

Article on the 3rd International Groundwater Symposium for HYDROLINK

The 3rd International Groundwater Symposium (<http://www.iahr-gw2008.net>) was held in Istanbul, Turkey from June 18 to 20, 2008. The Symposium was organized by IAHR's Groundwater Hydraulics and Management Section and the Institute of Environmental Sciences at Bogazici University, Istanbul, Turkey. The Symposium was cosponsored by the Scientific and Technological Research Council of Turkey (TUBITAK), International Hydrological Programme of UNESCO, and Prince Sultan Bin Abdulaziz International Prize for Water.

The purpose of the Symposium was to bring together researchers focused on fundamental laboratory-scale experimentation and mathematical modelling of flow and transport in natural subsurface systems with hydrogeologists, geologists and engineers working on field applications and groundwater management problems. In total 229 papers were presented over 15 sessions covering a wide range of current topics related to groundwater flow and contaminant transport. 190 participants attended the Symposium from 38 different countries.

The Symposium covered a broad range of contemporary topics relating to flow and transport in complex porous and fractured media, such as site characterization, coupled surface-subsurface processes, stochastic modeling, groundwater management practices, impacts of climate change and subsurface CO₂ storage, and mass and heat transfer in geothermal systems.

Six guest speakers were invited to deliver keynote lectures at the Symposium. Prof. Michael Celia of Princeton University and Prof. Rainer Helmig of Stuttgart University gave two complimentary talks on the impacts of subsurface CO₂ storage. Prof. Celia, the 2008 Henry Darcy Lecturer, discussed the viability of the carbon capture and subsurface storage as a carbon mitigation alternative and presented efficient modeling approaches to deal with potential problems related to CO₂ storage such as possible leakage of CO₂ and the fate of the displaced fluids. Prof. Helmig presented a numerical model that can simulate multiphase flow of the ensuing CO₂-water system and discussed the benefits and challenges of this endeavor.

On the topic of stochastic modeling of groundwater flow and contaminant transport in heterogeneous media, Prof. Xavier Sanchez-Vila of the Technical University of Catalonia discussed the impact of aquifer heterogeneity on the multispecies reactive transport and presented a modeling approach that leads to the probability density function of the concentrations as a function of space and time. Prof. Gedeon Dagan gave a critical analysis of the concept of transmissivity, a property that is often used in the modeling of groundwater flow at the regional scale.

On the topic of groundwater remediation, Prof. Majid Hassanizadeh of Utrecht University described laboratory scale experiments that demonstrated the potential anaerobic biodegradation and enhanced dissolution of PCE near source zones. Prof.

Peter Kitanidis of Stanford University described a field demonstration of biostimulation for the degradation of immobile Uranium and discussed the factors influencing the efficiency of engineered in-situ remediation efforts.

Several poster and oral sessions were also held on the topic of groundwater management practices in different countries. Selected papers presented at the Symposium as well as some additional ones will be combined in a forthcoming monograph. This effort is being led by Dr. Angelos Findikakis of Bechtel National and Prof. Kuniaki Sato of the Center for Sustainable Communities, CTI Engineering Co.

A book of abstracts of all poster and oral papers presented at the symposium and a CD including 133 full papers were published.

The next IAHR International Groundwater Symposium will be held at the Technical University of Valencia, Spain from September 22-24, 2010. The Chair of the local Organizing Committee is Prof. Jaime Gómez-Hernandez at jaume@jaimegomez.es

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