

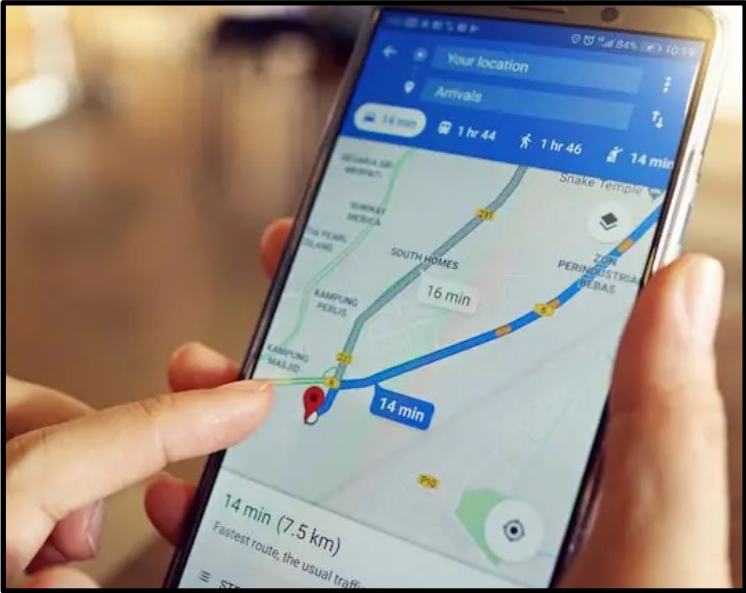
Explainable AI: Why so salty?

Predicting salt intrusion on the Amsterdam-Rhine Canal

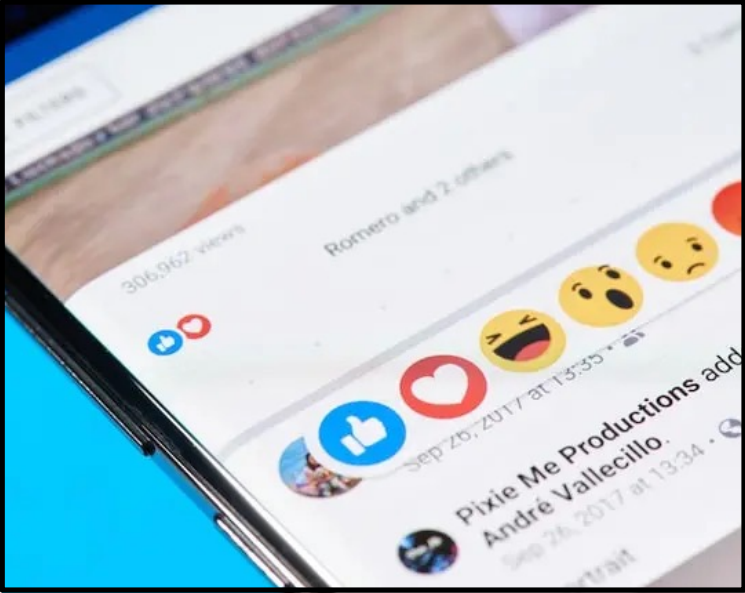


DigiShape Day
27/05/2023

AI is everywhere



Navigation

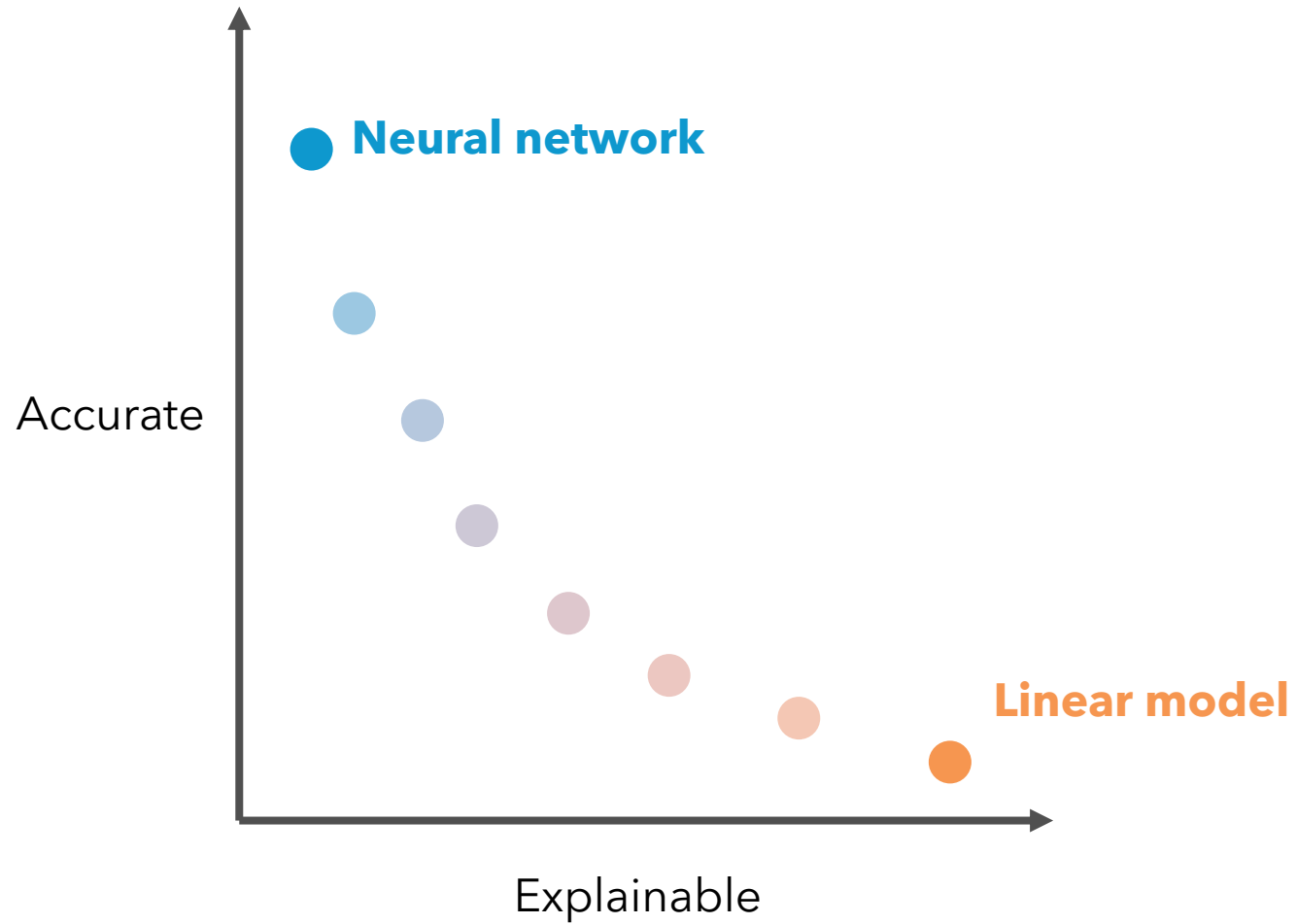


Social media



Stock exchange

AI versus conventional techniques



Case study



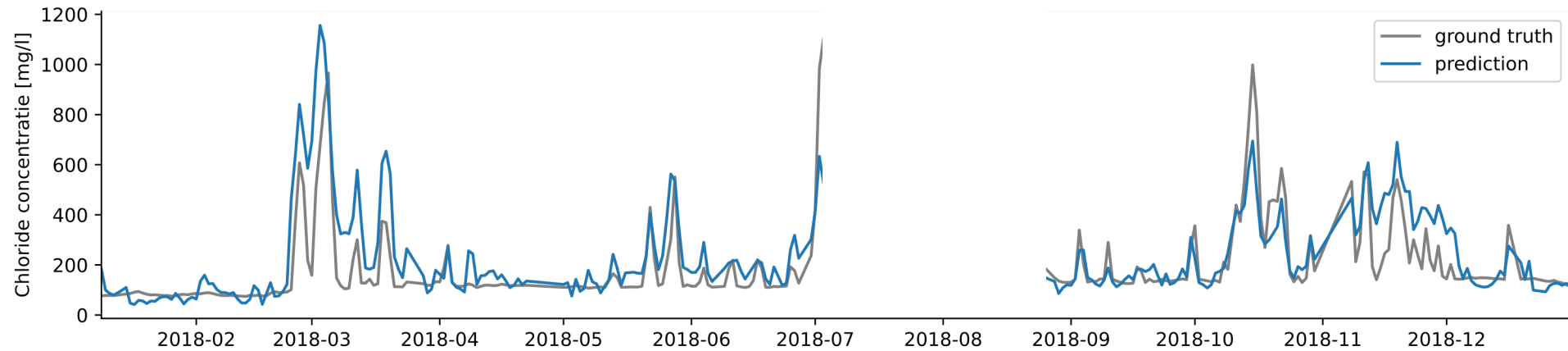
Case study



Neural network

But this is just where it begins ...

Results of NN for 2018



Questions Rijkswaterstaat

- Can we explain what we see in the measurements?
- What happens if we adjust key factors (e.g. more discharge)?
- Can this help us decide when to take which measures to combat salt intrusion?

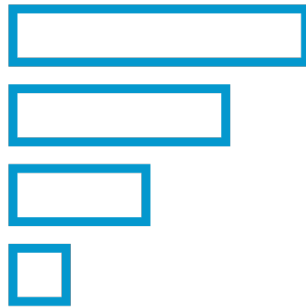
*Example measure: Narrowing channel using **pontons** to increase flow velocities along the channelbed.*



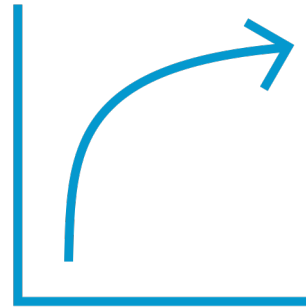
XAI techniques

Explainable AI - methods to increase interpretability of machine learning

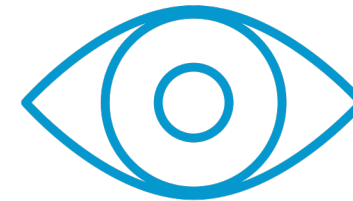
Ranking



Dependence



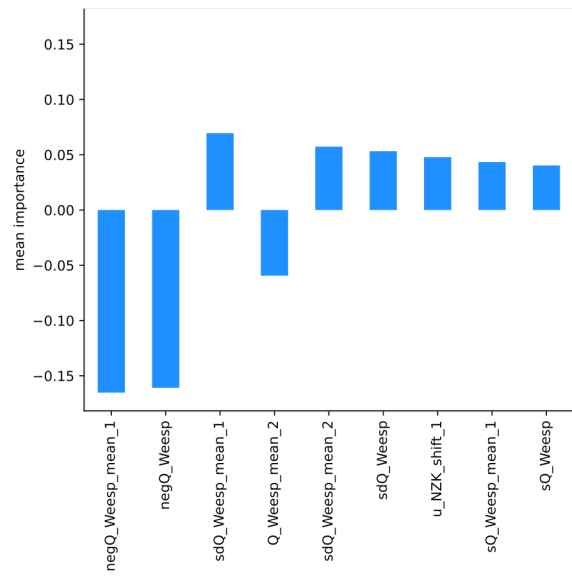
Visualisation



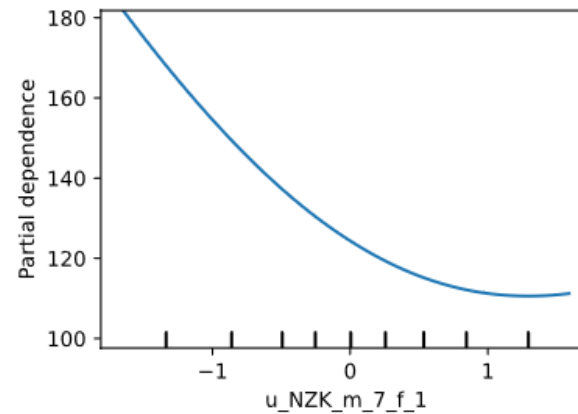
XAI techniques

Explainable AI - methods to increase interpretability of machine learning

Ranking

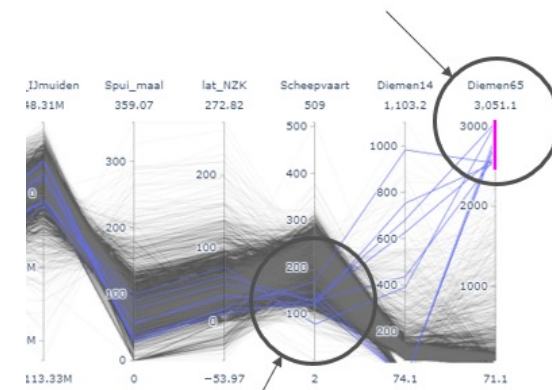


Dependence



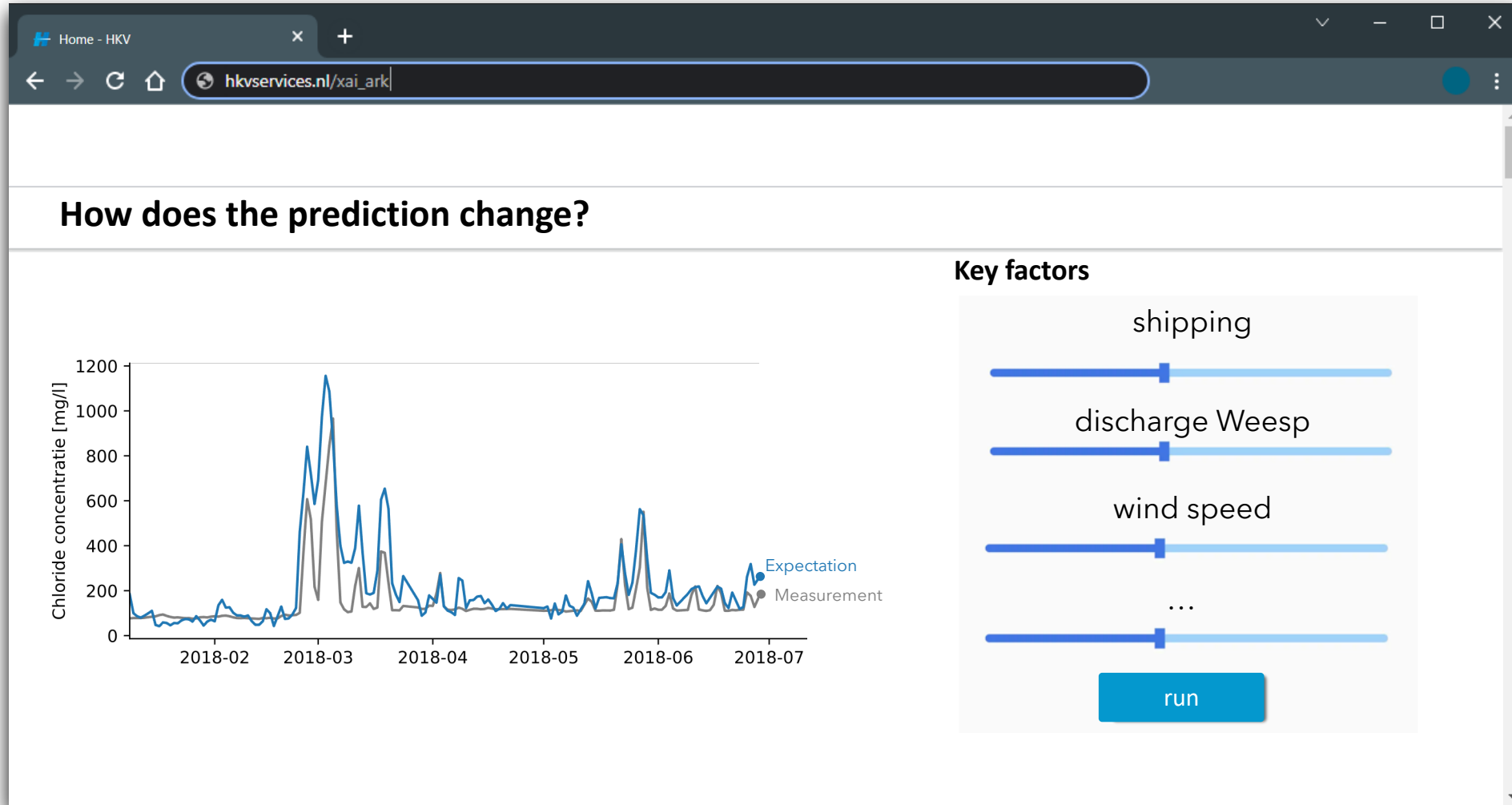
Visualisation

Highest salt concentration in Diemen -6.5 m NAP

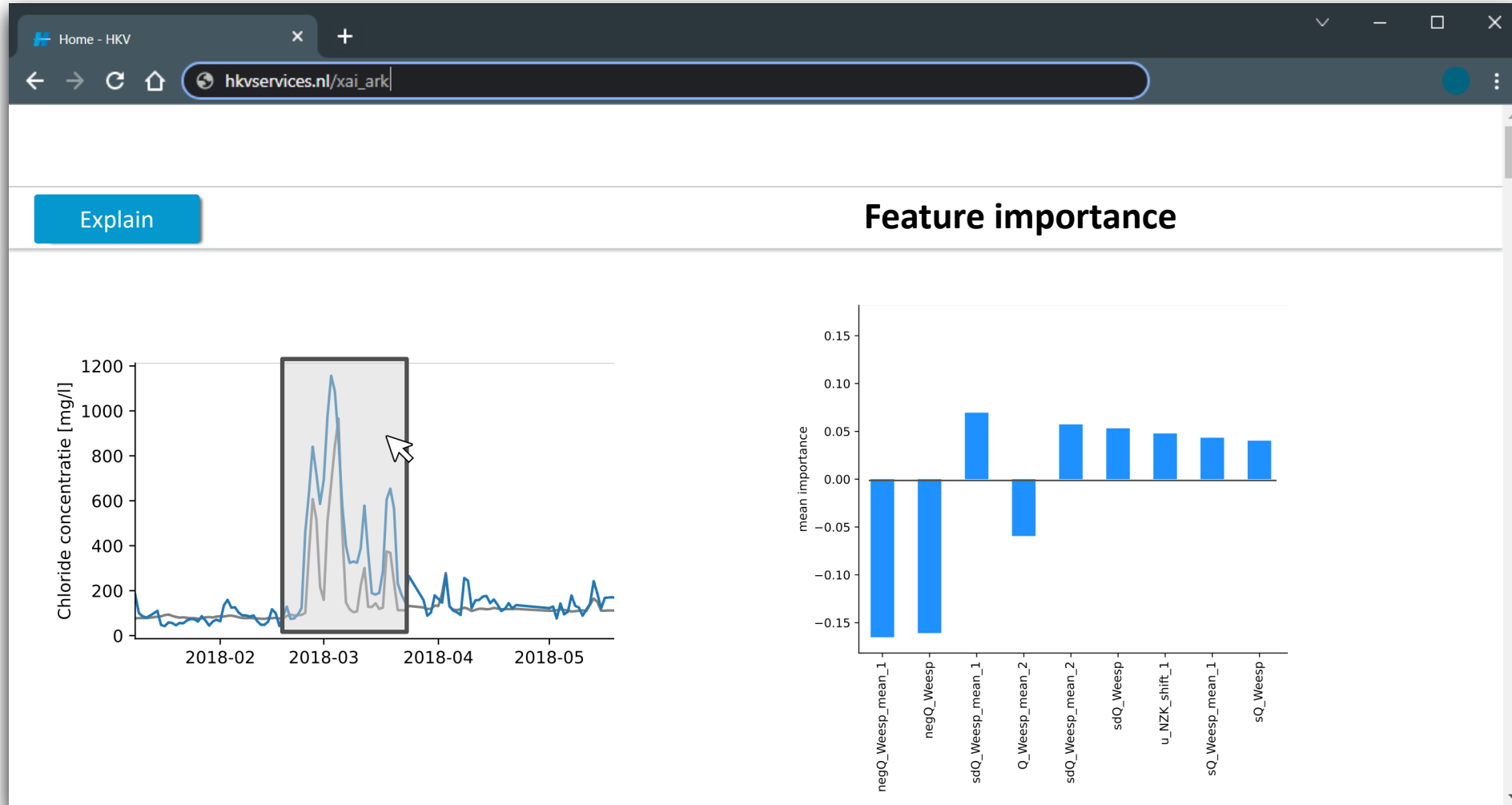


Limited shipping
(reduced mixing)

Tool



Tool



So let us turn on the light in the black box...!

