

Newsletter Shallow Water

Knowledge Centre Manoeuvring in
Shallow and Confined Water

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July 2025

This is the 61st newsletter of the Knowledge Centre Manoeuvring in Shallow and Confined Water, which is a collaboration between Flanders Hydraulics and the Ships and Marine Technology Division at Ghent University. In this newsletter, we have an item on the 7th MASHCON conference and on the experimental research executed for DDSHIP.

7th MASHCON - Clean power

Bruges, Belgium – May 2025 – The 7th International Conference on Manoeuvring in Shallow and Confined Water (7th MASHCON 2025) took place from 18 to 21 May 2025 in the historic city of Bruges, Belgium. This conference brings together researchers, engineers, and maritime professionals to exchange insights on the challenges and innovations in ship manoeuvring in shallow and confined waters. More than 70 participants from 13 countries and 32 institutes/organisations attended the 36 presentations of the peer-reviewed papers, highlighting the international scope and collaborative spirit of the conference.

We're proud to announce that the conference [proceedings](#) and [presentations](#) are available open access, making the valuable contributions from various institutions accessible to all. The [pictures](#) and [aftermovie](#) are also available.

The organizers sincerely thank all speakers, participants, sponsors, and partners for their contributions to the success of MASHCON 2025.

It is with great pleasure that we share with you that the 8th MASHCON will be held in Madrid from the 22nd to the 24th of May 2028 hosted by Siport21 with support from CEHIPAR, CEDEX and UPM.

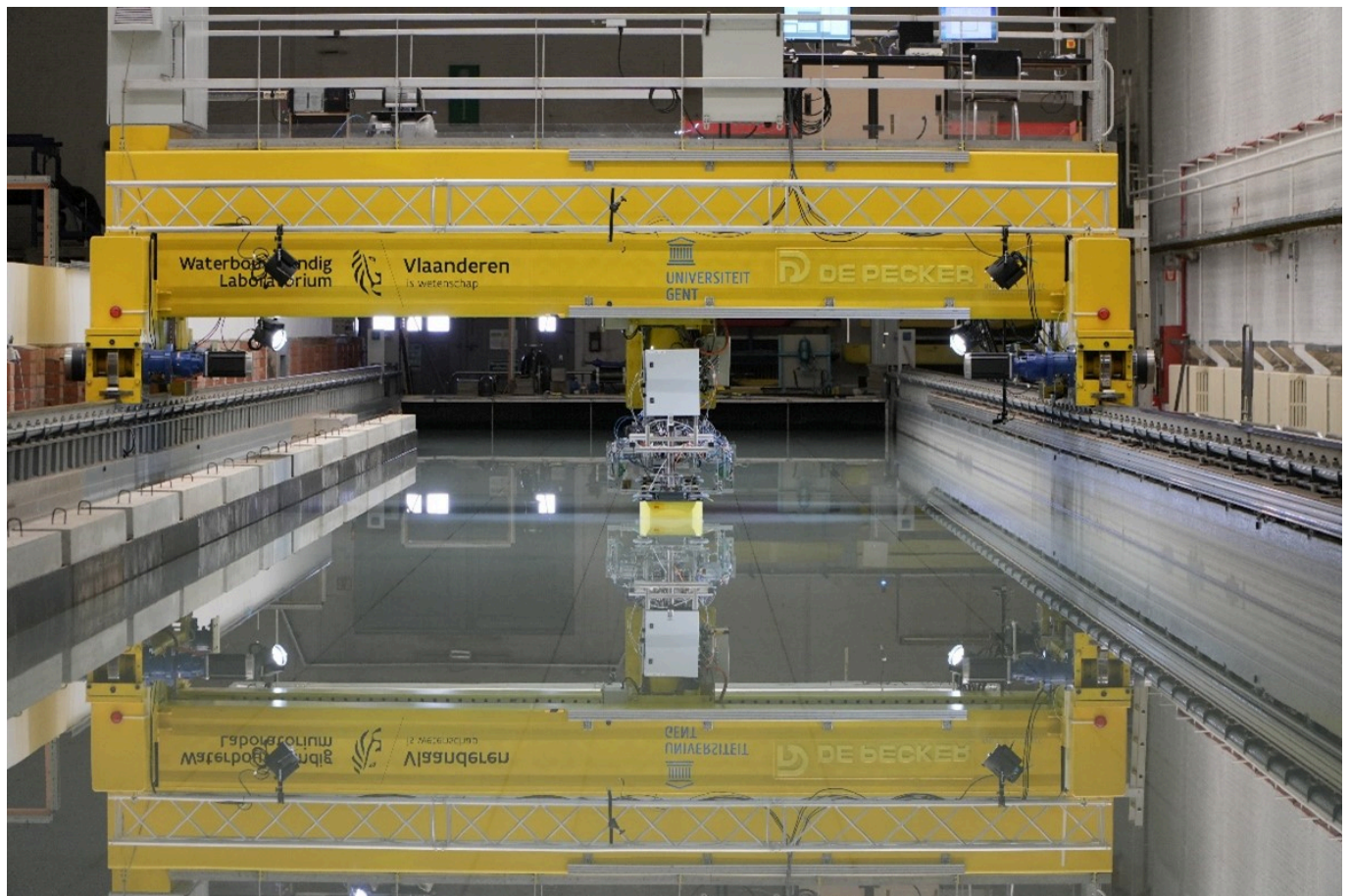


DDSHIP

DDSHIP, short for Data Driven Smart Shipping, is a joint project between Flanders Hydraulics, Ghent University, and the University of Antwerp. The project focuses on computer-aided and autonomous navigation by setting up a new methodology for process flows and a testing platform for validation and certification. In the scope of this project, the Ships and Marine Technology department at Ghent University conducted several free-running test campaigns in the towing tanks of Ostend (FML) and Antwerp (FH). The Towing Tank for Manoeuvres in Confined Water in Antwerp was modified by installing a bank at port side of the ship. This setup allowed free-running tests to be executed close to the wall, such that bank effects could be observed and measured. The ship was controlled by a line-of-sight algorithm with PID controller, following a straight path along the bank. Parameters for the controller were derived from standard zigzag tests, also performed in the towing tank.

The results of the eccentric straight-line tests clearly showed the influence of the bank on the ship's behaviour, particularly the lateral deviation from its desired track, away from the bank. This also emphasized the need for better controllers in situations where eccentric sailing is unavoidable. The collected data will now be used to create a mathematical manoeuvring model, allowing motion prediction of the ship, even in (rather rare) scenarios close to the banks. This model will then be used by the researchers at the University of Antwerp to train agents using their machine learning framework.

If you want to know more about DDSHIP make sure to read Eloot et al (2025) in the 7th MASHCON proceedings. The presentation is also available as a download.



Activities

Meanwhile José Villagómez and Wim Van Hoydonck attended the 4th edition of the Shallow Water Inland Ship Navigation Workshop (SHINING), held on April 3 – 4, at DST in Duisburg, Germany. A recent paper on the ongoing SHINING research was published and presented at the 7th MASHCON. The next edition of the SHINING will take place in Karlsruhe in April 2026.

Researchers associated with the Knowledge centre recently published:

Delefortrie, G.; Kamol Roy, A.; Eloot, K.; Lataire, E. (2025). Approach to eliminate tank wall effects from open water manoeuvring models, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 377-391, <https://dx.doi.org/10.48607/330>

Donatini, L.; Verwilligen, J.; Delefortrie, G.; Vantorre, M.; Lataire, E. (2025). Real-time synthesis of the dynamic responses of floating bodies to waves for maritime simulators. Appl. Ocean Res. 154: 104393. <https://dx.doi.org/10.1016/j.apor.2024.104393>

Eloot, K.; Cisneros, M.; Donatini, L.; Mansuy, M.; Daems, W.; Massobrio, R.; Hellinckx, P. (2025). Simulation and application of model-based and model-free track controllers for ship manoeuvring in shallow and confined water, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 77-95, <https://dx.doi.org/10.48607/331>

Eloot, K.; Verwilligen, J.; Claes, S.; Delefortrie, G.; Lataire, E. (2025). 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. Flanders Hydraulics/Ghent University: Antwerp. XII, 529 pp, <https://dx.doi.org/10.48607/316>

He, H., Villagómez, J.; Van Zwijnsvoorde, T.; Lataire, E.; Delefortrie, G. (2025). COLREGs-compliant model predictive collision avoidance for autonomous ships in restricted environments. *Ocean Eng.* 338: 121966. <https://dx.doi.org/10.1016/j.oceaneng.2025.121966>

Herdayanditya, I., Streicher, M., Lataire, E., & Rauwoens, P. (2024). Investigation of the Wave Field around a Monopile due to Long Crested Irregular Waves in Moderate Steepness. *Journal of Coastal and Hydraulic Structures*, 4, <https://doi.org/10.59490/jchs.2024.0039>

Lu, S.; Van Hoydonck, W.; López Castaño, S.; Lataire, E.; Delefortrie, G. (2025). Numerical study on propeller flow field in four quadrants. *Appl. Ocean Res.* 158: 104576. <https://dx.doi.org/10.1016/j.apor.2025.104576>

Lu, S.; Van Hoydonck, W.; López Castaño, S.; Lataire, E.; Delefortrie, S. (2025). Numerical study on the rudder inflow behind the hull and the propeller in four quadrants, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 175-185, <https://dx.doi.org/10.48607/336>

Mansuy, M.; Delefortrie, G.; Candries, M.; Alliot, A.; Mesnil, L.; Alliot, I. (2025). Full scale manoeuvring tests with a small, Flexible automated, zero-emission (SFAZ) vessel, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 295-313, <https://dx.doi.org/10.48607/337>

Struijk, G.; Delefortrie, G.; Ponkratov, D.; Verwilligen, J.; Lataire, E. (2025). Shallow water speed/power trials with cruise liner for benchmarking, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 2-16, <https://dx.doi.org/10.48607/332>

Verbeke, A.; Gourlay, T.P.; Delefortrie, G.; Candries, M.; Van Hoydonck, W.; Lataire, E. (2025). Validation of slenderflow in ship – ship Interaction scenarios, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 124-140, <https://dx.doi.org/10.48607/335>

Villagómez, J.; Van Hoydonck, W.; van Zwijnsvoorde, T.; Candries, M. (2025). On the resistance estimation of an inland vessel in shallow and confined water, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025, Bruges, Belgium: conference program and proceedings. pp. 18-32, <https://dx.doi.org/10.48607/333>

Wium, D., Van Lancker, B., Belis, J., Lataire, E. (2025). Mechanical behaviour and durability of an epoxy adhesive for structural glass-to-steel connections in a ship. *International Journal of Adhesion and Adhesives*, 141, 104050, <https://doi.org/10.1016/j.ijadhadh.2025.104050>

Wium, D., Lataire, E., and Belis, J. (2025). “Structural Integration of Glass in Yacht Superstructures through Adhesive Bonding – A Numerical Analysis.” *Marine Structures* 103:103834, <https://doi.org/10.1016/j.marstruc.2025.103834>

Zentari, L.; Bedos, A.; Van Hoydonck, W.; Ley, J.; Chilcce, G. (2025). Application of cfd for the prediction of hydrodynamic forces acting on an inland waterway ship in shallow waters: Lessons learned from the shining workshop, in: Eloot, K. et al. 7th MASHCON International Conference on Ship Manoeuvring in Shallow and Confined Water with non-exclusive focus on clean power in shallow water, 18-21 May 2025,+ Bruges, Belgium: conference program and proceedings. pp. 33, <https://dx.doi.org/10.48607/334>

Congratulations



Ivandito Herdayanditya defended his PhD Thesis, entitled ‘Waves around a Monopile for Marine Operations’, on Wednesday 14 May 2025. Motivated by the increasing diameter of monopiles for offshore wind turbine foundations, he evaluated the wave field around the monopile and its impact to marine operation plannings. The research was supervised by Prof. Pieter Rauwoens (KU Leuven) and by Prof. Evert Lataire (Ships and Marine Technology Division at Ghent University) within PhairywinD project. Congratulations dr. Ivandito Herdayanditya!

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