



## Insights from test pits in the clay cover of levees

Marc Hijma - Deltares

# What is a test pit?

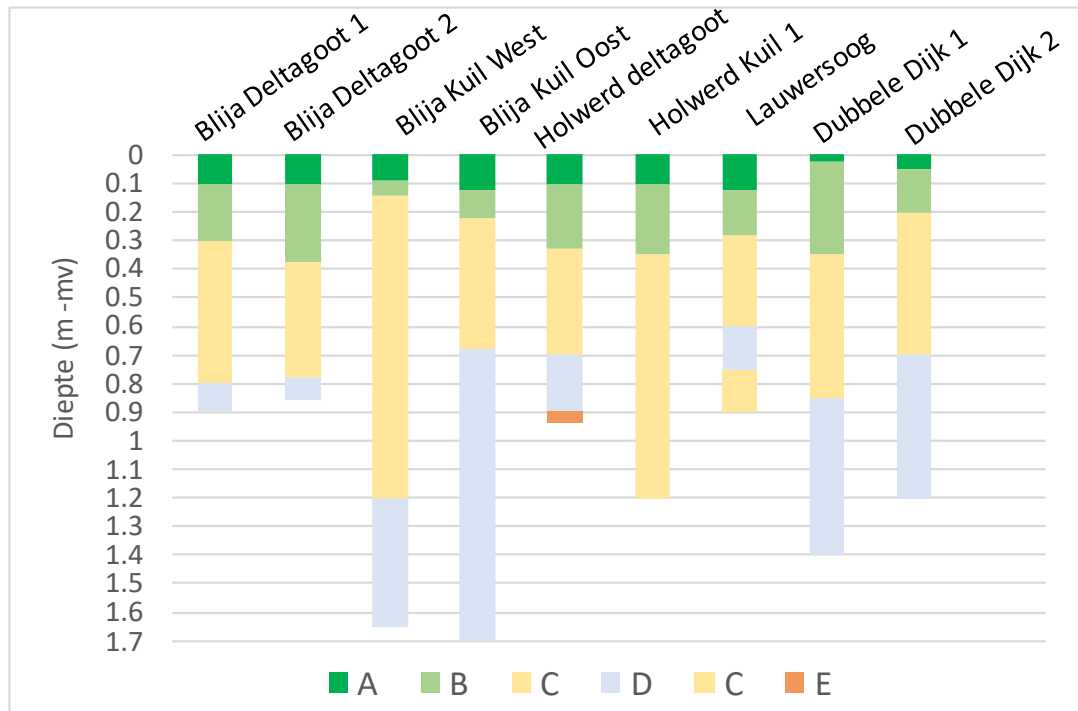


# What is a test pit?

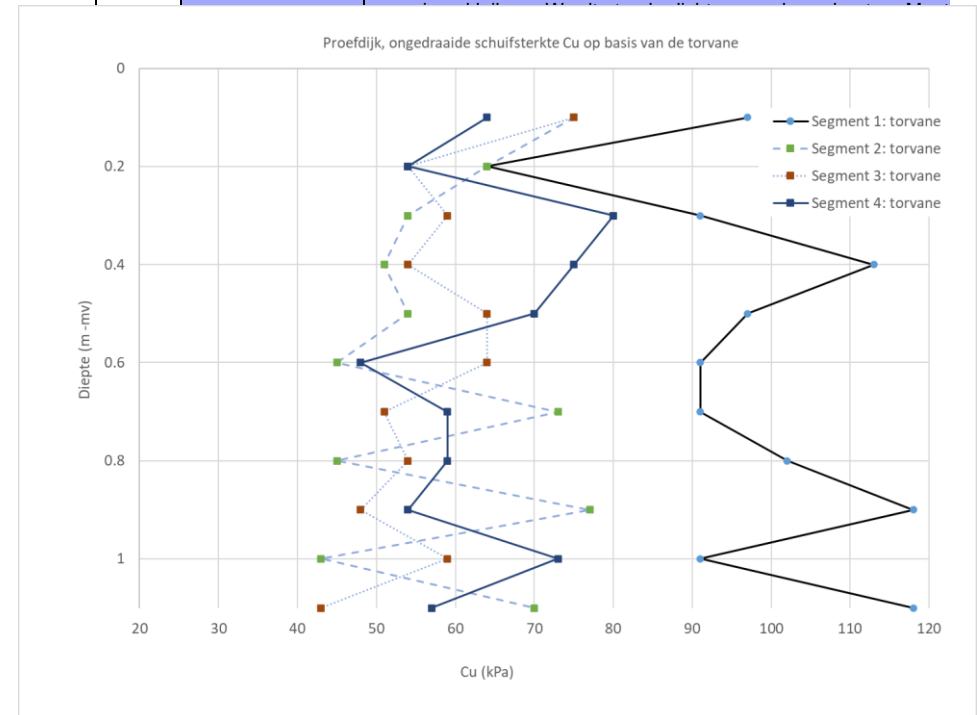


# Test pit protocol

- Description of texture, colour, oxidation/reduction, carbonate content
- Description of structure using self-designed labelling
- Description of gras cover and root zone
- Makes it possible to compare test pits and link it to Deltaflume experiments

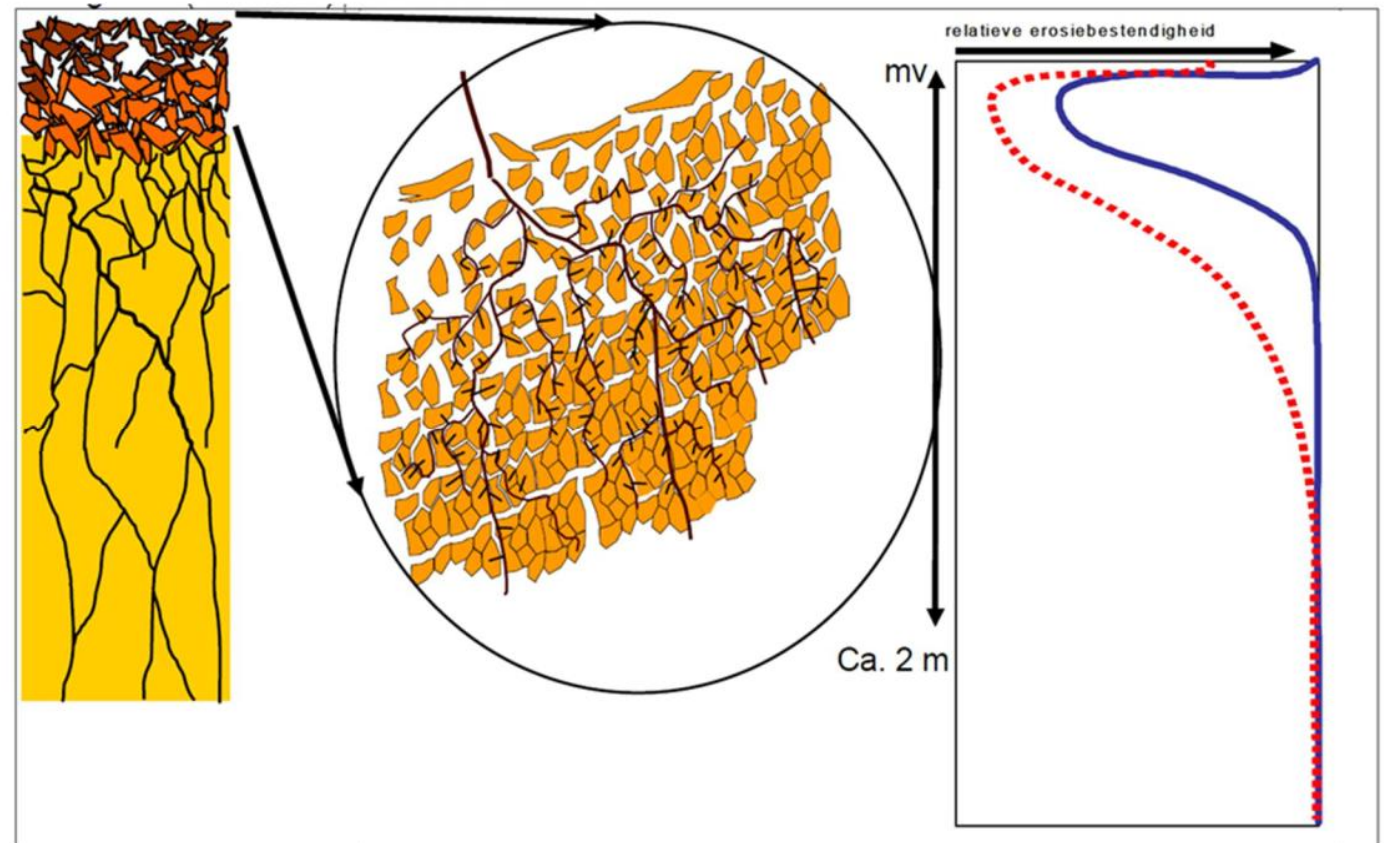


Code	Diepte (m -mv)	Beschrijving
A	Tot 0.05-0.10	Kruimels (1-4 mm), in zeer open pakking. Vaak de zodelaag
B	Tot 0.20/0.30	Losse fijne structuur: fijne blokken (3-10 mm) in open pakking, veel zichtbare open ruimte (20-30%). Los betekent ook echt los: uitgestoken valt het snel uit elkaar in losse brokjes.
C1	Tot 0.30-0.60	Matig dichte, grove structuur: grove blokken (10-60 mm) in relatief losse pakking, of met grotere, wijdere spleten (veel spleten > 3mm). Vaak 10-20% zichtbare open ruimte.
C2	Tot 0.30-0.60	Matig dichte, fijne structuur: fijne blokken (3-10 mm) in relatief losse pakking, komt vaker voor in relatief zandige klei. Vaak 10-20% zichtbare open ruimte.
D1	Tot 0.80-1.00	Dichte grove structuur: grove blokken (50-150 mm) in dichte pakking, met weinig spleten en openingen. Vaak 2-5 % zichtbare open ruimte, neemt naar beneden toe af. Vaak tussen 0.5 m en



# Why do we do it?

- At present: no clear link between deltaflume results and parameters like clay content, Atterberg limits, etc.
- In a clay cover a more or less constant structure is established after after 3-5 years
- Size of clay aggregates increases with depth, while erodibility decreases in general
- Wish to establish a method to link and quantify (or not) structure/aggregate sizes to erodibility



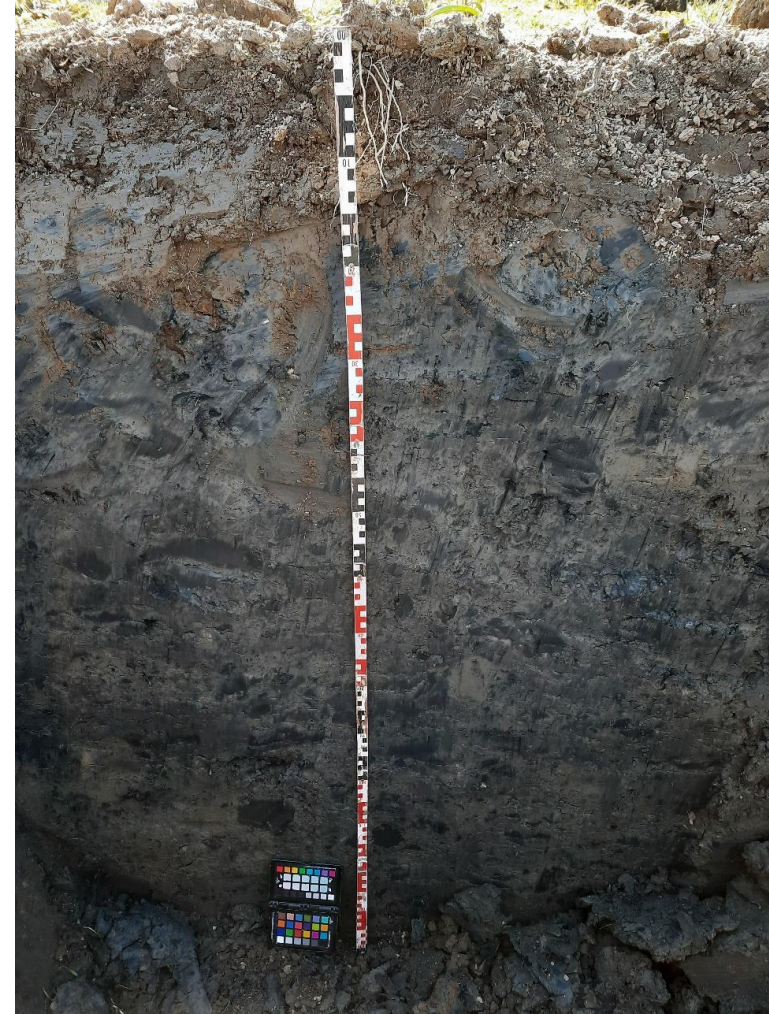
## Local heterogeneities



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# Local heterogeneities, local water flows

## Working on parameters that describe these complexities....



# Are mm-sized aggregates important or bigger chunks of clay structures?





## Shared slide

- Short-term: learning by doing, creating valuable datasets, working together to understand relations and influence of local heterogeneities
- Long-term: integrated multidisciplinary approach is needed with input/knowledge from different angles
- How should we work together to bring this further?





# Thank you



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