



With the development of offshore LNG terminals having the full attention of the offshore industry, MARIN too, is keen to keep abreast of developments and it has a number of Joint Industry Projects (JIP) focused on the related hydrodynamic issues. Report takes this opportunity to provide a brief overview of both existing and up-and-coming projects.

JIPs focus on Offshore LNG

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The development of offshore LNG terminals has the full attention of the Offshore industry. As a consequence, MARIN has a number of JIPs focussed on the related hydrodynamic issues. An overview of what is running and what is new.

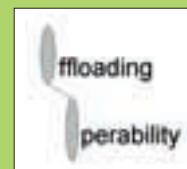
ComFLOW-2: Large scale sloshing tests (1 to 10)

The ComFLOW-2 JIP has 16 participants and aims to develop 'a dedicated and well-validated numerical tool for the offshore industry to

study complex free surface problems, which is flexible in its application and has a coupling possibility to the other tools of participants'. As part of the validation, this year 2D sloshing experiments are to be carried out at large scale 1:10, resulting in a tank of 3.9 m wide and 2.7 m high. These will be used for validation of the 2-phase flow models in ComFLOW. Contact: Tim Bunnik (t.bunnik@marin.nl).

Offloading Operability-2: LNG in close proximity

The 'Offloading Operability' JIP will be finished in Spring this year. The SHUTTLE tool, able to simulate single point and tandem offloading problems, has been delivered to the participants. Now the SHUTTLE tool will be extended to close proximity mooring; besides a floater, GBS or jetty terminal. Also the hydrodynamics of two vessels in close proximity will be studied in detail. Contact: Arjan Voogt (a.j.voogt@marin.nl).



HAWAI: deep thoughts about shallow water

Recent experience with the development of offshore LNG terminals has shown that the issues related to shallow water hydrodynamics are complex. Low frequency wave effects such as set-down and shoaling can result in significant excitation. On the other hand, streamlined LNG carrier hulls have a very low damping against low frequency motions. The combination of excitation and low damping can result in significant resonant motions and related mooring loads. The objective of the sHallow WAter Initiative (HAWAI) is to improve the reliability of the motion and mooring prediction methods for the development of offshore LNG terminals in shallow water by investigation of key hydrodynamic issues. The HAWAI JIP started in October 2005 and will run until the end of 2007. At present 24 companies have committed themselves to this JIP, consisting of six oil companies, four classification societies, 10 engineering companies and shipyards and four research institutes. Contact: Radboud van Dijk (r.r.t.van.dijk@marin.nl).

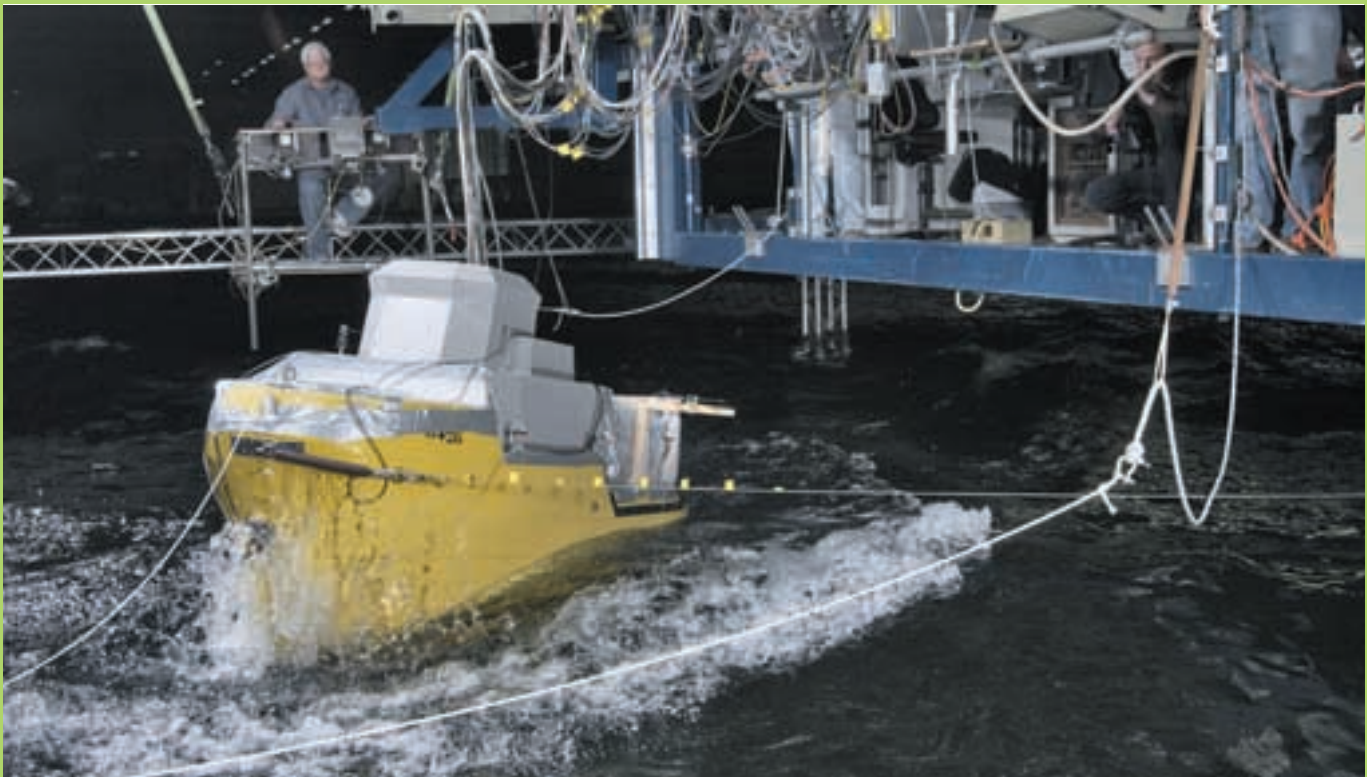
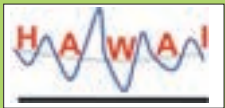


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SAFE TUG: Safe and effective tugs in waves

MARIN is presently working on the Ship Assist in Fully Exposed conditions (SAFE) TUG JIP. Tugs play an important role in the accessibility and availability of LNG terminals in ports and offshore. More effective and enduring tug operations in open seas will enable lower downtimes for these terminals. In this light, the objective of the SAFE TUG JIP is to quantify and improve the operability envelopes of tugs while assisting in waves. Tests are presently being carried out with tugs in both berthing and escorting operations. Contact: Johan de Jong (j.h.de.jong@marin.nl).

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