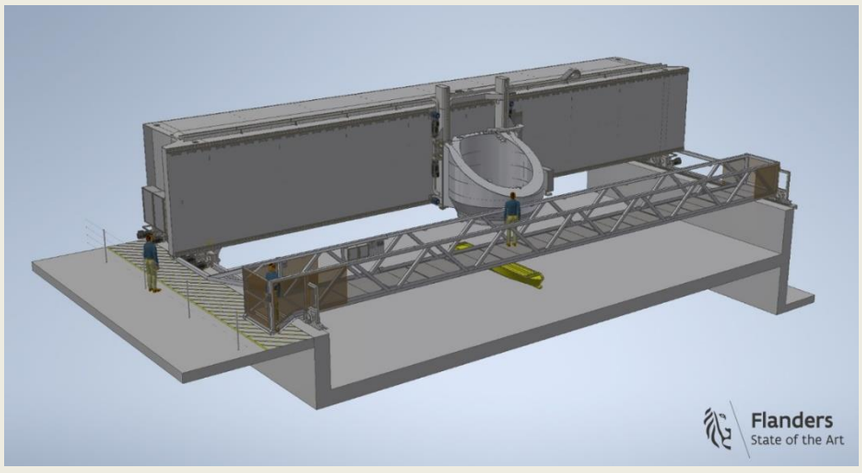
This is the 49th newsletter of the *Knowledge Centre Manoeuvring in Shallow and Confined Water*, which aims to consolidate, extend and disseminate knowledge on the behaviour of ships in shallow and confined water. In this newsletter, we present an update on the work performed at the new Towing Tank for Manoeuvres in Shallow Water at Flanders Maritime Laboratory. We wish you a Merry Christmas and a Happy New Year.



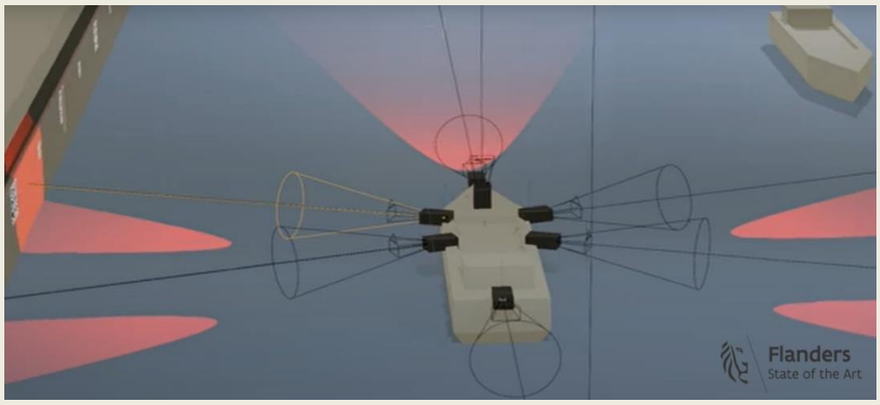
In autumn 2019 a tender was published for the design and build of a towing carriage for the new Towing Tank for Manoeuvres in Shallow Water at Flanders Maritime Laboratory. The tender procedure was finalized mid 2021 and the project was awarded to a consortium of Consmema metalworking, VSE and Agidens. In December 2021 the consortium finalized their preliminary design of the carriage. The basic design of the new carriage is visualized above.

The carriage is composed of:

- A longitudinal main carriage allowing a steady velocity of 3 m/s and test acceleration of 0.4 m/s²;
- A detachable, so-called visitors' carriage, which allows people to travel with the main carriage;
- A lateral main carriage, which allows a sideway motion of 19.5 m, a steady velocity of 1.3 m/s and a test acceleration of 0.7 m/s²;
- The lateral main carriage is designed as a rectangular frame, which carries a vertical carriage and a yaw system. A travel of 1.8 m is possible in the vertical direction, with maximal speed of 0.7 m/s and maximal acceleration of 0.7 m/s².
- The yaw carriage allows a rotation between -365 and +365 degrees, at maximal speed of 16°/s and maximal acceleration of 8 °/s.

The manufacture of the carriage parts and subsequent assembly is expected to cover the entire year 2022.

At the same time the basin is being prepared to allow free running ship models tests. The system has been designed by Kapernikov and is presently being built by them as well. The goal is to allow experiments with multiple free running (autonomous) ships interacting with each other. For this type of experiments an accurate position measurement system is crucial. This is achieved by a combination of camera monitoring (towards so-called ArUco markers on the basin walls), LiDAR and gyro. The individual readings are then filtered to one position state record, which is made available for navigation routines on an on-board navigation computer. The system is expected to be production ready in spring 2022.



A simulation environment was created to limit design iterations when selecting the optimal camera configuration and landmark locations.

Marc Mansuy has been elected YP-member of PIANC – InCom WG 237 "Bottlenecks and best practices of transport on Inland Waterways". The Working Group will collect and describe lessons learned regarding the transport of containers on inland waterways. They will be used as the basis for identifying, gathering and describing good and best practices. These lessons and practices include the container terminals, the vessels, the waterways and ITC applications such as RIS.

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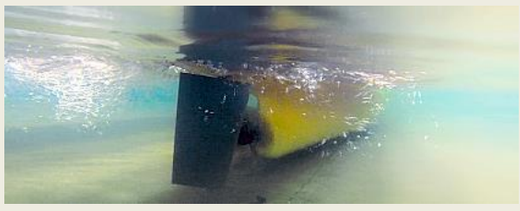
36 abstracts were submitted for the 6th MASHCON conference, which will be held in Glasgow from 22 to 26 May 2022. The conference will have a non-exclusive focus on port manoeuvres, but there will be a large number of papers dealing with other aspects related to manoeuvring in shallow and confined water, such as ship – ship interaction effects.



Several papers will validate numerical results with experimental benchmark data, which are always available for researchers wishing to validate numerical tools against experimental model test results. The benchmark data are available upon simple request.

The 6th MASHCON conference is organized jointly by the University of Strathclyde, Ghent University and Flanders Hydraulics Research.

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