Ice Induced Vibrations of Offshore Structures

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Description:

Occasionally bottom founded offshore structures experience sustained vibration due to drifting ice sheets crushing against them. These vibrations, known as Ice Induced Vibrations (IIV), may lead to fatigue problems, safety issues and uncomfortable working conditions. Two following mechanisms are believed to lead to IIV:

- The synchronisation of the frequency of the ice failure and that of the structure;
- Amplification due to a descending dependence of the compressive ice strength on the loading rate.

To date only phenomenological models exist for the prediction of ice- and structural behaviour in these situations which are not up to the standards set by the industry.

Goal:

To develop a hybrid multi-scale model of a moving ice sheet dynamically interacting with a bottom founded structure.

Sponsors:

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