NEW SEALOCK TERNEUZEN

NAVIGATION AND SILTATION ANALYSIS STUDY

A new sea lock between the Western Scheldt and the Channel Ghent-Terneuzen is being designed. Svašek Hydraulics has assisted the design team by modelling the current for nautical analysis with the FINEL3D model. Both a FINEL2D and a FINEL3D model study have been carried out in order to determine the siltation of the new port and the lock design.

CLIENT
LievenseCSO

LOCATION
Netherlands

DATE
2014-2015

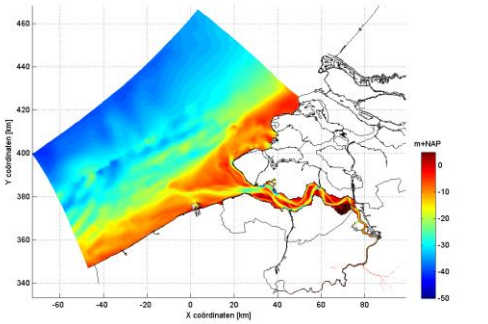
SERVICES
Current and siltation prediction
Data processing and analysis
3D current modelling (FINEL3D)

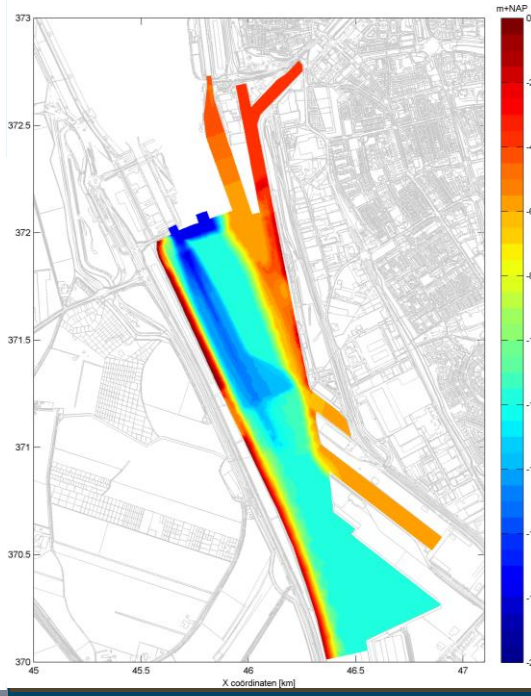
The implementation of the new sea lock in Terneuzen will change the port layout as well. This leads to changes in current patterns and siltation.

In order to analyse the nautical conditions of the design, real time sail simulations are performed by the pilots. Svašek Hydraulics has produced the flow fields for these simulations. These flow fields are modelled with the FINEL3D model, and show good reproduction of the measured current in the present situation.

Besides, the FINEL3D model is used to determine the effect of fresh water discharges from the hinterland on the current. Several discharge locations have been modelled, both at the seaward side, where the water is discharged, and at the landward side of the lock, where the water is extracted.

To determine the siltation corresponding to the new port design, siltation simulations have been performed with the FINEL2D model. Next, the FINEL3D model is used to include the effect of density currents on the siltation. It appears the density current will be more distinct in the new port layout than in the present layout, with a negative impact on siltation.





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