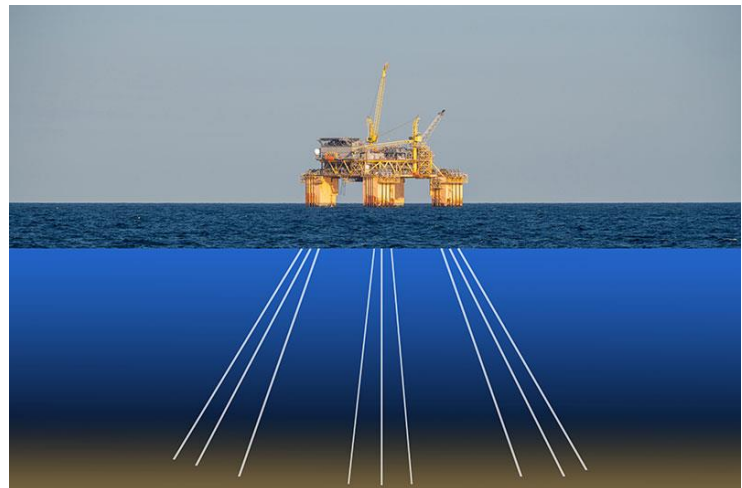


Master Thesis Project: Numerical simulating wave drift of floating platform

1. Thesis background

All floating platforms are subjected to wave drift force and tending to move away from its original deployed location. A typical solution for this issue is applying tethering cables to pull the platform. However, as also shown in the figure, since the modern platforms are large, heavy and designed for long-term deployment, the drift forces may break the cables and lead to dangerous consequence.



2. Thesis objective

The thesis aims to predict the drifting trajectory of a floating object using numerical simulation. The result of the project will help great on the design deploy of the platform. The wave drift prediction is a typical fluid structure

interaction problem which involving fluid and rigid body dynamics. The simulation will be carried on the open source code SPHinXsys which is developed by my group and able solve fluid and rigid body dyanmics using smoothed particle hdrodynamics (SPH).

3. References

For the wave drifting forces, please refer https://wikiwaves.org/Wave_Drift_Forces

For SPH method, please refer https://en.wikipedia.org/wiki/Smoothed-particle_hydrodynamics and <https://www.spheric-sph.org/>

For SPHinXsys code, please refer <https://github.com/Xiangyu-Hu/SPHinXsys>