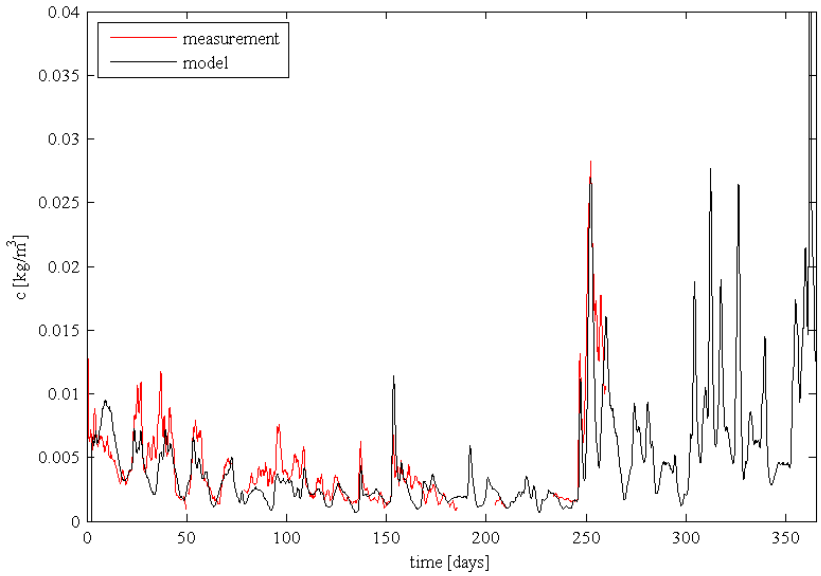
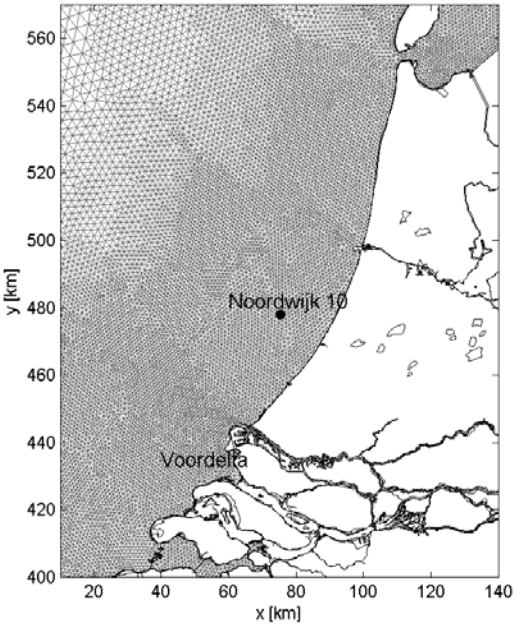


Concentration of fine sediments at Noordwijk 10 for 2001



Part of the computational grid and measurement location

Effect of sand mining Maasvlakte II on fine sediments

Background
The presence of fine sediment (<63µm) in the Dutch coastal zone is of major importance for transparency of the seawater, therefore on the primary production and on its turn for the ecological health of this area. Proper modelling of the concentration of fine sediment is therefore of utmost importance for the environmental impact assessment of sand mining activities in the Dutch coastal zone for the land reclamation Maasvlakte II.

Model set-up and calibration
In this project, first a hydrodynamic model of the Southern North Sea was build and calibrated. Secondly, a new algorithm has been developed (in co-operation with Delft Hydraulics and Royal Haskoning) to simulate the transport of fine sediments, including the effect of burying of fines in the seabed. This algorithm has been calibrated and validated against field data. The figure above shows that at different time scales the model is able to represent the measurements well.

Scenario studies
After calibration and validation of the model, the release of fine sediment due to dredging activities is included. The spreading of fines due to various dredging scenarios was simulated. The results of the scenario studies are presently still classified.

Client
Royal Haskoning/
Port of Rotterdam

Location
Rotterdam

Date
2005-2006

Services
FINEL2D flow/sediment computations

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