

This is the thirteenth [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 give a short summary of the sounding board group meeting that was held to discuss the use of ship manoeuvring simulators for training and research purposes.



Every two years, the Knowledge Centre organizes a convention with a selected sounding board group in order to exchange information and gain feedback from end users of our research activities. On February 7, 2013, a meeting was held to discuss the use of [ship manoeuvring simulators](#) for training and research purposes. The objective of the meeting was to discuss how further developments of the simulator facilities can contribute to a higher degree of customer satisfaction and

to query which aspects require increased attention.

The meeting was attended by a selected group of experts from Belgium and The Netherlands who frequently make use of or are involved in manoeuvring simulations, ranging from pilots, trainers, developers and academics.

The first topic of the meeting was the use of [ship manoeuvring simulators](#) as a training tool and the aspects which merit further development. The group was of the opinion that interaction effects, particularly of the type [ship – ship and ship - tug interaction](#) which already have received considerable attention over recent years, are becoming even more critical in the near future. Training of interaction manoeuvres in which interactions play a role will therefore remain important and it would be a bonus if sudden events, such as unexpected meetings,



could also be implemented in addition to pre-programmed interaction sequences. The coupling of two or more ship simulators was generally assessed as very useful in this respect. At [Flanders Hydraulics Research](#), coupling techniques have been applied on a number of occasions so far, for example to study the [accessibility of the Western Scheldt for container vessels](#) and the Seine-Scheldt waterway for inland motorships and push convoys. The group strongly recommended to make more use of this option. It will allow end users to train the timing of manoeuvres involving ship interaction more accurately but it will also be useful to study manoeuvres involving new and larger vessels. For studies and training sessions making use of one single bridge simulator, the realism of the effect of so-called “target” ships can be improved by refining the mathematical model and autopilot controlling these vessels, including mutual interaction with the “own” vessel.

A second topic was the use of simulators as a research tool in [accessibility studies](#). The group considered that simulators have proved their usefulness as research tool. However, continuous adaptation of both the simulation software and the simulator bridge hardware to new or more commonly applied developments in ship technology is required. As an example, PODs are more frequently used for propulsion of cruise vessels. Special propulsion systems cause specific hydrodynamic phenomena for which improved models need to be developed to guarantee reliable and robust simulations.

The sounding board group also discussed the realism of the simulations and which aspects could be improved. In terms of imaging, the group was in full agreement that the quality of the outside view is often very satisfactory. This makes a simulation easier and the quality of the executed manoeuvre better. Without a doubt, a 360° aerial view with additional horizontal projection of the ship's sides is preferred. 3D-imaging and the possible use of 3D-glasses might be useful hardware options which could be implemented in the near future. With respect to environmental factors, the group thought it would be very useful to dispose of parameters that can vary during the course of a simulation. At present, a simulation is often restricted to a constant wind or current.



The fourth topic of the meeting discussed how trainers can be better assisted before, during and after simulations. Here it was pointed out that it is recommended to have more options for rewinding and repeating a simulation. This can be very useful, for example to study at which point a manoeuvre has gone wrong.

Finally, the sounding board group will make a recommendation to the [IMSF](#) to encourage greater collaboration between institutes that have [ship manoeuvring simulators](#). Rather than coupling different simulators within the same institute, it would be interesting to couple simulators on a regional or even international level. In this context, it should be recommended to have a simulator standard which improves the exchange of data. More specific a standard file format for exterior imaging would allow the exchange of virtual environments between institutes and may result in considerable time and cost savings when a new environment needs to be implemented.

Based on the thirty papers that were submitted for the [Third International Conference on Ship Manoeuvring in Shallow and Confined Water](#), which will be held in Ghent, Belgium, on 3 – 5 June 2013, the conference is set to offer a wide ranging and interesting program. The main theme of the conference, which is ship behaviour in locks, is not only covered by researchers who made use of the [open access experimental benchmark data](#) for validating numerical codes, but also by nautical experts who are willing to share their experience in lock manoeuvres. Other aspects of ship behaviour in shallow and confined water will be discussed as well.



Registration for the conference can be done via the [website](#) and early bird rates apply until April 15, 2013.



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