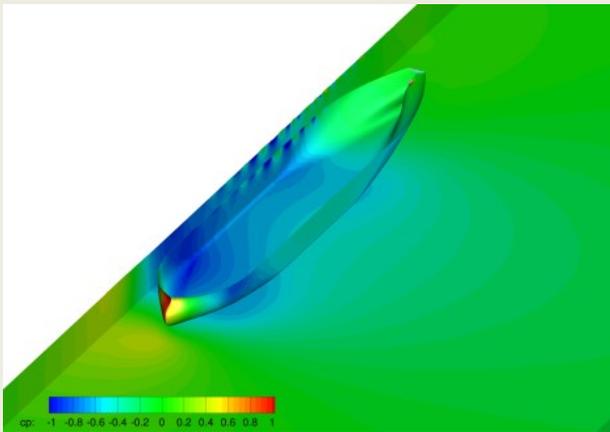


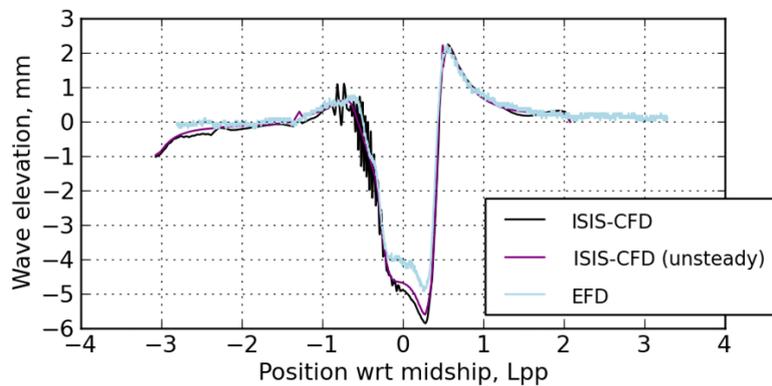
This is the 23rd [newsletter](#) of the *Knowledge Centre Manoeuvring in Shallow and Confined Water*, which aims to consolidate, extend and disseminate knowledge on the behaviour of ships in shallow and confined water. In this newsletter, we present an item on the study of bank effects using Computational Fluid Dynamics (CFD). In a second item, we mention three international seminars which members of the Knowledge Centre recently attended.

The Knowledge Centre participates in [NATO workgroup AVT-216](#), which evaluates prediction methods for ship manoeuvring and control. The Knowledge Centre is coordinator for the evaluation of [ship - bank interaction effects](#) in shallow water. Experiments with the KVLCC2 tanker model that were carried out in May 2010 in the [towing tank for manoeuvres in shallow water](#) are used as reference.



Along with other institutes, the Knowledge Centre has carried out a numerical analysis, varying two specific parameters: a) the lateral distance to the bank and b) the under keel clearance. For each case, two experiments were available: the first one with propulsion and the second one with the propeller stopped. Apart from the forces and moments that act on the ship, measurements from one wave gauge are compared with computational results where the free surface is taken into account.

The majority of computations executed were run in steady mode. For three cases, additional computations were run in unsteady mode, and small improvements were observed in the obtained forces and moments acting on the ship hull.



Based on comparisons of the computations with experimental results, it is found that [bank effects](#) can be predicted using CFD tools. However, some deviation from the experimental measurements is seen and this needs further study. The analysis also shows that for sailing very close to a vertical bank in shallow water, potential flow models are not able to accurately predict the bank effects. Viscous flow methods are then required in order to obtain the right trends of bank attraction or repulsion.



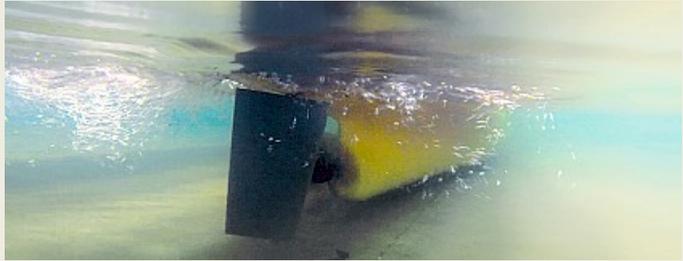
Several members of the Knowledge Centre presented papers at the recent [MARSIM conference](#), held in Newcastle from 8 to 11 September 2015. Jeroen Verwilligen presented a paper on the validation of mathematical manoeuvring models by means of [full scale measurements](#), arguing that captive replay simulations of [full scale measurements](#) are well suited for the analysis of [ship – ship interactions](#).

Evert Lataire presented updated research on the modelling of [bank effects](#) and Manases Tello Ruiz presented a paper on wave effects on manoeuvring ships in shallow water. Stijn Vos gave an overview of the concept of estuary navigation and described how the Knowledge Centre has validated the manoeuvring behaviour of an estuary vessel equipped with two counter-rotating Z-

drives by a process of experiments, deriving a mathematical model and implementing the model into the [manoeuvring simulator](#) for inland navigation.

Meanwhile, Katrien Eloit gave an overview of the design guidelines versus practices for the Upper Sea Scheldt at the [7th International PIANC-SMART Rivers Conference](#), which was held in Buenos Aires from 7 to 11 September. Finally, a presentation of the activities of the Knowledge Centre with focus on optimizing navigation areas to increasing ship dimensions was given at the [World Canals Conference](#), held in Ghent from 7 to 10 September.

We would like to remind our readers of the [4th MASHCON conference](#), which will be held in Hamburg, Germany, on 23 – 25 May 2016. The conference will pay special attention to ship bottom interaction, but all topics relating to ship manoeuvring in shallow and confined water will be discussed. The response to the second call for abstracts has been very good. Updates will follow soon on the [conference website](#).



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