This is the 36th 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 discuss how a river turning basin can be optimized using real time simulations in order to accommodate larger inland navigation vessels.

The capacity requirements of a berthing area may increase significantly over the years. As a result, inland waterways sometimes need to be adapted in order to accommodate larger ships. This may involve adjustments such as extending locks or providing larger turning basins. With regards to the latter, relatively few data can be found in literature about the optimal geometry of river turning basins. In addition, design guidelines for canals differ from one country to another and sometimes the recommended requirements cannot be met in practice.

Researchers associated with the Knowledge Centre have recently studied how the turning possibilities in front of the berthing area "Quai des Trois Fontaines" in Chooz (France) on the river Meuse can be improved. In a first phase of the study, real time simulations were executed with the inland navigation simulator at Flanders Hydraulics Research to identify the manoeuvring difficulties with ECMT Class IV vessels of 80m, 85m and 90m long in the actual situation. Water current was implemented using a 3D hydraulic model developed by IMDC. In a second phase, low cost improvements were proposed and simulated. Throughout the study, the accessibility was evaluated based on different safety criteria and based on the opinion of experienced pilots.

The real time simulations showed that the actual design of the turning basin, which has a diameter of 95m, is suitable for the ECMT Class IV with a length of up to 80m in any hydro-meteorological condition. However, the manoeuvres become risky with 85m long ships in some specific conditions and impossible with longer ships. Although the current can be very strong on the river Meuse, the available width is the most critical parameter. The study showed that enlarging the waterway locally to a width of 100m and 105m is sufficient to accommodate 85m and 90m long ships, respectively. An option that was also studied, is to attach to a fixed point around which a ship can turn in order to increase the accessibility of the turning basin. The costs of each solution have been estimated and a risk analysis has been carried out by IMDC in order to help the stakeholders with the decision making. This study was commissioned by Voies Navigables de France and carried out in collaboration with IMDC.

Researchers associated with the Knowledge Centre attended MARSIM 2018, which was held in Halifax, Canada from 12 to 16 August 2018. Jeroen Verwilligen presented "Squat Formula for Cape-Size Bulk Carriers Based on Towing Tank Results and Full-Scale Measurements". Changyuan Chen presented "Intelligent control strategies used in fast time ship manoeuvring simulations"

On 11 September, more than 200 delegates from the triannual "International Ship and Offshore Structures Congress" visited the facilities at Flanders Hydraulics Research. ISSC 2018 was organized by Université de Liège and TU Delft.

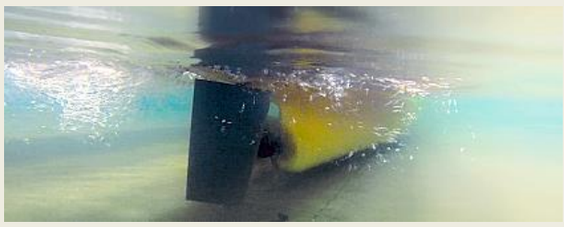
The International Ship and Offshore Structures Congress (ISSC) is a forum for the exchange of information by experts undertaking and applying marine structural research. The aim of the ISSC is to further understanding in the various disciplines underpinning marine structural design, production and operation through internationally collaborative endeavors.

Guillaume Delefortrie and Thibaut Van Zwijnsvoorde were awarded the 2018 Vice Admiral E. L. Cochrane Award by S.N.A.M.E. for their paper "Experimental Studies on Seakeeping and Maneuverability of Ships in Adverse Weather Conditions". The paper was published in Vol. 61 of the Journal of Ship Research and co-authored by Florian Sprenger, Adolfo Maron, Andrés Cura-Hochbaum, Antonio Lengwinat and Apostolos Papanikolaou. The paper addresses the concerns of the SHOPERA project and presents the development of suitable methods, tools and guidelines to enable safe and green shipping. The focus lies on the added resistance and drift forces at zero and moderate forward speed, propulsion, and rudder force tests in waves and the assessment of maneuverability of ships in waves, as compared to calm water conditions.

More than 20 presentations were given by people affiliated with Belgian companies or institutions at the successful PIANC World Congress 2018 in Panama.

The Knowledge Centre Manoeuvring in Shallow and Confined Water and the Belgian Section of PIANC would like to invite you for a one-day conference in Brussels on 2 October 2018 at the University Foundation, Egmontstraat 11 rue d'Egmont, 1000 Brussels. The majority of the Belgian papers will be presented and discussed. The conference is an ideal occasion to extend your knowledge and to network with people from the sector. The full program can be consulted on the website.

The registration fee is 90 euro and includes catering. To register, please send an e-mail to the Belgian section of PIANC before 25 September 2018.



A third and final call for papers has now been launched for the 5th MASHCON conference, which will be held in Ostend, Belgium, on 20 – 22 May 2019. The conference will pay special attention to manoeuvring in waves, wind and current, but all topics related to ship manoeuvring in shallow and confined water will be discussed.

Papers which focus on the comparison between the output of numerical models and benchmark model test data are particularly encouraged. Specifically for the 5th MASHCON, model test data have been made available which were obtained during the execution of seakeeping tests with the DTC container carrier in the framework of the European SHOPERA project. The benchmark data are both captive and free running model tests with the DTC at full draft in calm water and in waves. These data, or other sets of benchmark data, are available to everyone on request.

Authors are invited to submit an abstract of 250 - 300 words to info@shallowwater.be before the extended deadline of 30 September 2018. The official language of the conference is English and the abstracts will be reviewed by an international scientific committee. Once accepted, authors will be

expected to write and present a full paper, which will also be reviewed by the international scientific committee. A selection of papers that pass the review process and that are presented at the conference, will be published in a special issue of Ocean Engineering. More information can be found on the conference website.

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