

CURRICULUM VITAE



Name	Lars Troldborg
Profession	Hydrologist
Occupation	Advisor
Date of Birth	20 February 1969
Sex	M
Nationality	Danish
Education	M.Sc. (Eng), Ph.D.
Postgraduate Training	

Key Qualifications

Extensive experience with integrated hydrological modelling

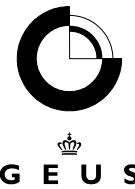
Experience in combining and evaluation of monitoring data, field data and hydrogeological data in connection with integrated hydrological modelling.

Extensive experience in geological modelling: conceptualization, application and communication.

Selected Employment Record and overall responsibilities

2010 -	Project Manager "Grundvandsmodel for motorvejsstrækning gennem Silkeborg" Modelling hydrology response from climate change in connection with design and construction of Silkeborg highway
2010 – 2011	Project Engineer "Climate hydrological modelling of Egebjerg" Development of methodology and modelling climate change effects on catchments zones and groundwater vulnerability.
2007 – 2009	Project responsible on "Climate change impact on ecological conditions in stream". Joint RUC and GEUS research on bridging the gap between quantitative hydrological modelling and ecological conditions.
2007	Project responsible on "Delineation of near-well capture zones using particle tracking at Nr Søby wellfield". Research and modelling support for Odense Water Company on development of capture zone delineation strategy.
2005 – 2010	Project Engineer on "Novana modelling – updating the national Water Resources Model", modeller and responsible for handling, gathering and updating the hydrogeological framework with data from Danish counties and Environmental Centres.
2005 – 2007	Project Engineer in "Background concentrations for N and P" Responsible for development of a methodology and simulating natural concentrations of N and P in streams
2005 – 2007	Project Engineer in "Non-gauge river basins " – responsible for simulating stream runoff at un-gauged river basins
2005 – 2005	Project Engineer "DK-model Bornholm". Responsible for model setup, calibration and validation of the National Water Resources Model for Bornholm.

CURRICULUM VITAE



-
- | | |
|-------------|--|
| 2004 – 2005 | Project Engineer on "DK-model Københavns Energi". Modelling and development of indicators to assess environment and resources impacts from different pumping strategies. |
| 1999 – 2004 | PhD project "The influence of conceptual geological models on the simulation of flow and transport in Quaternary aquifer systems". Understanding modelling of environmental tracers, geological conceptualizations and transition probability geostatistics. |
| 2002 – 2003 | Project Engineer responsible for: "NOVA theme report: The Freshwater Cycle". Hydrological impact assessment of groundwater abstraction management and climate change. |
| 1998 – 2002 | Project Engineer responsible for: "Groundwater modelling and integrated water resource management through working with development of the National Water Resources Model". Setting up and calibration of an integrated hydrological model for Denmark in the Mike She System and assessing exploitable groundwater resources. |
| 1999 – 2002 | Project Engineer responsible for: "30 years ³ H record in groundwater and surface water". Investigation of hydrological changes due to long-term groundwater exploitation in the catchment of Odense Aa. The investigations are carried out combining environmental tracers (tritium + CFC's) and integrated hydrological modelling (Mike She). |
| 2001 | Project responsible for: "Development of a hydrological model for Dalum well field". Setting up a groundwater model in the Mike She system for better understanding of pesticide pollution at Dalum well field. |
| 1999 | Project Engineer responsible for: "Large scale modelling of pesticide transport". Danish Environmental Research Program on Pesticides and Groundwater. Combining data from field investigation with data from the geological database into three different integrated hydrological models (Mike She). Numerical investigations for improved knowledge and understanding of geological impact on hydrology and pesticide transport. |
-

Lars Trolborg – Publications

- Stisen S., Sonnenborg TO, Højberg AL, Trolborg L, Refsgaard JC. 2011 Evaluation of Climate Input Biases and Water Balance Issues Using a Coupled Surface-Subsurface Model, *Vadose Zone Journal* 10 (1), 37-53
- Olsen, M. Trolborg, L. Boegh, E. Refsgaard, JC. 2008: Tuning hydrological models for ecological modelling – improving simulations of low flow critical to stream ecology, *Conference Proceedings paper, HydroPredict'2008*, 45-48
- Trolborg, L., KH. Jensen, P. Engesgaard, JC. Refsgaard, K. Hinsby, 2008: Simulation of age and environmental tracer concentrations in a complex shallow aquifer, *Journal of Hydrologic Engineering* 13(11), 1037-1048
- Henriksen, HJ., L. Trolborg, AL. Højbjerg, JC. Refsgaard, 2008: Assessment of exploitable groundwater resources of Denmark by use of ensemble resource indicators and a numerical groundwater-surface water model, *Journal of Hydrology* 348(1-2), 224-240
- Henriksen, HJ, Trolborg, L., Nyegaard, P., Højberg, AL., Sonnenborg, TO., Refsgaard, JC., 2008: Evaluation of the quantitative status of groundwater-surface water interaction at national scale, in Quevauville, P. (ed) *Groundwater Science and Policy*, The Royal Society of Chemistry, ISBN 978-085404-294-4
- Boegh, E., BSB. Christiansen, L. Trolborg, 2007: Water balance evaluation in Denmark using remote sensing-driven land surface modelling and spatially distributed hydrological modelling, *Proceeding paper, IAHS Publication* 313, 266-277
- Nilsson, B., A. L. Højberg, J. C. Refsgaard, L. Trolborg, 2007: Uncertainty in geological and hydrogeological data, (www.hydrol-earth-syst-sci.net/11/1551/2007/) *Hydrol. Earth Syst. Sci.*, 11, 1551–1561
- Trolborg, L., KH. Jensen, P. Engesgaard, JC. Refsgaard, 2007: The Importance of Alternative Conceptual Models for Simulation of Concentrations in a Multi-aquifer System, *Hydrogeology Journal*, 15(5), 843-860

CURRICULUM VITAE



- Alvarado, J. A. C., R. Purtschert, K. Hinsby, L. Troldborg, M. Hofer, R. Kipfer, W. Aeschbach-Hertig, H. Arno-Synal. 2005: Cl-36 in modern groundwater dated by a multi-tracer approach (H-3/He-3, SF6, CFC-12 and Kr-85): a case study in quaternary sand aquifers in the Odense Pilot River Basin, Denmark, *Applied Geochemistry*, 20(3), 599-609
- Henriksen, HJ., Troldborg, L., Nyegaard, P., Sonnenborg, TO., Refsgaard, JC. And Madsen, B. 2003: Methodology for construction, calibration and validation of a national hydrological model for Denmark, *Journal of Hydrology* (280) p52-71.

Lars Troldborg – Conference contributions with abstract

- Troldborg, L., 2010: Brug og misbrug af grundvanddateringer i hydrologisk modellering, ATV Vintermøde 2010
- Højberg, A.L., Troldborg, L., Nyegaard, P., Ondracek, M. & Stisen, S. 2009: Handling and linking data and hydrological models - experiences from the Danish national water resources model (DK-model). ModelCare2009, IAHS, Wuhan, China.
- Troldborg, L., P. Nyegaard, AL. Højbjerg, M. Ondracek, 2007: Conceptualising geology - insight from updating the national water resources model for Denmark, ModelCare2007, IAHS & GEUS, Copenhagen
- Ondracek, M., Højberg, A.L., Troldborg, L. & Nyegaard, P. 2007: Update and future challenges of the Danish National Water Resource Model. ModelCare2007, IAHS & GEUS, Copenhagen
- Troldborg, L. 2005: Simulation of environmental tracers and age in complex shallow aquifers, Theis conference, Lake Tahoe
- Hinsby, K, Troldborg, L, Purtschert, R, Alvarado, J.A.C, Hofer, M. & Kipfer, R. 2004: Radionuclides (3H, 85Kr,) for evaluation of flow dynamics and temporal chemical trends in groundwater and surface water. Goldschmidt 2004. Geochemistry Society & European Association for Geochemistry. Copenhagen 5-11 June, 2004
- Alvarado, J.A.C., Purtschert, R., Hofer, M., Aeschbach-Hertig, W., Kipfer, R., Troldborg, L. & Hinsby, K. 2002: Comparison of residence time indicators(3H/3He, SF6, CFC-12 and 85Kr) in shallow groundwater: a case study in the Odense Aquifer, Denmark. Goldschmidt 2002. Geochemical Society. Davos, Switzerland. 18-23 August, 2002.
- Troldborg, L. 2000: Effects of geological complexity on groundwater age prediction, *Eos, Transactions, AGU* 81[48]

Lars Troldborg – Reports

- Kidmose J, Nyegaard P, Troldborg L & Højberg AL. 2011: Gennemgang af den geologiske og hydrostratigrafiske model for Jylland – Dkmodel2009. GEUS rapport 2011/43, København
- Troldborg L, Højberg AL, Nyegaard P Stisen S, Christensen BSB & Ondracek M. 2010: DK-model2009 - Modelopstilling og kalibrering for Fyn. GEUS rapport 2010/76, København
- Højberg AL, Troldborg L, Nyegaard P, Ondracek M, Stisen S & Christensen BSB. 2010: DK-model2009 - Sammenfatning af opdateringen 2005 - 2009. GEUS rapport 2010/81, København
- Nyegaard P, Troldborg L & Højberg AL. 2010: DK-model2009 - Geologisk og hydrostratigrafisk opdatering 2005 - 2009. GEUS rapport 2010/80, København
- Højberg AL, Ondracek M, Nyegaard P, Troldborg L, Stisen S & Christensen BSB. 2010: DK-model2009 - Modelopstilling og kalibrering for Nordjylland. GEUS rapport 2010/79, København
- Højberg AL, Nyegaard P, Stisen S, Troldborg L, Ondracek M, & Christensen BSB. 2010: DK-model2009 - Modelopstilling og kalibrering for Midtjylland. GEUS rapport 2010/78, København
- Jørgensen, L.F., Sandersen, P., Sørensen, J. Troldborg, L. Ditlefsen, C., Højberg, A.L. Møller, R.R. Iversen, C.H. 2009: Dokumentation af informationer om modeller - sikring af fremtidig genanvendelse. Projekt udført for By- og Landskabsstyrelsen. GEUS Rapport 2009/87, 31 pp.

- Troldborg, L., Nyegaard, P. & Stisen, S. 2009: National vandressource model - Opdatering af DK-model Bornholm med data fra detailkortlægningen, GEUS rapport 2009/2
- Højberg, AL., Troldborg, L., Nyegaard, P., Ondracek, M., Stisen, S., Christensen, BSB. & Nørgaard, A. 2008: National vandressource Model – Sjælland, Lolland, Falster og Møn – Opdatering januar 2008, GEUS rapport 2008/65
- Stisen, S., Troldborg, L. & Henriksen, HJ. 2008: Screeningsundersøgelse og vandbalanceopgørelse for KE's indvindingsområde – Hydrologiske modelberegninger, GEUS rapport 2008/81
- Henriksen, HJ. & Troldborg, L. 2007: Eksplorativ modelbaseret vurdering af fremtidig regional indvinding og konsekvenser for afstrømningsregimet - Grundvandsmodeller for modelfolk, ATV Jord og Grundvand / Barlebo HC (red)
- Troldborg, L. 2007: Odense Vandforsyning, Nørre Søby kildeplads. Partikelbane beregninger af boringsnære beskyttelses områder, GEUS rapport 2007/32
- Henriksen, HJ., Troldborg, L., Højberg, AL., & Refsgaard, JC. 2006: Assessment of sustainable groundwater resources by use of a national hydrological model, XXIV Nordic Hydrological Conference 2006. 6-9 August, 2006. Vingsted, Vejle.
- Troldborg, L., Henriksen, HJ. & Nyegaard, P. 2006: DK-model Bornholm, GEUS report 2006/31
- Troldborg, L. 2006: Saltvandgrænsen i kalkmagasinerne i Nordøstsjælland, delrapport 4 – Simulering af nuværende og historiske strømnings- og potentialeforhold. GEUS report 2006/19
- Troldborg, L. & Henriksen, HJ. (eds), 2006: Optimering af DK-model for Københavns Energi, GEUS report 2006/8
- Troldborg, L., Rasmussen, P. & Clausen, E. 2005: Københavns Amt Forureningsundersøgelse, Herlev Hovedgade 17. Borehulslogging og udtagning af vandprøver i DGU nr. 200.5209 (Boring KB2). GEUS Rapport 2005/48
- Troldborg, L. 2004: The influence of conceptual models on simulation of flow and transport in Quaternary aquifer systems, PhD thesis, Technical University of Denmark and Geological Survey of Denmark and Greenland, Copenhagen, GEUS report 2004/107.
- Henriksen, HJ., Troldborg, L., Højbjerg, AL. & Nyegaard, P. 2003: Konstruktion, kalibrering og validering af den nationale vandressource model (dk-model), in Ferskvandets kredsløb, Henriksen, HJ. & Sonnenborg, A. eds. NOVA 2003 Temarapport, GEUS.
- Henriksen, HJ., Højbjerg, AL. & Troldborg, L. 2003: Bag om drikkevandet, *Aktuel Naturvidenskab* (4) p6-10.
- Hinsby, K. & Troldborg, L. 2001: Status of the Danish "BASELINE" activities. Presentation at the third coordination meeting in the EU project: Natural Baseline Quality in European Aquifers: a basis for aquifer management ("BASELINE"), Barcelona, March 12-14, 2001.
- Hinsby, K. & Troldborg, L. 2001: Tritium response in groundwater and surface water as illustrated by 30 years Tritium records: Application for calibration of a dynamic 3-D integrated groundwater/surface water model, Odense, Denmark. Oral presentation and status report prepared for the second meeting in the IAEA Coordinated Research Project "Isotope response to the dynamic changes in groundwater systems due to long term exploitation", Vienna, 2-6 April, 2001.
- Hinsby, K. & Troldborg, L. 2001: Grundvandsdatering - og simulering af 30 års tritium data fra Odense In: Bruun, B.(ed.): ATV Jord og Grundvand, ATV-Møde. Rent drikkevand - kvalitet og mængder. Odense. ATV-Fonden for Jord og Grundvand & DTU. 22 Maj, 2001, 11-22.
- Refsgaard, J.C. & Troldborg, L. 2001: "Geologiske data forbedrer grundvandsmodeller, Binzer, K. & Hinsby, K. (eds.): Temanummer. Ferskvand. GEOLOGI - Nyt fra GEUS 1/01 14-16
- Henriksen, HJ., Christensen, HB., Ernstsén, V., Hansen, M., Harrar, B., Jakobsen, PR., Klint, KE. & Troldborg, L. 2000: Use of Regional Pesticidmodels as Forecast-ing Tools (in Danish), *Miljøforskning* 42, GEUS
- Henriksen, HJ. & Troldborg, L. 1999: National Water Resources Model of Denmark – Milestone results by applying a large scale MIKE SHE model for the isle of Zealand, proceedings in 3rd DHI Software Conference
- Henriksen, HJ. & Troldborg, L. 1999: National Water Resource Model, Poster, GEUS

CURRICULUM VITAE



GEUS

Barlebo, H.C., Trolborg, L., Ernstsen, V., Henriksen, H.J., Klint, K.E., Jakobsen, P.R. & Brun, A. 1999: Regional strømnings- og partikelbanemodellering for oplandet ved Vårby Å - Pesticider og grundvand. ATV Jord og Grundvand / Bruun, B. (red.), 47-54.

Henriksen, H.J., Trolborg, L., Knudby, C.J., Dahl, M., Nyegaard, P., Jakobsen, P.R. & Rasmussen, P. 1998: National Water Ressource Model for Zealand, Falster and Møn (in Danish), GEUS rap. 1998/109, GEUS

Trolborg, L. & Jessen, O.Z. 1997: Saline Intrusion case Zanzibar, M.Sc. project ISVA, DTU