Emily Mongold, PhD

Climate risk analyst applying data-driven, multi-hazard modeling to support resilient and equitable communities

emongold@alumni.stanford.edu linkedin.com/in/emily-mongold github.com/emongold

Research Experience

Doctoral Researcher, Stanford University 2020–2025
Civil and Environmental Engineering Department

- Developed a regional framework integrating sea level rise with multi-hazards to quantify coastal climate risk.
- Modeled post-disaster housing recovery using a process-based method to capture existing systemic inequities.
- Simulated probabilistic subsurface conditions to improve groundwater model results.
- Analyzed regional liquefaction risk using a probabilistic methodology.
- Published open-source code on GitHub and ran large-scale probabilistic simulations on an HPC cluster.
- Presented findings at national and international conferences; invited speaker, US Geological Survey.

Partnerships for Climate Justice in the Bay Area Fellow, OneShoreline Summer 2024

- Partnered with OneShoreline to evaluate groundwater rise and liquefaction risk on a shoreline project.
- Authored a technical report and designed a prototype data-sharing dashboard for community stakeholders.

Undergraduate Researcher, University of Washington Summer 2019

- Generated 3D point-cloud models of hurricane-damaged buildings from aerial reconnaissance data.

Undergraduate Researcher, University of Delaware 2019–2020

- Collected and analyzed post-disaster survey data to study hurricane evacuation behavior using GIS.

Education

PhD, Civil Engineering, Stanford University 2025
Thesis: *Regional models for coastal climate risk assessment: subsurface, multi-hazard, and risk reduction perspectives*

MS, Structural Engineering, Stanford University 2022

BCE, Civil Engineering, University of Delaware 2020
Honors Thesis: *Coastal versus Inland Hurricane Evacuation Behavior Analysis*

Teaching & Leadership

Instructor, Disaster and Climate Resilience Seminar (2024)
Teaching Assistant, Topics in Disaster Resilience Research (2024); Seismic Hazard and Risk Analysis (2023); Regional Seismic Risk Analysis (2022)
Student Leadership Council, Stanford Urban Resilience Initiative (2021–2025): organized seminars, journal clubs, and workshops for researchers.
Community Associate, Graduate Life Office (2021–2023): planned, organized, and ran community events for a graduate housing complex of 800 students.

Technical Skills

Programming & Data: Python (NumPy, Pandas, GeoPandas, Matplotlib), Git, HPC (Slurm, bash)
Geospatial & Modeling: GIS (ArcGIS, QGIS), Rasterio, Contextily, GeoPandas
Risk & Statistical Modeling: Monte Carlo Simulation, Probabilistic Hazard Analysis, PCA, SALib
Sustainability: LEED Green Associate; Climate Risk Assessment; Community Resilience Planning