

Predicting piping underneath river dikes using 3D subsurface heterogeneity

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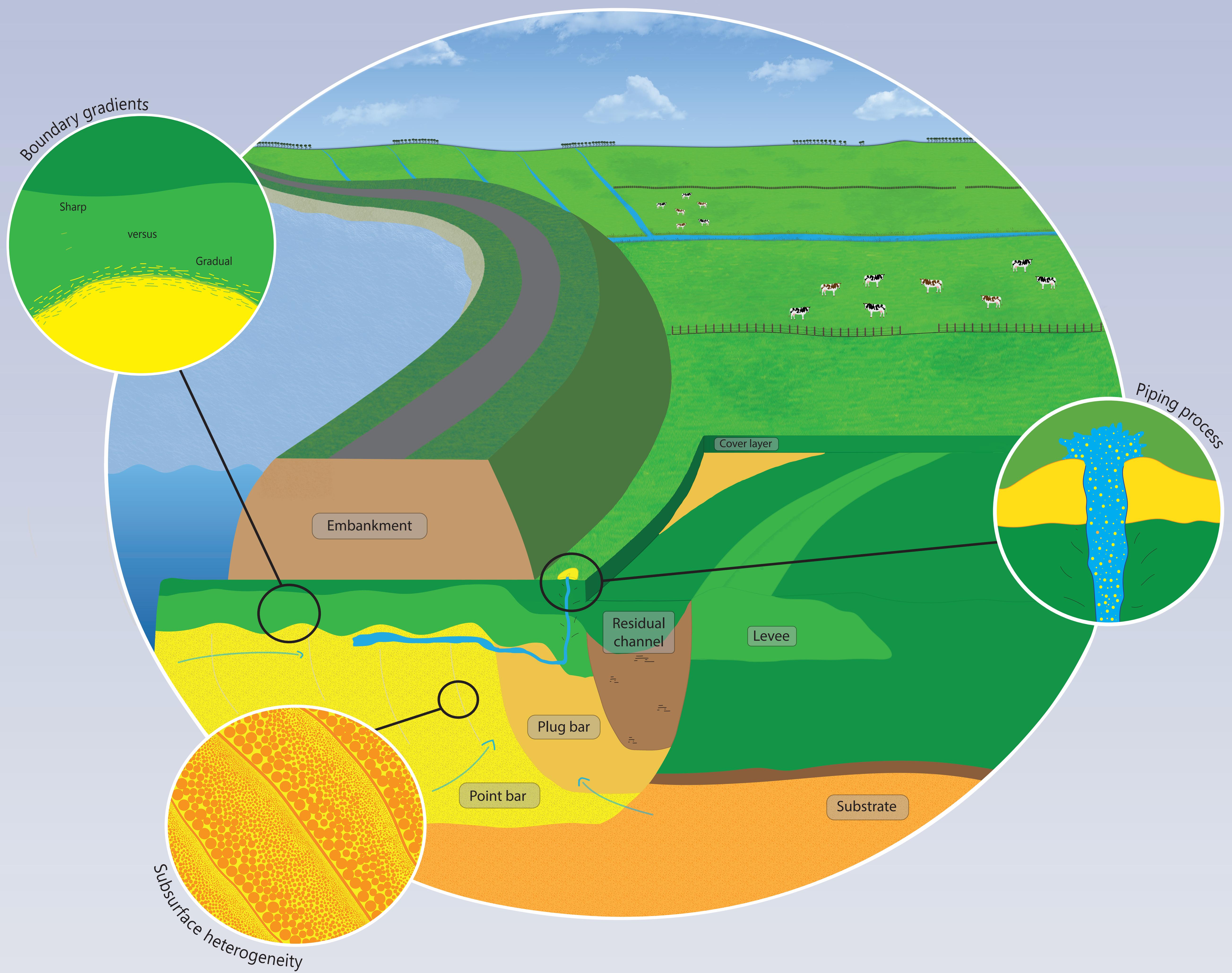
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Research objectives

- 1) Reconstructing individual architectural elements in the subsurface near river embankments.
- 2) Determining hydraulic properties of individual architectural elements.
- 3) Upscaling architectural elements to delta scale using geological conceptual modules.



Activities 2017-2019

Case studies

Determining architectural element / hydraulic properties for representative areas (*proeftuinen*)

3D modeling

Subsurface
- characterization
- parameterization

Field experiments

- pumping wells
- in situ determination of hydraulic properties

Lab experiments

Varying
- architectural build-up
- grain size distributions
- orientations

Upscaling

Sample scale ↔ Local study area → Delta

PhD 1

T.G. Winkels

PhD 2

W.J. Dirkx

Sedimentology

Hydrology

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