Public Customized Training Course on
'Applied Reactive Transport Modeling'

(Venue: Ara room)

Date/Time	***Program Description***	***Remark***
5.18 (Mon)	***Registration and orientation***	***IS-Geo***
09:50-10:00		
5.18 (Mon)	**Fundamentals of solute transport modeling**	
10:00-10:30	Introduction, Course overview	*Henning Prommer*
10:30-11:30	Introduction to flow and transport modeling I	*Henning Prommer*
11:30-12:10	Introduction to flow and transport modeling II	*Henning Prommer*
12:10-13:30	*Lunch*	
13:30-14:30	Introduction to MT3DMS: Theoretical background and solution techniques	*Olivier Atteia*
14:30-15:15	Introduction to the graphical user interface (GUI) ipht3d	*Olivier Atteia*
15:15-17:15	MT3DMS Exercise: Conservative transport simulation	
17:15-18:00	Conservative transport model calibration: Role for reactive transport modeling	*Henning Prommer*
5.19 (Tue)	**Geochemical and reactive transport modeling**	
10:00-11:00	Introduction to geochemical modeling	*Doug Kent*
11:10-12:10	Introduction to PHREEQC	*Doug Kent*
12:10-13:30	*Lunch*	
13:30-14:30	PHREEQC Exercises: water composition/mineral dissolution/redox reactions	
14:30-15:30	Introduction to PHT3D: Coupling of transport and chemistry	*Henning Prommer*
15:30-16:30	PHT3D Exercise: Mineral dissolution/precipitation	
16:30-18:00	PHT3D Exercise: Acid mine drainage	
5.20 (Wed)	**Cation exchange and surface complexation reactions**	
10:00-11:30	Ion exchange: principles, types of exchangers, modeling with PHREEQC	*Doug Kent*
11:30-12:10	Ammoniacal liquor contamination at the Rexco site/UK	*Henning Prommer*
12:10-13:30	*Lunch*	
13:30-14:45	PHT3D Exercise ion exchange: Ammonium plume at the Rexco site/UK	
14:45-15:45	Surface complexation: theory/types of surface complexation models/model applications	*Doug Kent*
15:45-16:45	Surface complexation: modeling with PHREEQC, site-specific surface complexation models	*Doug Kent*
17:00-18:00	PHREEQC/PHT3D Exercise surface complexation: Zinc transport at Cape Cod	
5.21 (Thu)	**Reaction kinetics: Modeling the fate of organic pollutants**	
10:00-11:00	Biodegradation: From a conceptual towards a numerical model	*Henning Prommer*
11:00-12:10	Modeling kinetic reactions with PHREEQC: incorporation of kinetic rate expressions	*Olivier Atteia*
12:10-13:30	*Lunch*	
13:30-14:00	Case Study: BTEX plume degrading under sulfate-reducing conditions	*Henning Prommer*
14:00-14:30	PHREEQC Exercise kinetics: Simulating microbial growth and decay	
14:30-15:00	Source evolution and biodegradation: Application of Raoult's law to simulate NAPL sources	*Olivier Atteia*
15:00-17:30	PHT3D Exercise kinetics: Flow/conservative transport, NAPL dissolution, plume development	
17:30-18:00	Case Study: Fringe-controlled degradation of phenoxy acids in a landfill leachate plume	*Henning Prommer*
5.22 (Fri)	**Advanced topics and team exercises**	
10:00-11:00	Potential applications of reactive transport modeling at KIGAM	*Doug Kent*
11:10-12:10	Introduction Team exercises	
12:10-13:30	*Lunch*	
13:30-16:00	Team exercises	
16:00-17:00	Presentation of results	
17:00-18:00	Final discussion and course closure	

※ The working language is English