The Magnificent Seven

New ideas for Joint Industry Projects (JIPs) are born almost every day at MARIN. Here, we highlight seven new JIPs that are starting up.

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he offshore industry will be most interested in the proposals related to DP operations such as the TRUST and WAVE FEED FORWARD JIPs. For heavy lift installation of subsea equipment the OBELICS JIP offers numerical modelling. OBELICS is also of particular interest for the offshore industry, the oil majors, classification societies and suppliers of offshore installation equipment. By participating in one of these JIPs you will also become member of the FPSO Forum. Metocean specialists and people using wave data for design of offshore platforms should focus on the ShorTCresT JIP. Ship operators, designers, yards and suppliers of propulsion systems will not only be interested in the TRUST JIP but also in REFIT-2-Save which quantifies the effect of Energy Savings Devices. REFIT-2-Save joins the ongoing SPA-JIP in the Vessel Operator Forum. Finally, people involved in the fast lane of ships should take a look at FAST3, or at Moonpool for more insight into exication mechanisms. Please do not hesitate to get in touch with the contact people who can provide you with the full proposal, the list of participants and the conditions to join. They will also be interested to hear your feedback on the objectives and the scope of the projects



FAST3

The combination of high forward speed and comfortable and safe operation of a ship in a seaway has always been a severe challenge. Well-known restricting phenomena are vertical accelerations in head seas, broaching and bow diving in following seas. In the last two decades considerable progress has been made in extending the applicability of fast ships in several different roles. Emphasis has been on optimisation of the resistance and behaviour in waves. A considerable research effort to further optimise these craft had been stimulated, especially because a significant growth in the use of smaller fast craft is foreseen. Earlier JIPs included FAST1 concerning the development of new high speed hull shapes which are better capable of maintaining their high forward speed in higher sea states and FAST2, which dealt with the development of an improved 3D calculation tool for hydrodynamic pressures, wave loads and a motion prediction tool for fast ships sailing in waves. The proposed FAST3 aims to further develop the knowledge of high speed ship hydromechanics. Developing new and accurate tools applicable early in the design process of fast ships will lead to better optimised and safer designs. FAST3 is divided in two parts:

- Development of simulation methods for assessing nonlinear motions and wave
- loads on fast ships in waves. - Development of new calm water resistance methods and manoeuvring assessment
- methods Contact: Frans van Walree (f.v.walree@marin.nl)



OBELICS

OBELICS is an acronym of Operability of Ballasting and lifting operations of Extreme Loads with Integrated hydrodynamiCS. It combines state-of-the-art, real-time simulation technology with knowledge of heavy crane/lifting operations and ballasting conditions and it facilitates a new engineering and operation simulation environment. The simulation addresses manoeuvring, sea keeping, lifting, ballasting, line interaction, effects of wind, waves, current, bathymetry, anchoring, failure mode effect analyses, use of DP, full 3D visualisation and more. It can be used during the engineering stages of offshore heavy lift installations or removals. At the same time, it offers a suitable training environment for operational personnel. Initially, OBELICS aims to develop the required platform technology to handle offshore heavy lift operations. Part of the JIP will be the verification and where possible, validation of the new technology by tools such as MOSES, GHS, ORCAFLEX, ANYSIM etc., and by means of model test and full scale results. Contact: Noël Bovens (n.bovens@marin.nl)



TRUST

The understanding and quantification of thruster interaction effects is essential for an accurate evaluation of the station-keeping capabilities of any DP vessel. TRUST aims to increase insight into the physical phenomena, quantifying thruster interaction effects and to investigate possible improvement. Dedicated thruster-interaction model tests, full-scale measurements and CFD calculations will be combined with existing data. As well as understanding thruster-interaction effects, TRUST aims to develop analysis methods and to apply these tools in the design process and in the analysis of the DP vessel's station-keeping capabilities in operational conditions. TRUST has already kicked-off but new participants are still welcome. Contact: Hans Cozijn (h.cozijn@marin.nl)



Moonpool

It is important that the water remains calm inside the moonpool but waves, the motions of the vessel and the forward speed during transit can induce oscillations. Most of the solutions to dampen oscillations are still found and validated experimentally, or discovered at full-scale. The Moonpool JIP aims to improve insight into the excitation mechanism and to find solutions at an early design stage by developing a design methodology for moonpools and damping devices. Contact: Klaas Kooiker (k.kooiker@marin.nl)



ShorTCresT

The CresT JIP asked "What is the highest (most critical) wave crest that will be encountered by a platform in its lifetime?". This resulted in a number of important and practical recommendations. But one of the general conclusions was that the properties of short-crested waves are very different from the long-crested waves that are typically used for the design of offshore structures. Therefore, the ShorTCresT JIP was started to take short-crested waves into account in the design of offshore structures based on a good description of their spectral characteristics, statistics, kinematics and loading. Contact: Janou Hennig (j.hennig@marin.nl)





Wave Feed Forward

In the ONR sponsored STLVAST project, the application of Wave Feed Forward to improve Dynamic Positioning performance has been studied. Model tests were carried out with a scale model equipped with a DP system with Wave Feed Forward. By smart filtering and dedicated procedures of measuring and looping the Wave Forces into the DP controller, the positioning excursions reduced by more than 50%. To continue with the development of Wave Feed Forward for single ship DP operations in service conditions, this JIP has been initiated by MARIN and Oceaneering.

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REFIT-2-Save

Fuel consumption and emissions onboard existing ships may be reduced by refitting so-called Energy Saving Devices (ESD). REFIT-2-Save will investigate the effects of five promising ESD on fuel consumption in service by means of dedicated measurements on board. Insight into the physics of the refits will be provided by means of CFD and model tests. Applicability of CFD during the design of the devices will also be evaluated. This JIP is supported by 15 owners, operators, designers, yards and refit suppliers. The kick-off meeting just took place on December 9 in Paris. For further information please visit www.vesseloperatorforum.com or contact Henk van den Boom (h.v.d.boom@marin.nl).