

Overview of reports and publications in the limestone project

28-02-2017

Reports and activities for Region H

Public online-wiki

- W) "Investigation of contaminant transport in fractured limestone aquifers". Mosthaf, Fjordbøge, Broholm, Bjerg and Binning (finalized by mid 2017), <https://limestone.env.dtu.dk>.

Finished reports

- R1) "Overblik over lokaliteter i værkstedsområderne". Pedersen, Vilsgaard, Broholm and Bjerg, 2014.
- R2) "Strømning og stoftransport i kalklagene på den københavnske vestegn". GEO/GEUS, 2014.
- R3) "FACT-FLUTE teknologi – Sorption af chlorerede opløsningsmidler på FACT". Sørensen and Broholm, 2014.
- R4) "The FACT-FLUTE technology – A modeling tool for interpreting field data" and Excel tool for the estimation of aqueous porewater concentrations from FACT concentrations. Mosthaf, Broholm and Binning, 2014.
- R5) "Geologisk og hydrogeologisk undersøgelse – Resultater og konceptuel model". GEO, Oct. 2015.
- R6) "Sammenligning af niveauspecifikke prøvetagningsmetoder for vurdering af koncentrationsfordeling i kalkmagasin". Broholm, Fjordbøge, Mosthaf, Bjerg and Binning (September 2016).
 - ✓ Bilag 1: "Forureningskemi i kalkmagasinet ved Akacievej 2, Hedehusene (2014-2016): Metodebeskrivelse og indsamlet data", Fjordbøge and Broholm (Feb. 2016).
- R7) "Pumping and tracer test in a limestone aquifer and model interpretation (Akacievej, Hedehusene)". Mosthaf, Brauns, Broholm, Bjerg, Rohde, Bastrup, Binning (November 2016).

Short notes

- N1) "Tracer selection for the pump and tracer test at the Akacievej site", Mosthaf et al., Nov. 2015.
- N2) "Risk assessment of the tracer injection at the Akacievej site", Mosthaf et al., Nov. 2015 / April 2016.
- N3) "Effects of remedial pump stop for 6 months at the Akacievej site", Mosthaf et al., Nov. 2015.

Meetings

- ✓ Modelling contaminant transport in limestone, End-user workshop, Oct. 2014.
- ✓ Theme day on limestone, March 1, 2017.

International journal publications and conference presentations

Finished journal publications

- ✓ "Optimering af FACT FLUTE-metoden til undersøgelse af forurening i kalk". Broholm et al., Regionernes Videncenter for Miljø og Ressourcer, 1/2015.
- ✓ "Experimental design for assessment of electrokinetically enhanced delivery of lactate and bacteria in 1,2-cis-dichloroethylene contaminated limestone". Hansen et al., Environmental Technology & Innovation, 2015, p. 73-81.
- ✓ "Characterization of chlorinated solvent contamination in limestone using innovative FLUTE[®] technologies in combination with other methods in a line of evidence approach". Broholm et al., Journal of Contaminant Hydrology, 2016.

Conference presentations

- ✓ "Current and emerging techniques for contaminant mapping and data visualization at DNAPL sites". Wealthall et al. (AquaConSoil Conference, Barcelona, 2013).
- ✓ "DNAPL Source Zone Architecture in Clay Till and Limestone Bedrock: Characterization by Innovative and Current Site Investigation Techniques." Broholm et al. (International Conference of Groundwater Quality, Gainesville, Florida, USA, May 22-26, 2013).
- ✓ "Integrated Characterization of DNAPL Source Zone Architecture in Clay Till and Limestone Bedrock". Broholm et al. (The ninth international conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, California, USA, 2014).
- ✓ "Innovative undersøgelser i kalk ved brug af FACT-FLUTE". Binning et al. (ATV møde, Nov. 2014).
- ✓ "Comparison of different modeling approaches to simulate contaminant transport in a fractured limestone aquifer". Mosthaf et al., (American Geophysical Union conference, San Francisco, Dec. 2014).
- ✓ "Innovative Field Investigations in Limestone using a FACT-FLUTE". Mosthaf et al. (AquaConSoil, Copenhagen, June 2015).
- ✓ "Experimental Design for Assessment of Electrokinetically Enhanced Delivery of Lactate and Bacteria in 1,2-cis-dichloroethylene Contaminated Limestone." Hansen et al. (AquaConSoil, Copenhagen, 2015).
- ✓ "Experimental Design for Assessment of Electrokinetically Enhanced Delivery of Lactate and Bacteria in 1,2-cis-dichloroethylene Contaminated Limestone". Hansen et al. (Batelle Conference, Florida, 2015).
- ✓ "Active and passive multi-level groundwater sampling of plumes in fractured aquifers". Fjordbøge et al. (150 Year Jubilee at DTU Environment, August 2015).
- ✓ "FLUTE sampling technology and modeling interpretation". Mosthaf et al. (150 Year Jubilee at DTU Environment, August 2015).
- ✓ "Techniques for source zone and plume characterization of tetrachloroethene in fractured limestone aquifers". Fjordbøge et al. (NGWA conference on fractured rock, Burlington, Oct. 2015).
- ✓ "Evaluation of modeling approaches to simulate contaminant transport in a fractured limestone aquifer". Mosthaf et al. (NGWA conference on fractured rock, Burlington, Oct. 2015).
- ✓ Fagsession "Undersøgelser og modellering af grundvandsforurening i kalkmagasiner" (ATV Vintermøde, March 2016):
 - Regionernes udfordring med kalkmagasiner (Døssing, Region H)
 - Geologiske undersøgelser af kalkmagasiner (Bastrup & Rohde, GEO)
 - Forureningsundersøgelser i kalkmagasiner (Broholm, DTU Miljø)
 - Modellering af stoftransport i kalkmagasiner (Binning, DTU Miljø)
- ✓ "Modeling contaminant plumes in fractured limestone in 3-D: comparison of modeling approaches". Mosthaf et al. (International Conference on Computational Methods in Water Resources, Toronto, June 2016).

- ✓ “Modeling contaminant plumes in fractured limestone aquifers”. Mosthaf et al., (International Conference of Groundwater Quality, Shenzhen, China, July 2016).

Student projects and theses

Akacievej

- T1) “Undersøgelsesmetoder af chlorerede opløsningsmidler i sprækkede kalkmagasiner”. Brabæk et al., Fagprojekt, June 2015.
- T2) “Push-pull test – literature review and design”. Rivella, special project, Jan. 2016.
- T3) “Comparison of depth discrete sampling methods for chlorinated solvents concentrations in a fractured aquifer”. Tsitseli, special project, Jan. 2016.
- T4) “Bestemmelse af hydrauliske parameter i sprækket kalkmagasin ved simple slugtest”. Jørgensen, Bachelor thesis, Jan. 2016.
- T5) “Conceptual understanding of the impacts of pumping on the distribution dynamics of PCE in limestone”. Tsitseli, master thesis, June 2016.
- T6) “Design and verification of tracer injection test for contaminant transport characterization of a fractured limestone aquifer”. Revilla, master thesis, July 2016.

Naverland and related work

- T7) “Natural attenuation of a chlorinated solvent plume in a chalk aquifer: Processes and modeling. Case study: Naverland 26AB, Albertslund”. Anne Schouby Hemdorff, master thesis, 2013.
- T8) “Sorption capacity and governing parameters for transport of chlorinated solvents in chalk aquifers”. Joel Salzer, master thesis, 2013.
- T9) “Evaluering af afværgepumpning til afskæring af en forurening med klorerede opløsningsmidler i et kalkmagasin Naverland 26AB, Albertslund”. Pedersen and Vilsgaard, master thesis, 2013.
- T10) “Remediation potential for chlorinated ethene contamination by enhanced reductive dechlorination in a chalk aquifer”. Sørensen, master thesis, 2013.
- T11) “Klorerede opløsningsmidler i et kalkmagasin”. Fujisaii Thomas and Ferjá, fagprojekt, 2014.
- T12) “Modelling of contaminant transport from a PCE source in a fractured limestone aquifer. Balbarini and Rosenberg, master thesis, July 2014.
- T13) “Experimental design and assessment of electrokinetically enhanced bioremediation of chlorinated solvents in limestone”. Hansen and Nedergaard, master thesis, July 2014.
- T14) “Naturlig nedbrydning af chlorerede opløsningsmidler i et kalkmagasin”. Ottosen, fagprojekt, 2014.
- T15) “How to unify geological understanding and solute transport modelling in an upper bryozoan limestone aquifer”. Martinsen and Hunner, master thesis, July 2015.
- T16) “Assessing the driving forces for trichloroethylene transport in a glacial-disturbed limestone aquifer”. Ashur and Seibert, master thesis, July 2015.