Modelling of mud sedimentation and vegetation development

at the shoal of Walsoorden

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Chicken-egg question

- Mud necessary before vegetation?
- Vegetation necessary for thick mud deposits?

Our current hypothesis:
- Both enhance each other
- Neither necessary for the other
- Location specific
Methodology

Subdomain from Reinier Schrijvershof and Jebbe van der Werf
Mud deposits
Why these locations?
Origin of the mud

![Graph showing relative mud area over time with two categories: marine and fluvial.](image-url)
Effect on morphology

- Only deposition on top
- Increase shoal elevation → beneficial for vegetation?!
Mud deposits

FIELD DATA

MODEL
Mud deposits

FIELD DATA

MODEL
Mud deposits

FIELD DATA

MODEL

2015

start model 2000

vegetation fraction [-]
Mud deposits

FIELD DATA

MODEL

2015

vegetation fraction [-]

start model 2011

start model 2000
To summarize

Mud deposits in the southeast:
- Shielded from dominant flood flow
- High elevations
- Accumulates during ebb just after high water slack
- Marine origin

- Increase shoal elevation $\Rightarrow$ + vegetation
- Vegetation settlement $\Rightarrow$ + mud