Case Story – Highlights

Ensuring the safety of Bulk Terminal Wilhelmshaven

Re-evaluation of the terminal's mooring loads under fully dynamic conditions

Confirmation of operational safety of the terminal

Identification of potentially dangerous situations

Evaluation of risks due to nearby waterway traffic

Challenge

The construction of the Jade Weser Port in Germany could potentially affect the nearby Bulk Terminal Wilhelmshaven. Increasing vessel sizes and changes in the current pattern due to this construction demanded for a re-evaluation of the mooring forces, using the latest data and advanced numerical modelling .

Solution

Implementation of our MIKE 21 Mooring Analysis (MA) model, allowing us to take into account vessel shapes, mooring systems and environmental conditions.

Solution highlights

Together with the flow module MIKE 21 Hydrodynamic (HD) Flexible Mesh (FM), we conducted the following studies:

- Dynamic calculation of impacts due to wind, wave, currents and passing vessel based on complex wave and current fields
- Consideration of exact bathymetry and vessel hulls
- Multiple vessel support

Niedersachsen Ports

'We commissioned DHI to carry out a dynamic mooring assessment study for design vessels at landside and seaside berths of the Bulk Terminal Wilhelmshaven. Vessel motions, mooring line and fender forces were determined, which were subject to wind, tidal current and wave conditions. During the whole process, DHI was very proactive. With the help of the software modules MIKE 21 Mooring Analysis (MA) and MIKE 21 Hydrodynamic (HD) Flexible Mesh (FM), all arising questions were extensively answered.'

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