



The Hydrogeological Test Site Lauswiesen

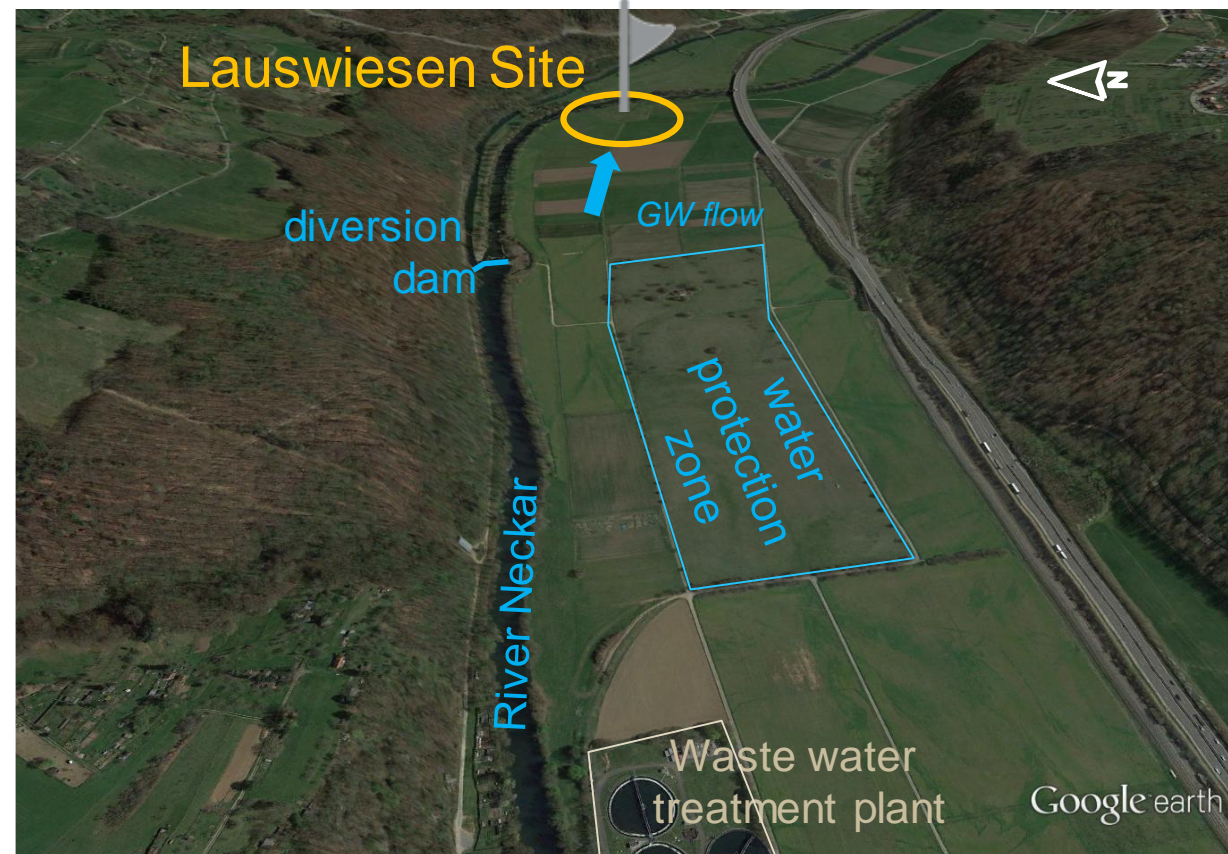
Carsten Leven, Olaf A. Cirpka
Center for Applied Geoscience, Univ. Tübingen

Lauswiesen Hydrogeological Test Site

Neckar valley east of Tübingen



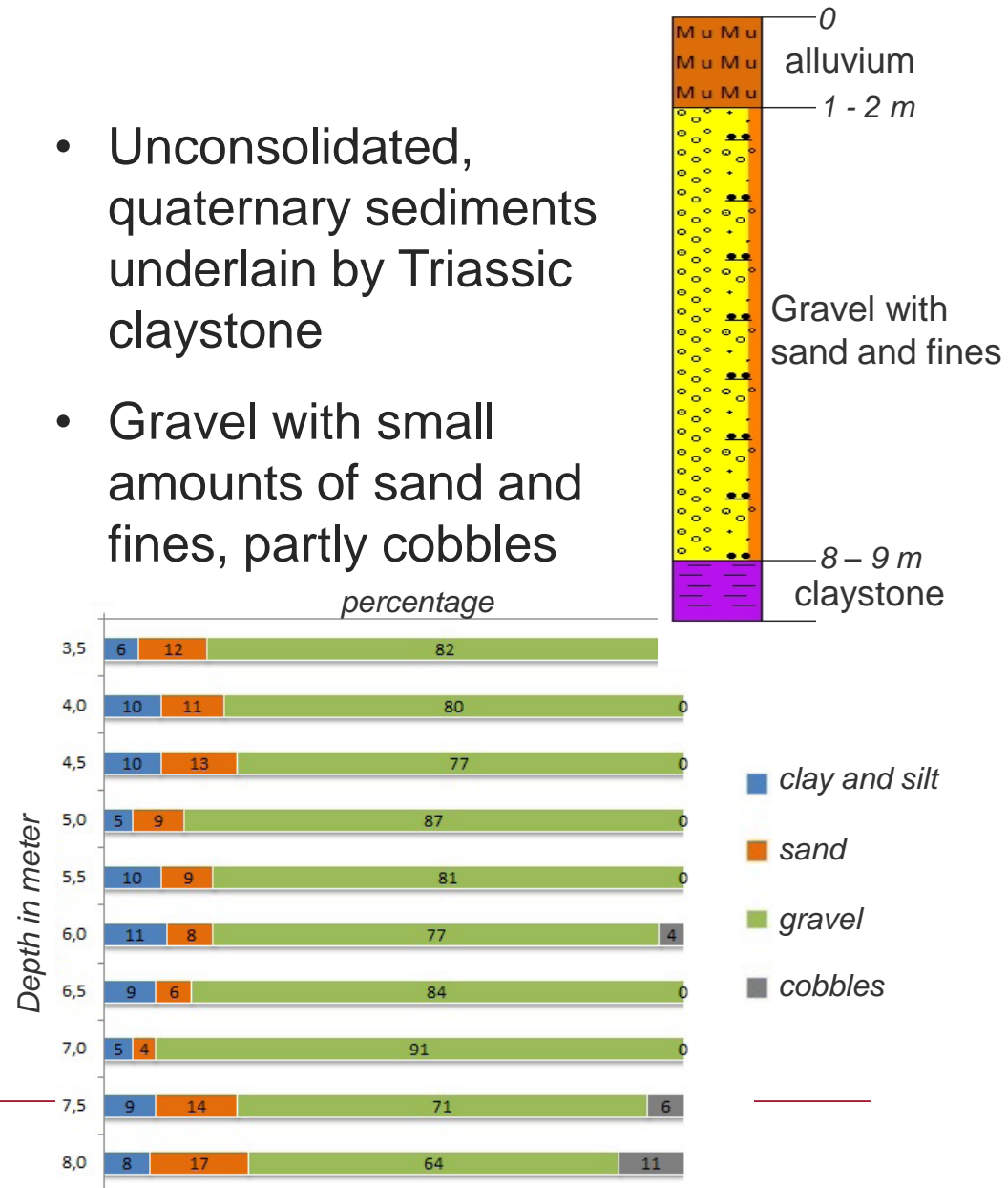
Test site in the
Neckar valley
established in
1996



Geological setting



- Unconsolidated, quaternary sediments underlain by Triassic claystone
- Gravel with small amounts of sand and fines, partly cobbles

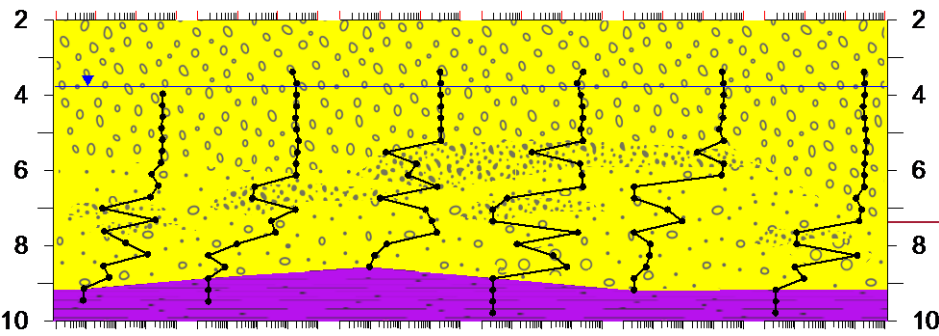
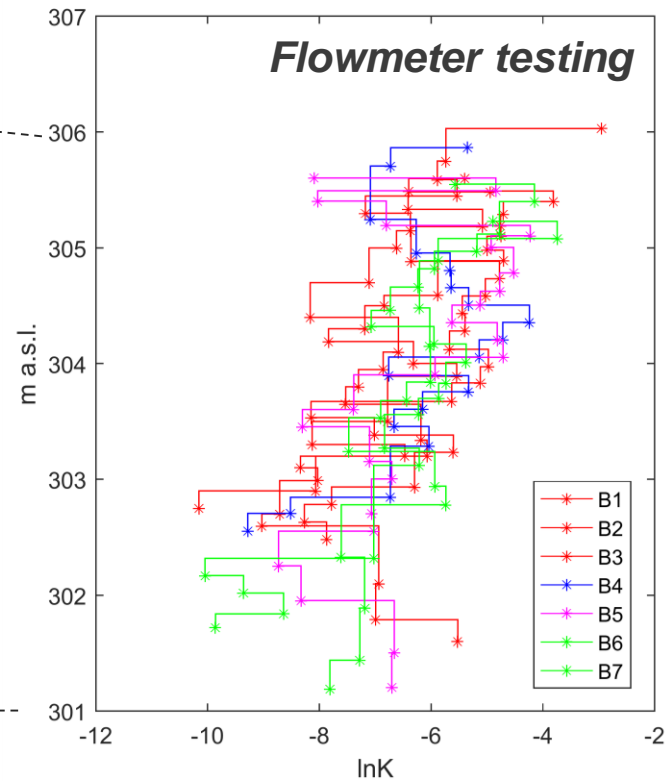
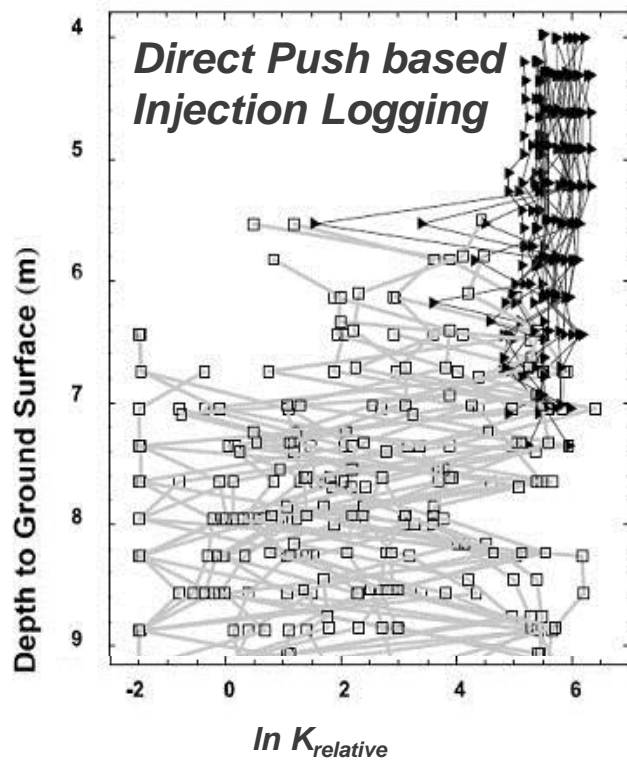


Hydrogeological setting

- Unconsolidated and unconfined aquifer
- Depth to water table: 3 - 4 m
saturated thickness: 6 - 7 m
- hydraulic gradient: 3 ‰
- strong hydraulic interaction with River Neckar
- $K_{\text{average}} = 3 \times 10^{-3} \text{ m/s}$

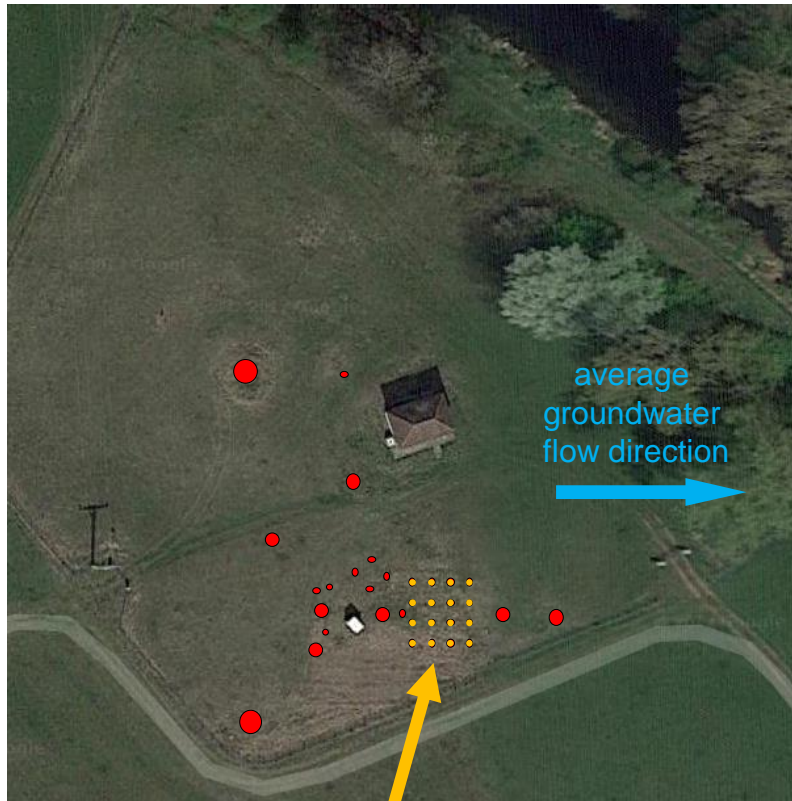


Hydrogeological setting



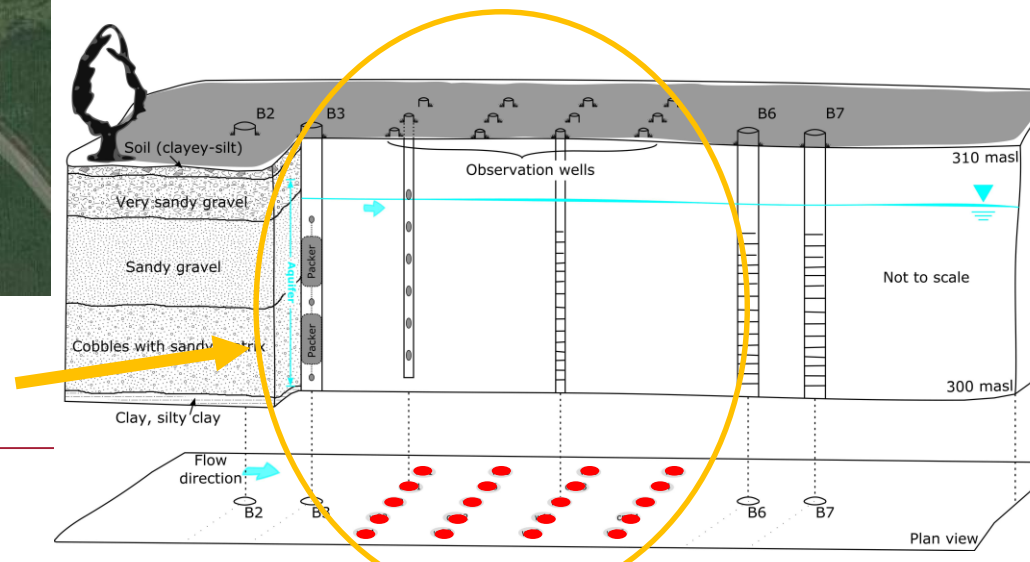
**Vertical variability
of horizontal
hydraulic conductivity**

Well inventory



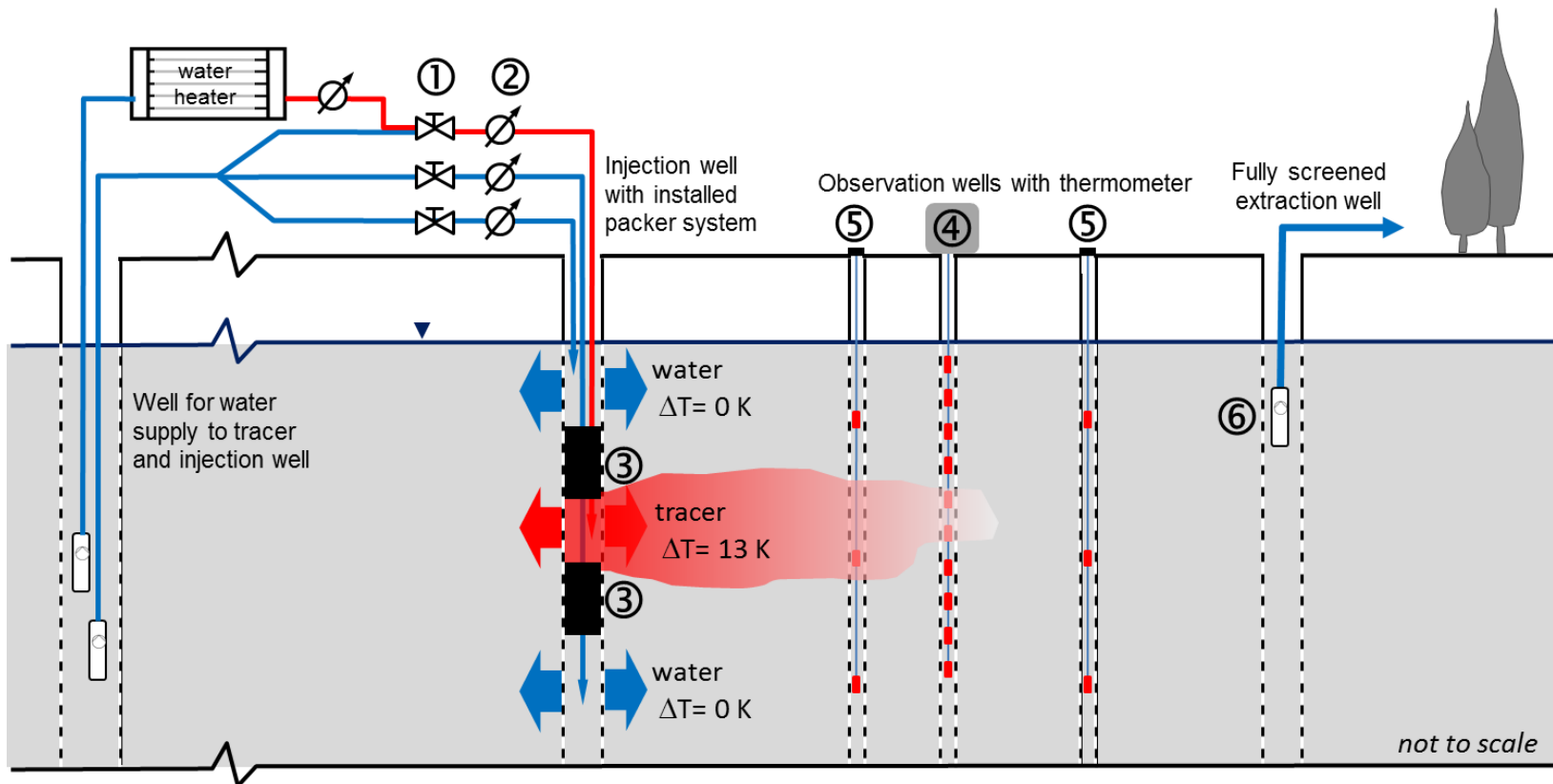
*Well field for tomographic surveys
(20 small diameter wells)*

- 10", 7", 6", 2" and 1" wells
- several multi-level (CMT) wells
- Well field for tomographic surveys
- 2 large diameter water supply wells
- 1 horizontal well



Tomographic tracer testing

here: heat tracer testing





*Data = data sets available
w.i.p. = work in progress*

Current work and possible test settings

Hydrogeological testing	data	w.i.p.
Pumping test with many observation wells	😊	
Borehole testing in fully screened wells	😊	
Direct Push-based hydraulic profiling (vertical K-profiles)	😊	
Heat tracer tests in ambient and forced gradient flow fields	😐	
Tomographic heat tracer tests	😊	MSc
Tomographic solute tracer tests	😊	PhD, MSc
(Geo)chemical monitoring (micropollutants) etc.	😊	MSc
Geophysical / hydrogeophysical testing		
Tomographic salt tracer tests with ERT monitoring)	😊	ENIGMA
2D-/3D-electrical resistivity surveys	😊	ENIGMA
2D (refraction) seismic surveys	😊	
Georadar	😞	