

CV - Torben Obel Sonnenborg, GEUS



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Name Torben Obel Sonnenborg
Date of Birth August 23, 1967
Nationality Danish
Education M.Sc. in Civil Engineering (groundwater hydrology), Technical University of Denmark, 1993.
Ph.D. in Civil Engineering (flow and transport in fractured porous media), Technical University of Denmark, 1998.

Employment Record

| Year | Organisation | Position and Responsibilities |
|-------------|---|---|
| 2005- | GEUS | Senior Scientist Hydrogeological modeling, hydrological modeling, climate change, uncertainty assessment |
| 2004-05 | Geological Institute, University of Copenhagen | Associate Research Professor Hydrogeology, geological modeling, uncertainty assess. |
| 2001-04 | Environment and Resources, Technical University of Denmark | Associate Professor Integrated hydrological modeling. Flow and transport in fractured formations. |
| 2000-2001 | GEUS | Research Assistant Inverse modelling. Groundwater modeling. Integrated hydrological modelling. |
| 1998-2000 | Inst. of Hydrodynamics and Water Resources, Technical University of Denmark | Assistant Research Professor Remediation. Multiphase flow. Flow in fractures. Laboratory experiments. |

Selected Experience Record – Research and Developmental Projects

- Project manager of Danish EPA research project “Impact of Climate Change on the Hydrological Cycle of Denmark” (2006-2007)
- Project manager of joint DANVA/Copenhagen Energy research project “Effect of Climate Change on the Groundwater Resources in Denmark” (2006-2007)
- Project manager of Danish EPA research project “Prediction of Climatic Impacts on Pesticide Leaching to the Aquatic Environments (PRECIOUS)” (2008-2009)
- Work package leader of VKR research project “HOBE - a Hydrological Observatory and Exploratorium” (2007-2012).
- Work package leader of Danish research project “Hydrological Modelling for Assessing Climate Change Impacts at Different Scales” (HYACINTS) (2008-2012).
- Work package leader of the Interreg project “Adaptive and sustainable water management and protection of society and nature in an extreme climate” (CLIWAT), 2008-2011.
- Work package leader of the Interreg project “Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region” (BaltCICA), 2009-2011.

Recent professional assignments

- Associate editor for Hydrogeology Journal
- Referee for Water Resources Research, Journal of Hydrology, Journal of Contaminant Hydrology, Hydrology Research.

- Co-organizer for the continued education program EVA (Research based continued education in Water Resources) in cooperation with University of Copenhagen.

Scientific publications – selected references

Published 25 journal papers in ISI registered international scientific journals with 235 ISI citations. H-index: 9.

- Refsgaard, J.C., S. Christensen, T.O. Sonnenborg, D. Seifert, A.L. Højberg, and L. Trolborg (2011), Strategies for handling geological uncertainty in groundwater flow and transport modelling, Accepted for publication in *Advances of Water Resources*.
- Stisen, S., T.O. Sonnenborg, J.C. Refsgaard, L. Trolborg, and A.L. Højberg (2011), Evaluation of climate input biases and water balance issues using a coupled surface-subsurface model, *Vadose Zone Journal*, 10, 37-53, doi:10.2136/vzj2010.0001.
- Fu, S., T.O. Sonnenborg, K.H. Jensen and X. He (2011), Impact of precipitation spatial resolution on the hydrological response of an integrated distributed water resources model, *Vadose Zone Journal*, 10, 25-36, doi:10.2136/vzj2009.0186.
- Kirkegaard, C., T.O. Sonnenborg, E. Auken and F. Jørgensen (2011), Salinity distribution in heterogeneous coastal aquifers mapped by airborne electromagnetics, *Vadose Zone Journal*, 10, 125-135, doi:10.2136/vzj2010.0038.
- He, X., F. Vejen, S. Stisen, T.O. Sonnenborg, and K.H. Jensen (2011), An operational weather radar based QPE and its application in catchment water resources modeling, *Vadose Zone Journal*, 10, 8-24, doi:10.2136/vzj2010.0034.
- van Roosmalen, L., T.O. Sonnenborg, K.H. Jensen, and J.H. Christensen (2011), Comparison of hydrological simulations of climate change using perturbation of observations and distribution based scaling, *Vadose Zone Journal*, 10, 136-150, doi:10.2136/vzj2010.0112.
- Scharling, P., E.S. Rasmussen, T.O. Sonnenborg, P. Engesgaard, and K. Hinsby (2009), 3D regional scale hydrostratigraphical modeling based on sequence stratigraphical methods, *Hydrogeology Journal*, 17, 1913-1933, doi: 10.1007/s10040-009-0475-6.
- Bonnesen, E., F. Larsen, T.O. Sonnenborg, K. Klitten, and L. Stemmerik (2009), Deep saltwater in Chalk formations of North-West Europe: Origin, interface characteristics and development over geological time, *Hydrogeology Journal*, 17, 1643-1663, doi: 10.1007/s10040-009-0456-9.
- Roosmalen, L.v., T.O. Sonnenborg, and K.H. Jensen (2009), The impact of climate and land-use changes on the hydrology of a large-scale agricultural catchment, *Water Resources Research*, 45, 1-18, doi:10.1029/2007WR006760.
- Høier, C.K., T.O. Sonnenborg, K. Høgh Jensen, and J. Gudbjerg (2009), Model analysis of mechanisms controlling pneumatic soil vapor extraction, *Journal of Contaminant Hydrology*, 103(3-4), 82-98.
- Seifert, D., T.O. Sonnenborg, P. Scharling, and K. Hinsby (2008), Use of alternative conceptual models to assess the impact of a buried valley on groundwater vulnerability, *Hydrogeology Journal*, 16(4), 659-674.
- Roosmalen, L.v., B.S.B. Christensen, and T.O. Sonnenborg (2007), Regional differences in climate change impacts on groundwater and stream discharge in Denmark, *Vadose Zone Journal*, 6, 554-571, doi:10.2136/vzj2006.0093.
- Høier, C.K., T.O. Sonnenborg, K.H. Jensen, C. Kortegaard, and M.M. Nasser (2007), Experimental investigation of pneumatic soil venting, *Journal of Contaminant Hydrology*, 89 (1-2), 29-47.
- Gudbjerg, J., T. Heron, T.O. Sonnenborg, and K. Høgh Jensen (2005), Three-dimensional numerical modeling of steam override observed at a full-scale remediation of an unconfined aquifer. *Ground Water Monitoring and Remediation*, 25(3), 116-127.
- Gudbjerg, J., O. Trötschler, A. Färber, T.O. Sonnenborg, and K. Høgh Jensen (2004), On spurious water flow during numerical simulation of steam injection into water-saturated soil. *Journal of Contaminant Hydrology*, 75, 297-318.
- Gudbjerg, J., T.O. Sonnenborg, and K. Høgh Jensen (2004), Remediation of NAPL below the water table by steam induced heat conduction. *Journal of Contaminant Hydrology*, 72, 207-225.
- Harrar, W.G., T.O. Sonnenborg, and H.J. Henriksen (2003), Capture zone, travel time, and solute-transport predictions using inverse modeling and different geological models, *Hydrogeology Journal*, 11(5), 536 – 548.
- Henriksen, H.J., L. Trolborg, P. Nyegaard, T.O. Sonnenborg, J.C. Refsgaard, and B. Madsen (2003), Methodology for construction, calibration and validation of a national hydrological model for Denmark, *Journal of Hydrology*, 280, 52-71.
- Sonnenborg, T.O., B.S.B. Christensen, P. Nyegaard, H.J. Henriksen, and J.C. Refsgaard (2003), Transient modeling of regional groundwater flow using parameter estimates from steady-state automatic calibration, *Journal of Hydrology*, 273, 188-204.