Rijkswaterstaat
Ministerie van Infrastructuur en Waterstaat

AIWaM – Forecast Assistant

- Jasper Stam (RWS)
- Auke Dijkstra (RWS)

AI Impulsprogramma
voor waterbewegingsmodellen

Dit is een samenwerking van Rijkswaterstaat, Deltares, Koninklijk Nederland Meteorologisch Instituut en DigiShape



”Make expert knowledge more accessible”

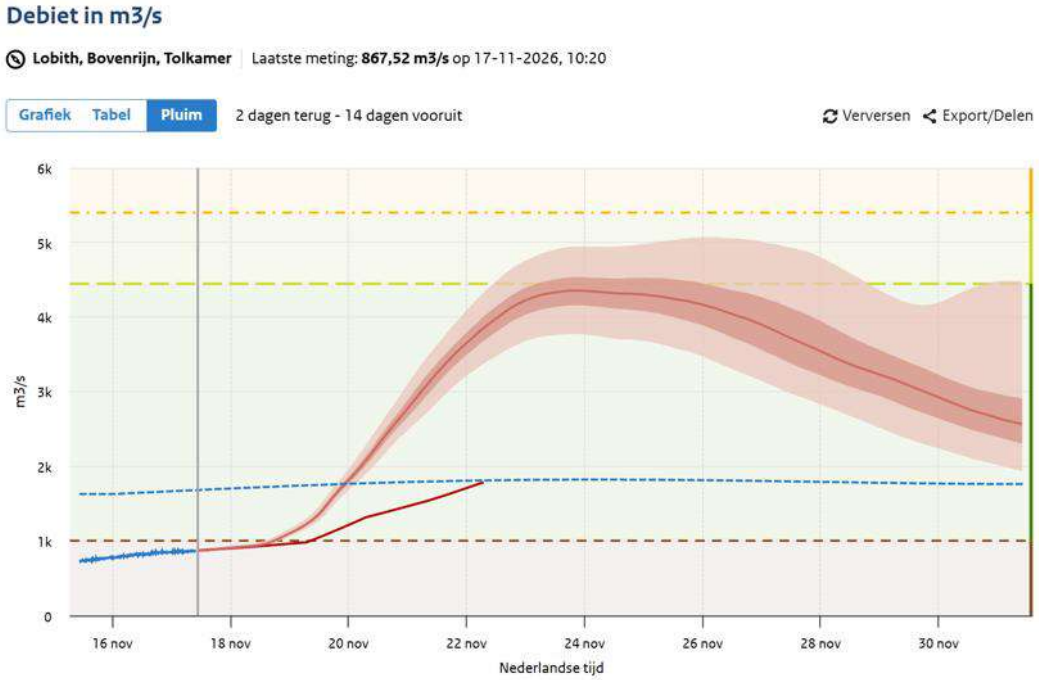
What is forecasting?

- What does a forecaster do?
- Forecasting is **not**

→ "Reading a model output"

→ **Forecasting is**:

  - Model output and expertise (Expert-Machine-Mix) – in Dutch: 3M (Mens Machine Mix).
  - Being critical:
    - Define arguments why a model result is plausible;
    - and why it is not. (**devil's advocate)**

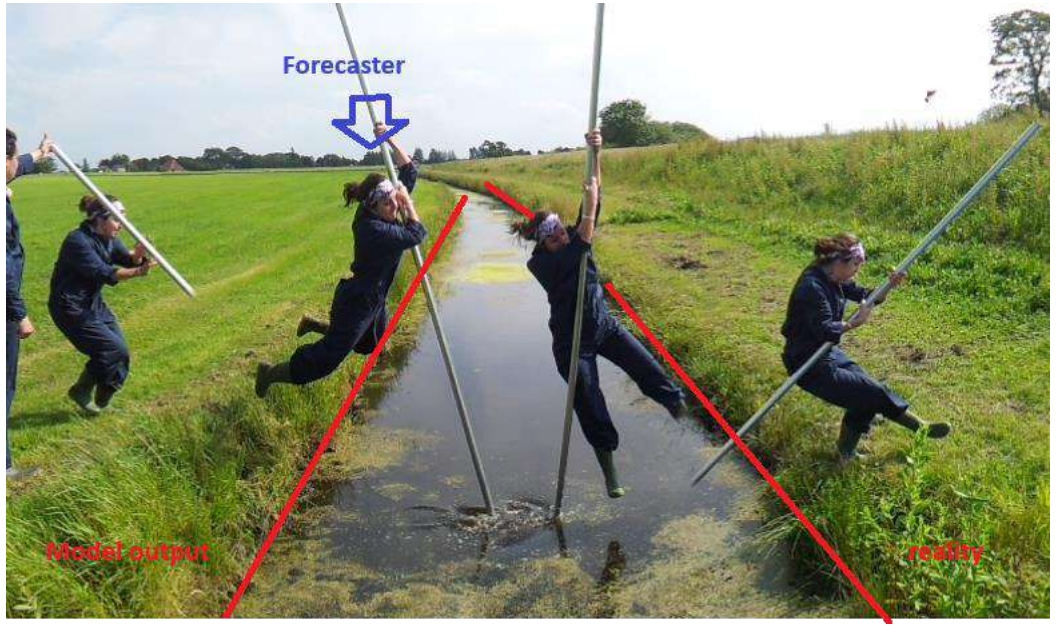






Challenges in forecasting

- A model is a simplification of reality.
- That means:
  - A model is developed for a specific questions
  - Not all processes and aspects are implemented
  - And it is often not "fit for purpose"
  - That makes a low flow forecast challenging if it is calculated by a flood model
- Lot of information
  - Data from different sources
- Models not always reliable
- Different observations
- Mismatch in observations



How can AI play a role to improve forecasting?

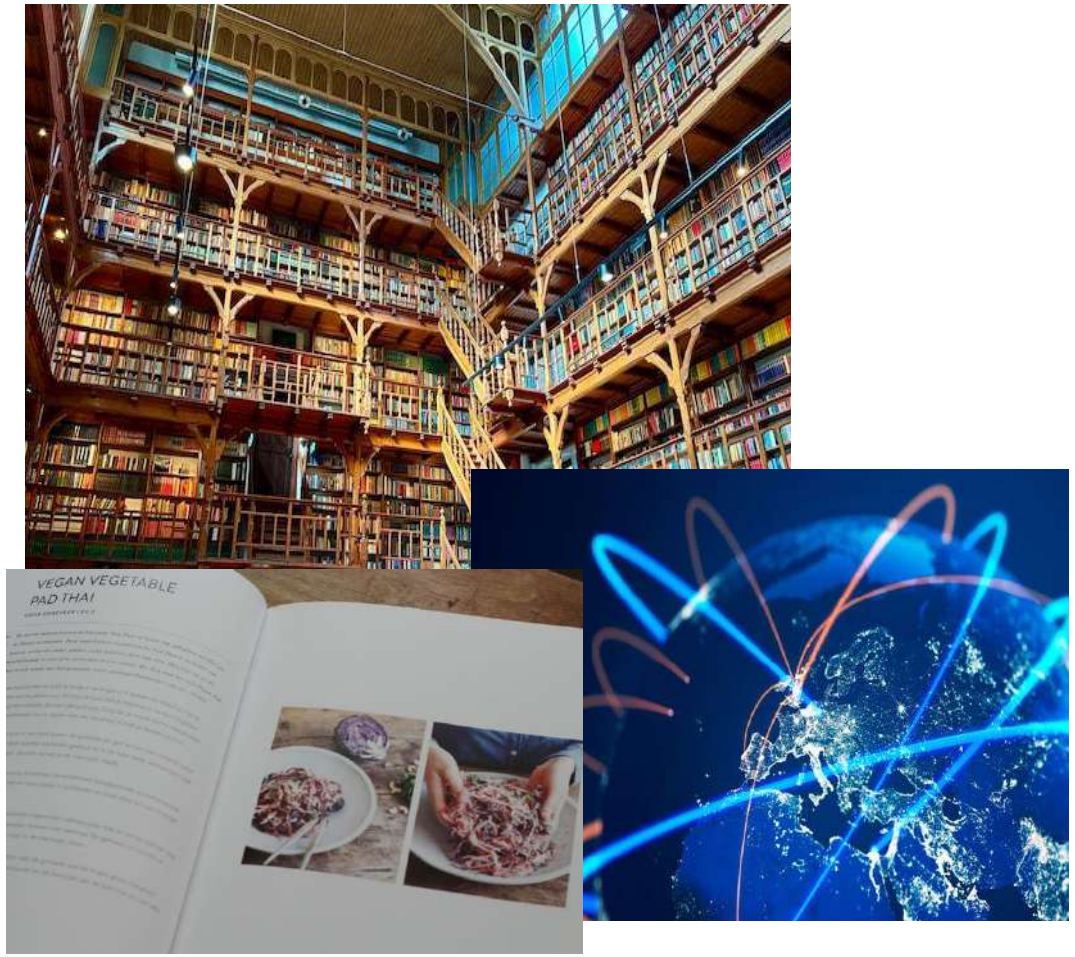
- Use AI to improve the model output
  - But.. This is not the perfect solution
  - There are risks like "black box"
- So, can AI also support the forecasting process itself? And how?

Discussion with the forecasters: how AI can help in the forecasting process?



Forecasting assistant

- An assistant can help a forecaster with:
  - Gaining insight into supportive aspects (e.g. snow melting, precipitation etc) to have an answer on questions like: "what creates the water"
  - Prioritising based on importance
  - Supplemented with additional information
  - Pro and contra arguments



Why a Market Consultation?

We first want more information from the market
before launching a procurement

Questions:

- Technically feasible?
- What techniques are available?
- What experiences has the market?
- What is promising and what is realistic?
- What should we avoid?

Main goal: Gather information



Process


Vision and user needs
Published the market consultation
Response to questions from market
Responses
Presentations
Report / summary of responses
Future process

Process

Responses

Response

- We had roughly 60 clarification questions
- In the end 14 responses
  - **Large variety**
    - > Company domains
    - > Ideas

Process

Responses

Presentations

- 7 minutes + 3 minutes Q&A (from audience)

	Speakers	Company
1	Marten Rozema	Cimsolutions/ Qaitbay
2	Pepijn van Diggelen	Hydrologic
3	Arie de Niet and Hanna Hurenkamp	Witteveen+Bos
4	Kaspar Rothenfusser	ThoughtfulOasis
5	Mattijn van Hoek	HKV
6	Jasvant Gadjiedas and Victor van den Broek	Databricks

Where do we go from here?

- Learn from today's presentations
- Analyse all responses and publish summary
- Lessons learned
- Refine our vision
- Consider future trajectory

AI Impulsporgramma voor waterbewegingsmodellen

Dit is een samenwerking van Rijkswaterstaat, Deltares, Koninklijk Nederland Meteorologisch Instituut en DigiShape

Deltares

Koninklijk Nederlands Meteorologisch Instituut
Ministerie van Infrastructuur en Waterstaat

DIGISHAPE
DATASCIENCE FOR DELTAS