

Combined transport experiments under *in-situ* conditions

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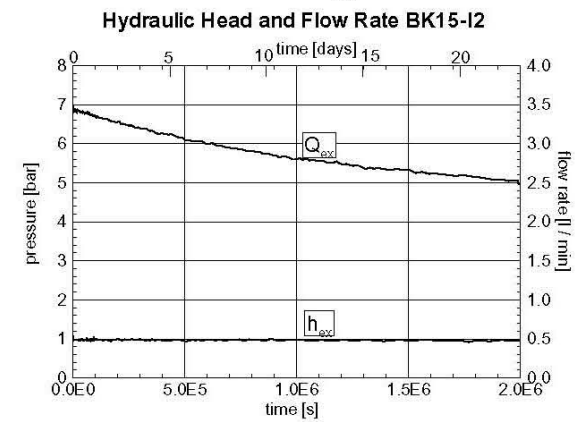
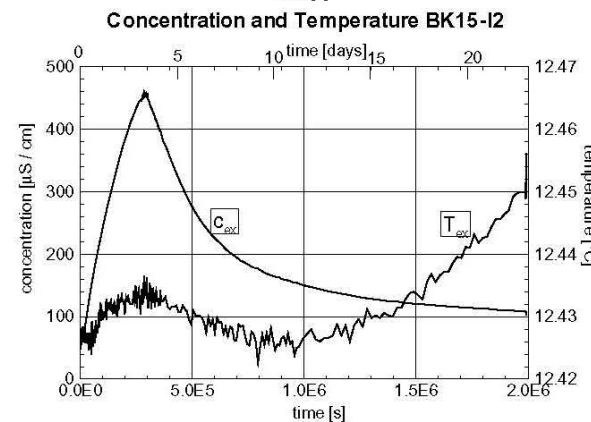
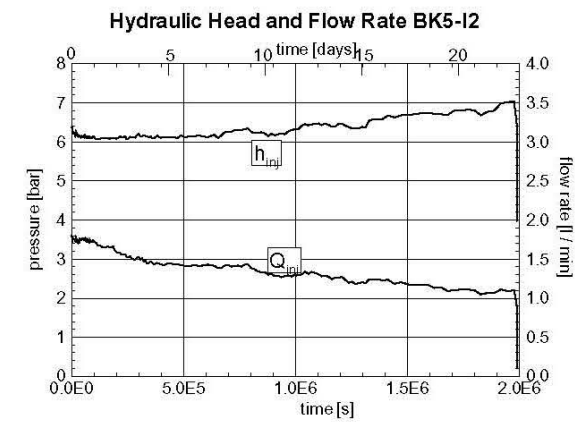
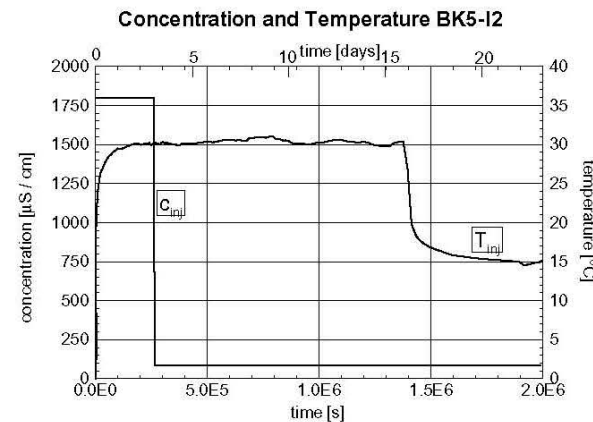
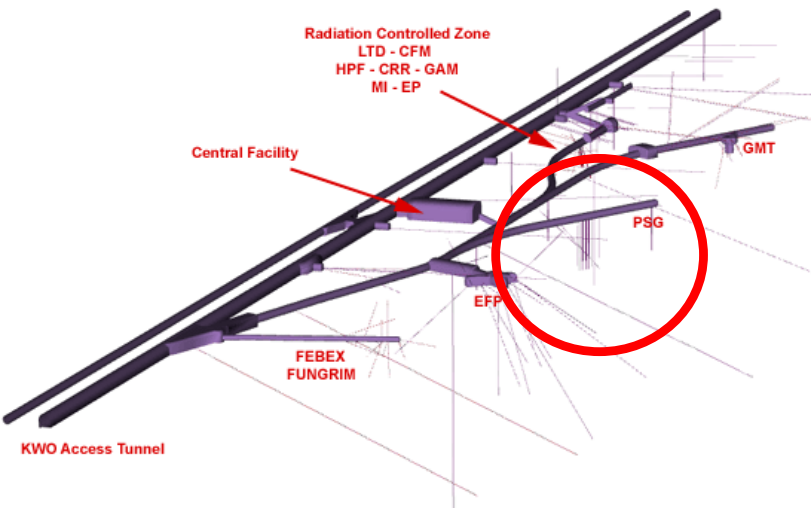
Dohlenweg 28, CH-8050 Zürich

Thermal / Solute perturbation on dipole flow field in single fracture

injection BK5
extraction BK15

Grimsel rock laboratory:
Location of BK site

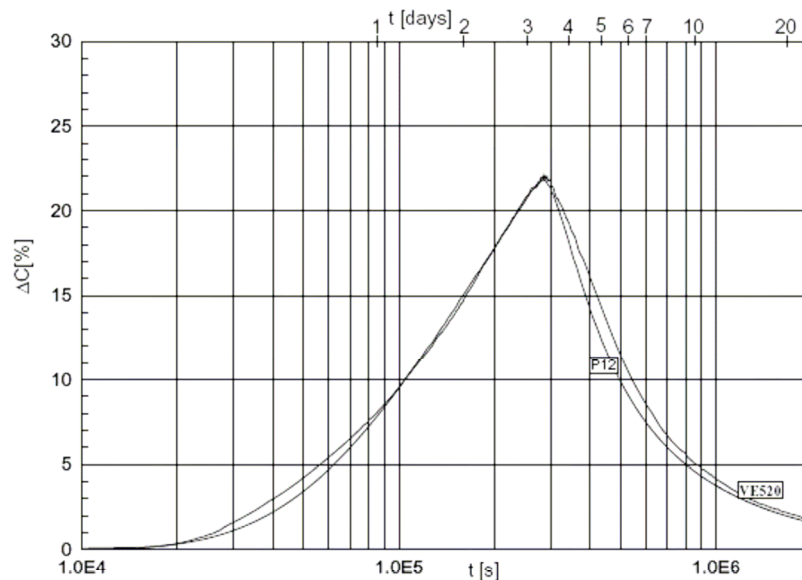
Data



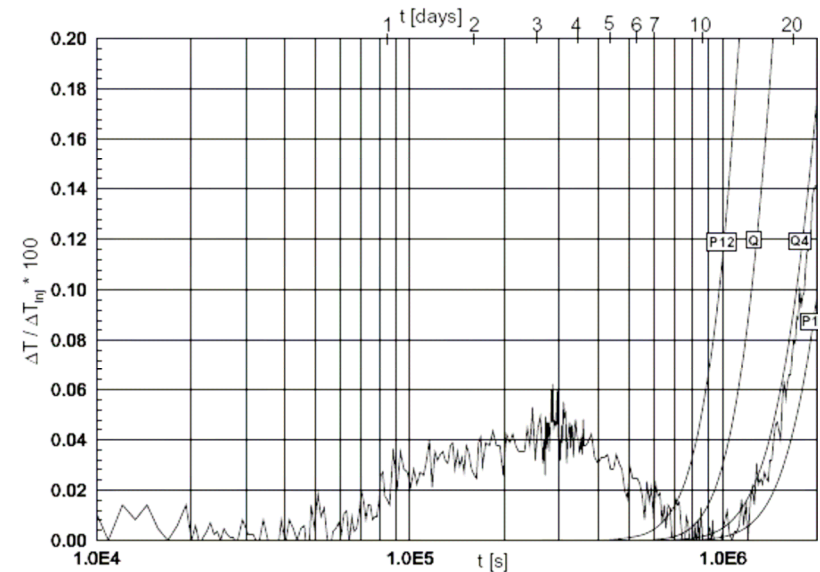
Thermal / Solute transport Fitting Parameters

	K_f [m/s]	a [m]	ϕ_c	ϕ_{nc}	α_L [m]	α_T [m]
joint plane	2E-05	0.22	0.15	0.15	3	3
permeable matrix	2E-08	0.50	0.05	0.05	0.1	0.01

Solute Transport VE520



Heat Transport VE520



Advantages

- A good observation of a mid-scale experiment (~10 m)
- Heat is non-reactive tracer, not disturbing chemical equilibrium
- Independent salt & heat data by identical experiment
- Reasonable costs

CONCLUSION

- successful combined salt / heat experiment
- high dispersivity lengths
- solute data cannot differentiate between single / multiple flow zones
- High heat diffusion from matrix
- Heat tracer most sensitive to surface area