Operational Offshore Safety

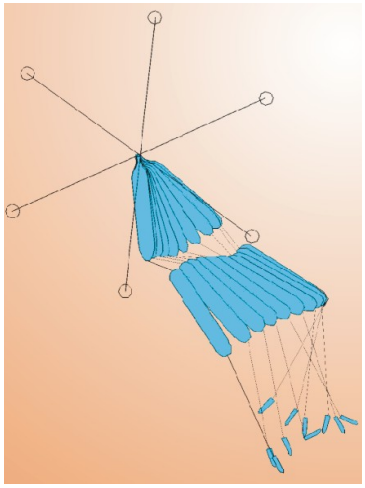
In addition to MARIN's model basins and advanced simulation tools, the Offshore department offers highly professional consultancy services for the design of offshore structures. In the design stage, the risks involved in nautical operations cannot be ignored. In order to counter very specialised risks, such as rudder and engine failures or human errors during the approach and departure manoeuvres of export tankers, MARIN's Nautical Centre MSCN offers the following services:

Operational safety studies

MSCN's fast-time simulation model is essentially identical to its real-time simulator, although it is controlled by an advanced autopilot. A large number of scenarios or conditions can be quickly evaluated, assessing e.g. the effects of failures, different nautical strategies and the effectiveness of additional tugs.

Procedures and weather windows

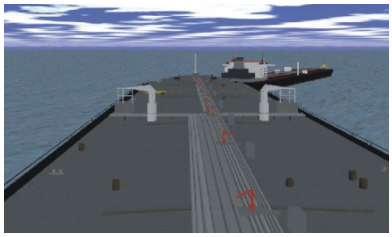
The fast-time simulation model can also be used to develop procedures or weather windows by assessing operations in various environmental conditions and during emergency situations.
For both these services the fast-time simulation model is a low cost tool. In the final stage a full-mission simulator can assist to finalise procedures.



Example of a fast-time simulation

Training

It is recommended to thoroughly familiarise personnel before an offshore installation becomes operational. Mooring and tug Masters, individually or together, can be trained on MSCN's full-mission simulators to execute approach manoeuvres and handle emergency situations.



Manoeuvring simulation of crude oil tandem offloading

Mathematical modelling in the simulator can be based on the results of model tests executed within MARIN. Furthermore, it is possible to build multiple ship scenarios. Modelling of lines (hawsers), winches and fenders is also an essential part of simulator work.

Generic safety

Apart from operational oriented studies, generic safety studies can be executed with MSCN's SOCRA (Ship Offshore platform Collission Risk Assessment), focusing on safety of offshore structures and effectiveness of measures like standby vessels and safety zones. Input for the model is a description of the traffic in the area, output is the probability of collision, either by ramming or by drifting.

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