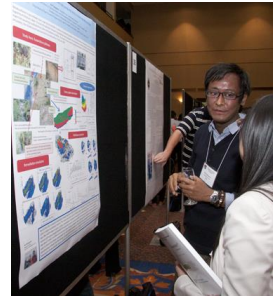


# Laboratory of Environmental Groundwater Science

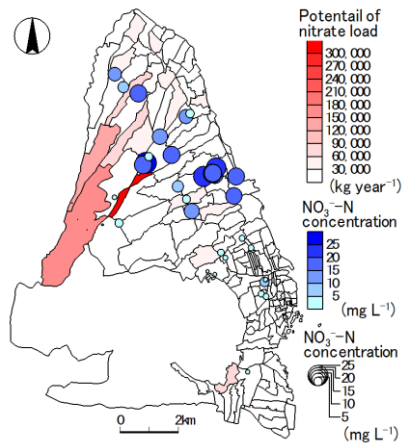
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Groundwater is a Key element with respect to both the water cycle and the environment as a whole

Groundwater in the Shimabara Peninsula is heavily contaminated with nitrate. The input, transport, and fate of groundwater contaminants are of particular importance for Shimabara residents, given that groundwater is used as the community's water supply. Our research focuses on the characterization, transport mechanisms, pollution control measures, and usage associated with groundwater. We contribute to conservation of groundwater environments using techniques, such as field sampling, chemical analysis, laboratory experiments, and numerical modeling.



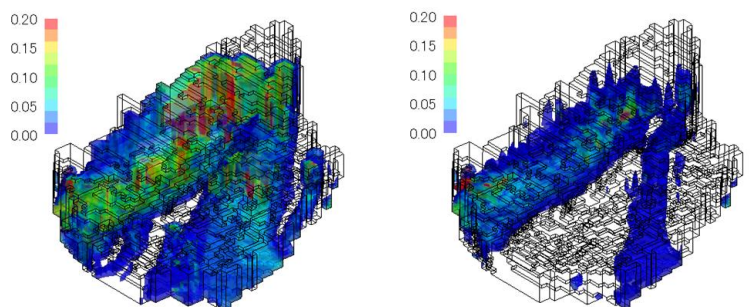
Nitrate concentration distribution and nitrate load potential, Shimabara.



*In situ* field sampling at the Shimabara well.



Simultaneous sampling (50m depth) of groundwater via a borehole at a site in a contaminated area.



Numerical simulation results for remediation measures (9 years post-remediation);  
(Left) 50% removal of source of pollution  
(Right) 100% removal of source of pollution.