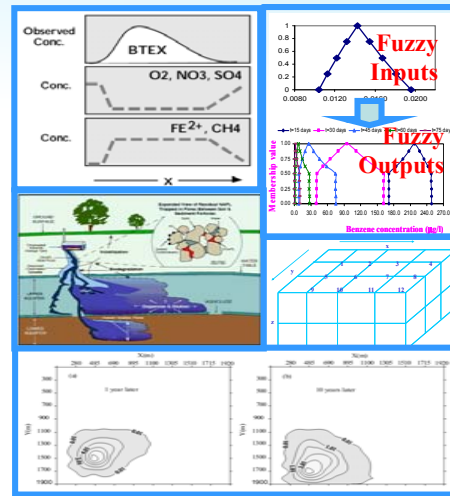


# Risk Assessment & Remediation for Petroleum-Contaminated Sites

Effective petroleum contaminated site management is important, and has been a principle task of environmental professionals and regulatory agencies. Yang's thorough research efforts are focusing on mathematical modeling, risk assessment, remediation process optimization, and decision analysis support, which can realize a cost-effective management of petroleum-contaminated sites

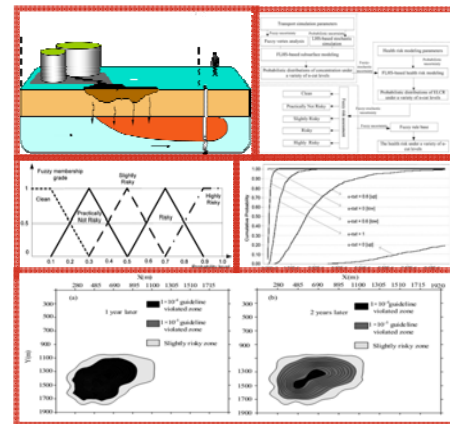
## Numerical simulation

- Simulation of Aerobic and Anaerobic Biodegradation Processes
- Simulation of Pump and Treat Process
- Development of A Fuzzy Latin Hypercube Sampling Method for Predicting Transportation of Contaminant in Subsurface



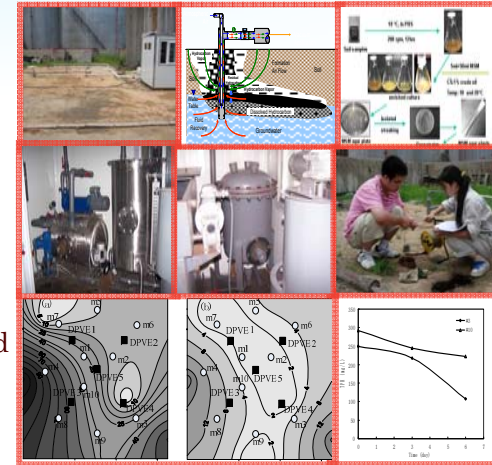
## Health Risk Assessment

- Development of A Coupled Simulation and Fuzzy-rule-based Method
- Advanced An Integrated Simulation-Assessment Approach
- Development of A multi-phase multi-standard environment risk assessment approach



## Remediation Process Optimization

- Utilization of A Vacuum System (Dual-Phase Vacuum Extraction) to Remove Various Combinations of Contaminated Groundwater in Liaohe Oil-Field
- Removal of Soluble Phase Contamination by Enhanced Attenuation
- Advanced A Fuzzy Simulation-Based Optimization Approach for Groundwater Remediation Design



## Decision Analysis Support

- Development of A Simulation-Based Fuzzy Multi-Criteria Decision Analysis method
- Strategies for Remediation of Oil-Polluted Groundwater in Northern China
- Decision Analysis Integrated Simulation with Risk Assessment for petroleum contaminated site in Western Canada

