oceanic and Atmospheric Administration (*NOAA*). Tuscaloosa, AL.

APPOINTMENTS & WORK EXPERIENCE

August 2022 to present

Assistant Professor. Charles E. Via, Jr. Department of Civil & Environmental Engineering at Virginia Tech. Patton Hall Blacksburg, VA 24061.

September 2021 to August 2022

Postdoctoral research associate. Center for Complex Hydrosystems Research (CCHR). The University of Alabama. 248 Kirkbride Ln, Tuscaloosa, AL 35401.

October 2017 – August 2018

Research assistant. "*Cost Effective Neural Technique to Alleviate Urban Flood Risk*" - CENTAUR project. (https://www.sheffield.ac.uk/centaur). Department of Civil Engineering. Faculty of Sciences and Technology of the University of Coimbra (FCTUC) – Pólo II. Rua Luis Reis Dos Santos, 3030-790. Coimbra, Portugal.

February 2013 – May 2015

Civil engineer. KIMSA / Azuay Prefecture. Cuenca, Ecuador. Amazonas Constructors / Enterprise of Economic Development (EDEC). Cuenca, Ecuador. Civil engineer (junior). Consultancy in Environmental and Sanitary Engineering (CONSULTORACAV) / Ministry of Urban Development and Housing (MIDUVI). Ministry of Transportation and Public Works (MTOP). Cuenca, Ecuador.

SYNERGISTIC ACTIVITIES

American Society of Civil Engineers (ASCE)
Member of Compound Flooding Task Committee. Manual of Practice. April 2022.

Co-editor of Research Topic in Frontiers in Water:

Spatiotemporal Modelling and Assessment of Water-related Multi-hazards. September 2023.

Conference convener
Hybrid Modeling & Digital Twin Systems for Flood Hazard Prediction and Risk Assessment. AGU - Natural Hazards; Fall Meeting 2024. Washington DC. December 2024.

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MOST RECENT PUBLICATIONS

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1) Sakib, M.S., Muñoz, D.F., Wahl, T., Irish, J.L., 2026. Quantifying Future Effects of Low-frequency Tropical Cyclones and Sea Level Rise Scenarios on Nonlinear Interactions in Total Water Levels. https://doi.org/10.22541/essoar.176870199.95827572/v1

2) Luna Abril, P., Muñoz, P., Samaniego, E., Muñoz, D.F., Merizalde, M.J., Lillo-Saavedra, M., Célleri, R., 2026. Evaluating the three-cornered hat method for hourly satellite precipitation fusion in hydrological forecasting: A case study in a Tropical Andean Basin. Journal of Hydrology: Regional Studies 64, 103163. https://doi.org/10.1016/j.ejrh.2026.103163

3) Radfar, S., Moftakhari, H., Muñoz, D.F., Gori, A., Diermanse, F., Lin, N., AghaKouchak, A., 2025. Towards a typology for hybrid compound flood modeling. EGUsphere 1–31. https://doi.org/10.5194/egusphere-2025-4623

4) Sakib, M.S., Muñoz, D.F., Wahl, T., 2025. Breaking Down Annual and Tropical Cyclone-induced Nonlinear Interactions in Total Water Levels. Advances in Water Resources 105108. https://doi.org/10.1016/j.advwatres.2025.105108

5) Daramola, S., Muñoz, D.F., Sakib, M.S., Thurman, H., Allen, G., 2025c. A transferable deep learning framework to propagate extreme water levels from sparse tide-gauges across spatial domains. Expert Systems with Applications 130222. https://doi.org/10.1016/j.eswa.2025.130222

6) Mahmoudi, S., Moftakhari, H., Muñoz, D.F., Radfar, S., Sweet, W., Moradkhani, H., 2025. Escalating High Tide Flooding Along the Atlantic and Gulf Coast of the United States Due To Sea Level Rise. Earth's Future 13, e2024EF005328. https://doi.org/10.1029/2024EF005328

7) Daramola, S., Muñoz, D.F., Moftakhari, H., Moradkhani, H., 2025a. A cluster-based temporal attention approach for predicting cyclone-induced compound flood dynamics. Environmental Modelling & Software 191, 106499. https://doi.org/10.1016/j.envsoft.2025.106499

8) Daramola, S., Muñoz, D.F., Muñoz, P., Saksena, S., Irish, J., 2025b. Predicting the Evolution of Extreme Water Levels With Long Short-Term Memory Station-Based Approximated Models and Transfer Learning Techniques. Water Resources Research 61, e2024WR039054. https://doi.org/10.1029/2024WR039054

9) Muñoz, D.F., Moftakhari, H., Moradkhani, H., 2024. Quantifying cascading uncertainty in compound flood modeling with linked process-based and machine learning models. Hydrology and Earth System Sciences 28, 2531–2553. https://doi.org/10.5194/hess-28-2531-2024

10) Hamidi, E., Peter, B.G., Muñoz, D.F., Moftakhari, H., Moradkhani, H., 2023. Fast Flood Extent Monitoring With SAR Change Detection Using Google Earth Engine. IEEE Transactions on Geoscience and Remote Sensing 61, 1–19. https://doi.org/10.1109/TGRS.2023.3240097

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AFFILIATIONS AND MEMBERSHIPS

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American Water Resources Association (AWRA)
American Geophysical Union (AGU)
European Geosciences Union (EGU)