

## **Xiaolong (Leo) Geng, Ph.D.**

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Department of Earth Sciences & Water Resources Research Center, University of Hawai'i at Mānoa,  
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[gengxiaolong@gmail.com](mailto:gengxiaolong@gmail.com)

### **EDUCATION**

**Ph.D.** Environmental Engineering, New Jersey Institute of Technology, NJ, USA, 2014.

**M.S.** Applied Mathematics & Environmental Science (Joint Program), Liaoning Normal University & China University of Geoscience (Wuhan), CN, 2008

**B.Sc.** Mathematics, Liaoning Normal University, CN, 2005

### **PROFESSIONAL EXPERIENCE**

-Assistant Professor, Department of Earth Sciences & Water Resources Research Center, University of Hawai'i at Mānoa, Honolulu, HI, USA, May 2023 to present.

-Physical Scientist, NOAA Office of Response & Restoration (Genwest Systems), Seattle, WA, USA, October 2021 to April 2023.

-Research Assistant Professor, Department of Civil and Environmental Engineering, Newark College of Engineering, New Jersey Institute of Technology, NJ, USA, June 2019 to October 2021.

-Research Associate, Department of Geological Sciences, College of Earth, Ocean, and Environment, University of Delaware, DE, USA, October 2017 to May 2019.

-Post-Doctoral Researcher, Center for Natural Resources, Newark College of Engineering, New Jersey Institute of Technology, NJ, USA, June 2014 to May 2017.

### **FIELDS OF INTEREST**

- Groundwater hydrology and hydrogeology
- Contaminant transport and biogeochemical modeling
- Groundwater-surface water interactions
- Nearshore and offshore oil contamination

### **TEACHING EXPERIENCES**

CEE 322 Hydraulic Engineering (S17); EARTH 399 Directed Reading (S24); EARTH 455 Hydrogeology (F23, F24, F25); EARTH 656/CEE 623 Groundwater Modeling (S25); EARTH 699 Directed Research (F23, S24, S25); EARTH 700 Thesis Research (F24, S25); EARTH 711 Special Topics in Earth and Planetary Science (Modern Hydrogeology) (F25)

### **ACADEMIC ADVISING**

#### Students/Postdocs (before joining UH)

Pieter Kreyens (MS student, University of Delaware)

Kyra H. Kim (PhD student, University of Delaware)

Firas Gerges (PhD student, New Jersey Institute of Technology)

Fangda Cui (Postdoc, New Jersey Institute of Technology)

#### Graduate students (UH)

– Hong Zhang (funded by NSF # 2130595)

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- Edward Lopez (funded by NSF RAPID# 2345629)
- Hope Kanoa (funded by NSF EPSCoR# 2429852 & UH Bullard Fellowship).

### Undergraduate students (UH)

- Mackaby Pennington (funded by NSF RAPID# 2345629 & Earth Sciences Dept. Undergraduate Research funds)
- Gabrielle Justine (funded by UH Undergraduate Research Opportunities Program (UROP))
- Mishelley Low (funded by the Doris Duke Conservation Scholars Program (DDCSP) at UC Santa Cruz)
- Huraio Pablo-Cook (funded by the NSF Research Experiences for Undergraduates (REU) intern program)
- Hope Kanoa (funded by UH start-up funds & UH Undergraduate Research Opportunities Program (UROP) & Earth Sciences Dept. Undergraduate Research funds)
- Liana Krasnoff (funded by the NSF Research Experiences for Undergraduates (REU) intern program)
- Wellington Rothschild (funded by UH start-up funds)

### Thesis/Dissertation Committee (not of a student whom I advise)

- Jichao Bao (PhD student of Dr. Harry Lee, University of Hawai'i at Mānoa)
- Xiaocheng Liu (PhD student of Dr. David Lockington, The University of Queensland)
- Brandon Bees (MS student of Dr. Chris Shuler, University of Hawai'i at Mānoa)
- Jobel Villafane-Pagan (MS student of Dr. Henrietta Dulai, University of Hawai'i at Mānoa)
- Shengnan Zeng (MS student of Dr. Henrietta Dulai, University of Hawai'i at Mānoa)

## **RESEARCH TOPICS**

- Field monitoring and numerical modeling of coastal subsurface flow and transport processes. In particular, the mixing and exchange of fluid and solute across land-sea interface, incorporating multiple driving factors such as tides, waves, evaporation, and precipitation.
- Impact of geologic heterogeneity on flow and transport processes in coastal aquifers (e.g., preferential groundwater flow and pumping-induced saltwater intrusion).
- Various groundwater-related environmental issues (e.g., saltwater intrusion, submarine groundwater discharge and associated nutrient transport and transformation, and shoreline oil contamination and restoration).

## **NATIONAL SERVICE**

- Associate Editor, *Journal of Hydrology* (Elsevier, ISSN: 0022-1694), August 2024-present.
- Associate Editor, *Regional Studies in Marine Science* (Elsevier, ISSN: 2352-4855), August 2022-present.
- Associate Editor, *Frontiers in Marine Science* (Frontiers, ISSN: 22967745), October 2022-present.
- Editorial Board Member, *Marine Pollution Bulletin* (Elsevier, ISSN: 0025-326X), March 2022-present.
- Editorial Board Member, *Journal of Hazardous Materials: Organics* (Elsevier, ISSN: 3051-0597), July 2025-present.
- Symposia Chair (May 2025-present), Symposia Co-Chair (October 2024-April 2025), EWRI Groundwater Council, American Society of Civil Engineers (ASCE).
- Secretary (October 2023-October 2024), Committee Member (January 2018-September 2023), Groundwater Hydrology Committee, American Society of Civil Engineers (ASCE).
- Guest Editor, *Regional Studies in Marine Science* (ISSN: 2352-4855), Special issue on “Fate and Transport of Anthropogenic Pollutants in Coastal and Marine Environments”, April 2023-April 2024.
- Guest Editor, *Frontiers in Water* (ISSN: 2624-9375), Special issue on “Groundwater-Seawater Exchange and Environmental Impacts”, April 2021-September 2021.

- Guest Editor, *Marine Pollution Bulletin* (Elsevier, ISSN: 0025-326X), Special issue on “Resilience and Sustainability of Coastal Communities”, April 2022-April 2023, May 2024-August 2025.
- Guest Editor, *Journal of Sea Research* (Elsevier, ISSN: 1873-1414), Special issue on “Resilience and Sustainability of Coastal Communities”, May 2024-August 2025.

– Journal reviewer

*Geophysical Research Letters, Water Resources Research, Journal of Hydrology, Marine Pollution Bulletin, Journal of Environmental Engineering, ASCE, Science of Total Environment, Journal of Contaminant Hydrology, Journal of Hazardous Materials, Hydrogeology Journal, Water and Hydrology, MDPI, Advances in Water Resources, Environmental Pollution, Ocean and Coastal Management, Mine Water and the Environment (MWEN)*

– Proposal reviewer

*National Science Foundation (Chemical Oceanography Program; Graduate Research Fellowship Program (GRFP), Guam Sea Grant*

**PROJECTS (projects funded since joining UHM are blued)**

- NSF EAR (\$549,960) 09/2025 – 08/2028; Hydrogeologic Controls on the Accumulation, Transport, and Discharge of Fecal Indicator Bacteria in Coastal Beaches; PI = X. Geng; Co-PI = T. Yan.
- NSF EPSCoR (\$299,920) 02/2025 – 01/2027; EPSCoR Research Fellows: NSF: Enhancing Groundwater and Saltwater Intrusion Modeling in Coastal Aquifers: The Integration of Conduit Flow Process with 3D Connected Heterogeneity; PI = X. Geng.
- NSF RAPID (\$200,000) 09/2023 – 08/2025; RAPID: Understanding the Immediate and Long-term Impacts of Maui Wildfires on Chemical and Microbiological Quality of Nearshore Beach and Coastal Waters; PI = X. Geng; Co-PI = T. Yan.
- NSF EAR (\$425,115) 02/2022 – 01/2025; Collaborative Research: Impact of Evaporation and Waves on Groundwater Dynamics in Tidally Influenced Beaches; PI = M. Boufadel; Co-PI = X. Geng (\$99,966 transferred to UH under PI Geng).
- UH Strategic Investment Award (\$296,250) 07/2024 – 06/2026; Advancing Water Reuse for Agricultural Irrigation and Wildfire Mitigation for Water-Stressed Leeward Coastal Rural Communities in Hawaii; PI = T. Yan; Co-PI = W. Su, K. Wang, Z. Wang, X. Geng (\$50,940 to Geng).
- Naval Facilities Engineering Command (NAVFAC) (\$1,358,669) 10/2025 – 09/2027; Marine Corps Base Hawaii (MCBH) Water Resiliency Study – Phase 1: Hydro-geophysical and Hydrogeological Assessment; PI = A. Haroon; Co-PI = D. Thomas, X. Geng, P. Kannberg (25% RTRF to Geng).
- Naval Facilities Engineering Command (NAVFAC) (\$5,280,000) 04/2022 – 10/2025; Hydrogeology Investigations at Red Hill; PI = V.L. Syrmos and D. Thomas; KP = A. Haroon, X. Geng (\$51,370 to Geng).
- NSF RAPID (\$200,000) 04/2020 – 03/2022; RAPID: Scaling, causality, and modulation of the spread of COVID19; PI = M. Boufadel; Co-PI: X. Geng.

**PENDING PROPOSALS**

- NSF (\$744,687) 06/2026 – 05/2031; CAREER: Multiscale Modeling of Groundwater Dynamics and Saltwater Intrusion in Island Aquifers; PI = X. Geng.

**CAREER HIGHLIGHTS**

Total citations: 2012

h-index: 29

i10—index: 47

<https://scholar.google.com/citations?user=wJAfc2MAAAAJ&hl=en>

[https://www.researchgate.net/profile/Xiaolong\\_Geng](https://www.researchgate.net/profile/Xiaolong_Geng)

Research highlighted as a feature story in the University of Hawaii at Manoa

UH News: ‘Protecting Hawaii’s beaches: \$550K NSF grant to better predict water quality risks’

<https://www.hawaii.edu/news/2025/10/07/protecting-hawaiis-beaches/>

UH News: ‘Coastal water quality rebounding after Lahaina wildfire’

[https://www.hawaii.edu/news/2024/08/07/coastal-water-quality-rebounding/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=UH+News+080724](https://www.hawaii.edu/news/2024/08/07/coastal-water-quality-rebounding/?utm_source=newsletter&utm_medium=email&utm_campaign=UH+News+080724)

UH News: ‘\$2.1M for UH-led Maui wildfire response research’

<https://www.hawaii.edu/news/2024/06/24/2-1m-maui-wildfire-response/>

Research highlighted as a feature story in the Gulf of Mexico Research Initiative (GoMRI)

<http://gulfresearchinitiative.org/study-models-oil-aerobic-biodegradation-rates-tidal-beaches/>

Research highlighted as Research News in National Science Foundation (NSF)

[https://www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=302741&WT.mc\\_id=USNSF\\_1](https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=302741&WT.mc_id=USNSF_1)

Research highlighted as feature stories in the New Jersey Institute of Technology

<http://www6.njit.edu/features/student/geng.php>

<http://www6.njit.edu/features/innovations/geng-boufadel-study.php>

<http://www6.njit.edu/features/faculty/geng-boufadel-study.php>

<https://news.njit.edu/nsf-rapid-grant-njit-engineers-build-new-model-track-covid-19>

<https://njbmagazine.com/njb-news-now/njit-engineers-build-a-new-model-to-track-covid-19/>

### **PUBLICATIONS (papers published since joining UHM are blued)**

underlined are students or postdoctoral fellows advised by Xiaolong Geng

- 1) [Lopez, E.](#), **Geng, X.** (60% effort), Haroon, A., [Zhang H.](#), Zou, Y., Yan, T., Dulai H., Shuler C. 2025 Coastal Groundwater Dynamics in Lahaina Beaches, Hawaii, and Implications for the Transport of Wildfire-Derived Contaminants, *Marine Pollution Bulletin*, 220, 118424.
- 2) Wang, X., Zhang, X., Wang, Z., Luo, M., Li, H., Zheng, C., **Geng, X.** (10% effort), Liu, C. 2025, Review of seawater–groundwater interactions in the coastal earth critical zone of the Bohai Sea, *Earth Critical Zone*, 100041.
- 3) [Yang, X.](#), [Huang, G.](#), **Geng, X.** (20% effort), An, C., Lyu, L., and Bi, H. 2025 Deciphering the behavior and fate of microplastics in coastal aquatic environments: A comprehensive review illuminating coastal dynamics and driving mechanisms, *Earth-Science Reviews*, 270, 105235.
- 4) Wang, Z., Robinson C., **Geng, X.** (25% effort), Xiao K., Zhang Y., Wang X., Hu W., Luo M., Li H. 2024, Xiao, K., Zhang, Y., Wang, X., Hu, W., Li, H., 2025 Field and numerical investigation of groundwater flow and dissolved inorganic nitrogen (DIN) dynamics in a sandy nearshore aquifer, *Journal of Hydrology*, 646, 132330.
- 5) [Wang W.](#), Cui, L., **Geng, X.** (30% effort), Luo, M., Yu, S., Li, H. 2025 Numerical simulations of tidal beach seawater-groundwater circulations using dimensionless method, *Journal of Hydrology*, 646, 132372.
- 6) **Geng X.** (80% effort), Heiss, J., Michael, H., Boufadel, M., Li, H. 2025 Groundwater flow and salinity dynamics in swash zones: combined effects of evaporation, waves, and geologic heterogeneity, *Journal of Hydrology*, 646, 132322.

- 7) **Geng X.** (80% effort), Heiss, J., Michael, H., Boufadel M., Li H. 2024 Influence of evaporation and high-frequency seawater inundation on salinity dynamics in swash zones, *Water Resources Research*, doi:10.1029/2024WR037427.
- 8) **Luo M.**, Wang, T., **Geng, X.** (30% effort), Yu, S., and Li, H, 2024 Quantifying Seepage-Face Evaporation and its Effects on Groundwater Flow and Solute Transport in Small-slope Tidal Flat, *Geophysical Research Letters*, 51(12), e2024GL109173.
- 9) Zhang Y., Guo, Y., Maher, D., Wang, J., **Geng, X.** (20% effort), Xiao, K., Ding, H., Zhang X., Li, H., Zheng, C., and Wang, X., 2024 Dissolved carbon dynamics and exchange in a high permeability beach aquifer, *Geochimica et Cosmochimica Acta*, 368, 64-75.
- 10) **Geng, X.** (85% effort), and Boufadel, M.C. 2023 Modeling impacts of river hydrodynamics on fate and transport of microplastics in riverine environments, *Marine Pollution Bulletin*, 196, 115602.
- 11) Wang Z., Wang, Q., Guo, Y., Yu, S., Xiao, K., Zhang, Y., Li, H., Zheng, C., **Geng, X.** (20% effort), Zhang, X., Li, H., Wang, X., 2023 Seawater-groundwater interaction governs trace metal zonation in a coastal sandy aquifer, *Water Resource Research*, 59(9), e2022WR032828.
- 12) **Geng, X.** (85% effort), Boufadel, M.C., Li, H.L., Nagara, V.N., and Lee, K. 2023 Impacts of evaporation-induced groundwater upwelling on mixing dynamics in shallow wetlands, *Geophysical Research Letters*, 50(15), e2023GL104642.
- 13) **Geng, X.** (80% effort), Barker, C.H., MacFadyen, A., Boufadel M.C., Lee, K., Thrift-Viveros, D., Jones, R., and O'Connor, C. 2023 A Generic Approach to Construct Pseudo Components for Oil Weathering Models, *Journal of Hazardous Materials*, 459(2023), 132160.
- 14) **Geng, X.**, Barker C.H., MacFayden A., Boufadel M.C., Lee K., Thrift-Viveros D., Jones R., and O'Connor C. 2022 Oil biodegradation in permeable marine sediments: Effects of benthic pore-water advection and solute exchange, *Journal of Hazardous Materials*, 436(15), 129211.
- 15) Wang X., **Geng X.**, Sadat-Noori M., and Zhang Y. 2022 Editorial: Groundwater-Seawater Exchange and Environmental Impacts, *Frontiers in Water*, 4: 928615.
- 16) Kheirandish, M., An, C., Chen Z., **Geng, X.**, and Boufadel, M.C. 2022 Numerical Simulation of Benzene Transport in Shoreline Groundwater Affected by Tides under Different Conditions, *Frontiers of Environmental Science & Engineering*, 16(5), 61.
- 17) Raznahan M., Li S., Wang Z., Boufadel M., **Geng, X.**, and An, C. 2022 Numerical Simulation of Multiphase Oil Behaviors in Ice-covered Nearshore Water, *Journal of Contaminant Hydrology*, 251, 104069.
- 18) **Geng, X.**, and Michael, H.A. 2021 Alongshore movement of groundwater and its effects on seawater-groundwater interactions in heterogeneous coastal aquifers, *Water Resources Research*, 57(12), e2021WR031056.
- 19) **Geng, X.**, Charbel, K., Roger, P., Lee, K., An, C., and Boufadel, M.C. 2021 Hypersaline pore water in Gulf of Mexico beaches prevented efficient biodegradation of Deepwater Horizon beached oil, *Environmental Science & Technology*, 55(20), 13792-13801.
- 20) **Geng, X.**, An, C., Lee, K., and Boufadel, M. C. 2021 Modeling oil biodegradation and bioremediation within beaches, *Current Opinion in Chemical Engineering*, 35, 100751.
- 21) **Geng, X.**, Heiss, J.W., Michael, H.A., Li, H.L., Raubenheimer, B., and Boufadel, M.C. 2021 Geochemical fluxes in sandy coastal aquifers: modulation due to major physical stressors, geologic heterogeneity, and nearshore morphology, *Earth-Science Reviews*, 2021, 103800.
- 22) **Geng, X.**, Katul, G., Gerges, F., Bou-Zeid, E., Nassif, H., and Boufadel, M.C. 2021 A kernel-modulated SIR model for Covid-19 contagious spread from county to continent, *Proceedings of the National Academy of Sciences of the United States of America*, 118(21), e2023321118.
- 23) **Geng, X.**, Gerges, F., Katul, G., Bou-Zeid, E., Nassif, H., and Boufadel, M.C. 2021 Population agglomeration is a harbinger of the spatial complexity of COVID-19, *Chemical Engineering Journal*, 420, 127702.

- 24) Gerges, F., Nassif, H., **Geng, X.**, and Boufadel, M.C. 2021 GIS-based approach for evaluating a community intrinsic resilience index, *Natural Hazards*, doi.org/10.1007/s11069-021-05094-w.
- 25) Raznahan, M., An, C., Li, S.S., **Geng, X.**, and Boufadel, M., 2021. Multiphase CFD simulation of the nearshore spilled oil behaviors. *Environmental Pollution*, 288, 117730.
- 26) Gerges, F., **Geng, X.**, Nassif, H., and Boufadel, M.C. 2021 Anisotropic Multifractal Scaling of Mount Lebanon Topography: Approximate Conditioning, *Fractals- Complex Geometry, Patterns, and Scaling in Nature and Society*, 29(05), 2150112.
- 27) Cui, F., **Geng, X.**, Zhao, Zervaki O., Dionysios D., Katz J., Haig S-J., and Boufadel M.C., 2021 Transport and fate of virus-laden particles in a supermarket: Recommendations for risk reduction of COVID-19 spreading. *Journal of Environmental Engineering*, 147(4): 04021007.
- 28) **Geng, X.**, Heiss, J.W., Michael, H., Boufadel, M.C., and Lee, K. 2020 Groundwater flow and moisture dynamics in the swash zone: effects of heterogeneous hydraulic conductivity and capillarity, *Water Resources Research*, 56(11), e2020WR028401.
- 29) **Geng, X.**, Michael, H., Boufadel, M.C., Molz, F., Gerges, F., and Lee, K. 2020 Heterogeneity affects intertidal flow topology in coastal beach aquifers, *Geophysical Research Letters*, 47(17) e2020GL089612.
- 30) Xiong, L., Chen, H., **Geng, X.**, and Xu, Z. 2020 Influence of joint location and connectivity on the shear properties of artificial rock samples with non-persistent planar joints, *Arabian Journal of Geosciences*, 13, 565.
- 31) Kim K., Heiss, J.W., **Geng, X.**, and Michael, H. 2020 Modeling hydrologic controls on particulate organic carbon contributions to beach aquifer biogeochemical reactivity, *Water Resources Research*, 56(10), e2020WR027306.
- 32) **Geng, X.**, and Michael, H. 2020 Preferential flow pumping-induced saltwater intrusion in volcanic aquifers, *Water Resources Research*, 56(5), e2019WR026390.
- 33) Kreyms, P., **Geng, X.**, and Michael, H. 2020 The influence of connected heterogeneity on groundwater flow and salinity distribution on a coastal volcanic aquifer, *Journal of Hydrology*, 586, 124863.
- 34) Cui, F., Behzad, F., **Geng, X.**, Zhao, L., Lee K., and Boufadel M.C., 2020 On the dispersion of oil droplets in rivers: a Lagrangian particle tracking approach combined with a population balance model, *Journal of Hydraulic Engineering*, 147(3), 04021004.
- 35) Cui, F., Behzad, F., **Geng, X.**, Zhao, L., Lee K., and Boufadel M.C., 2020 Oil droplet dispersion under a deep-water plunging breaker: Experimental measurement and numerical modeling. *Journal of Marine Science and Engineering*, 8(4), 230.
- 36) **Geng, X.**, Boufadel, M. C., Lee, K., and An, C. 2020. Characterization of pore water flow in 3D heterogeneous permeability fields. *Geophysical Research Letters*, 47(3), e2019GL086879.
- 37) **Geng, X.**, Boufadel, M.C., Rajaram, H., Cui, F., Lee, K., and An C. 2020 Numerical study of solute transport in heterogeneous beach aquifers subjected to tides. *Water Resources Research*, 56(3), e2019WR026430.
- 38) Xiao, K., Li, H., Xia, Y., Yang, J., Wilson, A.M., Michael, H.A., **Geng, X.**, Smith, E., Boufadel, M.C., Yuan, P. and Wang, X., 2019. Effects of Tidally Varying Salinity on Groundwater Flow and Solute Transport: Insights From Modelling an Idealized Creek Marsh Aquifer. *Water Resources Research*, 55, 9656-9672.
- 39) Boufadel, M.C., **Geng, X.**, An, C., Owens E., Chen, Z., Lee K., Taylor E., and Prince, R. 2019 A Review on the Factors Affecting the Deposition, Retention, and Biodegradation of Oil Stranded on Beaches and Guidelines for Designing Laboratory Experiments, *Current Pollution Reports*, 1-17.
- 40) **Geng, X.**, Abdollahi-Nasab, A., An, C., Chen, Z., Lee, K., and Boufadel, M. C. 2019. High Pressure Injection of Chemicals in a Gravel Beach. *Processes*, 7(8), 525.
- 41) Abdollahi-Nasab, A., **Geng, X.**, and Boufadel, M.C., 2019 Water Flow and Solute Transport due to Macrotide in a Gravel Beach, *Journal of Hydrology*, 577, 123935.

- 42) Cui, F., Boufadel, M.C., **Geng, X.**, Gao, F., Zhao, L., King, T., and Lee, K., 2018 Oil droplets transport under a deep-water plunging breaker: Impact of droplet inertia, *Journal of Geophysical Research-Oceans*, 123(12) 9082-9100.
- 43) Golshan, B., Boufadel, M.C., Rodriguez, V., **Geng, X.**, Gao, F., King, T., Robinson, B., and Tejada-Martinez, A., 2018 Oil droplet transport under non-breaking waves: An Eulerian RANS approach combined with a Lagrangian particle dispersion model, *Journal of Marine Science and Engineering*, 6(1), 7.
- 44) **Geng, X.**, Heiss, J.W., Michael, H.A., and Boufadel, M.C. 2017 Subsurface flow and moisture dynamics in response to swash motions: Effects of beach hydraulic conductivity and capillarity, *Water Resources Research*, 53(10) 317-335.
- 45) **Geng, X.**, and Boufadel, M.C. 2017 The influence of evaporation and rainfall on supratidal groundwater dynamics and salinity structure in a sandy beach, *Water Resources Research*, 53(7) 6218-6238.
- 46) **Geng, X.**, and Boufadel, M.C. 2017 Spectral responses of gravel beaches to tidal signals, *Nature Scientific Reports*, 7, 40770.
- 47) Pan, Z., Personna, Y.R., Boufadel, M.C., King, T., Mason, J., Axe, L., and **Geng X.** 2017 Biodegradation of Dispersed Weathered Endicott Oil in Prince William Sound Water, *Journal of Environmental Engineering*, 143(9): 04017044: 1-9.
- 48) **Geng, X.**, Boufadel, M.C., and Cui F. 2016 Numerical modeling of subsurface release and fate of benzene and toluene in coastal aquifers subjected to tides, *Journal of Hydrology*, 551, 793-803.
- 49) Boufadel, M.C., **Geng, X.**, and Short J. 2016 Bioremediation of the Exxon Valdez oil in Prince William Sound beaches, *Marine Pollution Bulletin*, 113(1-2): 156-164.
- 50) **Geng, X.**, Boufadel, M.C., and Jackson, N. Evidence of salt accumulation in beach intertidal zone due to evaporation, *Nature Scientific Reports*, 6, 31486.
- 51) **Geng, X.**, Pan, Z., Boufadel, M. C., Ozgokmen, T., Lee, K., and Zhao, L. 2016. Simulation of oil bioremediation in a tidally influenced beach: Spatiotemporal evolution of nutrient and dissolved oxygen. *Journal of Geophysical Research: Oceans*, 121(4), 2385-2404.
- 52) **Geng, X.**, Boufadel, M.C., Ozgokmen, T., King, T., Lee, K., Lu, Y., and Zhao, L., 2016. Oil droplets transport due to irregular waves development of large-scale spreading coefficients. *Marine Pollution Bulletin*, 104(1-2): 279-289.
- 53) Zhao, L., Boufadel, M. C., Lee, K., King, T., Loney, N., and **Geng, X.** 2016. Evolution of bubble side Distribution from gas blowout in shallow water. *Journal of Geophysical Research: Oceans*, 121(3), 1573-1599.
- 54) Zhao, L., Boufadel, M. C., **Geng, X.**, Lee, K., King, T., Robinson, B., and Fitzpatrick, F. 2016. A-DROP: A predictive model for the formation of oil particle aggregates (OPAs). *Marine Pollution Bulletin*, 106(1), 245-259.
- 55) **Geng, X.** and Boufadel, M.C., 2015. Impacts of evaporation on subsurface flow and salt fate in a tidally influenced beach. *Water Resources Research*, 51(7): 5547-5565.
- 56) **Geng, X.** and Boufadel, M.C., Lee K., Abrams S., and Suidan M., 2015. Biodegradation of subsurface oil in a tidally-influenced sand beach: Impact of hydraulics and interaction with pore water chemistry. *Water Resources Research*, 51(5): 3193-3218.
- 57) **Geng, X.** and Boufadel, M.C., 2015. Numerical modeling of water flow and salt transport in bare saline soil subjected to evaporation. *Journal of Hydrology*, 524: 427-438.
- 58) **Geng, X.** and Boufadel, M.C., 2015. Numerical study of solute transport in shallow beach aquifers subjected to waves and tides. *Journal of Geophysical Research: Oceans*, 120(2): 1409-1428.
- 59) **Geng, X.**, Boufadel, M.C., Xia, Y., Li, H., Zhao, L., Jackson, N. L., and Miller, R. S. 2014. Numerical study of wave effects on groundwater flow and solute transport in a laboratory beach, *Journal of Contaminant Hydrology*, 165: 37-52.

- 60) **Geng, X.**, Boufadel, M.C., Personna, Y., Lee, K., and Tsao, D. 2014. BioB: A mathematical modeling for the biodegradation of low solubility hydrocarbons, *Marine Pollution Bulletin*. 83(1): 138-147.
- 61) **Geng, X.**, Davatzes, N.C., Soeder, D. J., Torlapati, J., Rodriguez, R.S., and Boufadel, M.C. 2014. Migration of high-Pressure air during gas drilling in the Appalachian basin. *Journal of Environmental Engineering*, 140 (5), B4014002.
- 62) **Geng, X.**, Boufadel, M.C., Wrenn, B. 2013. Mathematical modeling of the biodegradation of residual hydrocarbon in a variably-saturated sand column. *Biodegradation*, 24(2): 153-163.
- 63) **Geng, X.**, Li, H., Boufadel, M.C., Shuang, L. 2009. Tide-induced head fluctuations in a coastal aquifer: effects of the elastic storage and leakage of the submarine outlet-capping level. *Hydrogeology Journal*, 17(5): 1289-1296.
- 64) Boufadel, M.C., Abdollahi-Nasab, A., **Geng, X.**, and Galt, J. 2014. Time history of the Deepwater Horizon oil deposition on the shorelines of the Gulf of Mexico, *Environmental Science & Technology*. 48(16): 9496-9505.
- 65) Boufadel, M.C., and **Geng, X.** 2014. A new paradigm in oil spill modeling for decision making. *Environmental Research Letters*. 9, 081001.
- 66) Personna, Y., **Geng, X.**, Saleh, F. and Boufadel, M. C. 2014. Monitoring changes in salinity and metal concentrations in New Jersey coastal ecosystems post-hurricane sandy, *Environmental Earth Sciences*. 73, 1169-1177.
- 67) Li, H., Xia, Y., **Geng, X.**, 2013 A comparison study of hydrology and hydrochemistry along two transects in mangrove tidal marsh at Dongzhaigang national nature reserve, Hainan, China. *Groundwater in Coastal Zones of Asia-Pacific*.
- 68) Sun, P., Li, H., Boufadel, M.C., **Geng, X.**, Chen. S., 2008. An analytical solution and case study of groundwater head response to dual tide in an island leaky confined aquifer. *Water Resources Research* 44(12): W12501.
- 69) **Geng, X.**, Li, H., Xia Y., 2007. Tide-induced head fluctuations in a coastal aquifer: Effects of the elastic storage and leakage of the sediment on the seafloor. *Journal of China University of Geosciences*, 18, 133-135.

#### **CONFERENCE ABSTRACTS & PROCEEDINGS**

- 1) **Geng, X.**, Michel C. Boufadel, Holly Michael, and James Heiss. Influence of evaporation and high-frequency seawater inundation on salinity dynamics in swash zones, AGU 2024 Fall Meeting, December 9-13, 2024, Washington, D.C.
- 2) Lopez, E., Low, M., and Pablo-Cook, H., **Geng, X.**, Yan, T. Investigating wildfire-induced contaminant impact on groundwater flow and quality in Lahaina, Maui, AGU 2024 Fall Meeting, December 9-13, 2024, Washington, D.C.
- 3) Low, M., **Geng, X.**, Lopez, E., and Pablo-Cook, H. Investigating wildfire-induced contaminant impact on groundwater flow and quality in Lahaina, Maui, GSA 2024 Annual Scientific Meeting, November 13-16, 2024, Seattle, WA.
- 4) Low, M., Lopez, E., Pablo-Cook, H., and **Geng, X.** Sediment Analysis and Hydraulic Conductivity Experiments for a Wildfire-impacted Beach in Lahaina, Maui, AGU 2024 Fall Meeting, December 9-13, 2024, Washington, D.C.
- 5) Pablo-Cook, H., Lopez, E., Low, M., and **Geng, X.** Modeling Impacts of the Lahaina Fire on Coastal Groundwater Flow and Quality, 2024 NDiSTEM Conference, October 31-November 2, 2024, Phoenix, AZ.
- 6) **Geng, X.**, and Boufadel, M.C. Modeling Effects of Evaporation on Groundwater Flow and Solute Transport Process, *World Environmental & Water Resources Congress*, Milwaukee, Wisconsin, USA, May 19-22, 2024. May 19-22, 2024

- 7) **Geng, X.**, Modeling Coastal Groundwater Dynamics Governed by Tides, Waves, Evaporation, and Geologic Heterogeneity, *American Geophysical Union*, Fall Meeting, San Francisco, USA, December 9-13, 2023.
- 8) **Geng, X.**, Barker, C.H., and MacFayden, A., A Generic Algorithm Framework to Apply Existing Oil Spreading Models to Lagrangian Oil Fate and Transport Models, *44<sup>th</sup> AMOP Technical Seminar on Environmental Contamination and Response*, online meeting, June 7-9, 2022.
- 9) **Geng, X.**, Barker, C.H., Jones R.K., and O'Connor C., Optimizing the Boiling Points for a Pseudo Component Based Oil Weathering Model, *44<sup>th</sup> AMOP Technical Seminar on Environmental Contamination and Response*, online meeting, June 7-9, 2022.
- 10) **Geng, X.**, and Boufadel, M.C., Evidence of salt accumulation in beach intertidal zone due to evaporation, *Delaware Estuary Science & Environmental Summit*, online meeting, March 1-3, 2021.
- 11) **Geng, X.**, and Boufadel, M.C., Quantification of Groundwater Flow Using Universal Multifractals, *American Geophysical Union*, Fall Meeting, San Francisco, USA, December 9-13, 2019.
- 12) **Geng, X.**, P. Kreyns, and Koneshloo, M., Lateral movement of groundwater and its effects on seawater-groundwater interactions in coastal volcanic aquifers, *American Geophysical Union*, Fall Meeting, Washington, D.C., USA, December 10-14, 2018.
- 13) **Geng, X.**, Michael H.A., Impacts of preferential flow on pumping-induced groundwater salinization in nearshore volcanic aquifers, *2018 CUASHI Biennial Colloquium*, Shepherdstown, West Virginia, USA, July 29-August 1, 2018.
- 14) **Geng, X.**, P. Kreyns, and Koneshloo, M., Impacts of preferential flow on coastal groundwater-surface water interactions: The heterogeneous volcanic aquifer of Hawaii, *American Geophysical Union*, Fall Meeting, New Orleans, Louisiana, USA, December 11-15, 2017.
- 15) **Geng, X.**, (invited speaker), Physical controls on water flow and solute transport in coastal aquifers: effects of waves and evaporation, *Global Scientist Forum-Session on Environment, Ocean and Earth*, Southern University of Science and Technology, Shenzhen, CN, March 18-19, 2016.
- 16) Michael, H.A., Duque, C., **Geng, X.**, Guimond, J., Heiss, J.W., Kim, K.H., Koneshloo, M., Kreyns, P., Russoniello, C.J., Scott, K., and Yu. X., Submarine groundwater discharge across scales from marsh to shelf, *The Geological Society of America Annual Meeting*, Seattle, Washington, October 22-25, 2017.
- 17) **Geng, X.**, and Boufadel, M.C., Bioremediation of subsurface oil in a tidally influenced sand beach: impact of hydraulics and interaction with pore water chemistry, *The Geological Society of America Annual Meeting*, Baltimore, Maryland, November 1-4, 2015.
- 18) **Geng, X.**, and Boufadel, M.C., Impacts of evaporation on subsurface flow and salt fates in a tidally influenced beach, *2015 MODFLOW and More: Modeling a Complex World*, Colorado, May 31-June 3, 2015.
- 19) **Geng, X.** and Boufadel, M.C. Effects of waves on subsurface flow and solute transport in a laboratory beach, *World Environmental & Water Resources Congress*, Austin, Texas, May 17-21, 2015.
- 20) **Geng, X.**, Boufadel, M.C., and Saleh, F.S., Numerical modeling of water flow and salt transport in bare saline soil subjected to transient evaporation, *American Geophysical Union*, Fall Meeting, San Francisco, California, USA, December 15-19, 2014.
- 21) **Geng, X.**, Boufadel, M.C., Modeling biodegradation of subsurface oil in a sandy beach polluted with the Deepwater Horizon oil spill, *International Oil Spill Conference*, Savannah, Georgia, USA, 2014.
- 22) Torlapati, J., **Geng, X.**, King, T., Boufadel, M.C., and Lee, K. Shoreline bioremediation model (SBM) – a graphical user interface for simulating the biodegradation of beached oil, *International Oil Spill Conference*, Savannah, Georgia, USA, 2014.
- 23) **Geng, X.**, Boufadel, M.C., A numerical model for simulating transient evaporation from bare saline soil, *The Third Asia-Pacific Coastal Aquifer Management Meeting*, Beijing, China, October, 2013.
- 24) **Geng, X.**, Boufadel, M.C., Davatzes, N.C., Soeder, D.J., and Torlapati, J. A modeling study of air migration from a drilling well to the surrounding aquifer in Appalachia. *World Environmental & Water Resources Congress*, Cincinnati, Ohio, May 19-23, 2013.

- 25) **Geng, X.**, Boufadel, M.C., and Abdollahi-Nasab, A. Hydrodynamics in a sandy beach polluted with the Deepwater Horizon oil spill. *World Environmental & Water Resources Congress*, Cincinnati, Ohio, May 19-23, 2013.
- 26) Abdollahi-Nasab, A., Boufadel, M.C., and **Geng, X.** Role of freshwater in the persistence of the Exxon Valdez oil spill in a wave-exposed beach. *World Environmental & Water Resources Congress*, Cincinnati, Ohio, May 19-23, 2013.