

Salinisation Zeeland

Research on salinisation processes in the Province of Zeeland

The fresh water resources in the groundwater system of the coastal province of Zeeland are at present jeopardized by various causes. Floods, droughts, eutrophication and salinisation of the ground and surface waters are some pressing topics. Moreover, sea level rise and climate change threaten the groundwater system even more. Water management in the province should anticipate on these changes. The province has initiated a study to get a better insight in the salinisation processes in the top system. The main goal is to analyse what measurements are effective in mitigating the salinisation of the water system. Special attention is given to the so-called rainwater lenses in agriculture plots. Agricultural crops depend on these shallow vulnerable water systems which float upon brackish groundwater and vary over the season in thickness.

Products:

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- PhD thesis Perry de Louw 2013 : Saline seepage in deltaic areas - Preferential groundwater discharge through boils and interactions between thin rainwater lenses and upward saline seepage
- article 2013: 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. <http://dx.doi.org/10.1016/j.jhydrol.2013.07.026>
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- article 2011: 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.
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- Poster 2010: Salinisation and freshening of phreatic groundwaters in Zeeland, The Netherlands
- article 2009: Goes, B.J.M., Oude Essink, G.H.P., Verne, 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.
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