Comparison FINEL2D with measurements; water level depression (left), and return current (right)

Modelling of ship induced flow in order to improve DIPRO

DIPRO is a software tool used to predict the loads from passing ships on bank protections etc. DIPRO is based on analytical formulas, derived from systematic measurements and theoretical analysis of water motion around a ship. The influence of eccentric navigation of a ship needs improvement in DIPRO. FINEL2D is used to model the ship induced water movement for eccentric ships. The results of FINEL2D are used to check and improve the results of DIPRO.

First the results of FINEL2D are validated with measurements of the passing of the Grande America in the *Noordzeekanaal*. The colour plot shows the primary wave of a passing ship. The comparison with measurements shows good agreements, both for the depression of the water level as for the return currents. After the validation several scenario runs are executed with FINEL2D in order to improve the results of DIPRO.

The reason to use FINEL2D in stead of measurements to improve DIPRO is that with FINEL2D the effect of eccentricity can be isolated from other effects always present in measurements. Also it is easier to execute several scenario runs with a computer model for different ship sizes, velocities and eccentricity, than to execute several different measurements.

Client
Delft Hydraulics

Location
Delft

Date
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Services
FINEL2D hydraulic modelling

SVASEK HYDRAULICS
COASTAL, HARBOUR AND RIVER CONSULTANTS