Wind power in ocean: floating offshore wind turbines

HYDRODYNAMIC MODELLING OF THE SEMISUBMERSIBLE

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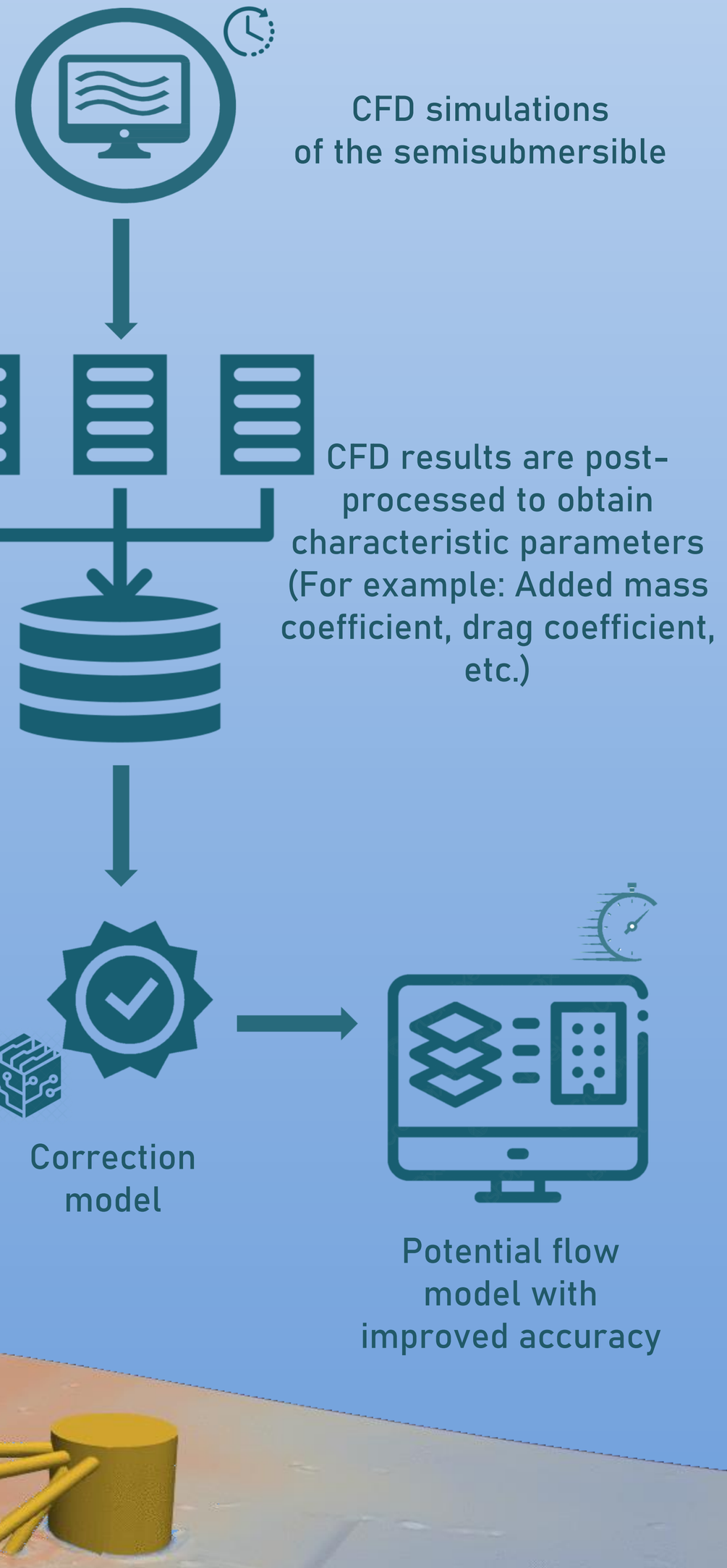
Introduction

Offshore wind energy is still a largely untapped source of renewable energy. One major barrier to the further utilization of offshore wind energy is the additional cost of the substructure supporting the wind turbine. This is especially the case in deep-water turbine farms when multiple floating substructures are required. Further **cost reduction** is necessary to make offshore wind energy economically competitive, and one way to achieve lower costs is through continued **design optimization of the platform** that supports the floating offshore wind turbine (FOWT).

My PhD research

The main objective of the research is to **improve the low-fidelity analysis tools** by using the results from the **high-fidelity simulations.**

The low-fidelity tools are based on **potential flow** theory in combination with **empirical drag** equations, while the high-fidelity simulations are Reynolds-Averaged Navier-Stokes(RANS) based **Computational Fluid Dynamics (CFD)** simulations.



Semisubmersible floater motion

To learn more:

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 860737