With the new SOSc MARIN aims to make maritime operations safer and more efficient.

MARIN builds most realistic simulator centre for maritime operations in the world

At the virtual push of a button on September 5, Micky Adriaansens, the Minister of Economic Affairs and Climate Policy, officially started the construction of MARIN's new Seven Oceans Simulator centre (SOSc).

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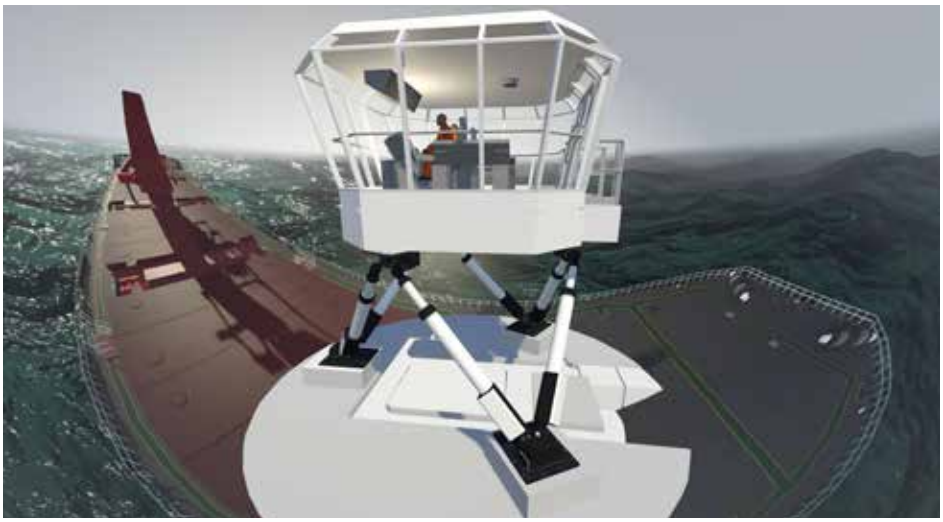
With this new research facility, MARIN aims to make maritime operations safer and more efficient through the most realistic simulation of the behaviour of vessels and their interaction between maritime structures, the environment and humans. The SOSc is set to be operational at the beginning of 2024.

Minister Adriaansens commented: 'The safety of shipping requires new solutions: containerships are getting bigger, the traffic at sea is increasing and the weather conditions are changing. This unique simulator plays an important role in these necessary innovations. Simulating difficult situations at sea and the response of man and machine to them provide valuable

Full Mission Bridge of 16 m wide with domes at both bridge wings to allow forward, backward, downward and upward view during complex operations

Maritime eXperience Lab with motion platform/treadmill, Cable Robot and Fast Small Ship Simulator (FSSS) at the background



Projection in a large spherical dome of 16 m diameter of the Large Motion Simulator with a moving bridge of 4 x 5 m on a hexapod

The new SOSc in short

Large Motion Simulator (LMS), a moving bridge of 4 x 5 m (20 sq m) on a hexapod with a payload of 14,000 kg with projection in a large spherical dome with a diameter of 16 m.
Full Mission Bridge (FMB), a 16 m wide bridge with a forward or backward view on a cylindrical screen of 240 degrees horizontally and 42 degrees vertically. Both bridge wings have 6 m diameter domes to allow forward, backward, downward and upward view during port (and other complex) operations.
Four **Multi-Purpose Simulators (MPS)** of 4.2 x 4.2 m for coupled tug or crane simulations.
The **Maritime eXperience Lab (MX Lab)** for advanced Virtual, Augmented and Mixed Reality applications, including the Fast Small Ship Simulator (FSSS), smaller motion platforms, treadmills, motion capturing and a Cable Robot. With the 8 cables of the FCR moving objects (such as a crane hook) can be simulated above a moving platform or the FSSS for advanced interactive Mixed Reality simulations.
Vessel Traffic Management / Shore Control Centre Lab (VTM/SCC Lab): flexible room with projection on 3 walls to simulate control or command centres on board or on shore, coupled to the other simulators and the MX Lab.
High Performance Computers (HPC): combination of CPU's (Central Processing Units) and GPU's (Graphics Processing Units) for optimum real time hydrodynamic modelling
Human Factor (HF) equipment
Instructor rooms and debriefing rooms

information that makes shipping safer and smarter. This is an impressive example of the passion with which MARIN works on innovations that contribute to social and economic challenges for the maritime sector.'

The research centre will have spherical and moving simulators, a virtual/augmented reality experiment room and human factor measurement and observation techniques that can be used flexibly to simulate complex maritime operations. Arno Bons, Manager Simulation & Visualisation, added: 'The spherical simulators with a moving bridge will be unique in the world because the environmental projection is not only all around, but also upwards and downwards. In the Maritime eXperience Lab we research the latest VR/AR systems and apply them to maritime systems and operations, both above and below water. We can also link all the simulators to each other to simulate complex multi-ship and multi-tool operations.'

The SOSc provides an important boost to MARIN's mission: clean, smart and safe shipping and a sustainable use of the sea. Bas Buchner, President of MARIN, stressed: 'In addition to research into shipping safety, this new virtual test facility makes it possible to experience the behaviour of future ships during the design phase, in which the role of the crew and cooperation on board are central. It gives the national and international maritime sector the opportunity to develop innovative ships with safe and maximum operational deployment under the most difficult sea conditions.'.