

Two data-driven approaches for predicting bed levels in 3D for the Waal River

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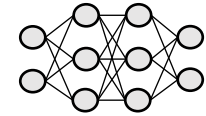
Context

- *Problem Addressed: River dunes can disrupt navigation and sometimes require costly dredging interventions.*
- Predicting bed levels two weeks ahead to improve dredging strategies

Method



(DMM) Dune migration model



(ML) Machine learning model

Results

DMM performs better than ML at predicting bed levels
DMM predicts horizontal movements relatively well
Bed level error in dune peaks ~30cm.
Future studies could include vertical displacements in DMM

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