

Field and Model Investigations of Freshwater Lenses in Coastal Aquifers

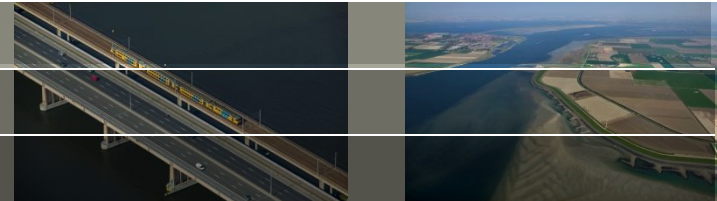
“Veld- en modelonderzoek naar
zoetwaterlenzen in
watervoerende pakketten nabij
de kust”

Pieter S. Pauw



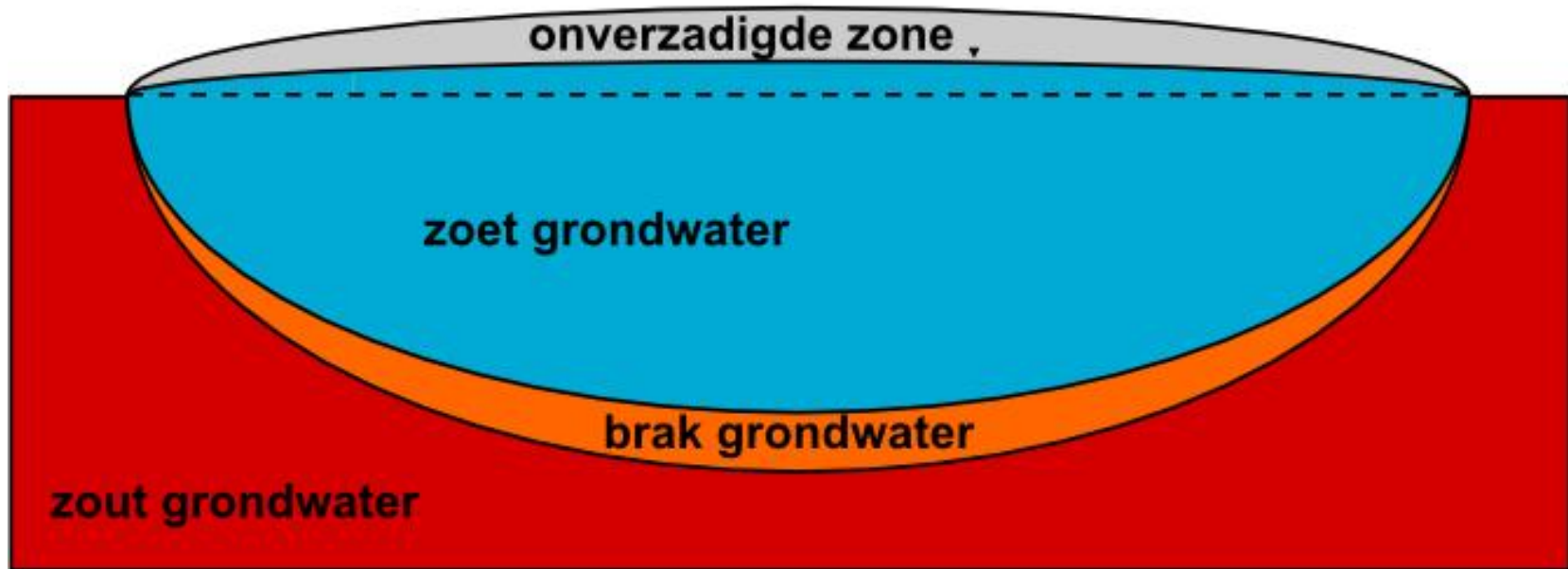
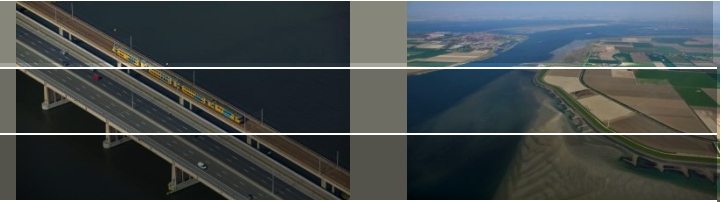
Field and Model Investigations of Freshwater Lenses in Coastal Aquifers Pieter S. Pauw 2015

Verdediging 08-06-2015

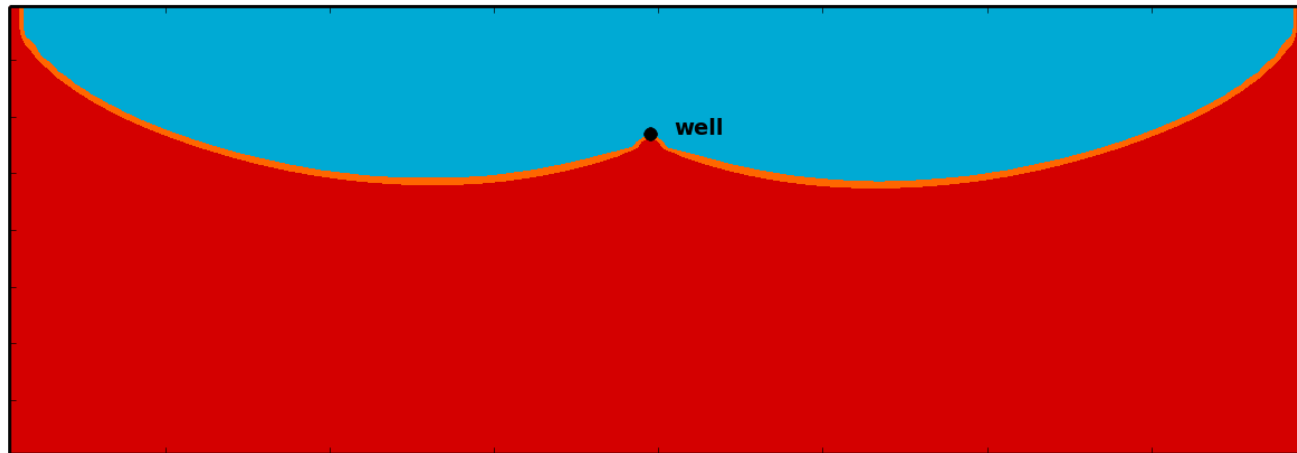
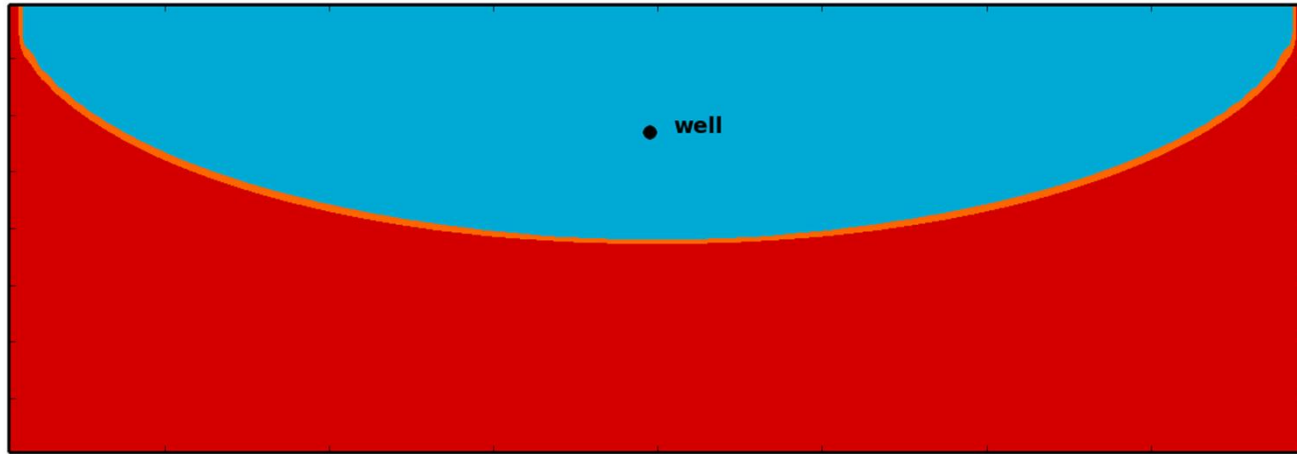
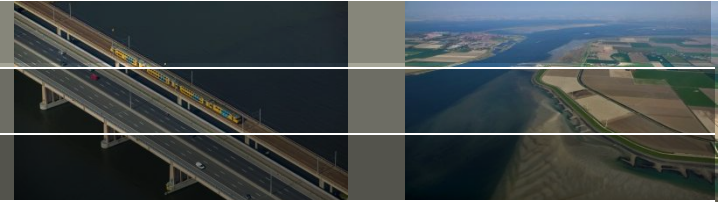


Deltares

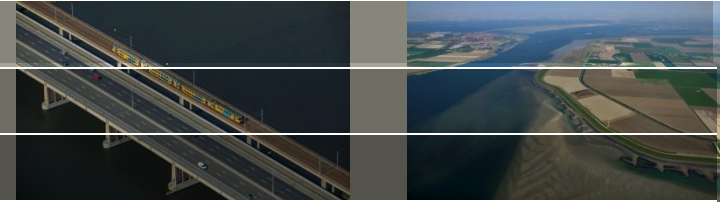
Zoetwaterlenzen



Zoutwater intrusie



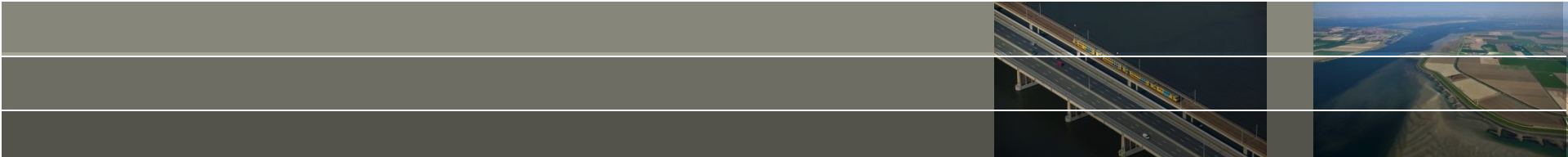
Toekomstige invloeden



Muir Glacier, Alaska, 1941 and 2004

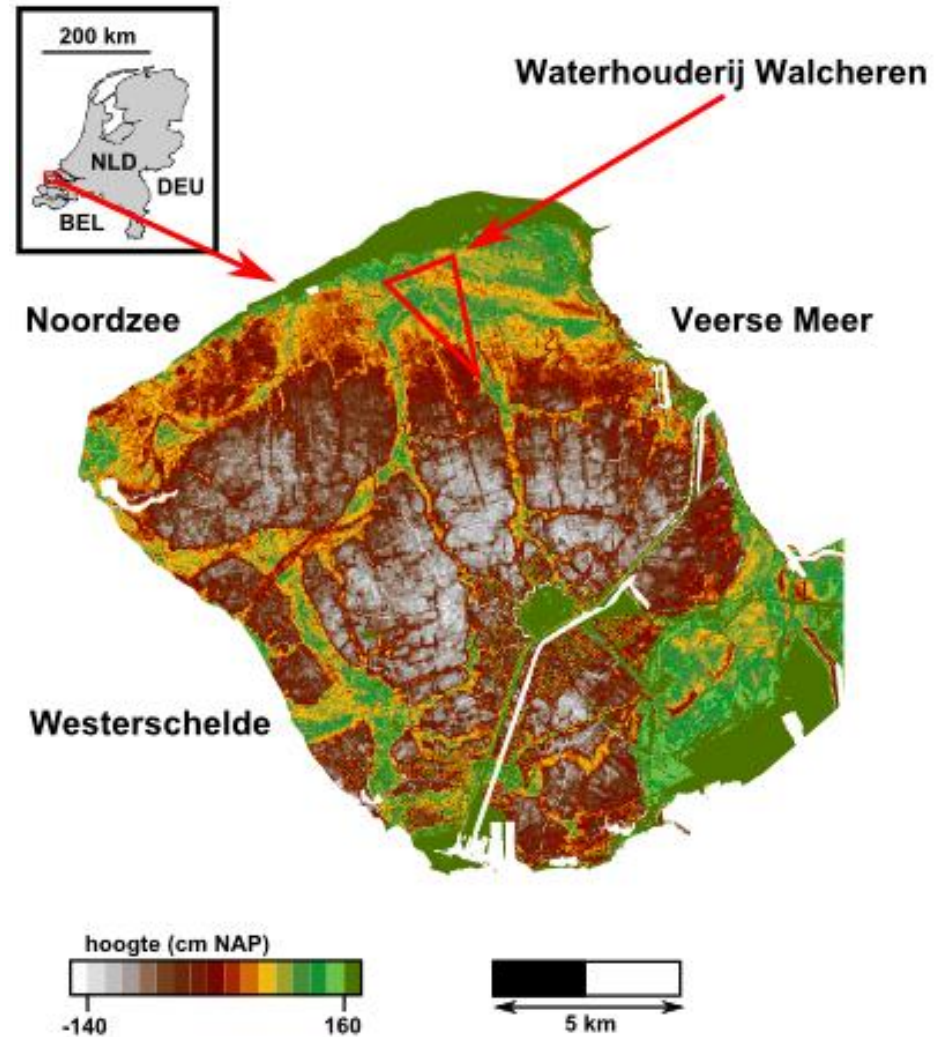


Deltares



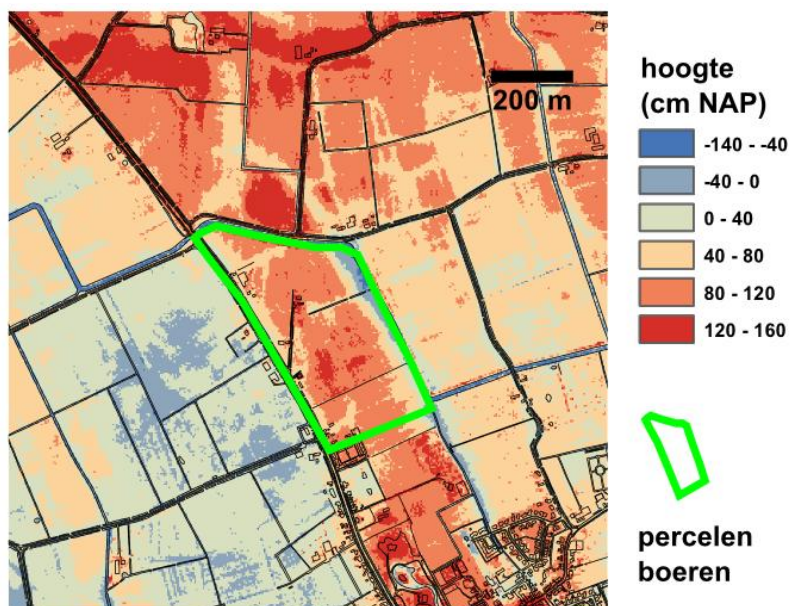
1: Verbeteren van modellen van zoetwaterlenzen
2: Maatregelen

Hoe het begon; De Waterhouderij Walcheren

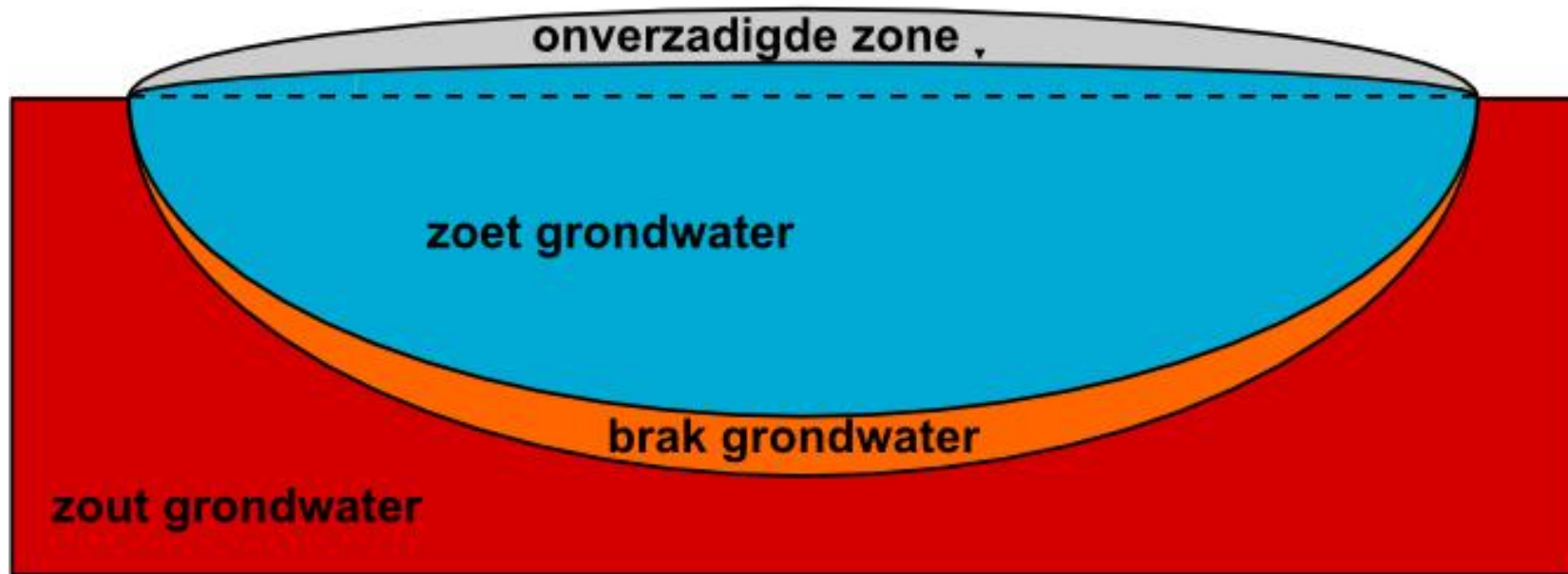


Percelen Johan Sanderse en Werner Louwerse

kreekrug



Maatregel: verhogen grondwaterstand?



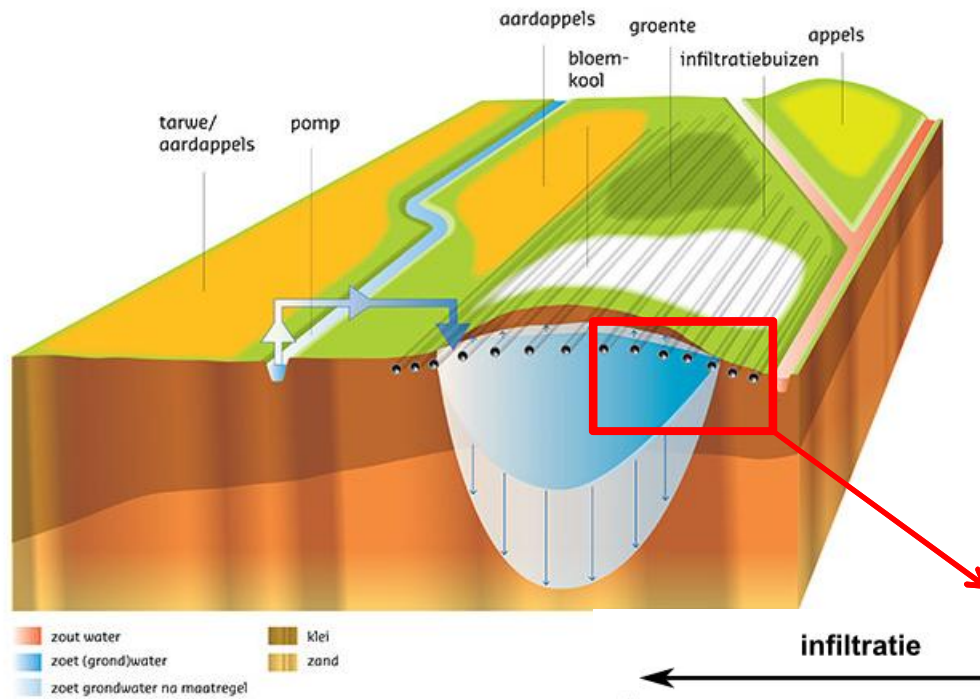
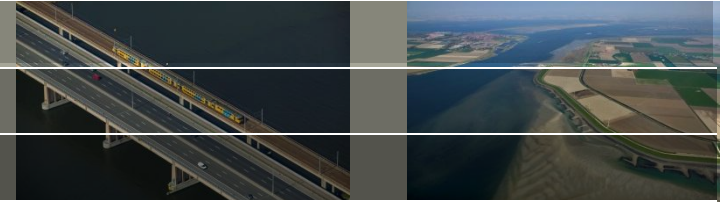
$$h = \delta H$$

grondwaterstand dikte zoetwaterbel

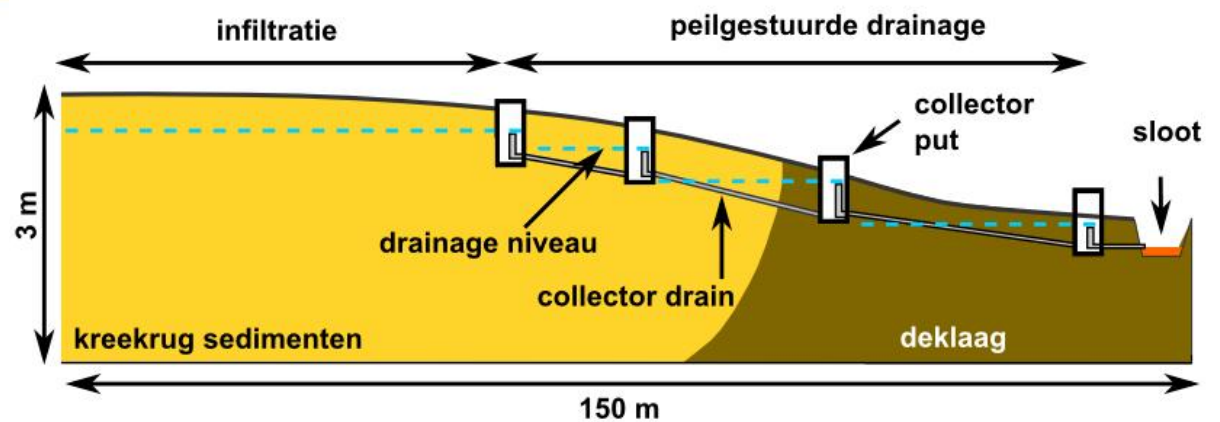
$$\delta = \frac{\rho_s - \rho_f}{\rho_f}$$

relatieve dichtheidsverschil

Aanpassen drainage



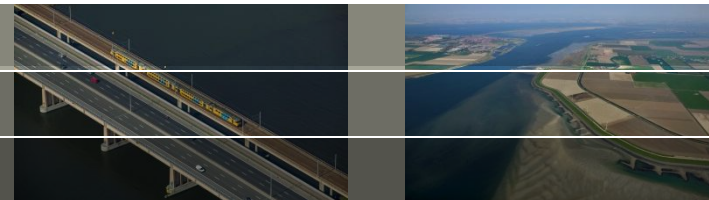
- 1) Verhogen drainagepeil
- 2) Infiltratie zoet oppervlaktewater



Drainage expert



Voor de aanleg: nulmetingen



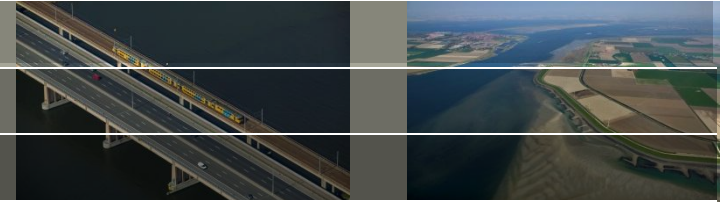
CVES



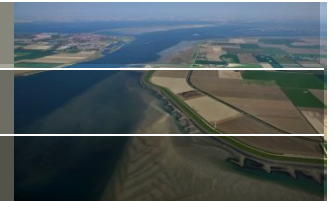
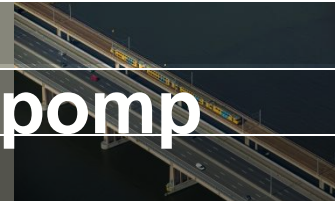
Sonderingen



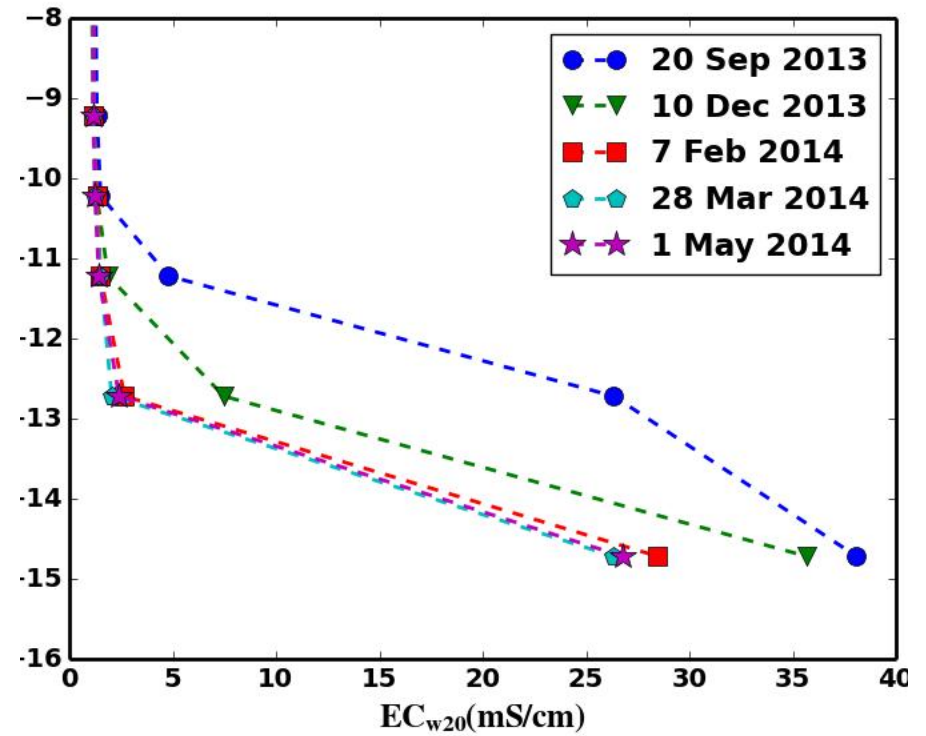
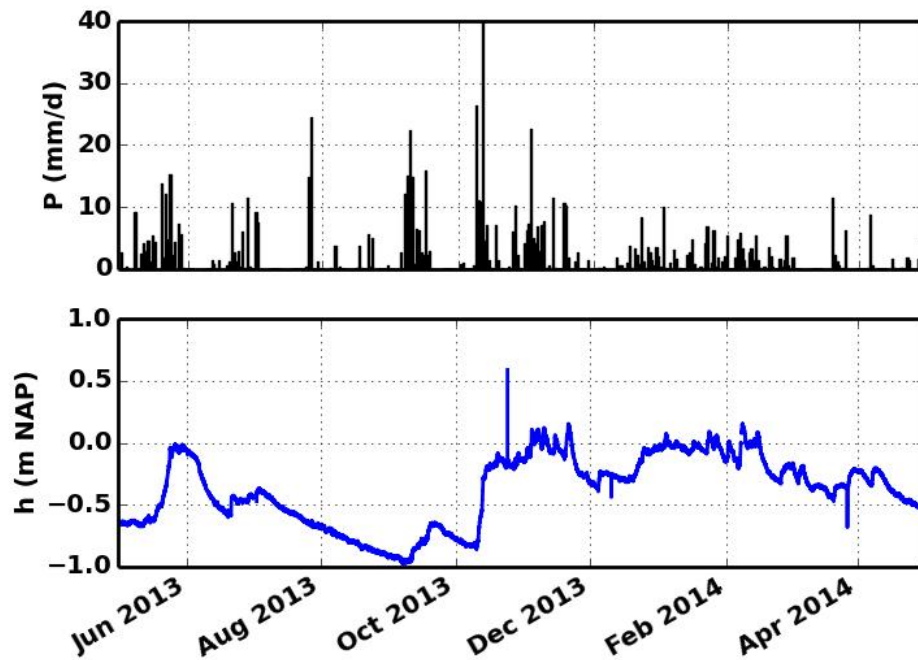
Monitoringsnetwerk



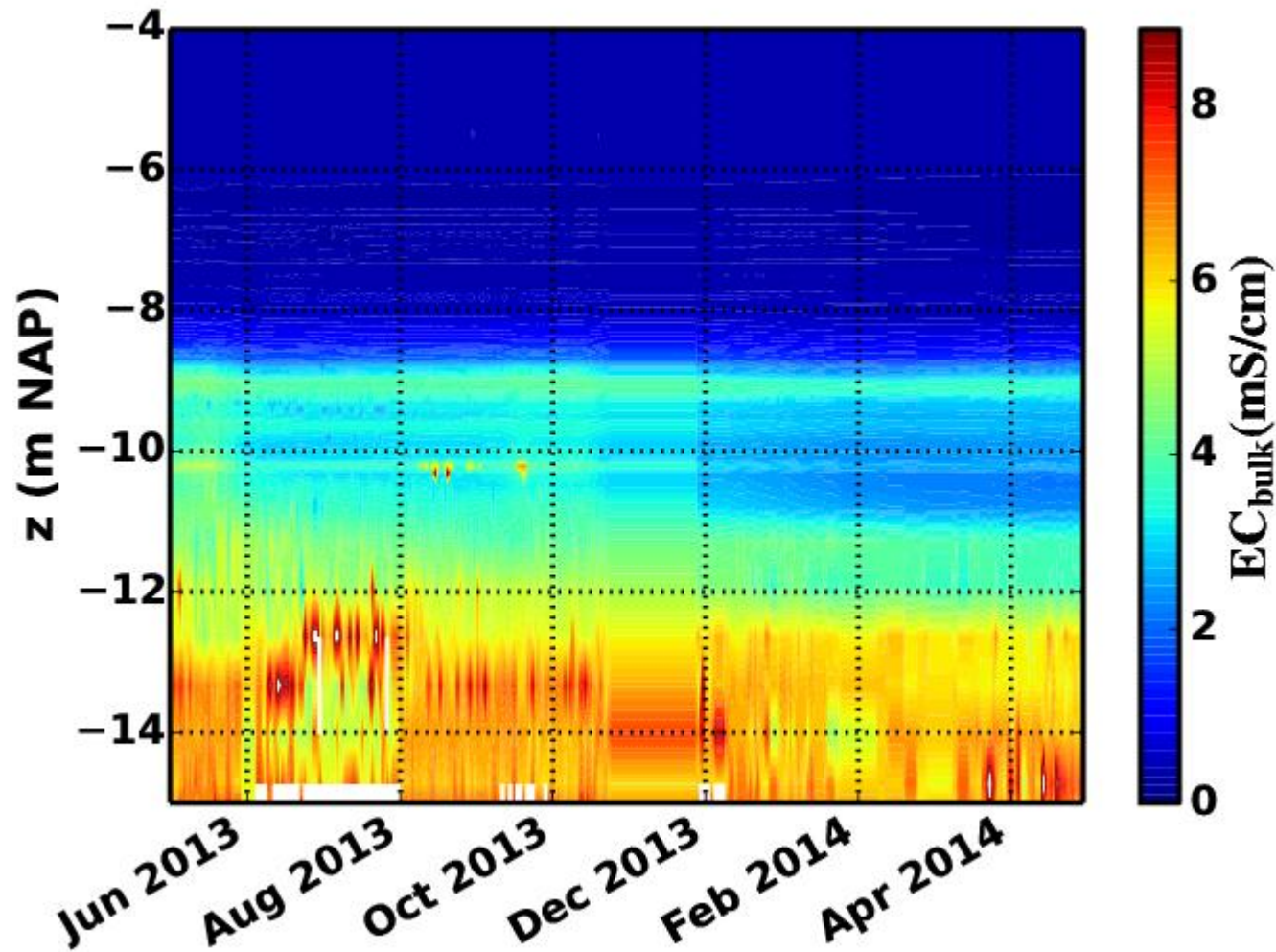
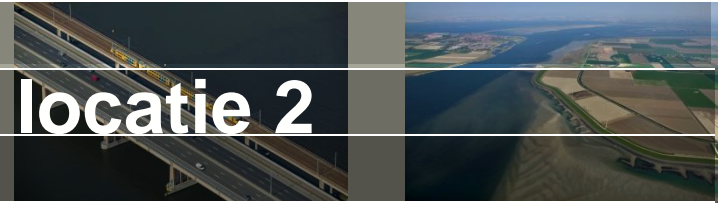
Indruk installatie drainage en pomp



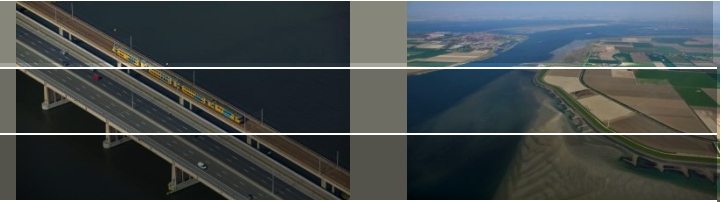
Grondwaterstand & zoet-zout verdeling locatie 1



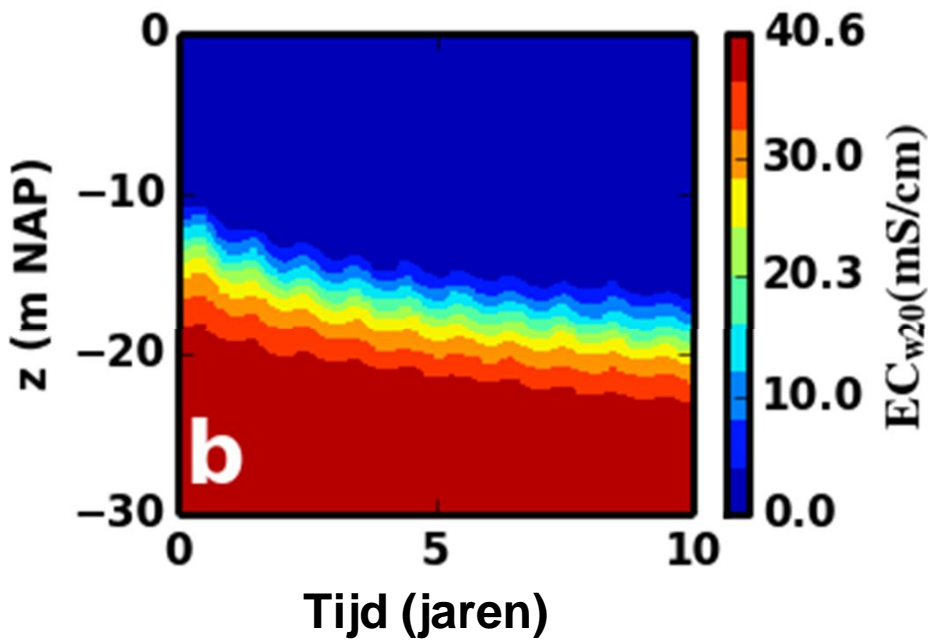
Ontwikkeling zoetwaterbel op locatie 2



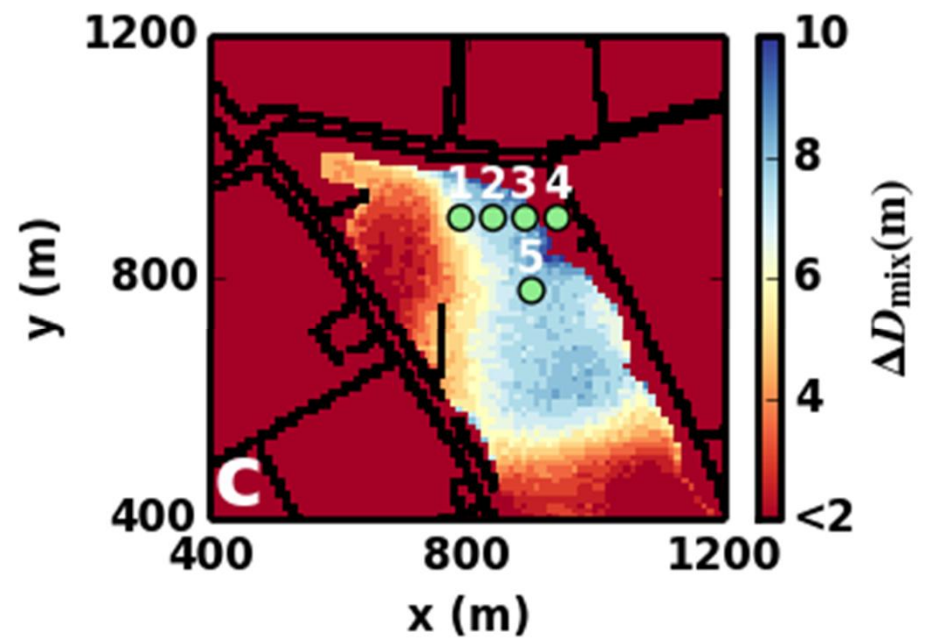
Numerieke simulaties



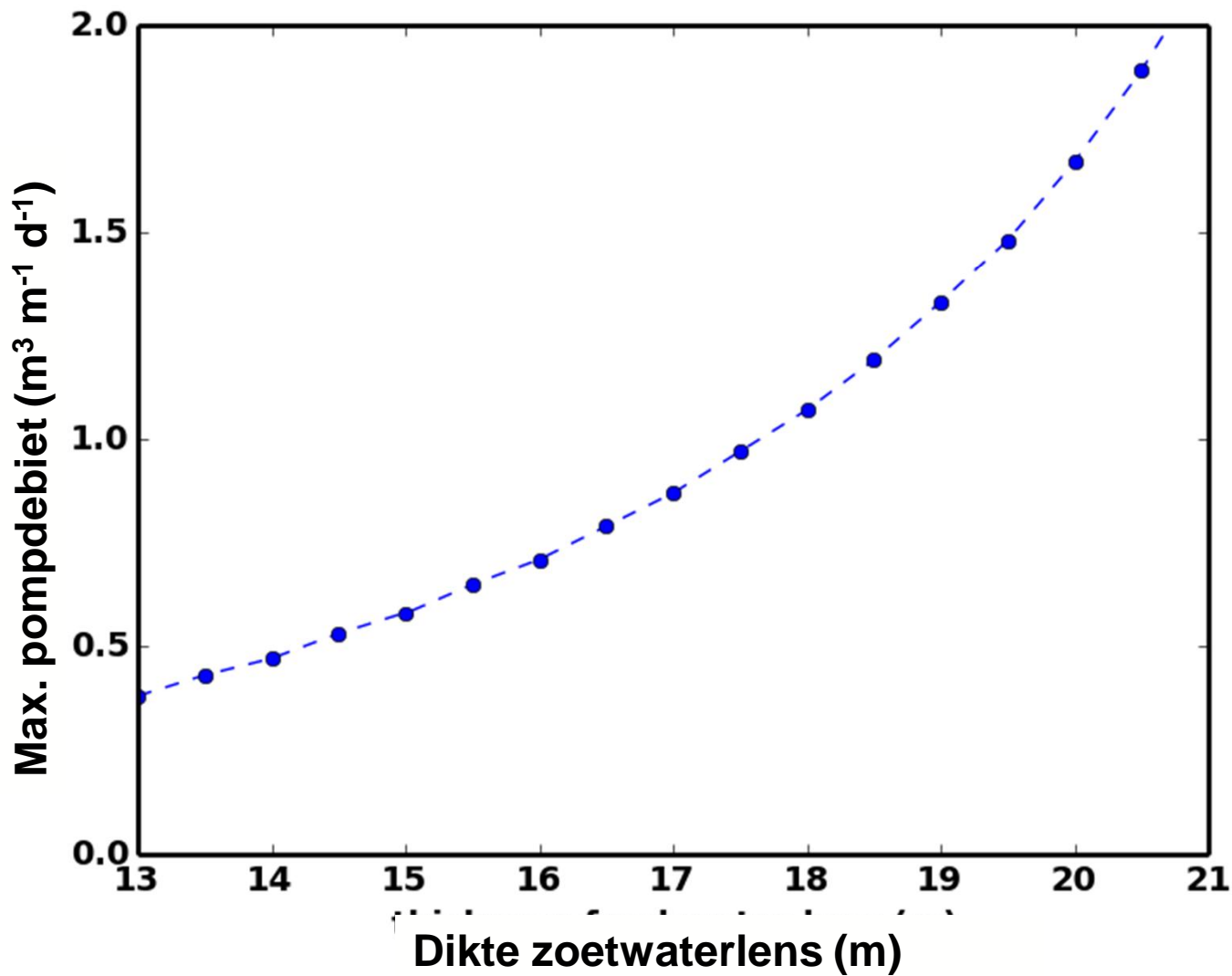
Ontwikkeling zoetwaterlens
locatie 1



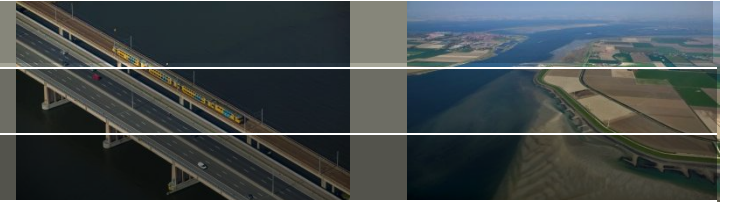
Uitbreiding bel na 10 jaar



Toename lens vs. maximaal pompdebiet



Conclusies mbt onderzoek



- **Peilgestuurd drainagesysteem potentiële maatregel (hydrologisch)**
- **Invloed gelaagdheid kreekrug op verzoeting**
- **Hogere grondwaterstand → dikkere zoetwaterbel, lagere bergings efficiëntie**

