

Modelling of **mud** sedimentation and **vegetation** development

at the shoal of Walsoorden



Lisanne Braat, Muriel Brückner, Wout van Dijk
and Maarten Kleinhans

Chicken-egg question

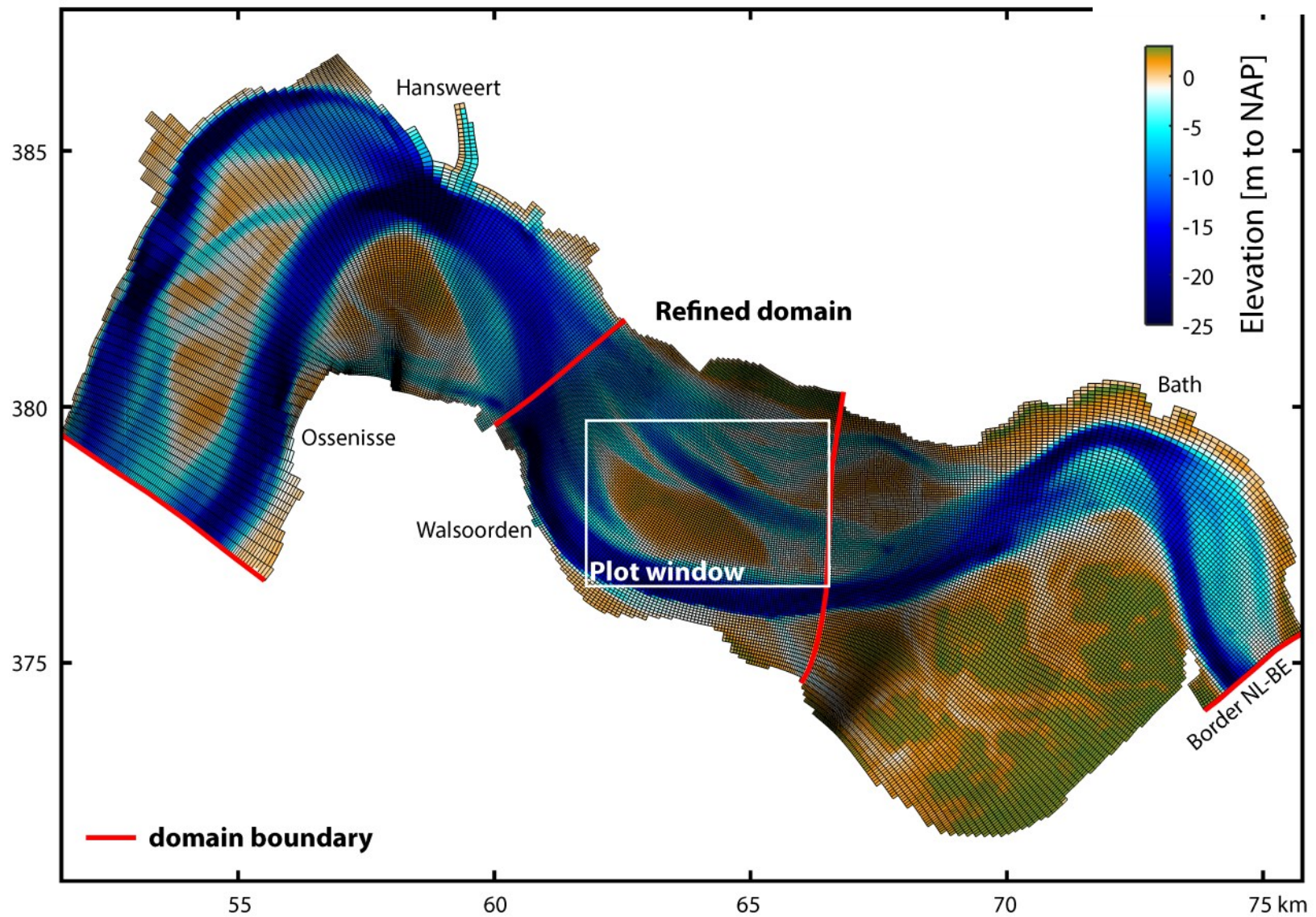
- Mud necessary before vegetation?
- Vegetation necessary for thick mud deposits?

Our current hypothesis:

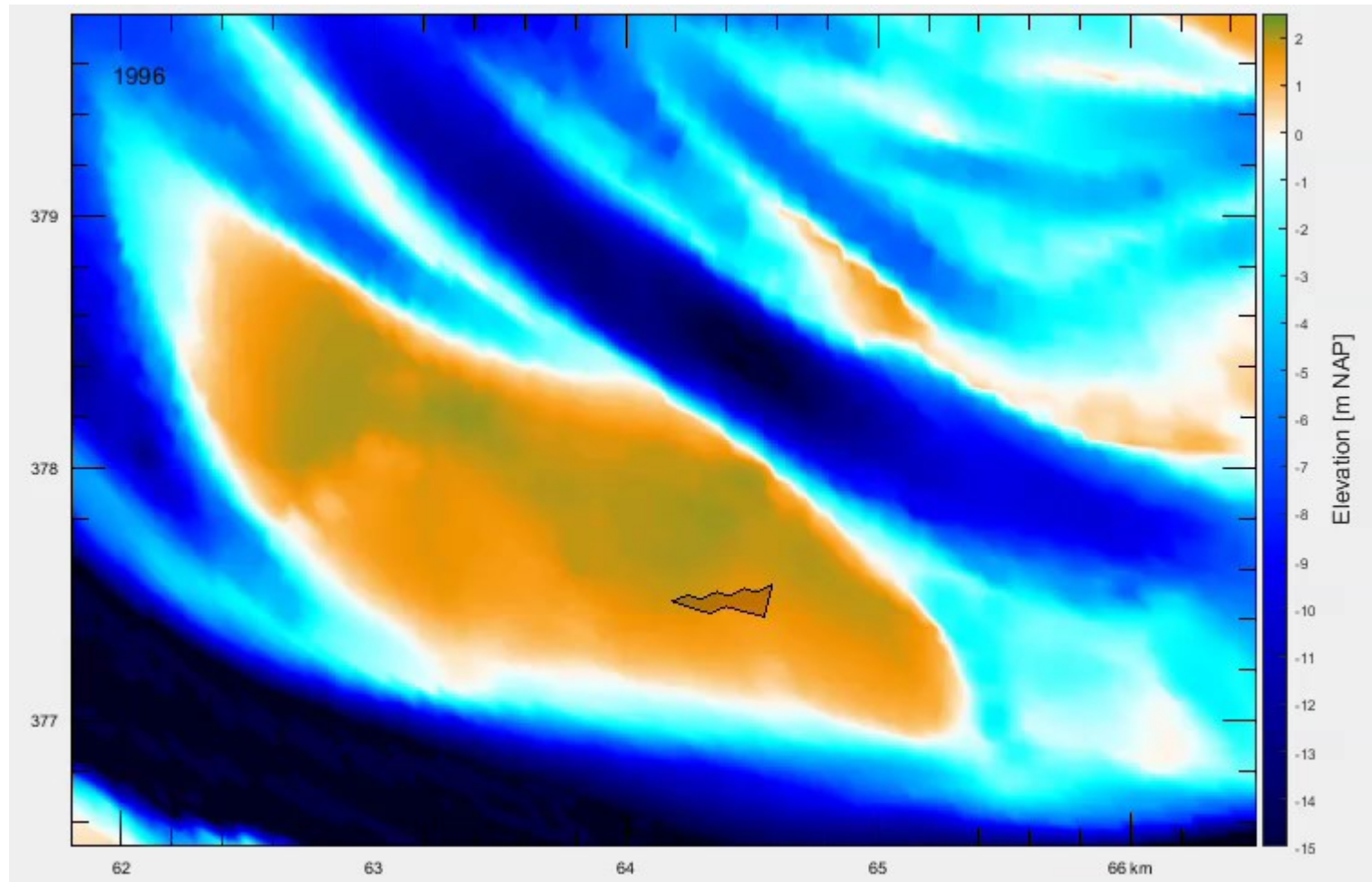
- Both enhance each other
- Neither necessary for the other
- Location specific



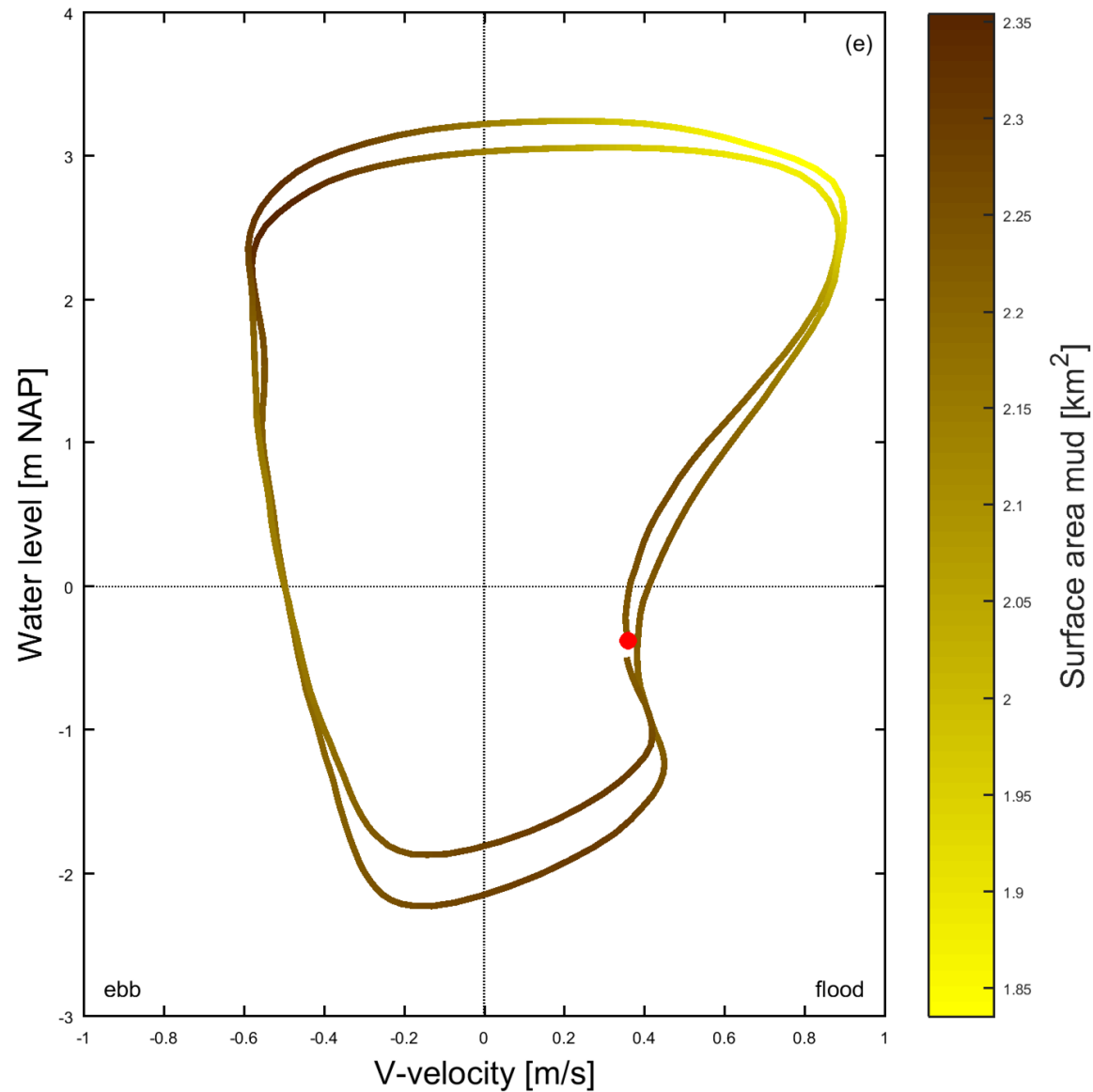
Methodology



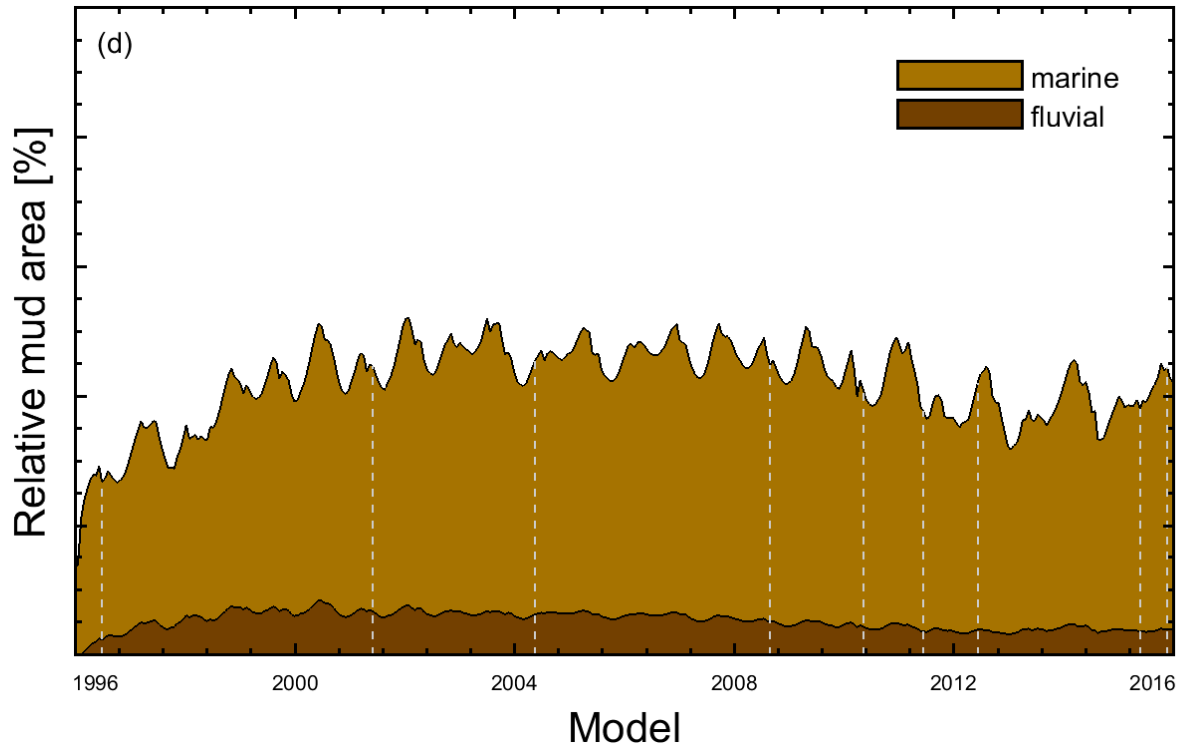
Mud deposits



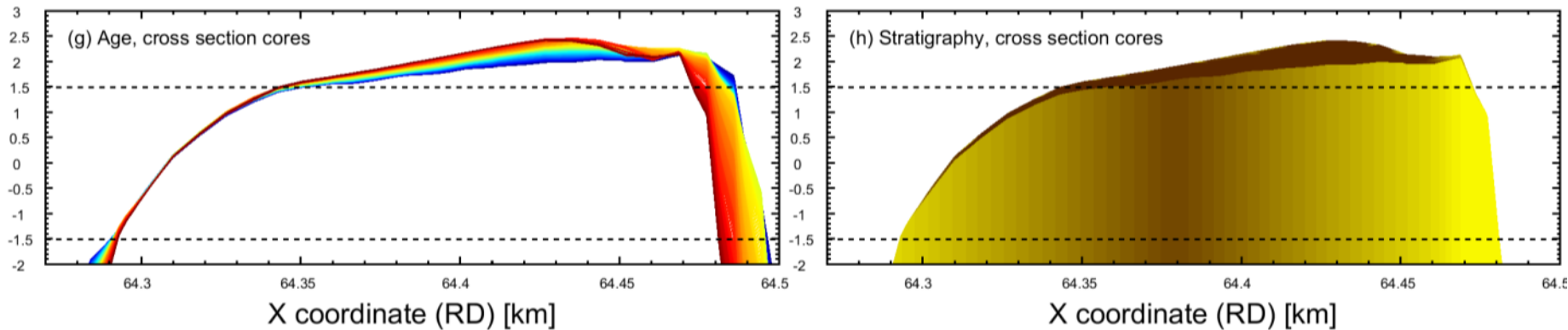
Why these locations?



Origin of the mud

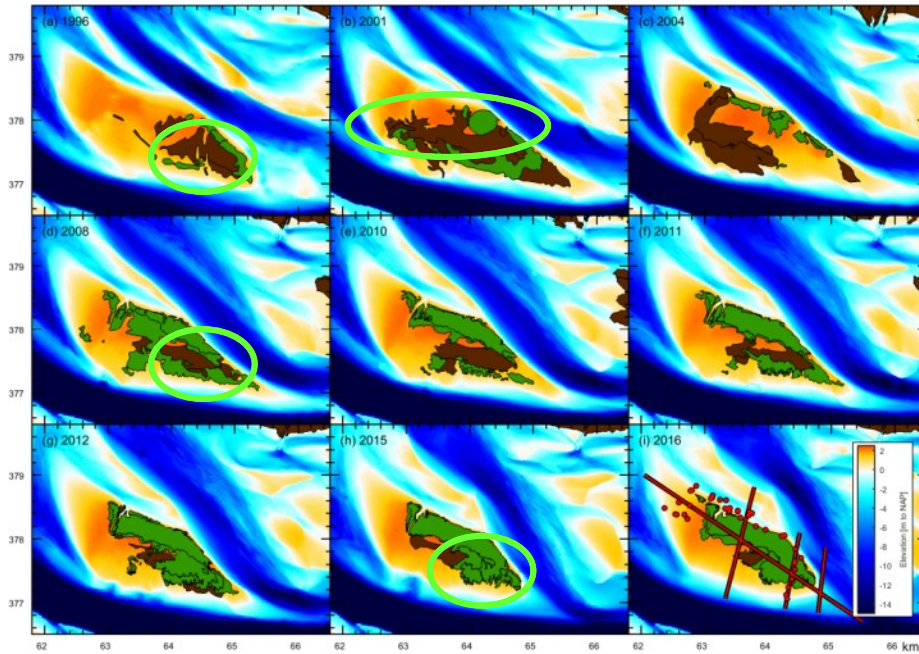


Effect on morphology

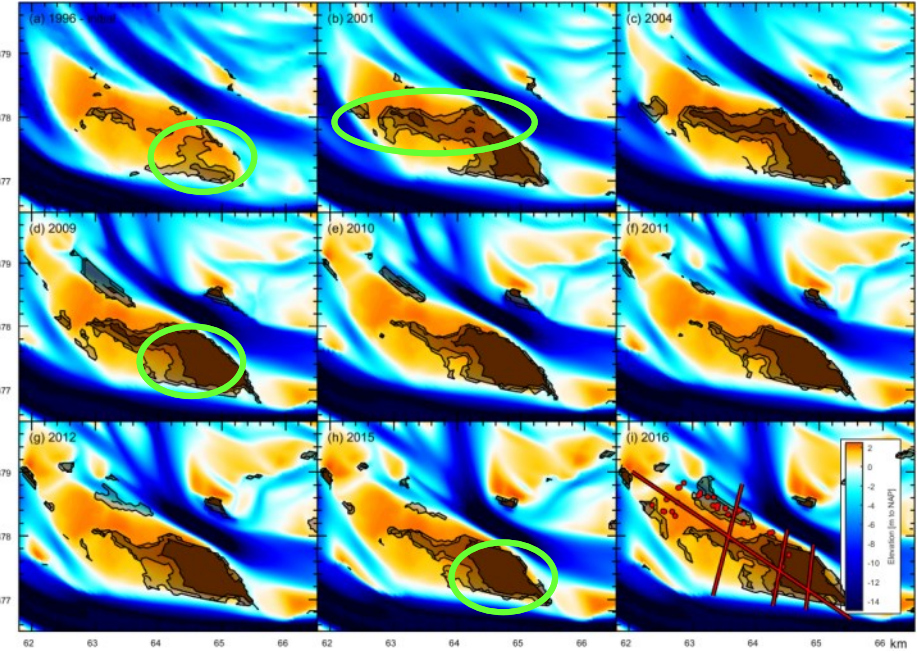


- Only deposition on top
- Increase shoal elevation → beneficial for vegetation?!

Mud deposits

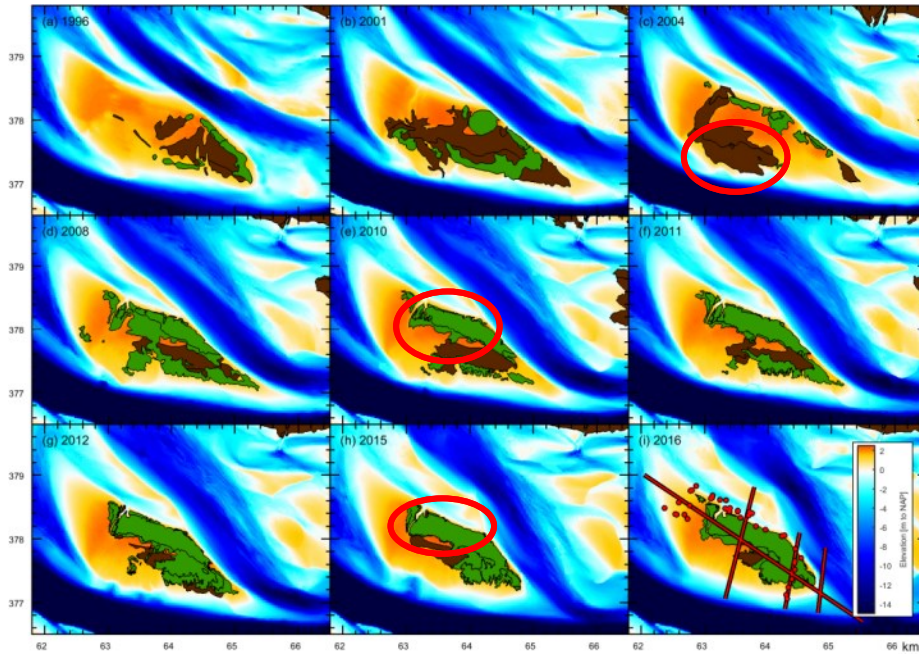


FIELD DATA

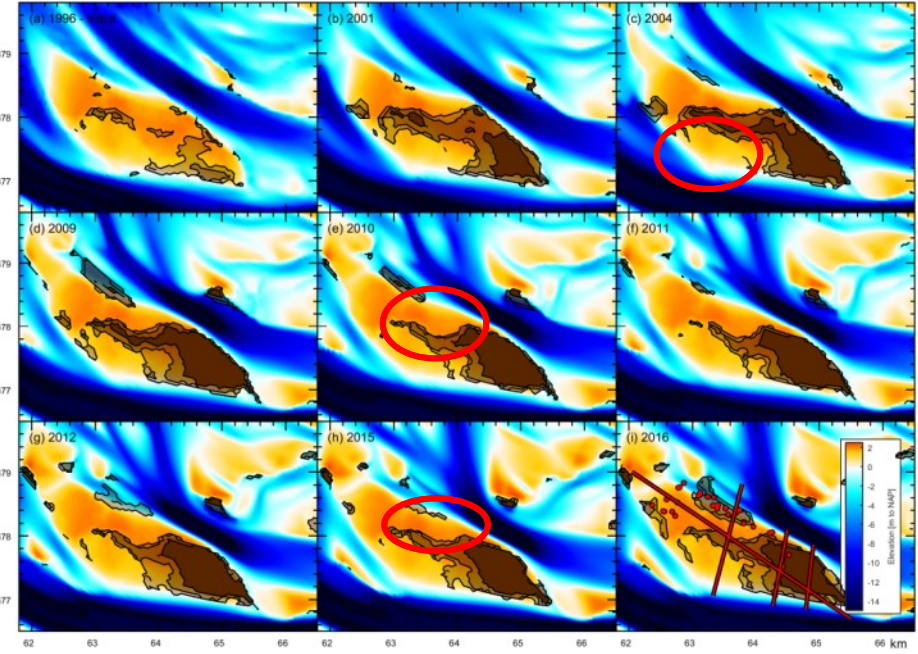


MODEL

Mud deposits

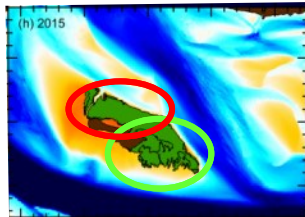


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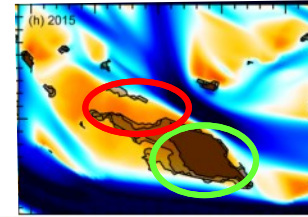


MODEL

Mud deposits

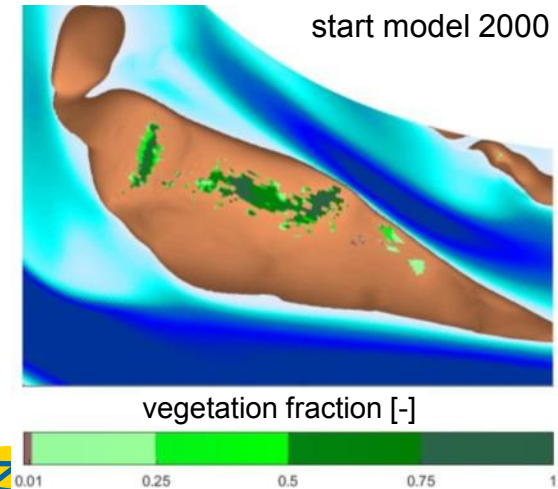


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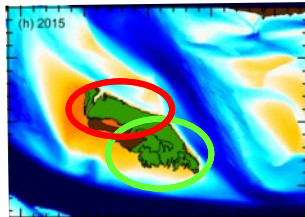


MODEL

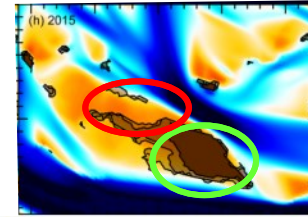
2015



Mud deposits

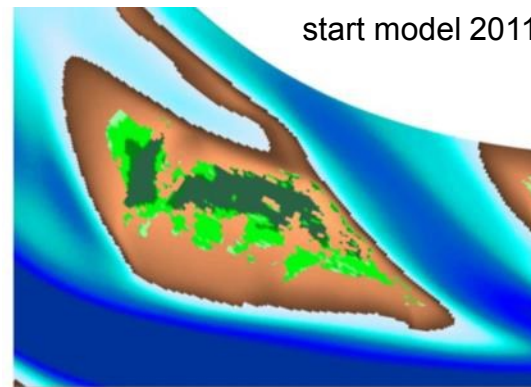


FIELD DATA

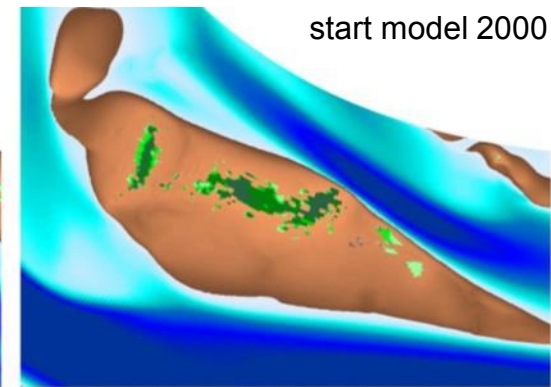


MODEL

2015



start model 2011



start model 2000

vegetation fraction [-]

vegetation fraction [-]



To summarize

Mud deposits in the southeast:

- Shielded from dominant flood flow
 - High elevations
 - Accumulates during ebb just after high water slack
 - Marine origin
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- Increase shoal elevation → + vegetation
 - Vegetation settlement → + mud