

Current Affairs JIP improves current insight

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In the last few years the importance of current on the behaviour of offshore structures has become evident. For example, the strong loop current in the Gulf of Mexico delayed installation projects and resulted in Vortex Induced Motions (VIM) of offshore platforms. The Current Affairs Joint Industry Project aims to shed light on the true impact of currents. MARIN is carrying out a complex matrix of tests. Report explains.



The focus of these experiments is a systematic series of captive model tests with a building block semi-submersible. Test results from this model test series will be used for the validation of the upgraded WINDOS tool (Work Package 2 of the JIP) and as benchmark data in the CFD studies (Work Package 3 of the JIP, involving the CFD specialists of all participants).

The following aspects will be varied systematically for multi-column structures:

- Column shape
(square, rounded corners, circular)
- Ratio between the draught (T) and the column diameter or width
- Column spacing
- Shape of the floaters (pontoon, rings, aspect ratios of length, height and beam)

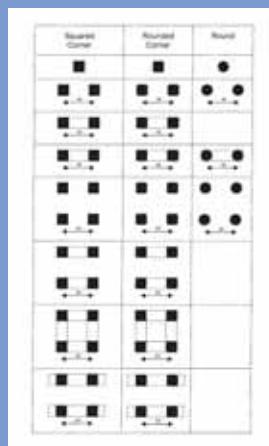
A scale 1:25 building block model was built for these tests and the focus of the tests will be on total floater drag, contribution of separate columns and pontoons to total drag and changes in behaviour due to variations in geometry. This resulted in a challenging test matrix, which will be very useful for the design and evaluation of semi-submersibles and TLPs and the validation of CFD tools.

It is still possible to join the Current Affairs JIP. If you are interested, please contact Olaf Waals. For the project plan and further information please refer to www.marin.nl, go to JIPS & Networks.

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MARIN engineers prepare the building block model of the semi-submersible



Different phases in the design require different levels of accuracy in the determination of the current induced loads and motions. In the initial design, semi-empirical methods (such as WINDOS) can be used, while in further stages complex Computational Fluid Dynamics (CFD) and model tests are justified.

Current Affairs wants to understand and quantify the possibilities and limitations of all these methods. The JIP's objective is to develop tools and guidelines to assist engineers in the assessment of current loads and effects in the different design stages. With good support from the industry, including representatives from oil companies, engineering companies and shipyards, the JIP started at the end of last year. Early this year a set of interesting experiments was performed.