seanergy
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Poster nº28

FLOATING MODULAR PORT EXTENSION FOR WIND TURBINE FLOATER FABRICATION AND ASSEMBLY

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1. Introduction

Sea level rising consequences drive to: (Oppenheimer et al., 2019) (Hauer et al., 2020)

- Extreme coastal weather: Coastal erosion and floods
- Food scarcity
- Population migration from coastal areas
- Impact on port facilities Increased demand for port space by 2050 linked to offshore wind energy

Forecast total increase in demand for port area world-wide (Hanson & Nicholls, 2020)
• 83% ⇨ 270%

EC Estimated increase of offshore wind energy in Europe (MITECO)
•12 GW ⇨ 450 GW

Global target for offshore wind generation (Global Offshore Wind Report 2023)
•2500 GW

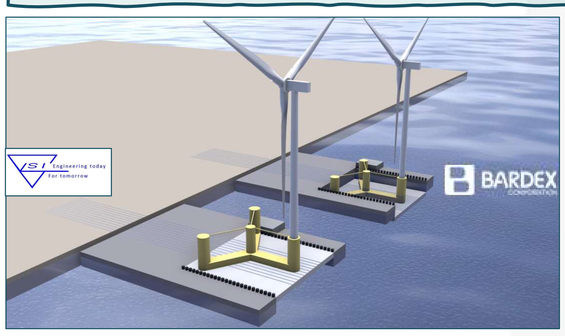
(Wang et al., 2020)

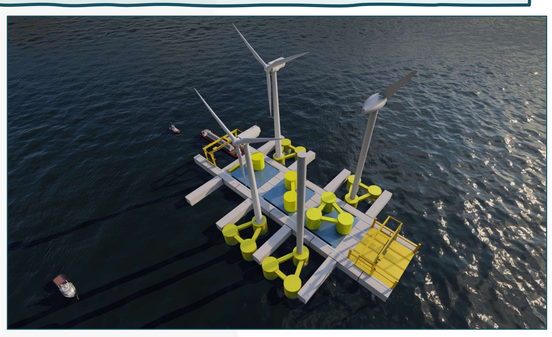
RESILIENT SOLUTION: CONCRETE MODULAR FLOATING PLATFORMS

PORT SPACE SAVING

ECONOMIC SOLUTION

3. ALFOWT SISAS PATENT





Floating Platform **A**ssembly **L**ine for **F**loating **O**ffshore **W**ind **T**urbines

Assembly	Launching	Maintenance	Decommissioning
Safe Economical	Scalable Code compliance	Customizable Adaptable	Modular Every location

Confidentiality

- The patents, trademarks website know-how of C²C and ALFOWT are exclusively owned by Safier Ingenierie SAS.
- Nothing can be communicated outside SIsas without SIsas approval.

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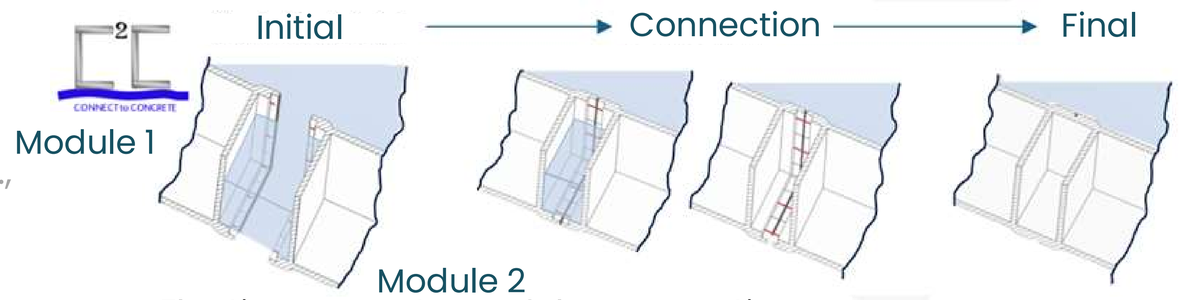
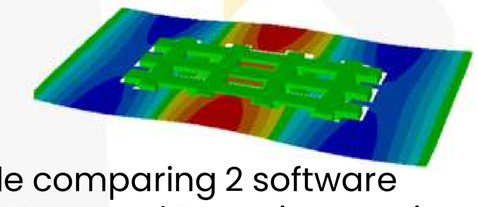
2. C2C. Connect 2 Concrete® Patent



- Floating concrete modules connection
- All section continuity ensured
- Concrete modular continuous and monolithic platforms
- No divers
- Blocked motions for safety during caissons connection and concreting

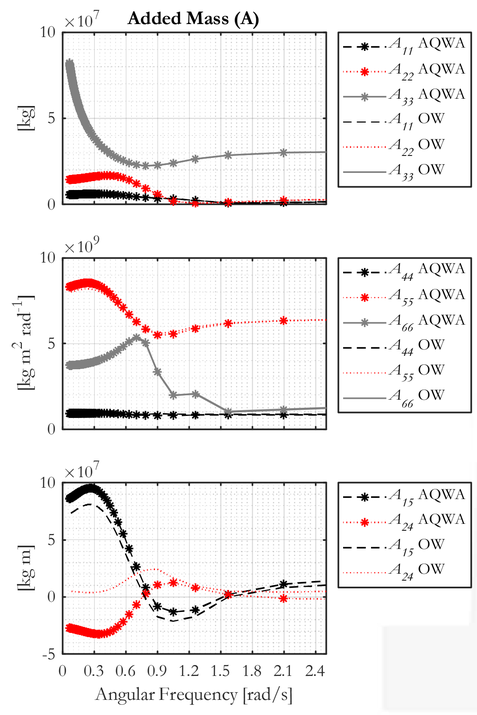
4. One module hydrodynamic Analysis

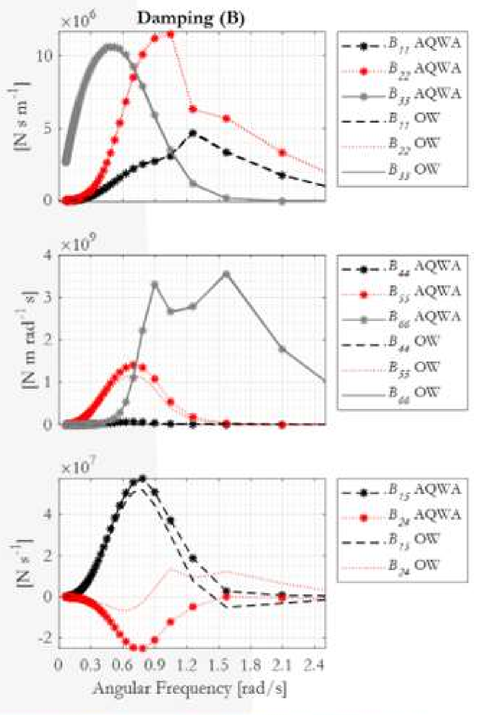
Mesh sensitivity analysis	Results for the optimal mesh	Comparison and validation AQWA vs Orcaflex



Orcaflex vs Ansys AQWA

- Validation for individual free module comparing 2 software
- Hydrodynamic parameters: Added Mass and Damping Matrixes





5. Conclusion and future research lines

- Validation of results by the correlation of both software results
- Total correlation in the diagonal elements for added mass and damping values. Small differences in out-of-diagonal elements: A_{24} y B_{24}
- Future modelling and comparison of the mating process of 2 floating concrete modules in Orcaflex and AQWA
- Future basin test for model calibration
- Structural analysis of installation aids connection elements

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