Xiaolong "Leo" Geng

Assistant Professor

"Appropriate assessment and management of coastal resources are of primary importance for preserving biodiversity and achieving coastal sustainability."

As the most developed regions worldwide, the U.S. coastlines are marked by high population density and a plethora of anthropogenic activities that are increasingly threatening nearshore marine resources, coastal ecosystems, and adversely affecting coastal water quality. Appropriate assessment and management of coastal resources are of primary importance for preserving biodiversity and achieving coastal sustainability. As a joint appointee with WRRC and the Department of Earth Sciences, Dr. Geng will be collaborating with a diverse group of researchers in areas such as numerical modeling, field monitoring, and laboratory investigations of coastal systems. Leo's research expertise lies in three overlapping core areas:

- 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).

EDUCATION

- BS, Mathematics, Liaoning Normal University
- MS, Applied Mathematics & Environmental Science (Joint Program), Liaoning Normal University & China University of Geoscience (Wuhan)
- PhD, Civil and Environmental Engineering New Jersey Institute of Technology

INTERESTS

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

CURRENT PROJECTS

- Impacts of the Deepwater Horizon oil spill on the Gulf Ecosystem Services
- Biodegradation and bioremediation of the Exxon Valdez oil in Prince William Sound beaches