

Numerical modelling of a turret-moored floater in arctic environment



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Description:

The shrinking polar ice cover may make resources in the Arctic offshore region more accessible in the future and therefore economical attractiveness of these hydrocarbons will increase. For deep water (>100m) arctic there is potential of using Floating Production Storage and Offloading (FPSO) vessels for hydrocarbon production as fixed or gravity base structures are not economically viable in these water depths. However, the arctic is a sensitive environment and the production of hydrocarbons should be done carefully.

The goal of this PhD study is to develop a numerical model which can predict loading from level ice, ice ridges and broken ice pieces on a ship-shaped floater and simulate the dynamic ice-vessel interaction. The turret-moored floater has the capability to ice-vane and turn its bow into the direction where the most severe ice-loading is coming from. The model can be used to estimate design loads on vessel and mooring and improves understanding of ice-vessel interaction.



1: Arctic FPSO (Moss Maritime)

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