

## Ensuring terminal up-time & safety while ships pass

# ROPES JIP



### Background

More and larger ships have to be accommodated in existing ports. New terminals are located along waterways. In these restricted waters passing ships produce suction and draw down resulting in large excursions of ships at berth and peak loads in their mooring. Dominant parameters are water depth and bank geometry, passing ship displacement, distance and speed as well as the moored vessel size and mooring geometry. To ensure up-time and safety of terminal and moored vessel and at the same time to allow a swift passage of ships in waterways and handling in ports, accurate tools to predict the effects of passing vessels and concepts to restrict vessel motions and peak loads are required.



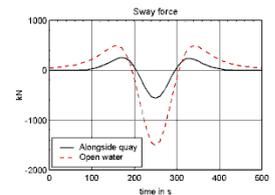
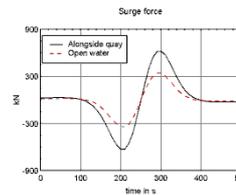
### Objectives

ROPES develops, validates and delivers a computer tool to predict the effects of passing ships. At the same time the project assesses the feasibility of passive and active concepts to restrict the excursions and mooring loads of vessels at berth.

### Scope of Work

Within ROPES numerical modelling, scale models and full-scale measurement campaigns will be conducted. Phase I concerns software development and a "Reality Check" by means of full-scale measurements. Results of model tests conducted for the Yangtze-harbour in the Port of Rotterdam are also used. Phase II assesses

passive and active concepts to restrict the vessel motions and mooring loads. Parallel research will be conducted to fill the identified gaps in knowledge such as the effect of complex harbour geometries. Finally, a Best Practice as to the design & engineering of terminals will be developed.



### Deliverables

- Computer tool to predict the effects of passing ships;
- Results of the "Reality Check" measurement campaigns;
- Assessment of new concepts to restrict moored vessel motions and mooring loads;
- Results of the research to cover missing knowledge;
- Best practice.

### Organisation

The work is conducted as a Join Industry Project with the participation of ports, terminal operators, vessel operators, engineering companies, suppliers and consultancy bureaus as well as authorities. The project starts on November 1, 2010 and will run for 3 years. The ROPES JIP is lead by MARIN in close co-operations with partners PMH, Deltares and Svasek.

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