



Maritime DTU  
Center for Maritime Activities

## Wave Loading on Offshore Renewable Energy Devices

Type of project: MSc or BSc

### Project description:

The generation of renewable electrical power from the ocean is entering a growth phase, with large projects planned in many parts of the world. There are three main sources of renewable ocean energy: offshore wind turbines, which can be mounted on the sea floor or floating; wave-power devices; and tidal-power devices. All three types are subject to structural loading, and possibly induced motions, from the waves. Thus it is important for designers to be able to predict this loading and response in advance to ensure that the systems are robust and efficient.

Here in the FVM section of MEK, we have been developing a finite difference based numerical solution for wave-structure interaction in the marine environment. Several types of projects are available ranging from basic convergence and stability analysis of the various numerical schemes to optimisation and parallelisation of code, to application of the model for engineering analysis of real structures.

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