

Publicaties

Overzicht [Inleiding](#) [Projecten](#) [Publicaties](#) [Download](#) [Nieuws](#) [Contact](#) [Stage](#)

PhD theses

- King, J., 2022. Airborne electromagnetic mapping of coastal groundwater salinity; Quantifying uncertainty and investigating methodological improvements, Utrecht University, Utrecht, 188 pp.
[download PhD thesis](#)
- Zamrsky, D., 2021. Current and future state of groundwater in coastal unconsolidated sediment systems worldwide, Utrecht University, Utrecht, 238 pp.
[download PhD thesis](#)
- Mabrouk, M.B., 2020. Climate Change and Development Impacts on Groundwater Resources in the Nile Delta Aquifer, Egypt. IHE Delft, 150 pp.
[download PhD thesis](#)
- Van Engelen, J., 2020. Fresh groundwater reserves in major deltas: Evolution and current state of deltaic groundwater resources, Utrecht University, Utrecht, 194 pp.
[download PhD thesis](#)
- Aydin, B.E., 2020. Model Predictive Control of Water Level and Salinity in Coastal Areas. Delft University of Technology, 103 pp.
[download PhD thesis](#)
- Huizer, S. 2019. Fresh groundwater in large beach nourishments; Growth of freshwater resources in coastal areas, Utrecht University, Utrecht, 152 pp.
[download PhD thesis](#)
- Delsman, J.R. 2015. Saline groundwater - surface water interaction in coastal lowlands, VU University Amsterdam, Amsterdam, 194 pp.
[download PhD thesis](#)
- Pauw, P.S. 2015. Field and Model Investigations of Freshwater Lenses in Coastal Aquifers, PhD thesis, Wageningen University, Wageningen, 168 pp.
[download PhD thesis](#)
- De Louw, P.G.B. 2013. Saline seepage in deltaic areas. Preferential groundwater discharge through boils and interactions between thin rainwater lenses and upward saline seepage. PhD thesis, Vrije Universiteit Amsterdam, ISBN/EAN 9789461085429.
[download PhD thesis](#)

Artikelen (peer-reviewed)

- Van Engelen, J., Oude Essink, G.H.P., Bierkens, M.F.P., 2022. Sustainability of fresh groundwater resources in fifteen major deltas around the world. *Environ. Res. Lett.* 113650. <https://doi.org/10.1088/1748-9326/aca16c> [download](#)
- Karaoulis, M., Ritsema, I., Bremmer, C., De Kleine, M., Oude Essink, G.H.P., Ahlrichs, E., 2022. Drone-Borne Electromagnetic (DR-EM) Surveying in The Netherlands: Lab and Field Validation Results. *Water (Switzerland)* 5335, 1–20. <https://doi.org/https://doi.org/10.3390/rs14215335>
- Aydin, B.E., Oude Essink, G.H.P., Delsman, J.R., Van de Giesen, N., Abraham, E., 2022. Nonlinear model predictive control of salinity and water level in polder networks: Case study of Lissertocht catchment. *Agric. Water Manag.* 264, 11. <https://doi.org/10.1016/j.agwat.2022.107502> [download](#)
- Zamrsky, D., Oude Essink, G.H.P., Sutanudjaja, E.H., Van Beek, L.P.H., Bierkens, M.F.P., 2022. Offshore fresh groundwater in coastal unconsolidated sediment systems as a potential fresh water source in the 21st century. *Environ. Res. Lett.* 17. <https://doi.org/10.1088/1748-9326/ac4073> [download](#)
- King, J., Mulder, T., Oude Essink, G.H.P., Bierkens, M.F.P., 2022. Joint estimation of groundwater salinity and hydrogeological parameters using variable-density groundwater flow, salt transport modelling and airborne electromagnetic surveys. *Adv. Water Resour.* 160, 104118. <https://doi.org/10.1016/j.advwatres.2021.104118> [download](#)
- Thorslund, J., Bierkens, M.F.P., Oude Essink, G.H.P., Sutanudjaja, E.H., Van Vliet, M.T.H., 2021. Common irrigation drivers of freshwater salinisation in river basins worldwide. *Nat. Commun.* <https://doi.org/10.1038/s41467-021-24281-8>. [download](#)
- Gunnink, J., Pham, H. Van, Oude Essink, G.H.P., Bierkens, M.F.P., 2021. The 3D groundwater salinity distribution and fresh groundwater volumes in the Mekong Delta, Vietnam, inferred from geostatistical analyses. *Earth Syst. Sci. Data* 13, 3297–3319. <https://doi.org/10.5194/essd-13-3297-2021>. [download](#)
- Verkaik, J., Van Engelen, J., Huizer, S., Bierkens, M.F.P., Lin, H.X., Oude Essink, G.H.P., 2021. Distributed memory parallel computing of three-dimensional variable-density groundwater flow and salt transport. *Adv. Water Resour.* 154, 103976. <https://doi.org/10.1016/j.advwatres.2021.103976>. [download](#)
- Verkaik, J., Hughes, J.D., Van Walsum, P.E.V., Oude Essink, G.H.P., Lin, H.X., Bierkens, M.F.P., 2021. Distributed memory parallel groundwater modeling for the Netherlands Hydrological Instrument. *Environ. Model. Softw.* 143, 105092. <https://doi.org/10.1016/j.envsoft.2021.105092> [download](#)
- Willet, J., Wetser, K., Dykstra, J.E., Bianchi, A.B., Oude Essink, G.H.P., Rijnaarts, H.H.M., 2021. WaterROUTE: a model for cost optimization of industrial water supply networks when using water resources with varying salinity. *Water Res.* 117390. <https://doi.org/10.1016/j.watres.2021.117390> [download](#)
- Van Engelen, J., Bierkens, M.F.P., Delsman, J.R., Oude Essink, G.H.P., 2021. Factors determining the natural fresh-salt groundwater distribution in deltas. *Water Resour. Res.* <https://doi.org/10.1029/2020WR027290> [download](#)
- Karamouz, M., Mahmoodzadeh, D., Oude Essink, G.H.P., 2020. A risk-based groundwater modeling framework in coastal aquifers: a case study on Long Island, New York, USA. *Hydrogeology Journal*. <https://doi.org/https://doi.org/10.1007/s10040-020-02197-9>
- Willet, J., King, J., Wetser, K., Dykstra, J.E., Oude Essink, G.H.P., Rijnaarts, H.H.M., 2020. Water supply network model for sustainable industrial resource use a case study of Zeeuws-Vlaanderen in the Netherlands. *Water Resour. Ind.* 24, 100131. <https://doi.org/10.1016/j.wri.2020.100131>
- King, J., Oude Essink, G.H.P., Karaolis, M., Bierkens, M.F.P., 2020. A practical quantification of error sources in regional-scale airborne groundwater salinity mapping. *Environ. Res. Lett.* 1–18. <https://iopscience.iop.org/article/10.1088/1748-9326/ab7b23>, [download](#)
- Zamrsky, D., Karssenbergh, M.E., Cohen, K.M., Bierkens, M.F.P., Oude Essink, G.H.P., 2020. Geological heterogeneity of coastal unconsolidated groundwater systems worldwide and its influence on offshore fresh groundwater occurrence. *Front. Earth Sci.* 7, 1–23. <https://doi.org/10.3389/feart.2019.00339>
- Haasnoot, M., Kwadijk, J.C.J., Van Alphen, J., Le Bars, D., Van den Hurk, B., Diermanse, F., Der Van Spek, A., Oude Essink, G.H.P., Delsman, J. R., Mens, M. 2019. Adaptation to uncertain sea-level rise; how uncertainty in Antarctic mass-loss impacts the coastal adaptation strategy of the Netherlands. *Environ. Res. Lett.* <https://iopscience.iop.org/article/10.1088/1748-9326/ab666c>. [direct download](#)

- Van Engelen, J., Verkaik, J., King, J., Nofal, E. R., Bierkens, M. F. P., Oude Essink, G. H. P. 2019: A three-dimensional palaeohydrogeological reconstruction of the groundwater salinity distribution in the Nile Delta Aquifer, *Hydrol. Earth Syst. Sci.*, 23, 5175–5198, <https://doi.org/10.5194/hess-23-5175-2019>.
- Mabrouk, M., Jonoski, A., Oude Essink, G.H.P., Uhlenbrook, S., 2019. Assessing the fresh-saline groundwater distribution in the Nile Delta Aquifer using a 3D variable-density groundwater flow model. *Water (Switzerland)* 11, 1946 [doi:10.3390/w11091946](https://doi.org/10.3390/w11091946) [download](#)
- Huizer, S., Luijendijk, A.P., Bierkens, M.F.P., Oude Essink, G.H.P., 2019. Global potential for the growth of fresh groundwater resources with large beach nourishments. *Sci. Rep.* 1–14. <https://doi.org/10.1038/s41598-019-48382-z> [download](#)
- Bakx, W., Doornenbal, P.J., Weesep, R.J., Bense, V.F., Oude Essink, G.H.P., Bierkens, M.F.P. 2019. Determining the Relation between Groundwater Flow Velocities and Measured Temperature Differences Using Active Heating-Distributed Temperature Sensing. *Water*, 11, 1619. <https://doi.org/10.3390/w11081619> [download](#)
- Aydin, B.E., Hagedooren, H., Rutten, M., Delsman, J., Oude Essink, G.H.P., Abraham, E., 2019. A Greedy Heuristic for Optimal Sensor Placement for Estimating Salinity in a Polder. *Water (Switzerland)* 11, 1–14. <https://doi.org/10.3390/w11051101> [download](#)
- Hung Van Pham, Van Geer, F.C., Bui Tran, V., Dubelaar, W., Oude Essink, G.H.P. 2019. Paleo-hydrogeological reconstruction of the fresh-saline groundwater distribution in the Vietnamese Mekong Delta since the late Pleistocene. *Journal of Hydrology: Regional Studies*, 23(February), 100594. <https://doi.org/10.1016/j.ejrh.2019.100594> [download](#)
- Aydin, B.E., Tian, X., Delsman, J., Oude Essink, G.H.P., Rutten, M., Abraham, E., 2019. Optimal Salinity and Water Level Control of Polder Ditches using Model Predictive Control. *Environ. Model. Softw.* [doi:10.1016/j.envsoft.2018.11.010](https://doi.org/10.1016/j.envsoft.2018.11.010) [download](#)
- Mabrouk, M., Jonoski, A., Oude Essink, G.H.P., Uhlenbrook, S., 2018. Impacts of Sea Level Rise and Groundwater Extraction Scenarios on Fresh Groundwater Resources in the Nile Delta Governorates, Egypt. *Water* 10, 1690. [doi:10.3390/w10111690](https://doi.org/10.3390/w10111690) [download](#)
- King, J., Oude Essink, G.H.P., Karaolis, M., Siemon, B., Bierkens, M.F.P., 2018. Quantifying inversion algorithms using airborne frequency domain electromagnetic data – applied at the Province of Zeeland, the Netherlands. *Water Resour. Res.* 2060, 1–22. [doi:10.1029/2018WR023165](https://doi.org/10.1029/2018WR023165) [download](#)
- Zamrsky, D., Oude Essink, G.H.P., Bierkens, M.F.P.: 2018. Estimating the thickness of unconsolidated coastal aquifers along the global coastline, *Earth Syst. Sci. Data*, 10, 1591–1603, <https://doi.org/10.5194/essd-10-1591-2018> [download](#)
- Delsman, J., Van Baaren, E.S., Siemon, B., Dabekaussen, W., Karaolis, M.C., Pauw, P., Vermaas, T., Bootsma, H., De Louw, P.G.B., Gunnink, J.L., Dubelaar, W., Menkovic, A., Steuer, A., Meyer, U., Revil, A., Oude Essink, G.H.P., 2018. Large-scale, probabilistic salinity mapping using airborne electromagnetics for groundwater management in Zeeland, the Netherlands. *Environ. Res. Lett.* 13. [doi:10.1088/1748-9326/aad19e](https://doi.org/10.1088/1748-9326/aad19e) [download](#)
- Post, V.E.A., Oude Essink, G.H.P., Szymkiewicz, A., Bakker, M., Houben, G., Custodio, E., Voss, C., 2018, Celebrating 50 years of SWIMs (Salt Water Intrusion Meetings). *Hydrogeology*, 26:1767–1770. <https://doi.org/10.1007/s10040-018-1800-8> [download](#)
- Van Engelen, J., Oude Essink, G. H. P., Kooi, H., and Bierkens, M. F. P. 2018. On the origins of hypersaline groundwater in the Nile Delta aquifer. *Journal of Hydrology*, 560, 301–317. <https://doi.org/10.1016/j.jhydrol.2018.03.029> [download](#)
- Huizer, S., Radermacher, M., de Vries, S., Oude Essink, G. H. P., and Bierkens, M. F. P. 2018. Impact of coastal forcing and groundwater recharge on the growth of a fresh groundwater lens in a mega-scale beach nourishment, *Hydrol. Earth Syst. Sci.*, 22, 1065–1080, <https://doi.org/10.5194/hess-22-1065-2018>.
- Huizer, S., Karaolis, M.C., Oude Essink, G.H.P., Bierkens, M.F.P., 2017, Monitoring and simulation of salinity changes in response to tide and storm surges in a sandy coastal aquifer system, *Water Resources Research*, [doi: 10.1002/2016WR020339](https://doi.org/10.1002/2016WR020339) [download](#)
- Revil, A., Coperey, A., Shao, Z., Florsch, N., Fabricius, I.L.L., Deng, Y., Delsman, J.R., Pauw, P.S., Karaolis, M., De Louw, P.G.B., Van Baaren, E.S., Dabekaussen, W., Menkovic, A., Gunnink, J.L. 2017. Complex conductivity of soils. *Water Resources Research*, 53(8), 7121–7147. <https://doi.org/10.1002/2017WR020655> [download](#)
- Delsman, J.R., De Louw, P.G.B., De Lange, W.J., Oude Essink, G.H.P., 2017, Fast calculation of groundwater exfiltration salinity in a lowland catchment using a lumped celerity / velocity approach, *Environmental Modelling and Software*, 96, 323–334, [doi: 10.1016/j.envsoft.2017.07.004](https://doi.org/10.1016/j.envsoft.2017.07.004) [download](#)
- Eeman, S., De Louw, P.G.B., van der Zee, S.E.A.T.M., 2017. Cation exchange in a temporally fluctuating thin freshwater lens on top of saline groundwater. *Hydrogeol. J.* 25, 223–241. [doi:10.1007/s10040-016-1475-y](https://doi.org/10.1007/s10040-016-1475-y) [download](#)
- Huizer, S., Oude Essink, G.H.P., Bierkens, M.F.P., 2016, Fresh groundwater resources in a large sand replenishment, *Hydrol. Earth Syst. Sci.*, 20, 3149–3166, [doi:10.5194/hess-20-3149-2016](https://doi.org/10.5194/hess-20-3149-2016) [download](#)
- Stoffberg, S.F., Oude Essink, G.H.P., Pauw, P., De Louw, P.G.B., Leijnse, A., van der Zee, S.E.A.T.M., 2016, Fresh Water Lens Persistence and Root Zone Salinization Hazard Under Temperate Climate, *Water Resources Management*, [doi: 10.1007/s11269-016-1315-9](https://doi.org/10.1007/s11269-016-1315-9) [download](#)
- Delsman, J. R., Winters, P., Vandenbohede, A., Oude Essink, G. H. P. and Lebbe, L., 2016, Global sampling to assess the value of diverse observations in conditioning a real-world groundwater flow and transport model. *Water Resour. Res.* [doi:10.1002/2014WR016476](https://doi.org/10.1002/2014WR016476) [download](#)
- Pauw P.S., van der Zee S.E.A.T.M., Leijnse A., Oude Essink G.H.P., 2015, Saltwater Upconing Due to Cyclic Pumping by Horizontal Wells in Freshwater Lenses. *Ground Water*, Vol 54 (4), 521–531. [doi: 10.1111/gwat.12382](https://doi.org/10.1111/gwat.12382) [download](#)
- Pauw, P.S., Van Baaren, E.S., Visser, M. De Louw, P.G.B., Oude Essink, G.H.P., 2015, Increasing a freshwater lens below a creek ridge using a controlled artificial recharge and drainage system: a case study in the Netherlands, *Hydrogeology Journal*. [doi: 10.1007/s10040-015-1264-z](https://doi.org/10.1007/s10040-015-1264-z) [download](#)
- De Louw, P.G.B., Oude Essink, G.H.P., Eeman, S., Van Baaren, E.S., Vermue, E., Delsman, J.R., Pauw, P.S., Siemon, B., Gunnink, J.L., Post, V. E.A., 2015, Dunne regenwaterlenzen in zoute kwelgebieden, *Landschap*, 32, 5–15. [download](https://doi.org/10.1016/j.jhydrol.2014.05.042)
- Zeghici, R.M., Oude Essink, G.H.P., Hartog, N., Sommer, W., 2015, Integrated assessment of variable density–viscosity groundwater flow for a high temperature mono-well aquifer thermal energy storage (HT-ATES) system in a geothermal reservoir. *Geothermics*, 55, 58–68. [doi: 10.1016/j.geothermics.2014.12.006](https://doi.org/10.1016/j.geothermics.2014.12.006) [download](#)
- Pauw, P.S., van der Zee, S.E.A.T.M., Leijnse, A., Delsman, J.R., De Louw, P.G.B., de Lange, W.J., Oude Essink, G.H.P. 2015. Low-Resolution Modeling of Dense Drainage Networks in Confining Layers, *Ground water*, 1–11, [doi: 10.1111/gwat.12273](https://doi.org/10.1111/gwat.12273)
- Delsman, J.R., Waterloo, M.J., Groen, M.M.A. Groen, J., Stuyfzand, P.J. 2014 Investigating summer flow paths in a Dutch agricultural field using high frequency direct measurements, *J. Hydrology*, [doi: 10.1016/j.jhydrol.2014.10.058](https://doi.org/10.1016/j.jhydrol.2014.10.058)
- De Lange, W.J., Prinsen, G.F., Hoogewoud, J.C., Veldhuizen, A., Verkaik, J., Oude Essink, G.H.P., van Walsum, P.E.V., Delsman, J.R., Hunink, J.C., Massop, H.T.L., Kroon, T., 2014. An operational, multi-scale, multi-model system for consensus-based, integrated water management and policy analysis: The Netherlands Hydrological Instrument. *Environmental Modelling & Software* 59, 98–108, [doi: 10.1016/j.envsoft.2014.05.009](https://doi.org/10.1016/j.envsoft.2014.05.009) [download](#)
- Pauw, P.S., Oude Essink, G.H.P., Leijnse, A., Vandenbohede, A., Groen, J., van der Zee, S.E.A.T.M. 2014. Regional scale impact of tidal forcing on groundwater flow in unconfined coastal aquifers, *J. Hydrology*, 517, 269–283, [doi: 10.1016/j.jhydrol.2014.05.042](https://doi.org/10.1016/j.jhydrol.2014.05.042) [download](#)
- Delsman, J.R., Hu-a-ng, K.R.M., Vos, P.C., de Louw, P.G.B., Oude Essink, G.H.P., Stuyfzand, P.J., & Bierkens, M.F.P. 2014. Paleo-modeling of coastal saltwater intrusion during the Holocene: an application to the Netherlands. *Hydrology and Earth System Sciences*, 18(10), 3891–3905, [doi: 10.5194/hess-18-3891-2014](https://doi.org/10.5194/hess-18-3891-2014). [link to paper](#); [link to animation](#)
- Vandenbohede, A., de Louw, P.G.B., Doornenbal, P.J.P.J., 2014. Characterizing preferential groundwater discharge through boils using temperature. *Journal of Hydrology* 510, 372–384, [doi: 10.1016/j.jhydrol.2014.01.006](https://doi.org/10.1016/j.jhydrol.2014.01.006)
- De Louw, P.G.B., Eeman, S., Oude Essink, G.H.P., Vermue, E., Post, V.E.A. 2013. Rainwater lens dynamics and mixing between infiltrating rainwater and upward saline groundwater seepage beneath a tile-drained agricultural field. *J. Hydrology*, 501, 133–145, [doi: 10.1016/j.jhydrol.2013.07.026](https://doi.org/10.1016/j.jhydrol.2013.07.026) [link to paper](#)

- Delsman, J.R., Oude Essink, G.H.P., Beven, K.J., Stuyfzand, P.J. 2013. Uncertainty estimation of end-member mixing using generalized likelihood uncertainty estimation (GLUE), applied in a lowland catchment, *Water Resour. Res.*, 49, 4792 – 4806, doi: [10.1002/wrcr.20341](https://doi.org/10.1002/wrcr.20341). [download](#)
- De Louw, P.G.B., Vandenbohede, A., Werner, A.D., Oude Essink, G.H.P. 2013. Natural saltwater upconing by preferential groundwater discharge through boils. *J. Hydrol.*, 490, 74-87, doi: [10.1016/j.jhydrol.2013.03.025](https://doi.org/10.1016/j.jhydrol.2013.03.025). [download](#)
- Faneca Sánchez, M., Gunnink, J.L., van Baaren, E.S., Oude Essink, G.H.P., Siemon, B., Auker, E., Elderhorst, W., de Louw, P.G.B. 2012. Modelling climate change effects on a Dutch coastal groundwater system using airborne Electro Magnetic measurements, *Hydrol. Earth Syst. Sci.*, 16, 4499-4516, doi: [10.5194/hess-16-4499-2012](https://doi.org/10.5194/hess-16-4499-2012). [download](#)
- Pauw, P.S., Louw, P.G.B., de, Oude Essink, G.H.P. 2012. Groundwater salinization in the Wadden Sea area of the Netherlands; quantifying the effects of climate change, sea level rise and anthropogenic interferences, *Netherlands Journal of Geosciences* 91-3, 373-383, doi: [10.1017/S0016774600000500](https://doi.org/10.1017/S0016774600000500), [link to NJG](#)
- Harbo, M.S., Pedersen, J. Johnsen., R. and Petersen, K. 2012. (Eds) The CLIWAT handbook: Groundwater in a future climate, www.cliwat.eu. 184 p. [CLIWAT Handbook](#)
- Oude Essink, G.H.P. and Kooi, H. 2012. Land-subsidence and sea-level rise threaten fresh water resources in the coastal groundwater system of the Rijnland water board, The Netherlands, p. 227-248, Chapter 13 in: *Climate Change Effects on Groundwater Resources: A Global Synthesis of Findings and Recommendations*, Treidel, H., Martin-Bordes, J.L. and Gurdak, J.J. (Eds), 401 p. [link to Book](#)
- Louw, P.G.B., de, Eeman, S., Siemon, B., Voortman, B.R., Gunnink, J., van Baaren, E.S., and Oude Essink, G.H.P., 2011, Shallow rainwater lenses in deltaic areas with saline seepage, *Hydrol. Earth Syst. Sci.*, 15, 3659-3678, doi: [10.5194/hess-15-3659-2011](https://doi.org/10.5194/hess-15-3659-2011). [link to HESS](#)
- Louw, P.G.B., de, van der Velde, Y., and van der Zee, S.E.A.T.M. 2011. Quantifying water and salt fluxes in a lowland polder catchment dominated by boil seepage: a probabilistic end-member mixing approach, *Hydrol. Earth Syst. Sci.*, 15, 2101-2117, doi: [10.5194/hess-15-2101-2011](https://doi.org/10.5194/hess-15-2101-2011). [link to HESS](#)
- Louw, P.G.B., de, Oude Essink, G.H.P., Stuyfzand, P.J., Zee, van der, S.E.A.T.M. 2010. Upward groundwater flow in boils as the dominant mechanism of salinization in deep polders, The Netherlands, *J. Hydrol.* 394, 494-506, doi: [10.1016/j.jhydrol.2010.10.009](https://doi.org/10.1016/j.jhydrol.2010.10.009). [download](#)
- Oude Essink, G.H.P., E.S. van Baaren, and P.G.B. de Louw. 2010. Effects of climate change on coastal groundwater systems: A modeling study in the Netherlands, *Water Resour. Res.*, 46, W00F04, doi: [10.1029/2009WR008719](https://doi.org/10.1029/2009WR008719). [download](#)
- Goes, B.J.M., Oude Essink, G.H.P., Vernes, R.W. and Sergi, F. 2009. Estimating the depth of fresh and brackish groundwater in a predominantly saline region using geophysical and hydrological methods, Zeeland, the Netherlands, *Near Surface Geophysics* 401-412, doi: [10.3997/1873-0604.2009048](https://doi.org/10.3997/1873-0604.2009048). [download](#)
- Giambastiani, B.M.S., Antonellini, M., Oude Essink, G.H.P. and Stuurman, R.J. 2007. Saltwater intrusion and water management in the unconfined coastal aquifer of Ravenna (Italy): a numerical model, *J. of Hydrol.* (340), 1-2, 91-104, doi: [10.1016/j.jhydrol.2007.04.001](https://doi.org/10.1016/j.jhydrol.2007.04.001). [download](#)
- De Louw, P. and Oude Essink, G.H.P. 2006. Salinisation of the Northern coastal area of the Netherlands due to land subsidence and sea level rise. In: Jun Xu, Y. and Singh, V.P. (Eds.): *Coastal Environmental and Water Quality*, AIH Annual Meeting & International Conference, Challenges in Coastal Hydrology and Water Quality, Baton Rouge, Louisiana, 167-179. [download](#)
- Langevin, C.D., G.H.P. Oude Essink, Panday, S., Bakker, M., Prommer, H., Swain, E.D., Jones, W., Beach, M. and Barcelo, M. 2003. MODFLOW-Based Tools for Simulation of Variable-Density Groundwater Flow. In: *Coastal Aquifer Management-Monitoring, Modeling and Case Studies*. A.H.-D. Cheng and D. Ouazar, CRC Press, 30-76. [download draft](#)
- Bakker, M., Oude Essink, G.H.P. and Langevin, C.D. 2004. The rotating movement of three immiscible fluids, *J. of Hydrol.* (287), 270-278, doi: [10.1016/j.jhydrol.2003.10.007](https://doi.org/10.1016/j.jhydrol.2003.10.007). [download](#)
- Bouw, L. and Oude Essink, G.H.P. 2003. Development of a freshwater lens in the inverted Broad Fourteens Basin, Netherlands offshore, *J. of Geochemical Exploration* 78-79: 321-325, doi: [10.1016/S0375-6742\(03\)00113-4](https://doi.org/10.1016/S0375-6742(03)00113-4). [download](#)
- Bouw, L. and Oude Essink, G.H.P. 2003. Fluid flow during Late Cretaceous inversion of the northern Broad Fourteens Basin, Netherlands *J. of Geosciences* 82 (1): 55-69. [download](#)
- Oude Essink, G.H.P. 2001. Salt Water Intrusion in a Three-dimensional Groundwater System in The Netherlands: a Numerical Study, *Transport in Porous Media* 43(1): 137-158, doi: [10.1023/A:1010625913251](https://doi.org/10.1023/A:1010625913251)[download](#)
- Oude Essink, G.H.P. 2001. Improving fresh groundwater supply - problems and solutions. *Ocean & Coastal Management* 44: 429-449, doi: [10.1016/S0964-5691\(01\)00057-6](https://doi.org/10.1016/S0964-5691(01)00057-6). [download](#)
- Oude Essink, G.H.P. 2001. Saltwater intrusion in 3D large-scale aquifers: a Dutch case, *Phys. & Chem. of the Earth* 26(4): 337-344, doi: [10.1016/S1464-1909\(01\)00016-8](https://doi.org/10.1016/S1464-1909(01)00016-8). [download](#)
- Oude Essink, G.H.P. 2001. Density dependent groundwater flow at the island of Texel, The Netherlands. Proc. 16th Salt Water Intrusion Meeting, Miedzyzdroje-Wolin Island, Poland: 47-54. [download](#)
- Klein, R.J.T., R.J. Nicholls, G.H.P. Oude Essink, N. Minura and R.A. Warrick. 1998. Coastal Zones (Chapter 7). Unites Nations Environmental Programme, in *UNEP Handbook on Methods for Climate Change Impact Assessments and Adaptation Strategies*, J.F. Feenstra, I. Burton, J.B. Smith and R.S.J. Tol (Eds), CRC Press, 464 p. [download](#)
- Oude Essink, G.H.P. 1998. MOC3D adapted to simulate 3D density-dependent groundwater flow. In: Proc.MODFLOW'98 Conference, October 4-8, 1998, Golden, Colorado, USA, Vol. I, 291-303. [download](#)
- Oude Essink, G.H.P. 1996. Impact of sea level rise on groundwater flow regimes. A sensitivity analysis for the Netherlands. Ph.D. thesis, Delft University of Technology. Delft Studies in Integrated Water Management: no. 7 ISBN 90-407-1330-8. 428 p. [download](#)
- Oude Essink, G.H.P. Boekelman, R.H., 1996. Problems with large-scale modelling of salt water intrusion in 3D, Proc. 14th Salt Water Intrusion Meeting, Malmo, Sweden. [download](#)
- Jelgersma, S., M. J. Tooley, G.H.P. Oude Essink, R.H. Boekelman, M.C.J. Bosters, W.J. Wolff, K.S. Dijkema, B.J. Ens, L. Bijlsma, R. Hillen, and R. Misdorp. 1993. Sea Level Changes and their Consequences for Hydrology and Water Management, State of the Art Report, UNESCO, IHP-IV Project H-2-2, 135 p.

Rapporten, Artikelen, Boeken, Proceedings, etc.

1. Delsman, J.R., Mulder, T., 2021. Verkenning geohydrologische effecten Voorraadbekken IJsselmeer, Deltares rapport 1120714. [download](#)
2. Zuurbier, K.G., Van der Schans, M., Paalman, M.A.A., de Putter, P., Te Winkel, T., Velstra, J., Oude Essink, G.H.P. 2015. Technisch-juridische handreiking risicobeoordeling 'Ondergrondse Waterberging', 67 p. [download](#)
3. Schipper, P.N.M., Janssen, G.M.C.M., Polman, N.B.P., Linderhof, V.G.M., van Bakel, P.J.T., Massop, H.T.L., Kselik, R.A.L., Oude Essink, G.H.P. en Stuyt, L.C.P.M. 2014. €ureyeopener 2.1: Zoetwatervoorziening Zuidwestelijke Delta en Rijnmond-Drechtsteden, Alterra-rapport 2510, 74 p. [download](#)
4. Stuyt, L.C.P.M., van Bakel, P.J.T., Delsman, J., Massop, H.T.L., Kselik, R.A.L., Paulissen, M.P.C.P., Oude Essink, G.H.P., Hoogvliet, M. en Schipper, P.N.M., 2012, Zoetwatervoorziening in het Hoogheemraadschap van Rijnland; Onderzoek met hulp van €ureyeopener 1.0, 93 p. Alterra-rapport 2439 [download](#)

5. Sommeijer, M.J.; Pauw, P.S.; Van Baaren, E.S.; Oude Essink, G.H.P. 2013, Zeeland kan voorraden zoet groundwater vergroten. Land+Water.
[download](#)
6. Inventaris wellen te Hoogheemraadschap van Rijnland 2012.
[download](#)
7. Louw, de, P.G.B., Doornenbal, P., Hendriks, D.M.D., 2012. Veldonderzoek naar het dichten van wellen. Deltares-rapport. 1201949-000, 52p.
[download](#)
8. Klein, J., Raat, K., Faneca Sanchez, M., Oude Essink, G., Paalman, M., Vermeulen, R. 2013. Effecten van brijnsystemen ten behoeve van de gietwatervoorziening in het Westland op de gebruiksfuncties van het grondwatersysteem, H₂O, 7p.
[download](#)
9. Faneca Sánchez, M., Raat, K.J., Klein, J., Paalman, M., Oude Essink, G. 2012. Effecten van brijninjectie op de grondwaterkwaliteit en functies in het Westland. Deltares rapport 1205897-000-BGS-0007, KWR rapport 2012.096.
[download](#)
10. Harbo, M.S., Pedersen, J. Johnsen., R. and Petersen, K. 2012. (Eds) The CLIWAT handbook: Groundwater in a future climate, www.cliwat.eu. 184 p.
[CLIWAT Handbook](#)
11. Baaren, van, E.S.; De Louw, P.G.M. and Oude Essink, G.H.P., 2010, Salinisation and freshening of phreatic groundwaters in Zeeland, The Netherlands: a modeling study, Proceedings of the 21th Salt Water Intrusion Meeting, Azores, Portugal, 303-306.
[download](#)
12. Oude Essink, G., Delsman, J., Borren, W., Stuurman, R., Verkaik, J. 2010. Veranderingen in het grondwatersysteem van het Markermeergebied; Rapportage DC project Wetlands in het IJsselmeergebied. Deltares rapport 1202830-000, 118 p.
[download](#)
13. Oude Essink, G.H.P., De Louw, P.G.B., Stevens, S., de Veen, B., de Prevo, C., Marconi, V. en Goes, B. 2009. Voorkomen van dynamiek van regenwaterlenzen in de Provincie Zeeland - Resultaten van een verkennende en provinciedekkende meetcampagne, 2007-U-R0925/A, 132p.
[download](#)
14. Onze Delta, onze toekomst, 2009, Deltares, (eds), hoofdstuk 3: Staat en Toekomst van de Delta (Haas, H. Goede, E. Groot, S., Michielsen, C., Oude Essink, G. Vries, de, I., Wijsman, J.).
[download](#)
15. Oude Essink, G.H.P. and Baaren, E., van. 2009. Verzilting van het Nederlandse Grondwatersysteem, Deltares 2009-U-R91001, 24 p.
[download](#)
16. Oude Essink, G.H.P., De Louw, P.G.B., Baaren, E., van & Vliet, M. van, et al. 2008, Zoet-zout studie Provincie Flevoland, Deltares-rapport 2008-U-R0546/A, 160 p.
[download](#)
17. Hoogvliet, M., Oude Essink, G.H.P., et al, 2008 Koploper Klimaat Werkpakket Watervoorziening, 2008-U-R0434/A, 59p.
[download](#)
18. Stuurman, R., Baggelaar, P., Berendrecht, W., Buma, J., De Louw, P.G.B., Oude Essink, G.H.P., 2008, Toekomst van de Nederlandse grondwater voorraad in relatie tot klimaatverandering, TNO rapport, i.o.v VROM, 2008-U-R0074/B, 85 p.
[download](#)
19. Vries, A., de, Vries I., de, Veraart J.A., Zwolsman G.J., Oude Essink, G.H.P., Baaren, E.S. van; Creusen, R. Buijtenhek, H.S. 2009. Vraag en aanbod van zoetwater in de Zuidwestelijk Delta, een verkenning. 79 p.
[download](#) [samenvatting](#)
[download rapport](#)
20. Oude Essink, G.H.P., Baaren, E., van & Vliet, M. van, 2008, Verkennende studie klimaatverandering en verzilting grondwater in Zuid-Holland, Deltares-rapport 2008-U-R0322/A, 60 p.
[download](#)
21. Hoogvliet, M., et al., 2007, Inventarisatie van effecten van klimaatverandering op fysiek systeem Hoogheemraadschap van Delfland, TNO rapport 2007-U-R01023/A, in opdracht van Hoogheemraadschap van Delfland, 117 p.
[download](#)
22. Kwadijk, J., Vuren, van, S. Verhoeven, G., Oude Essink, G., Snepvangers, J. en Calle, E. 2007, Gevolgen van grote zeespiegelstijging op de Nederlandse zoetwaterhuishouding, i.o.v. Milieu en Natuurplan Bureau, Deltares-rapport, Q4394, 73 p.
[download](#)
23. De Louw, P., Oude Essink, G.H.P. en Maljaars, P. 2007: Achtergrondstudie kwelreductietechnieken, TNO rapport 2007-U-R0357/B, 82 p., april 2007.
[download](#)
24. Oude Essink, G.H.P. and De Louw, P.G.B. 2006. Kwalitatieve beschouwing over de invloed van zoute kwel op de landbouw bij peilwijziging op het Lauwersmeer, TNO rapport 2006-U-R0152/A, 17 p.
[download](#)
25. De Louw, P. and Oude Essink, G.H.P. 2006. Salinisation of the Northern coastal area of the Netherlands due to land subsidence and sea level rise. In: Jun Xu, Y. and Singh, V.P. (Eds.): Coastal Environmental and Water Quality, AIH Annual Meeting & International Conference, Challenges in Coastal Hydrology and Water Quality, Baton Rouge, Louisiana, 167-179.
[download](#)
26. Bader, E., Post V.E.A., Oude Essink, G.H.P. 2006, Verziltings- en verzoetingsprocessen in Nederland, met speciale aandacht voor de Wieringermeerpolder, Bachelorafsluiting Aardwetenschappen TNO Bouw en Ondergrond, p. 61.
[download](#)
27. Oude Essink, G.H.P., Van der Linden, W. 2005, Impact of the 26-12-04 Tsunami on groundwater systems and groundwater based water supplies, TNO report 2006-U-R-172/A, 19 p., Utrecht, The Netherlands.
[download](#)
28. Oude Essink, G.H.P., Houtman, H. and Goes B.J.M. 2005. Chloride-concentratie onderkant deklaag in Nederland, NITG 05-056-A, 17 p., Utrecht, TNO Bouw en Ondergrond.
[download](#)
29. Oude Essink, G.H.P., Post, V.E.A., Kuijper, M.J.M., Minnema, B., 2004, Land subsidence and sea level rise threaten the coastal aquifer of Zuid-Holland, the Netherlands, Proceedings of the 18th Salt Water Intrusion Meeting, Cartagena, Spain, 617-624.
[download](#)
30. Minnema, B., Kuijper, B., & Oude Essink, G.H.P. 2004. Bepaling van de toekomstige verzilting van het grondwater in Zuid-Holland, NITG 04-189-B, 86 p., Utrecht, TNO Bouw en Ondergrond.
[download](#)
31. Oude Essink, G.H.P., 2003. Salt water intrusion in a groundwater system at the Basilicata Region, South Italy, Proc. Italian CRYSTECHSALIN Meeting, Bari/Scanzano, 65-74.
[download](#)

32. Oude Essink, G.H.P., 2002. Salinisation of the Wieringermeerpolder, The Netherlands, Proc. 17th Salt Water Intrusion Meeting, Delft, The Netherlands, 12p.
[download](#)
33. Oude Essink, G.H.P., 2002. Modelling for geochemists: Everything you always wanted to know about modelling, but were afraid to ask!, Proc. 17th Salt Water Intrusion Meeting, Delft, The Netherlands, 13-25.
[download](#)
34. Oude Essink, G.H.P., 2001. Density-dependent groundwater flow; Salt water intrusion and Heat Transport. Lecture notes IHE, 136 p.
[download](#)
35. Oude Essink, G.H.P. 2001. Density dependent groundwater flow at the island of Texel, The Netherlands. Proc. 16th Salt Water Intrusion Meeting, Miedzyzdroje-Wolin Island, Poland: 47-54.
[download](#)
36. Oude Essink, G.H.P. 2000. Zoutwaterintrusie in het grondwatersysteem van de Kop van Noord-Holland: een toepassing van de drie-dimensionale computer code MOCDENS3D, Stromingen 6(3): 9-21.
[download](#)
37. Klein, R.J.T., R.J. Nicholls, G.H.P. Oude Essink, N. Minura and R.A. Warrick. 1998. Coastal Zones (Chapter 7). Unites Nations Environmental Programme, in UNEP Handbook on Methods for Climate Change Impact Assessments and Adaptation Strategies, J.F. Feenstra, I. Burton, J.B. Smith and R.S.J. Tol (Eds), CRC Press, 464 p.
[download](#)
38. Oude Essink, G.H.P., 1999. Simulating 3D density dependent groundwater flow: the adapted MOC3D, Proc. 15th Salt Water Intrusion Meeting, Ghent, Belgium, 1998, 69-79.
[download](#)
39. Oude Essink, G.H.P. 1998. MOC3D adapted to simulate 3D density-dependent groundwater flow. In: Proc.MODFLOW'98 Conference, October 4-8, 1998, Golden, Colorado, USA, Vol. I, 291-303.
[download](#)
40. Oude Essink, G.H.P. (1998) Simuleren van 3D dichtheidsafhankelijke grondwaterstroming: MOCDENS3D; in: Stromingen 4(1): pag 5-23.
[download](#)
41. Jelgersma, S., M. J. Tooley, G.H.P. Oude Essink, R.H. Boekelman, M.C.J. Bosters, W.J. Wolff, K.S. Dijkema, B.J. Ens, L. Bijlsma, R. Hillen, and R. Misdorp. 1993. Sea Level Changes and their Consequences for Hydrology and Water Management, State of the Art Report, UNESCO, IHP-IV Project H-2-2, 135 p.
42. Oude Essink, G.H.P. Boekelman, R.H., 1996. Problems with large-scale modelling of salt water intrusion in 3D, Proc. 14th Salt Water Intrusion Meeting, Malmö, Sweden.
[download](#)
43. Oude Essink, G.H.P., Paap, H.A., Boekelman, R.H., 1993. Influence of sea level rise on a groundwater flow system in Noord-Holland, the Netherlands, Proc. 12th Salt Water Intrusion Meeting, Barcelona, Spain, 1992, 57-79.
[download](#)
44. Oude Essink, G.H.P., 1993. A sensitivity analysis of the adapted groundwater model MOC, Proc. 12th Salt Water Intrusion Meeting, Barcelona, Spain, 1992, 371-389.
[download](#)

Abstracts en Posters

1. Airborne Geophysics: a powerful tool to start up fresh groundwater management in the coastal zone, Texel 2012
Authors: Gualbert Oude Essink, Perry De Louw, Marta Faneca, Rik Noorlandt et al., [Poster](#)
2. Uncertainty in end-member mixing: a blessing in disguise?, EGU 2012
Authors: Joost Delmans, Gualbert Oude Essink [Poster](#)
3. Analysis of Submarine Groundwater Discharge to Manila Bay: Density Dependent Hydrogeological Modeling of the South-eastern coastal zone of Bataan, Philippines, SWIM 21 2010
Authors: Aileen Mirasol-Robert, Gualbert Oude Essink, Hans H. Dürr [Abstract](#)
4. Netherlands Hydrological modelling Instrument for fresh and saline groundwater in the Dutch coastal zone, SWIM 21 2010
Authors: Jarno Verkaik, Esther van Baaren, Joost Delsman and Gualbert Oude Essink [Poster](#) [Abstract](#)
5. Salinisation and freshening of phreatic groundwaters in Zeeland, The Netherlands: a modeling study, SWIM 21 2010
Authors: Esther van Baaren, Perry De Louw, Gualbert Oude Essink [Poster](#) [Abstract](#)
6. CLIWAT: a transnational project about climate change and coastal groundwater in the North Sea Region, SWIM 21 2010
Authors: Gualbert Oude Essink, Perry De Louw, and many others! [Poster](#) [Abstract](#)
7. Autonomic and climatic impacts on the Dutch coastal groundwater system, AGU 2008
Authors: Esther van Baaren and Gualbert Oude Essink [Poster](#) [Abstract](#)