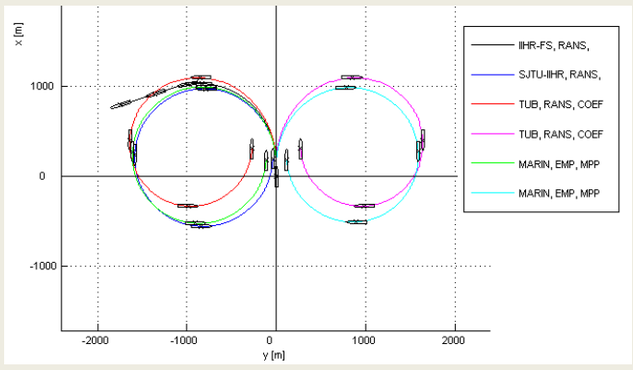
In this newsletter of the *Knowledge Centre Manoeuvring in Shallow and Confined Water*, which aims to consolidate, extend and disseminate knowledge on the behaviour of ships in shallow and confined water, we discuss our contributions to the second SIMMAN workshop. We also like to mention the successful completion of an important PhD research project on bank effects that was carried out within the framework of the Knowledge Centre.

Finally, with this 20th newsletter, we would like to wish all our readers a Merry Christmas and a Happy 2015.

The second SIMMAN workshop on Verification and Validation of Ship Manoeuvring Simulation Methods was held in Lyngby, Denmark from 8 to 10 December 2014. The purpose of the SIMMAN workshops is to benchmark the capabilities of manoeuvring prediction methods through comparisons with towing tank results for different test cases. Institutes from all over the world participated in these studies. The Knowledge Centre took part in the workshop by executing model tests with the benchmark ships KVLCC2 and KCS, by developing system-based mathematical models for the tanker KVLCC2 and by numerically repeating selected tests with the KVLCC2 using Computational Fluid Dynamics (CFD).



The workshop was subdivided into nine thematic sessions and Prof. Eloot of the Knowledge Centre chaired the session on shallow water. While the previous workshop in 2008 focused on deep water, a couple of institutes had taken the chance to prove the capabilities of their simulation models for the prediction of ship behaviour in shallow water, with under keel clearances of 50 and 20% of the ship's draft. The results of simulated turning circles and 10/2.5 and 20/5 zigzag manoeuvres were compared with the results of free-running manoeuvres executed with the KVLCC2 and KCS in the towing tank of Flanders Hydraulics Research and in the shallow water basin of MARIN. The results were diverse but promising, with close predictions of system-based and CFD-based models. For the system-based modular mathematical models, three institutes applied three different methods for deriving the coefficients. For the CFD-based models two different techniques had been used. More details can be found on the website.

An important conclusion of the workshop is that a clear and well-defined procedure for the execution of free-running manoeuvres is needed. Differences in for example the release procedure of the free-running ship model plays an important role in setting the initial conditions. Furthermore, special attention is required for the exact replay of free-running manoeuvres in system-based and CFD-based predictions. For example, each deviation in the settings of rudder angles has an impact on the stationary and non-stationary manoeuvres.

On 4 December 2014, Evert Lataire publicly defended his PhD research, entitled "Experiment Based Mathematical Modelling of Ship - Bank Interaction". In this work a mathematical model is proposed which is based upon the systematic experimental research program on bank effects carried out in the towing tank for manoeuvres in shallow and confined water.

The obtained data set on bank effects consists of more than 14,000 unique model test setups. Different ship models have been tested in a wide range of draft to water depth ratios, forward speeds and propeller actions. The tests were carried out along several bank geometries at different lateral positions between the ship and the installed bank. The mathematical model copes with a broad range of ship types and bank geometries and will be implemented in the ship manoeuvring simulators at Flanders Hydraulics Research.

A digital copy of Dr. Lataire's PhD thesis is available upon request.

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