

This is the seventh [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. This newsletter is completely dedicated to the *2nd International Conference on Ship Manoeuvring in Shallow and Confined Water: Ship-to-Ship Interaction*, which was held in Trondheim, Norway from May 18 to 20, 2011 and which was organized in co-operation with the [Royal Institution of Naval Architects](#), the [Norwegian University of Science and Technology](#) and [MARINTEK](#). It has been a real pleasure and a privilege to work together with our Norwegian colleagues who hosted the event and we can only express our sympathy to the Norwegian people for the tragic events that occurred two weeks ago.

After the 1st International Conference on Ship Manoeuvring in Shallow and Confined Water, which paid special attention to [bank effects](#), the emphasis of the 2nd Conference was on [ship-to-ship interaction](#). This kind of interaction occurs frequently in confined waters, where a ship can overtake or encounter other ships or can have an effect when it passes moored vessels. [Shallow water](#) increases the hydrodynamic effects because it is more difficult for the water the flow under the keel and it will flow to a greater extent along the sides.

In deep water, [ship-to-ship interaction](#) is very important for lightering operations. Here a ship approaches and comes alongside the ship to be lightered in order to transfer cargo, typically oil or gas. It is a manoeuvre which carries quite a lot of risk and where the hydrodynamic interaction effects are not yet fully understood. Even though the [Knowledge Centre](#) does not usually focus on this kind of deep-water operations, we have been involved in the [Knowledge-building Project "Investigating hydrodynamic aspects and control strategies for ship-to-ship operations"](#), which is co-ordinated by [MARINTEK](#) and which is funded by the Research Council of Norway and industrial partners. Within this project, [model tests](#) have been carried out in the [towing tank](#) to study the forces and moments that occur during lightering manoeuvres. The involvement in the project also explains our choice of the location and the co-organizers.



43 papers and 2 keynote speeches were presented to more than 90 participants from 21 countries. The first keynote speech was given by Cal Hayden, Vice-President, Fleet Operations, of [SPT Inc.](#) and dealt with operational aspects of lightering. Safety and correctly following procedures are of utmost importance because lightering operations are never a routine matter. The crew needs to be trained well and [manoeuvring simulators](#) can play a significant role in this. The second keynote speech was given by Prof. Faltinsen of [NTNU](#) who gave an overview of the different methods in Computational Fluid Dynamics that are used to study interaction effects numerically. Depending on the relative velocities it is possible to obtain results with great accuracy. However, in order to validate the results, physical model experiments are still required. Prof. Faltinsen also pointed out that some factors are often overlooked. As an example, he mentioned the effects of muddy waters and the concept of a [nautical bottom](#), which were studied in experiments carried out by researchers of the [Knowledge Centre](#).



The [Knowledge Centre](#) presented three papers. Prof. Vantorre presented an analysis of the extensive model test data measured during [captive model tests](#) in the [towing tank](#) to study the influence of different parameters on the lightering manoeuvre. A mathematical model for lightering operations is proposed so that it can be implemented in a [ship manoeuvring simulator](#) for training purposes. Research is ongoing in order to make the model more accurate and more widely applicable. Prof. Eloot presented an overview of the extensive research

that has been carried out by the [Knowledge Centre](#) to study the effects of squat. The results of model experiments have been validated by CFD and by [ship motion measurements](#) at full scale. Stefan Geerts presented the results of model experiments that have been carried out to determine the [interaction forces on tugs](#). Researchers of the [Knowledge Centre](#) also co-authored two papers which were presented by Lu Zou of Chalmers University of Technology, Sweden and Dr. van der Molen of CSIR, South Africa.

It was gratifying to see that about one third of the papers cited various experiments carried out at [Flanders Hydraulics Research](#), particularly to validate numerical results, which indicates that the [Knowledge Centre](#) has gained international recognition as a centre of expertise.

The conference was closed by Prof. Vantorre with the announcement that the 3rd conference will pay special attention to [lock effects](#) in addition to other aspects of manoeuvring in shallow and confined water. A dedicated page will be launched on the [website](#) in the fall.

We wish to thank our co-organizers for their efforts and the sponsors of the conference: [the Flemish Government - Department Mobility and Public Works](#), [Det Norske Veritas](#), [NTNU](#), [MARINTEK](#), [SPT Inc.](#), [Promotie Binnenvaart Vlaanderen](#) and [Ghent University – Division of Maritime Technology](#).

The proceedings of the conference can be purchased through the [R.I.N.A.](#)



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