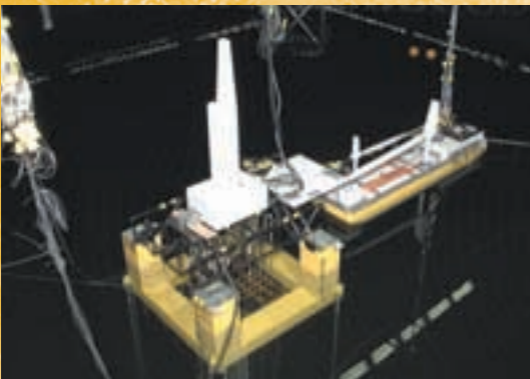


Deepwater exp

Since the opening of the new Offshore Basin in July 2000, the offshore industry has shown overwhelming interest in its unique wind, wave and current generation capabilities. Some challenging projects at a glance.

Seno TLP (Unocal)

Unocal Corporation with its West SENO Tension Leg Platform in a water depth of 1000 m was the first commercial client in the new Offshore Basin. Model tests included tests on the TLP only and with a drilling tender barge moored to it. Objectives were to obtain sufficient data to verify the TLP performance and adequate design data, and to confirm the relative motions of the moored barge to the TLP. The unique deep pit in the Offshore Basin allowed for a 1:50 scale model of the full length TLP tendons.



Tension Leg Deck tests (SBM)

Single Buoy Moorings (SBM) is steadily developing its Tension Leg Deck (TLD) concept for deepwater developments step-by-step. Using an

oration and production solutions

ingenious system of free-hanging weights, a stable platform for vertical risers can be created on a moving barge. As part of this development, MARIN performed model tests on a rectangular barge with different skirt configurations to obtain realistic values of the viscous damping in heave and roll. These tests did not show any sign of parametric rolling, even in very large beam waves.

Using a special force and moment frame, the splitting forces could also be measured in 6 degrees of freedom. The results showed very favourable motion behaviour, even under these extreme conditions.

Bas Buchner

Bonga FPSO (Shell and Samsung)

The FPSO for the development of Shell's deepwater Bonga field (1000 m) visited the Offshore Basin twice. First, Samsung Heavy Industries (SHI) performed model tests to determine the motion behaviour of the FPSO in wind, sea and swell conditions. At this stage, tow resistance and tow stability tests were also performed with a realistic towing system for the ocean tow to the field.



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In the second phase, the FPSO was tested with its spread-mooring system, focusing on accurate measurement of mooring loads, and combined wave and low frequency motions. Special attention was given to correct truncated modelling of the mooring system. During these tests the new basin showed its unique capabilities: short wind waves were combined with long period swell under the angle with the current. It also made possible the careful modelling of the vertical current velocity profile.

MARIN



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Twin Hull Intervention Vessel (Maritime Tentech)

Providing a stable platform in severe environmental conditions is the most important feature of intervention vessels. Maritime Tentech is therefore designing the new concept Twin Hull Intervention Vessel (THIV) for its client Odfjell Drilling. Specially shaped columns and pontoons optimise the motions of the structure in waves. Tests were performed in severe seastates to investigate the vessel motions, the minimum air gap and slamming.



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