Deltares

Hackathon Moonshot 5 (resilient infrastructure)

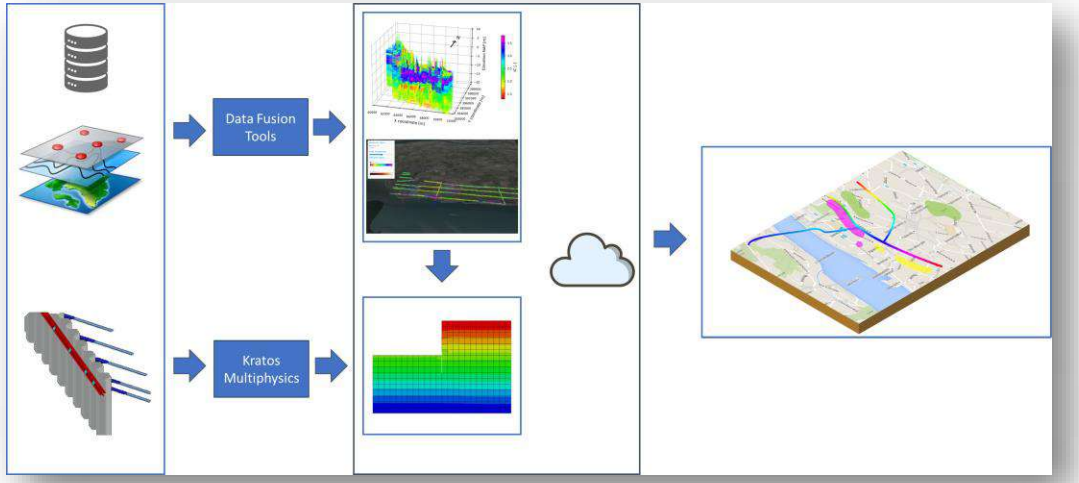
Quay walls workflow and hinterland congestion

Summary

- Participants: Port of Rotterdam, TU Delft, Rijkswaterstaat, Geodan, Victor.ai, Deltares
- Organized in the context of: Moonshot + Enabling Technologies
- Duration: 3 days
- Location: Deltares ID lab

Two tracks

Quay walls



Hinterland

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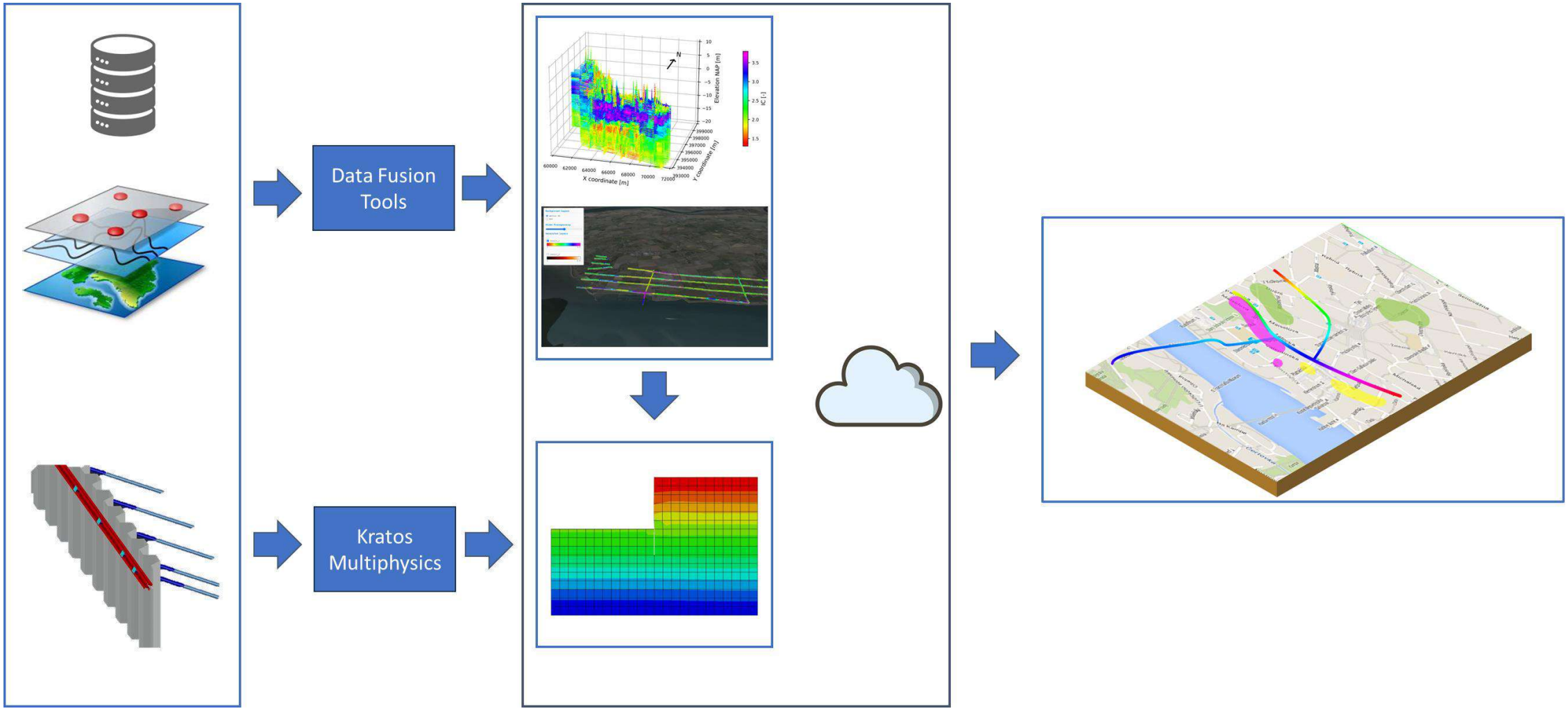
Quay walls

Goal of the hackathon



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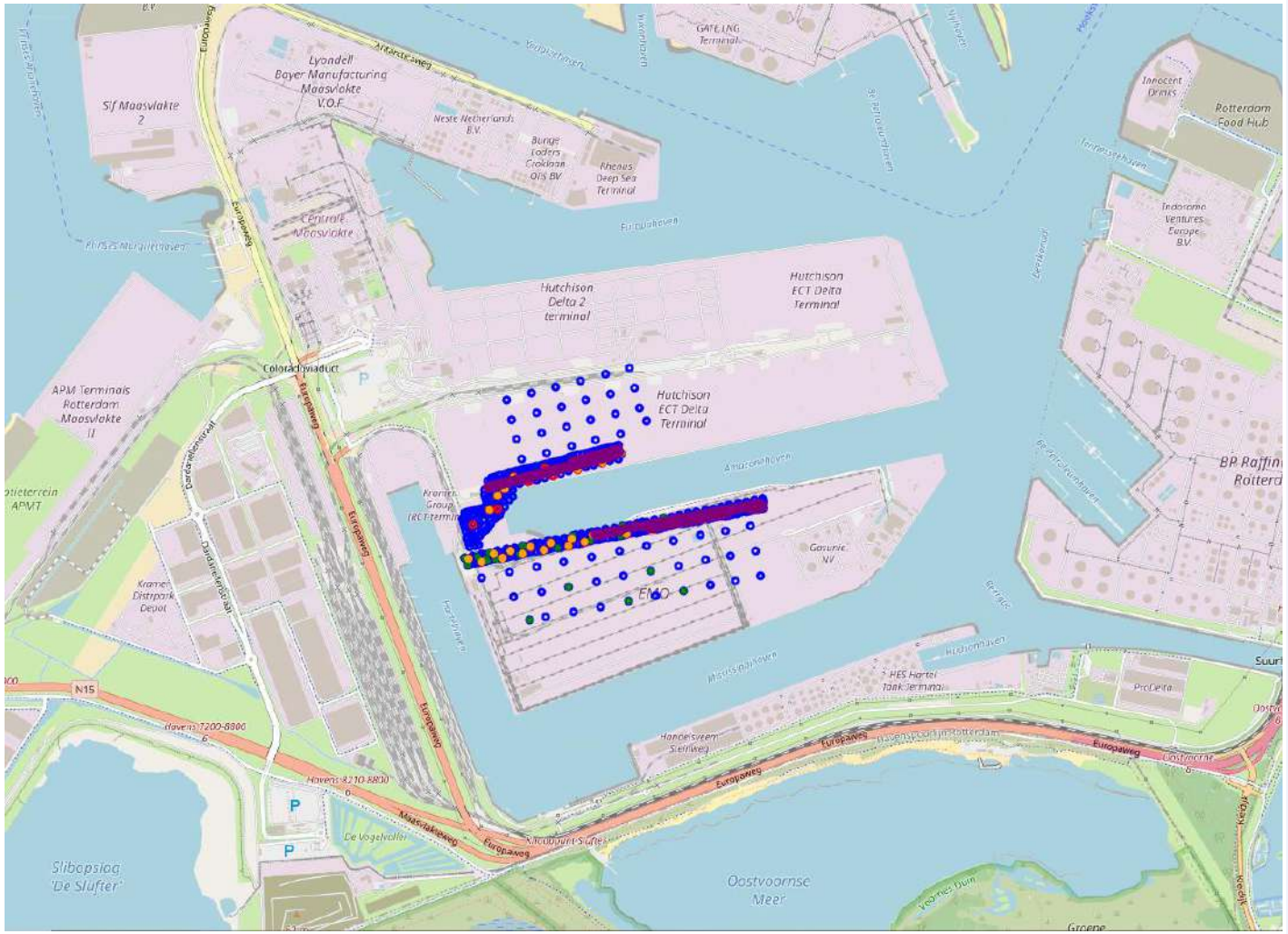
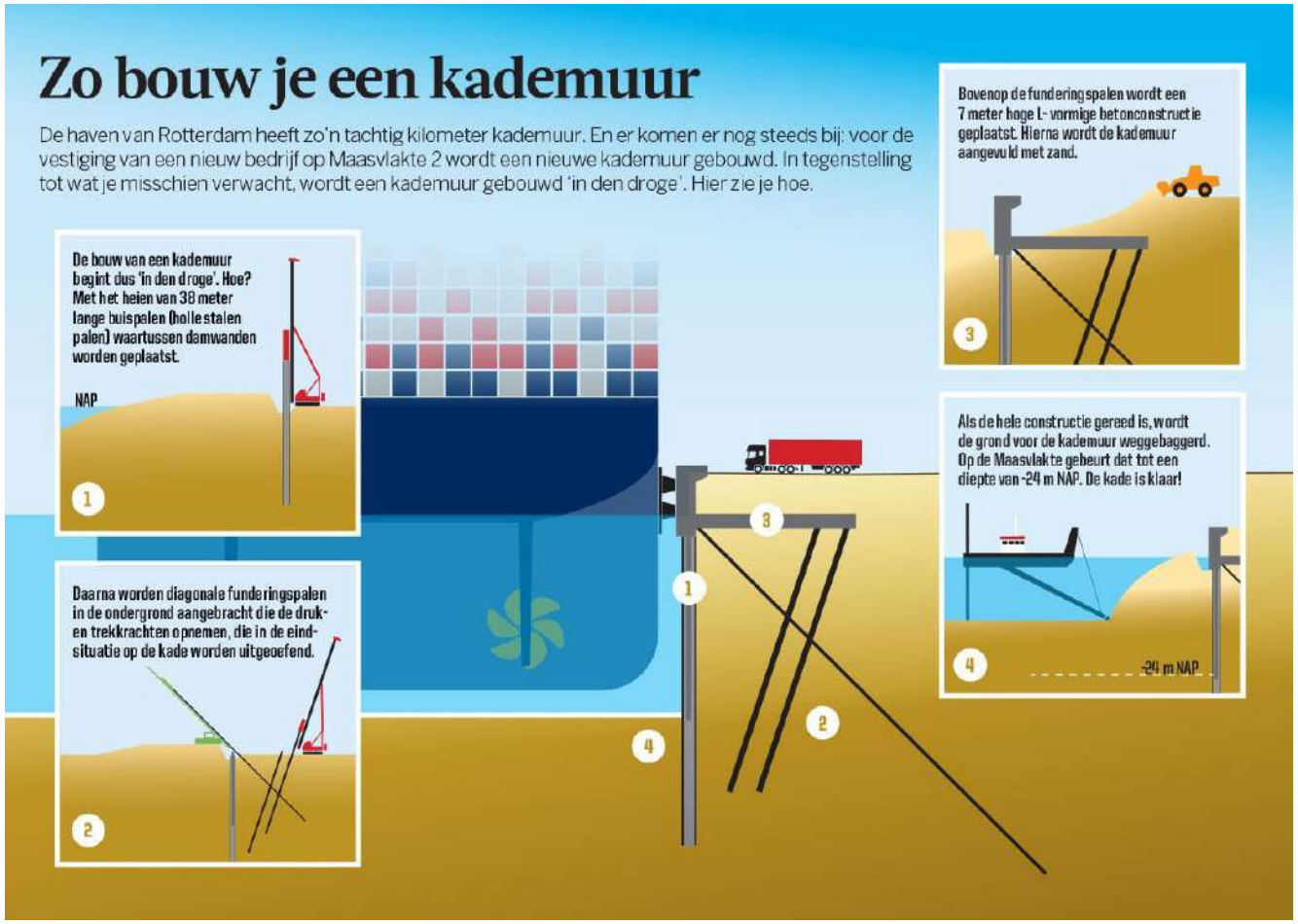
Datasets

SQL data base
Data anonymized
- Random noise
- Different location

Datasets
- CPT
- Boreholes
- Lab tests
- Sheet pile data
  - Type
  - Installation details



Quay wall strength estimates



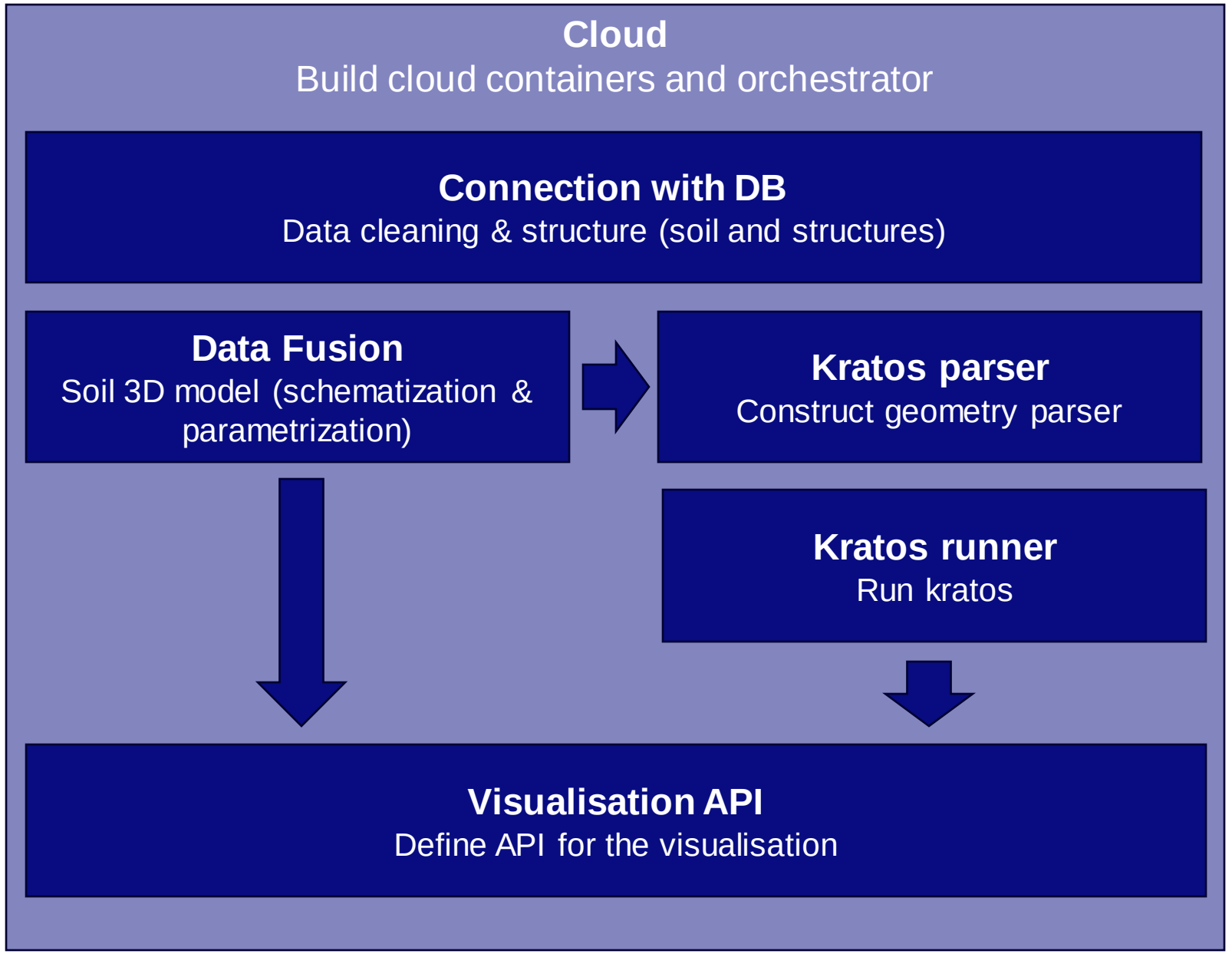
Workflow

Team 1: Connection with DB

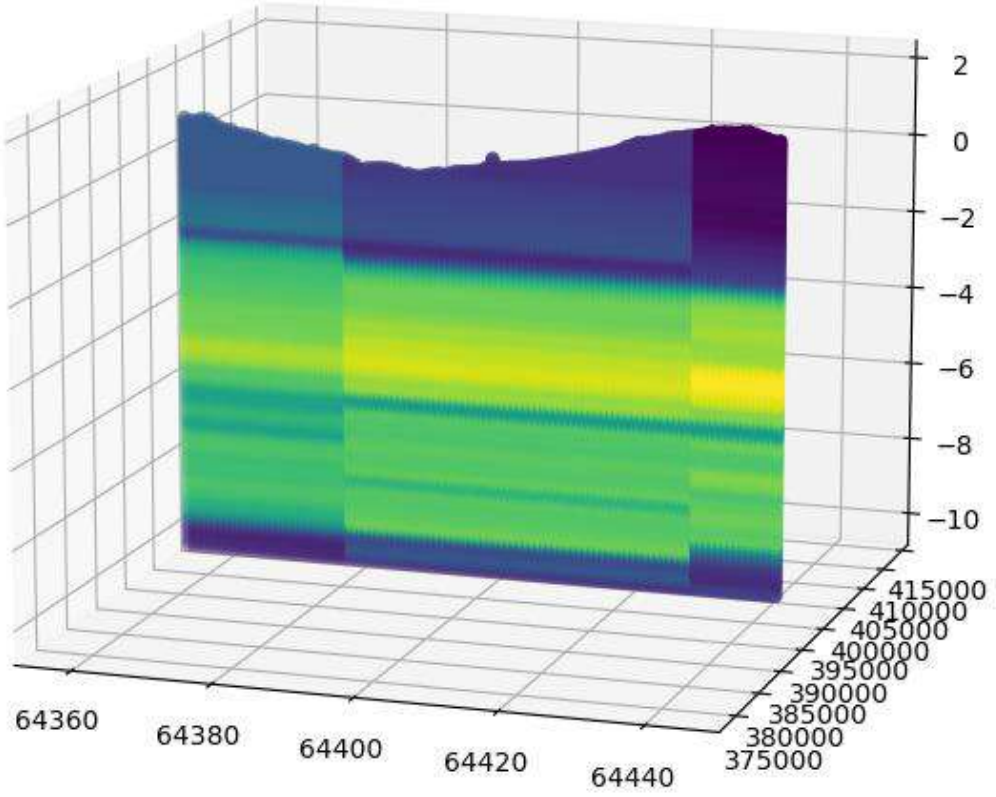
Team 2: Start Data Fusion

Team 3: Start Kratos parser

Team 4: Start visualization



Results


2
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−2
−4
−6
−8
−10
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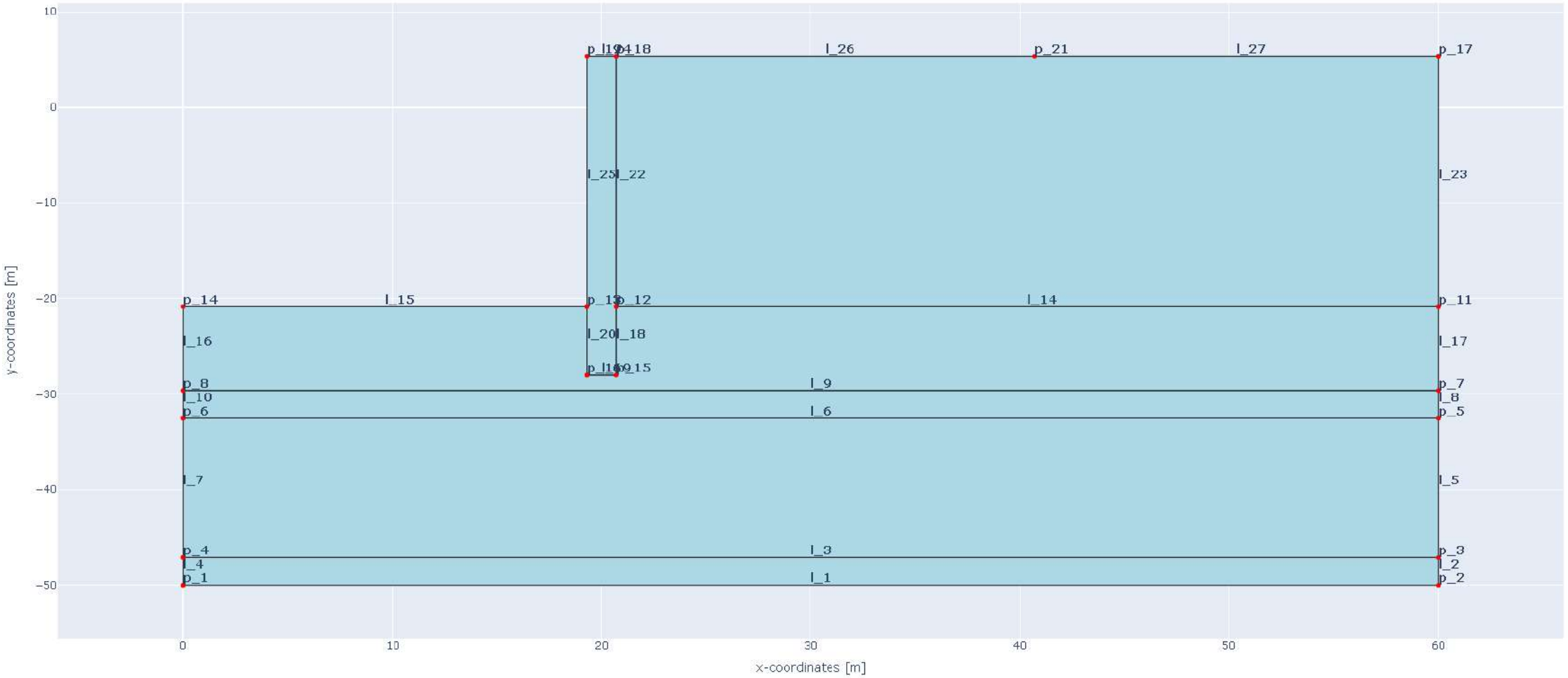
Results



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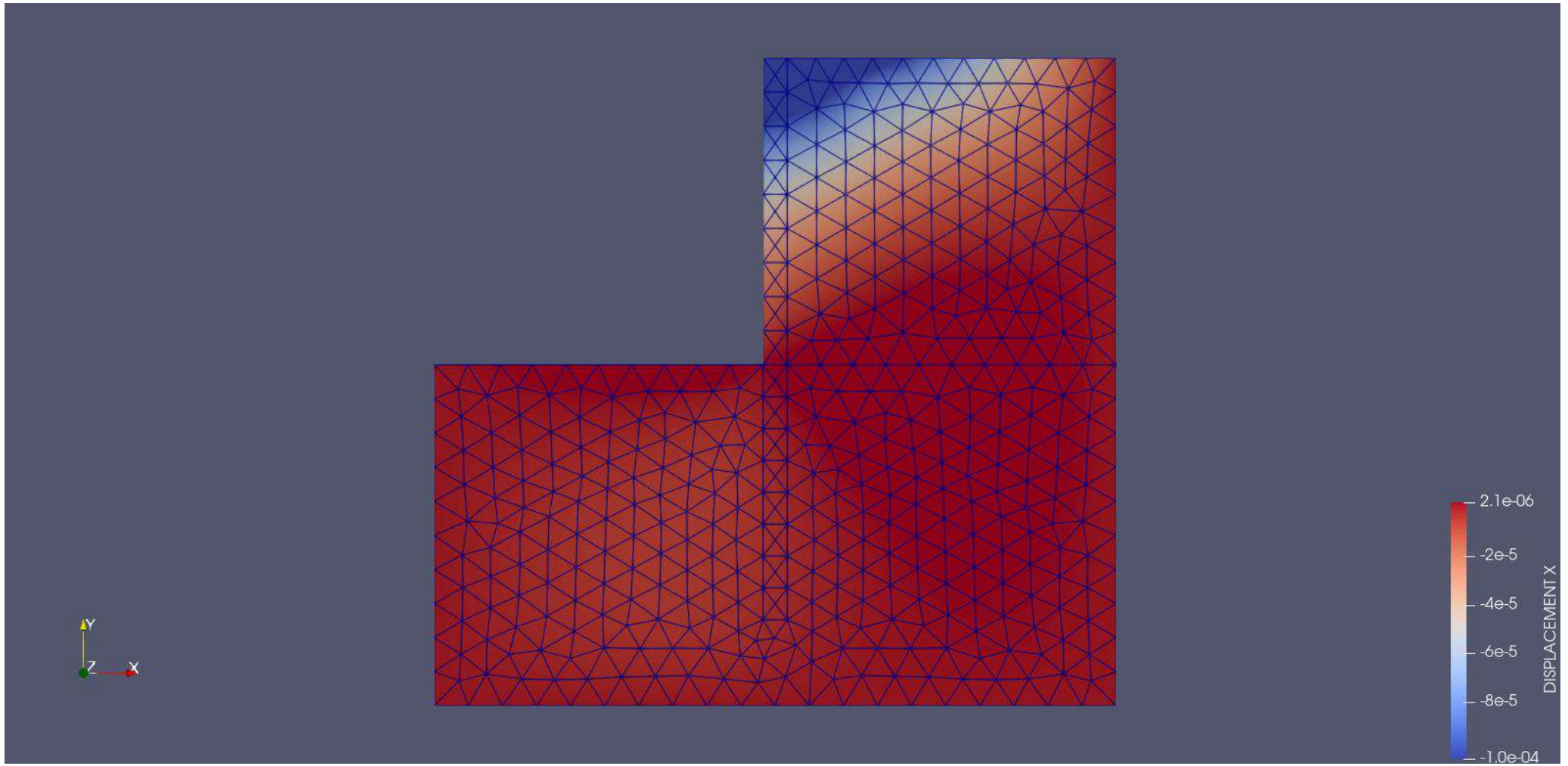
Results



Steps forward

Open challenges

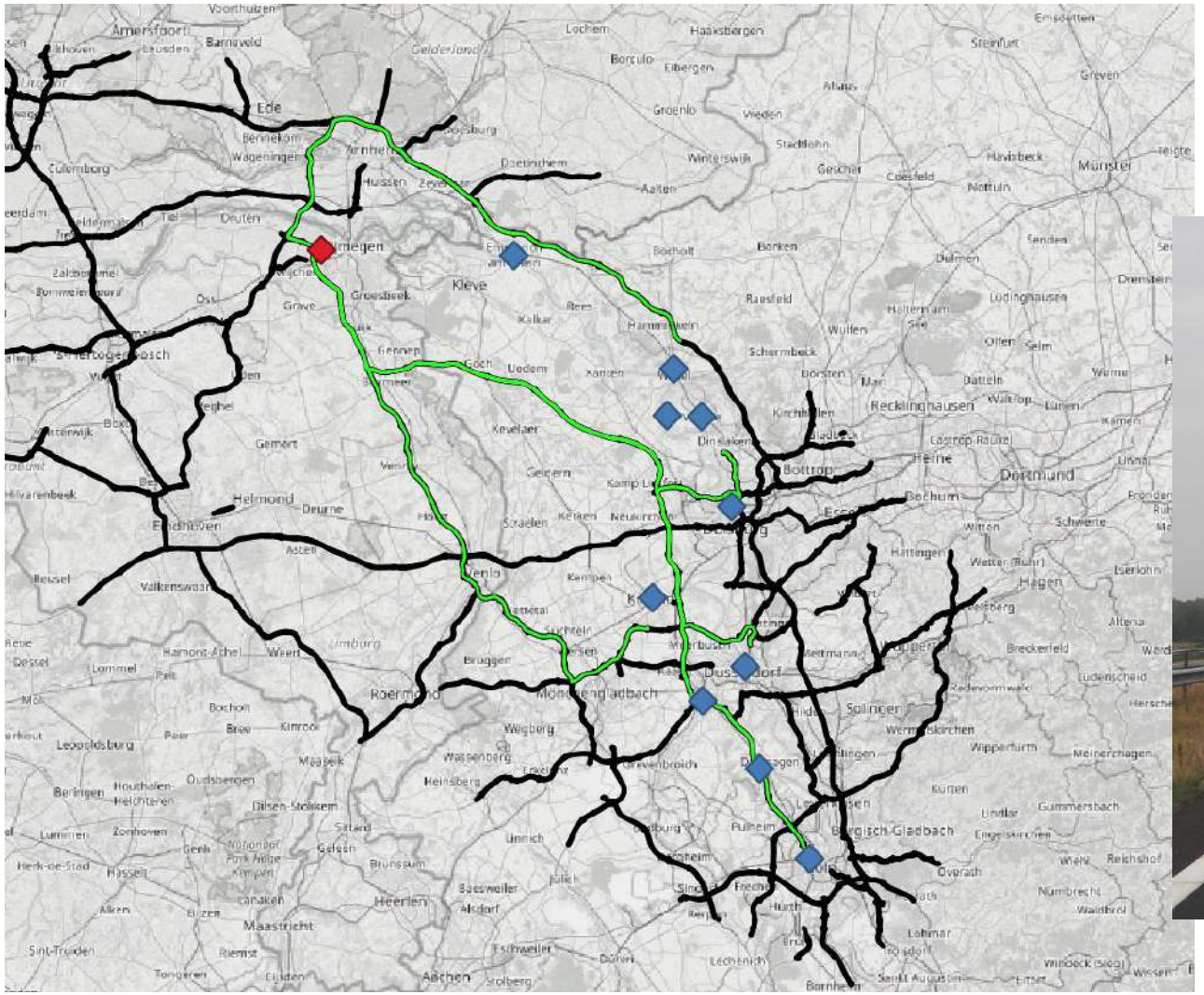
- Integration in the cloud
- Incorporation of GANs for subsoil schematisations
- Refinements on the numerical model

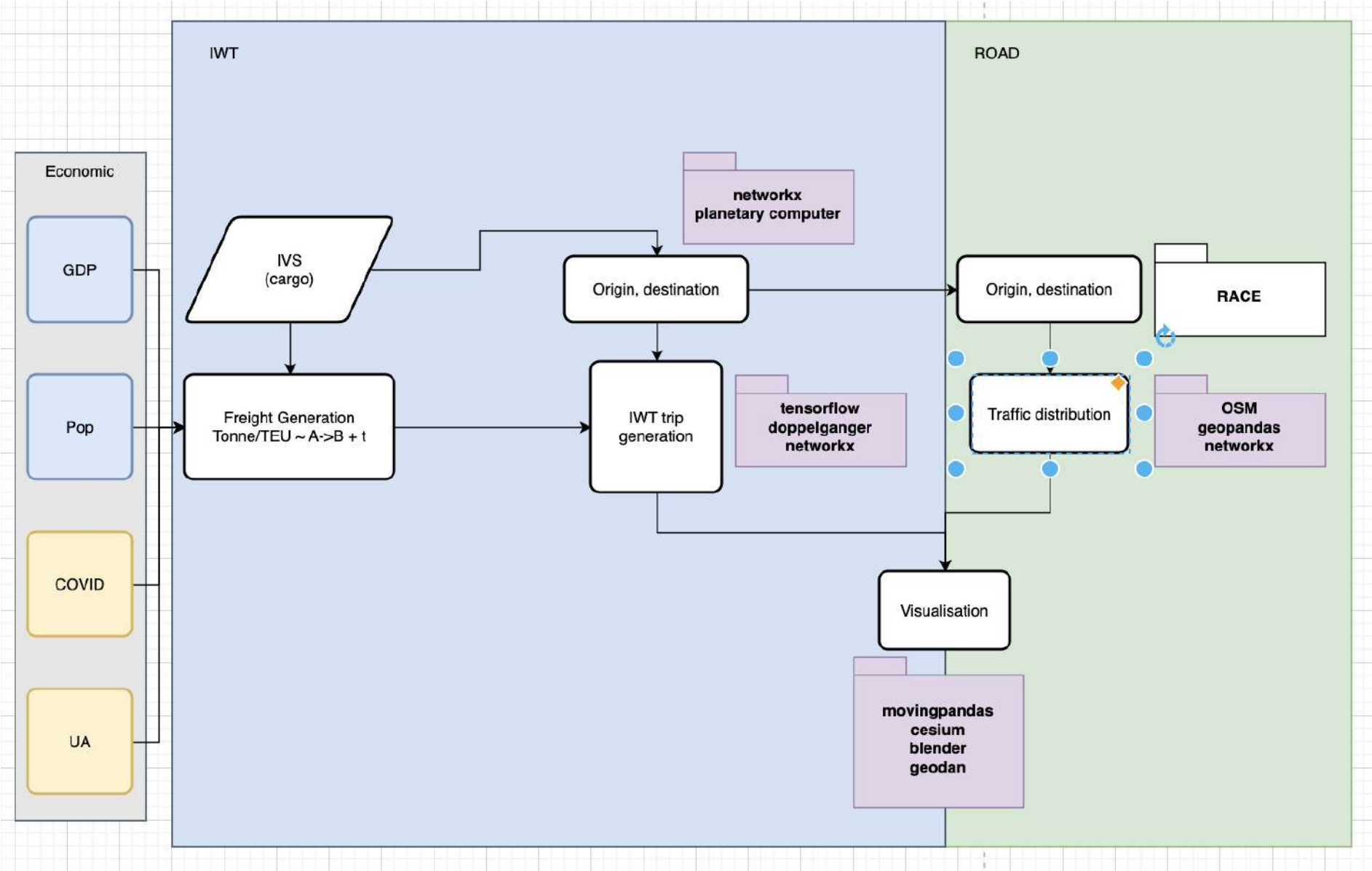
Reflections

- Good energy
- Lots of progress
- Too ambitious

Hinterland

Goal: test critical infrastructure





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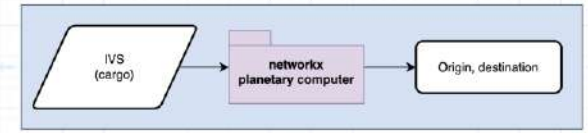
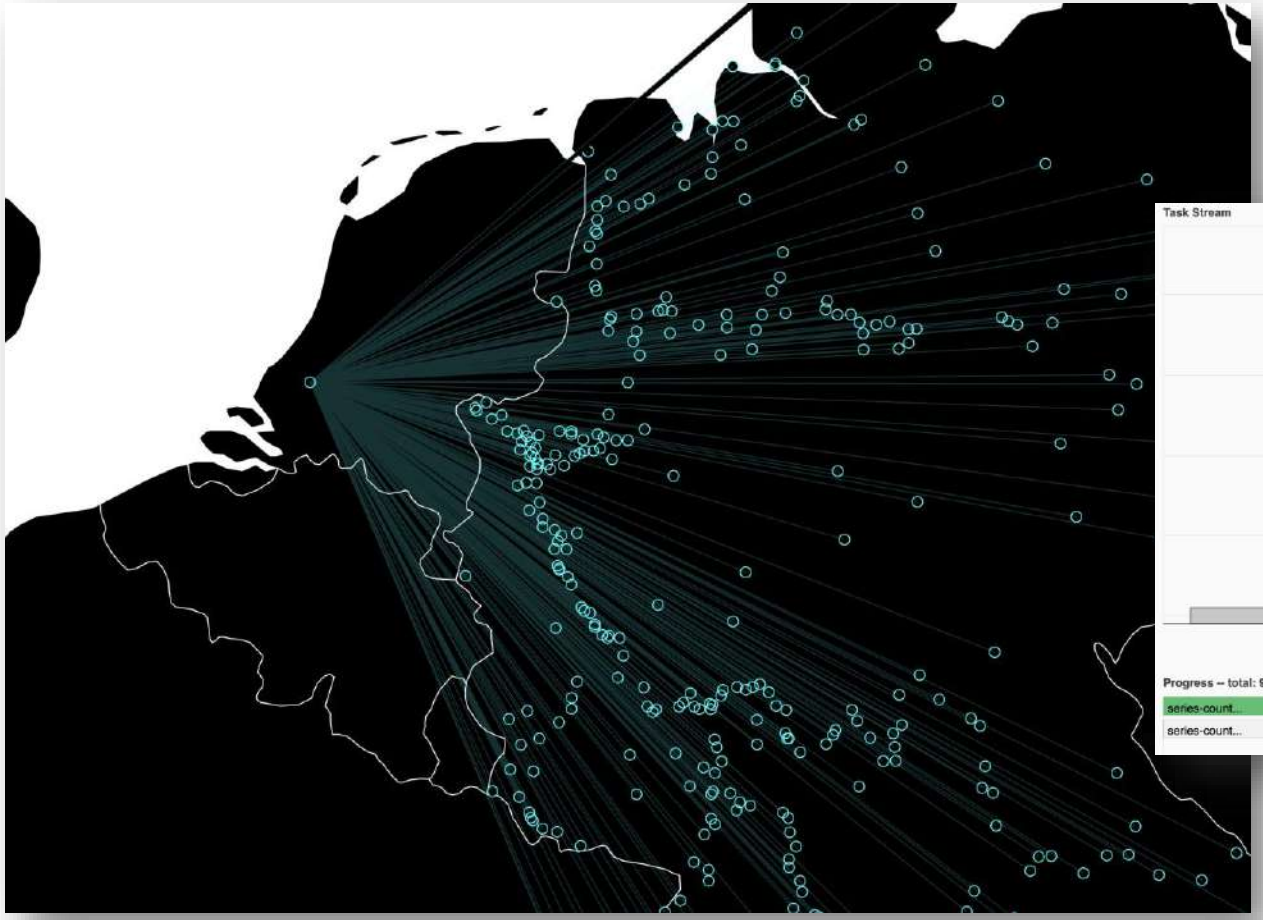
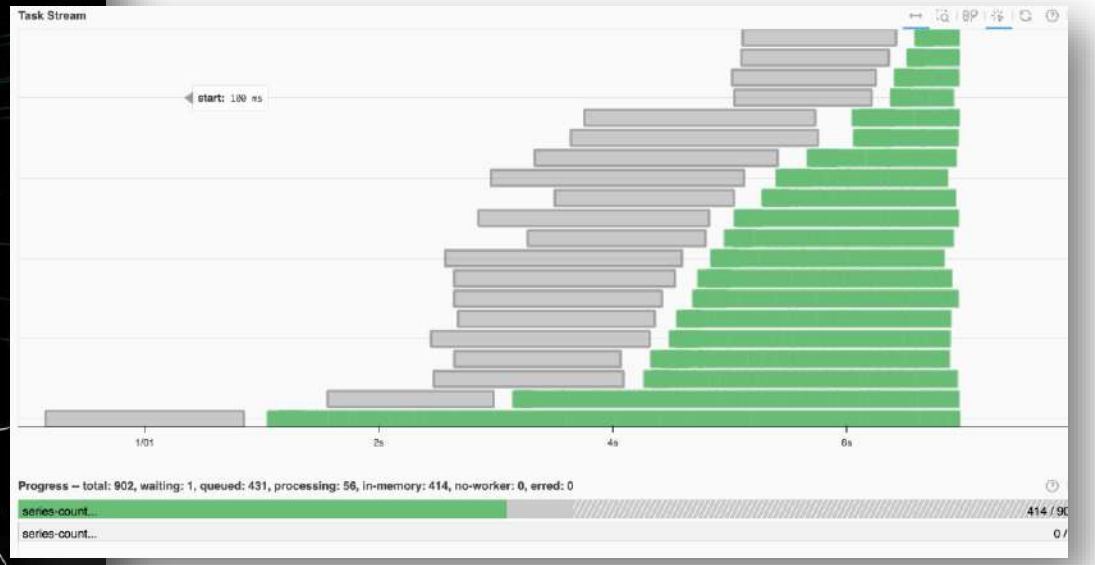
Technological innovations

Trip generation







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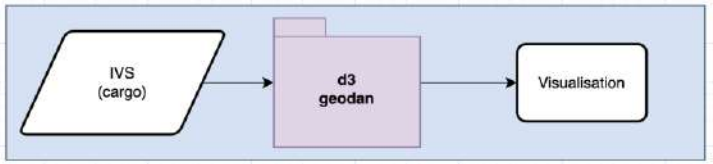
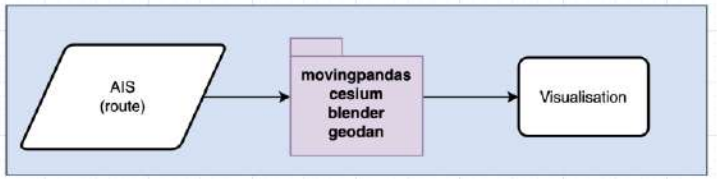
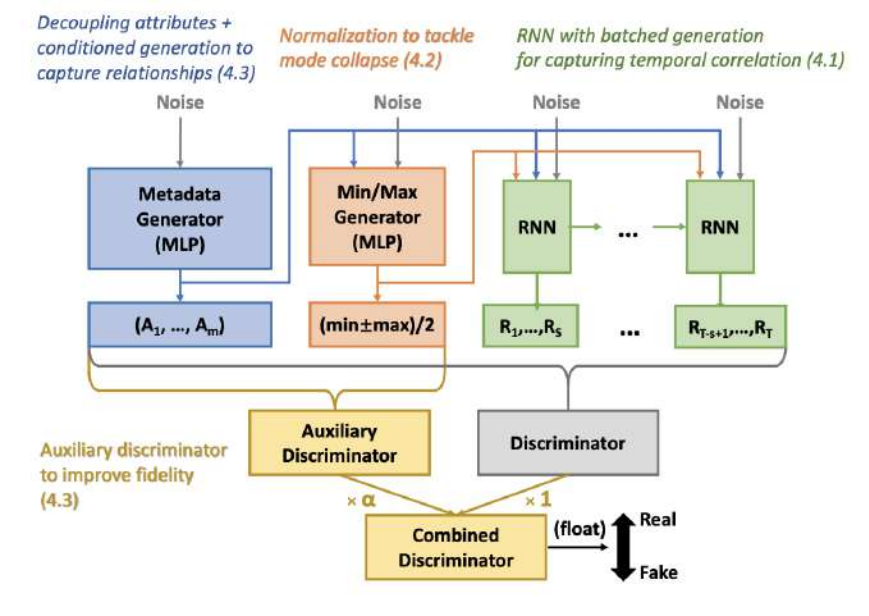
Visualizing OD matrix



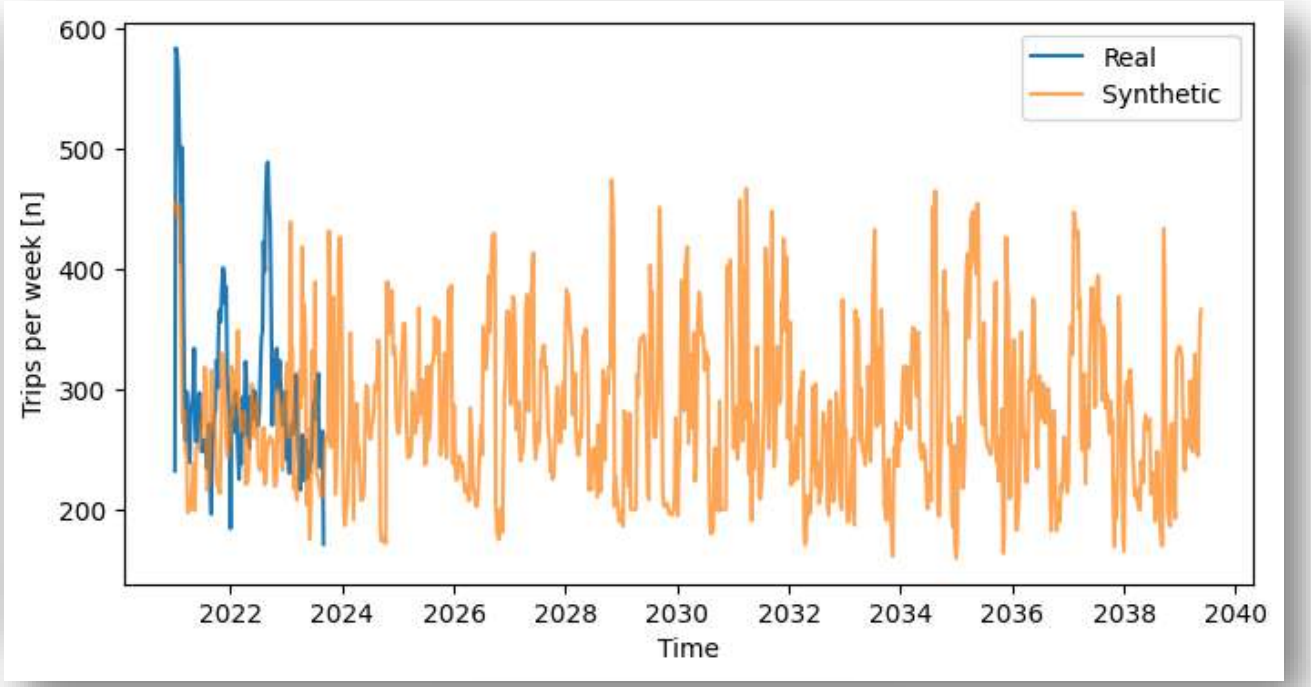
Visualising AIS tracks in Digital Twins

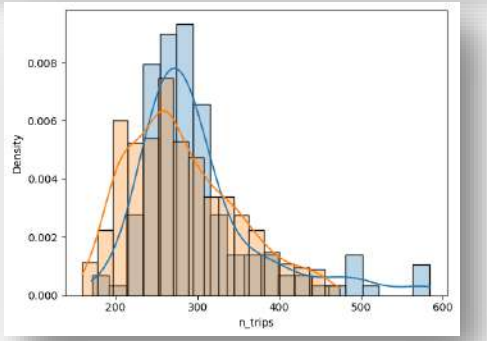


Generating future transport: GAN



Lin (2020), DoppelGANger





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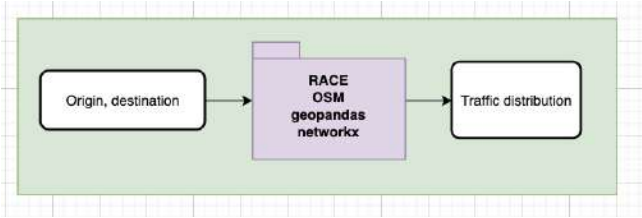
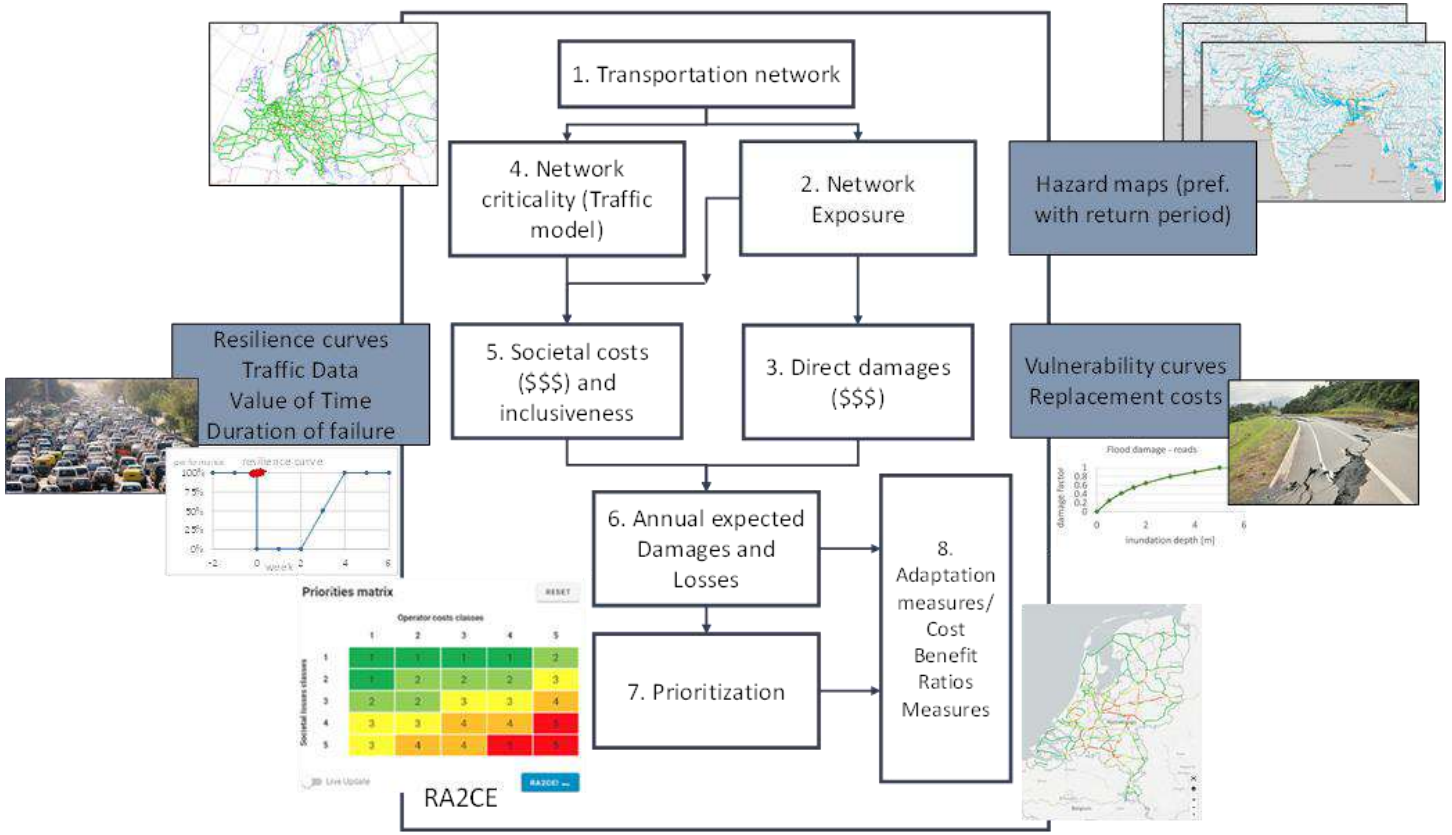
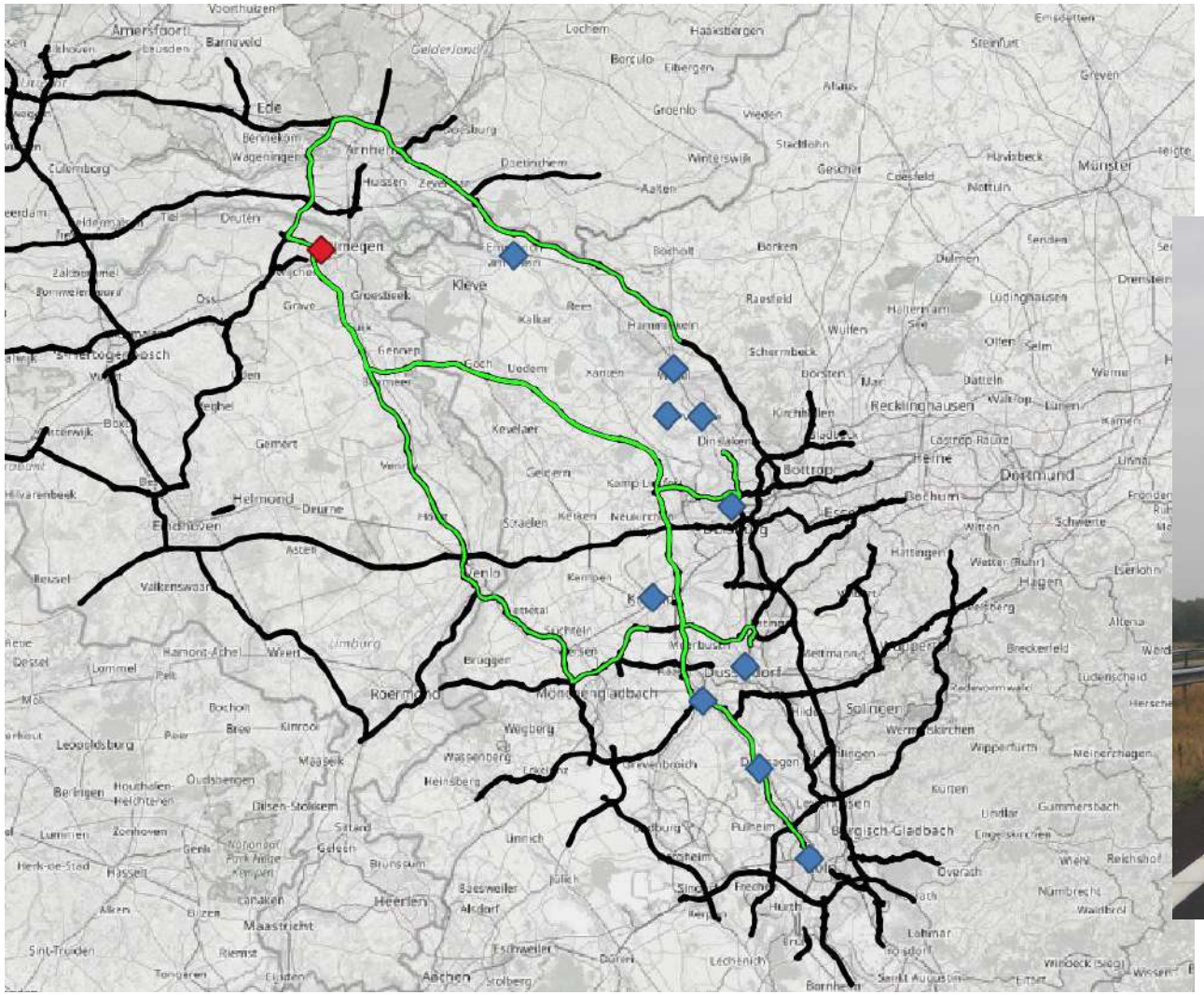
Road RA2CE





- Needed developments
  - Traffic distribution
  - Capacity induced

Ideal shortest routes for containers



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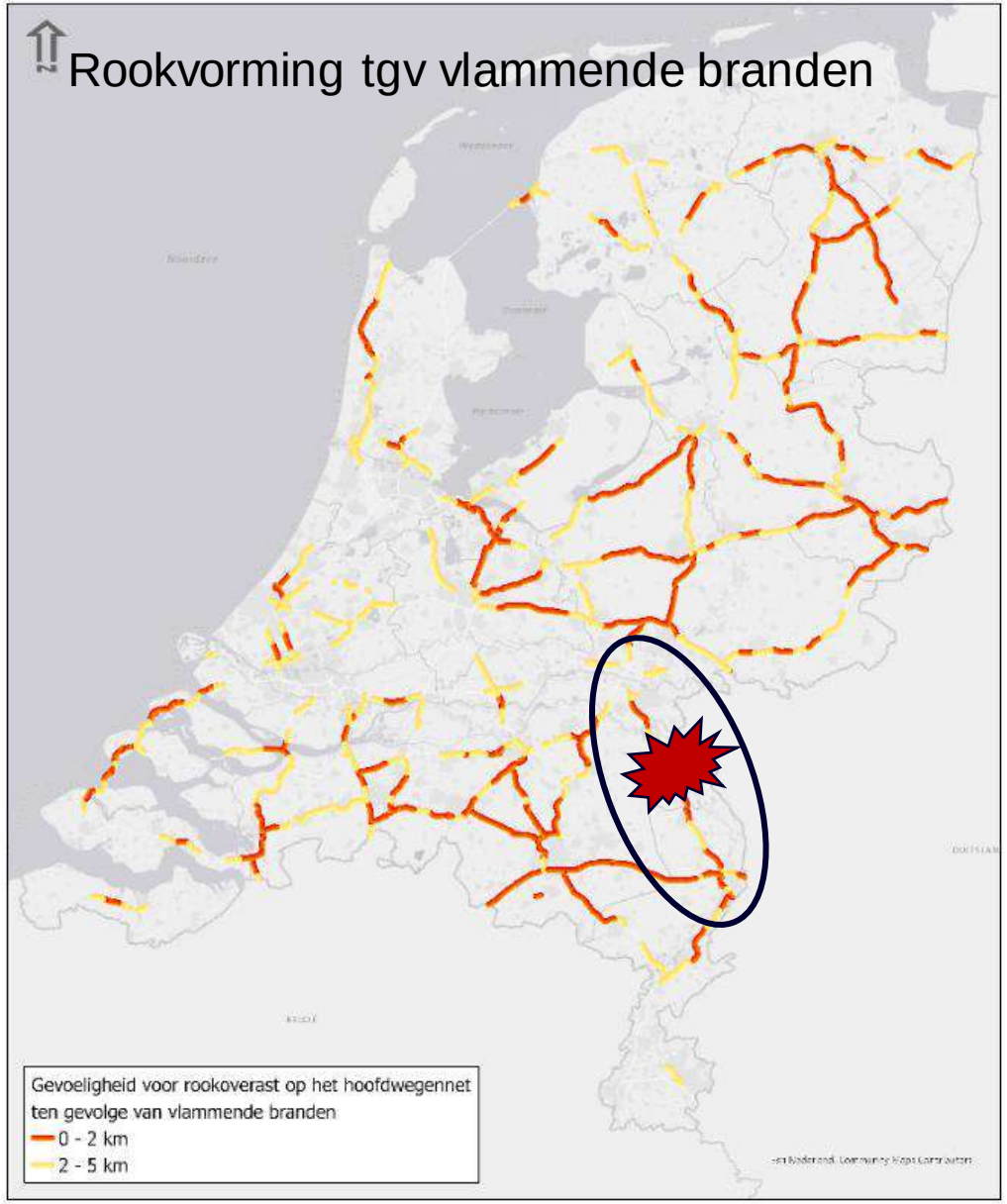
Resilience of road network



Findings

Steps forward

Open challenges (quay walls)

- Integration in the cloud
- Incorporation of GANs for subsoil schematisations
- Refinements on the numerical model

Hinterland

- Hubs & Spokes, Alternative routes (trans2)
- Trip generator -> PhD (RWS)

Reflections

- Good energy
- Productive cooperation
- Lots of progress
- We found the edge of current capabilities