AquaConSoil 2013 Themes

A. Using functions of soil – water systems

Soil, sediment and groundwater as a resource of valuable materials (and waste cycles)
- Extraction of valuable matter (e.g. metals, phosphate)
- Reuse of (contaminated) excavated soil and dredged sediments
- Reducing excavation and transport of soil and sediment
- The role of soil, sediment and groundwater in nutrient cycling

Urban (ground)water management
- Availability of water of good quality for different purposes (cooling, drinking, process, living etc)
- Preventing flooding in the urban environment by soil and groundwater management
- Impacts of soil sealing and effectiveness of measures for prevention
- Subsurface water storage
- Subsurface drainage in urban areas: potential, effectiveness, measures

Thermal energy in soil-water systems
- Geothermal energy
- Aquifer Thermal Energy Storage (ATES)
- Borehole Thermal Energy Storage (BTES)
- Combining thermal energy storage with remediation
- Deep lake energy storage

Role of soil-water systems in climate change adaptation and mitigation
- Green house gas emissions under changing land use in peat land
- Green house gas emissions under changing water management and land use
- CO2 storage
- Role of soil in carbon cycling
- Urban climate

Eco-engineering
- Improving physical soil properties (strengthening sediment and soil)
- Geo bio civil engineering
- New soils in the city (e.g. green roofs)
- Self purification function of the soilwater System

B. Soil and water resources management in water scarcity regions

Assessment of quantity, quality and vulnerability
- Pollution problems and eutrophication of surface reservoirs
- Agro and industrial contaminations
- Sewage treatment and contamination of shallow aquifers
- Decentralized waste water treatment and Reuse
- Assessment of recharge and storage capacity and combined water quality in subsurface reservoirs
- Grey/waste water infiltration
- Urban water tables
- Virtual water export

Solutions for salinization of soil-water systems
- Prevention & adaptation
- Interception techniques (e.g. sealing seepage boils, bubble aeration system)
- Groundwater extraction management
- Artificial recharge
- Fresh water recycle approaches in saline environments
- Water management and density gradients
- Desalination of soils

C Assessment and monitoring

Fate, transport and risks
- Risk assessment
- Modelling exposure and pathways
- Soil vapour intrusion
- Bioavailability and speciation,
- Bioassays, target organisms
- Dealing with uncertainties
- New/emerging pollutants (e.g., fire retardants, pharmaceuticals)
- Large scale groundwater contamination monitoring
- (Bio)transformation products and leaching from subsurface waste storage-

Developments in site investigation and monitoring
- Strategies
- Sampling methodologies
- Physical analyses and measurements
- Chemical analyses and measurements
- Biological monitoring and assessment;: environmental molecular and microbiological diagnostic tools
- Combined assessment techniques and monitoring
- Methods for assessment of new pollutants/emerging compounds (e.g. MtBE, Mercury, fire retardants)
- Monitoring and assessment of (bio)transformation products
- Contaminant forensics and source ID.
- Remediation aftercare

Effects of climate change and/or groundwater management
- Modelling and predicting salinization
- Techniques for monitoring salt intrusion
- Melting permafrost
- Effect of groundwater extraction on contaminants
- Effects of thermal systems on soil quality
- Subsidence

Ecosystem services assessment and monitoring
- Identifying ecosystem services
- Quantifying ecosystem services
- Valuating ecosystem service
- Mapping ecosystem services

D Remediation technologies for soil, groundwater and sediment

Technologies for (in situ) remediation and management of soil contamination:
- Isolation
- Stabilization/solidification/ immobilization
- Chemical degradation, ISCO, ISCR
- Monitored natural attenuation
- Bioremediation and phytoremediation,
- Thermal techniques
- Combination of techniques
- Remediation techniques for new pollutants/emerging compounds (e.g. MtBE, Mercury, fire retardants)
- Green remediation
- Nanomaterials

Costs and management
- Costs, finance
- Communication
- Project risk management
- Contracts, liability

Sustainable remediation / Environmental footprint
- Methods to assess the footprint of remediation and management activities
- Reducing the environmental footprint of remediation and management activities
- LCA (life cycle analyses)
- Decision support tools for choosing sustainable solutions

Sector specific cases of soil contamination management
- Mining areas
- Harbours
- Landfills
- Former industrial sites
- Brownfields
- Military sites
- Industrial mega sites
- Residential areas
- Habitat and wetland restoration

E Concepts and policies

Soil-water systems policy and regulation
- Water Framework Directive evaluation (WFD involving issues of nutrients, standard pollutants, emerging pollutants)
- Soil protection strategy
- National and international policy developments
- Objectives, target values, standards
- Policy evaluation
- Changing policies: new scientific developments and impact on policies (bioavailability, new pollutants)
- Integrating Science and Policy

Regional management of soil-water systems
- Managing pollution at the regional scale
- River basin management
- Transboundary management
- Sediment management
- Dealing with salinization

Sustainable use of the subsurface
- Application of the ecosystem services and natural capital concepts
- Spatial planning of the subsurface
- Interference between functions, trade-offs
- Sustainable production (system footprint, corporate ecosystem services review)
- Stakeholder participation
- Communication
- Science-policy interfacing

Resource efficiency
- Reuse of (contaminated) soil and sediments
- Opportunities for (temporal) use of contaminated land
- Mining (extraction of valuable matter)
- Brownfields redevelopment
- Opportunities for combinations of functions

AquaConSoil 2013 Themes

Summary of topics

A. Using functions of soil – water systems
Soil, sediment and groundwater as resource of valuable materials (and waste cycles)
Urban (ground)water management
Thermal energy in soil-water systems
Role of soil-water systems in climate change adaptation and mitigation
Eco-engineering

B. Soil and water resources management in water scarcity regions
Assessment of quantity, quality and vulnerability
Solutions for salinization of soil-water systems

C Assessment and monitoring
Fate, transport and risks
Developments in site investigation and monitoring
Effects of climate change and/or groundwater management
Ecosystem services assessment and monitoring

D Remediation technologies for soil, groundwater and sediment
Technologies for (in situ) remediation and management of soil contamination:
Costs and management
Sustainable remediation / Environmental footprint
Sector specific cases of remediation and soil contamination management

E Concepts and policies
Soil-water systems policy and regulation