RiverCare

A new method to predict the effect of interventions

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Challenge

Can errors in vegetation maps endanger your project? Does the height of river dunes change the effectiveness of groyne lowering?

Model uncertainty significantly affects predictions. However, uncertainty quantification is computationally very expensive.

Innovative components

Today we share two major innovations:

① we propose a new method to approximate uncertainty for a fraction of the costs. We're calling it CORAL. It's written in Python, open source and being developed on Github

② we quantified the uncertainty of archetypical 'Room for the River' interventions. Explore the results yourself in our online intervention explorer

For whom and where?

For model-supported design of human interventions, anywhere

Application development and findings

By applying CORAL to various case studies we found:

⊕ A reduction of the computational cost of uncertainty quantification of more than 80%. Ask about terms & conditions

⊕ A 90% uncertainty interval for a 10 cm water level reduction intervention will typically be 2-4 cm.

⊕ Side channels are effective, and relatively insensitive to uncertainty

→ *"Should we build more side channels?" in NCR Days 2019 Book of Abstracts*

Status for day-to-day practice

Our methodology is available* for researchers and professionals. Our insights are available* for decision makers to incorporate in policies. *the project is still on-going until the end of 2019

Next steps

We're currently revisiting *Room for the River*. If we take into account uncertainty, what was the effect after 20 years? To what extent do autonomous changes affect model predictions, and do observations support model projections?
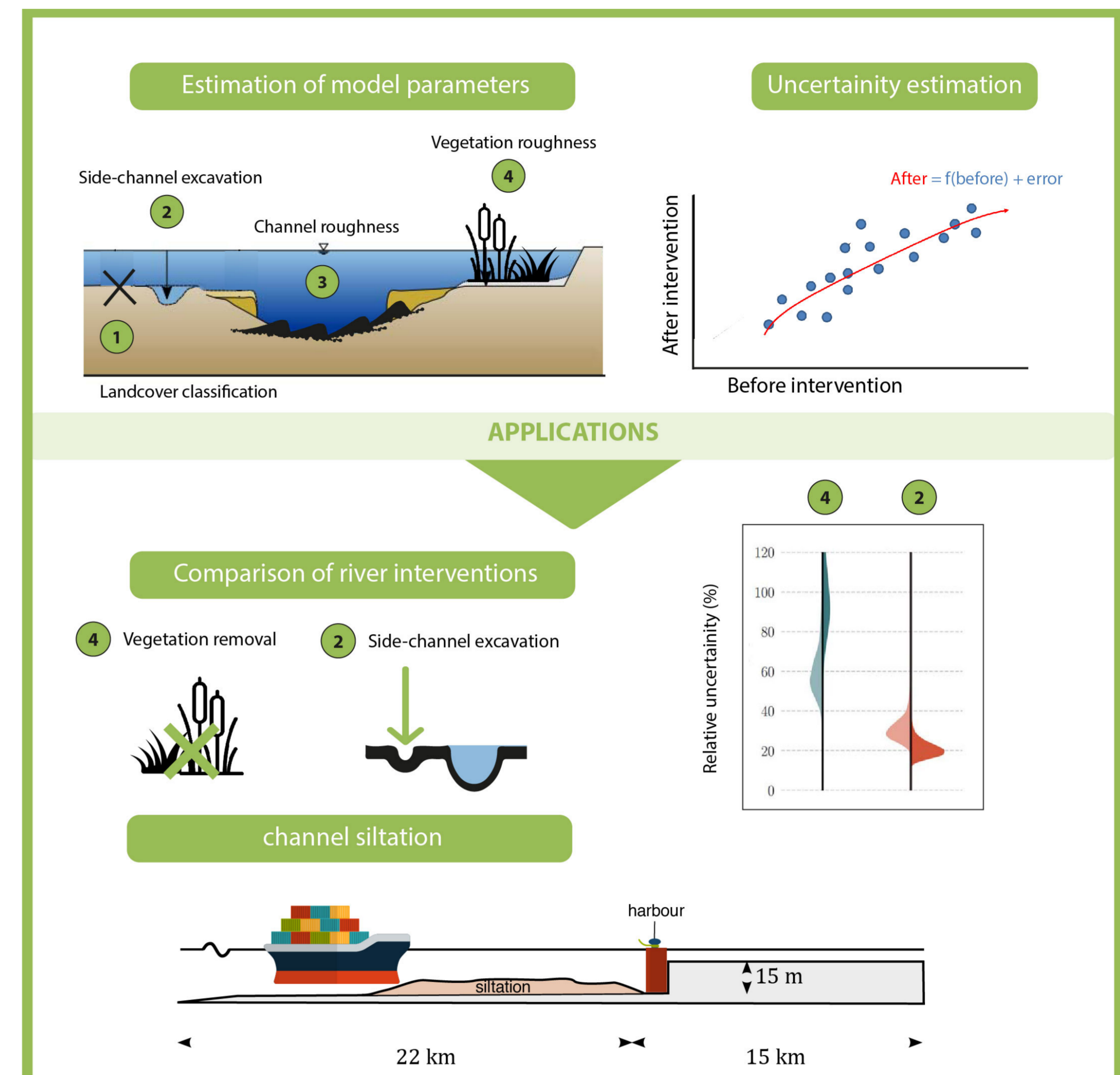
A short overview of our approach and applications. Tip: Ask me about the dotty plot.
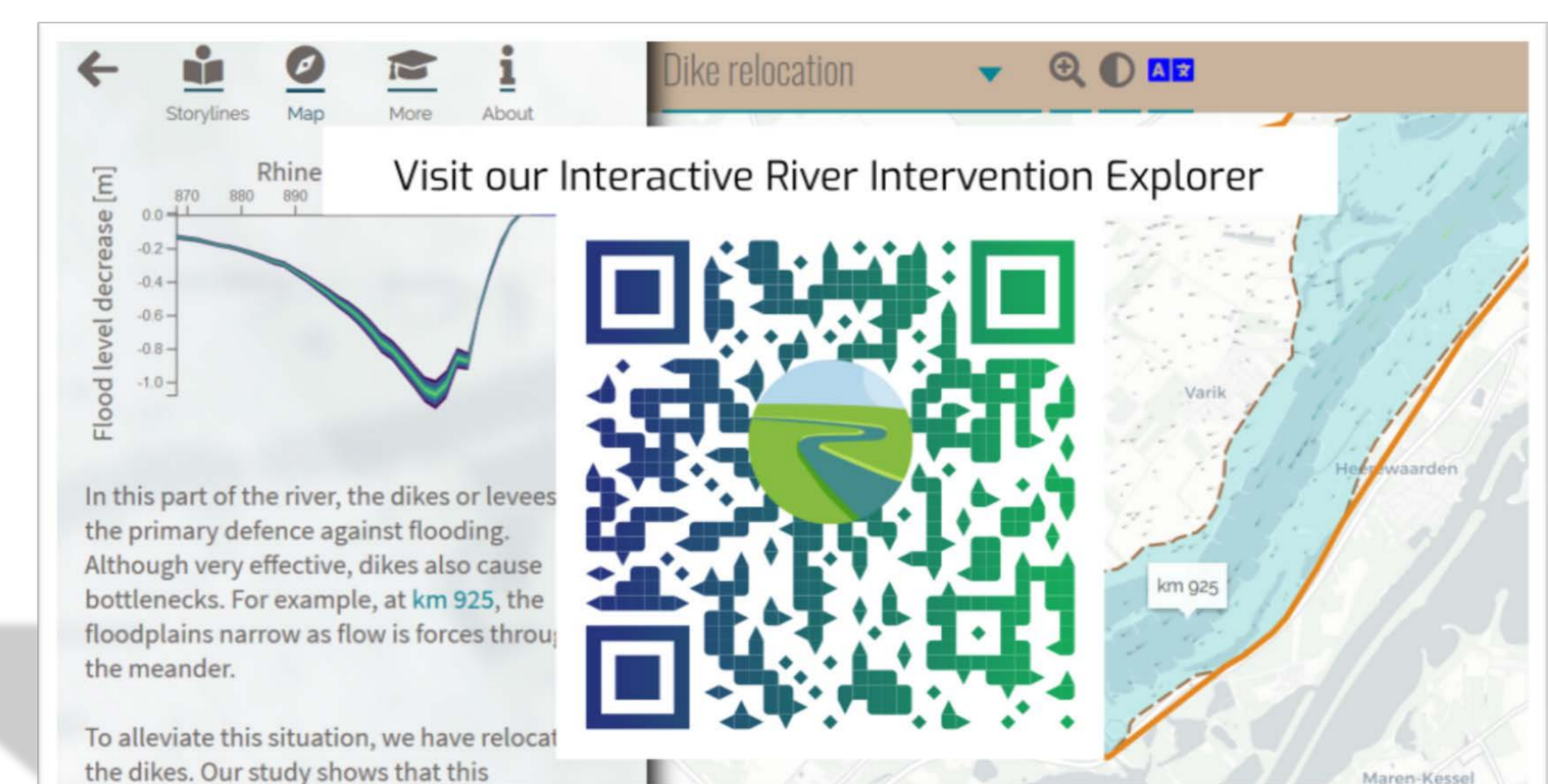
Explore the results of our analysis in this **online river intervention explorer**!
[Scan the QR-code or visit https://kdberends.github.io/rie]

coral
correlated **o**utput **r**egression **a**nalysis

An implementation of our method to quantify uncertainty is under development on Github. It's fully open source and written in Python. Check our the notebooks for a quick tutorial!
Visit: https://github.com/kdberends/coral

Interested?

Email to: k.d.berends@utwente.nl
Explore more in the project description