MARIN

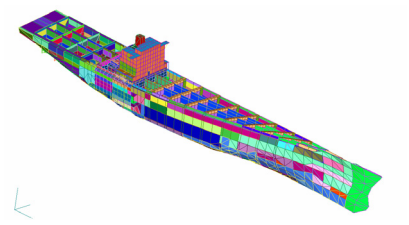
Challenging wind and waves

Linking hydrodynamic research to the maritime industry

TALLSHIP JIP

Background

Economy of scale is leading to unprecedented ship sizes. The new dimensions of the Panama Canal (450 x 55 x 18.5 m) underline this development. Order books of the major yards are filling with large container vessels exceeding 13000 TEU cargo capacity. Plans for 16 and 18 kTEU are announced. Such large ships capable of a sustained speed of 25 knots into severe wave conditions, require a thorough design verification in service conditions. In particular the hull response in relation to fatigue life time cannot be extrapolated from empirical methods and rules. Both for safety and economy of this new fleet, hull integrity throughout the vessels' lifetime is paramount.



Objectives

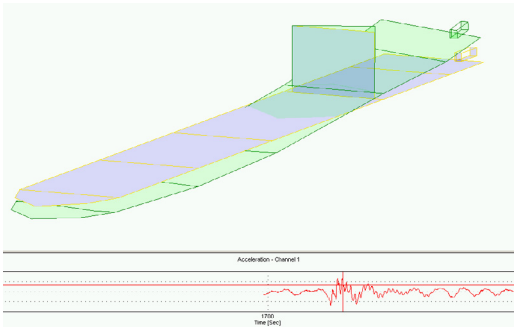
The TALLSHIP (Tools & Analysis for Life time of Large Ship) initiative aims to bring together the different interests and experiences to solve the issues related to the design, engineering, construction and operation of ultra large container vessels. In particular the project is aiming at the dynamic hull response and fatigue life prediction.

Scope of work

TALLSHIP focuses on the hull response in service conditions including wave excitation, bow & stern slamming, whipping & springing, shear forces and torsion. Hull deflections and distortion of hatch openings are considered. Structural analyses for extreme wave loading and fatigue will be conducted.

To achieve the objectives, the following tasks have been identified:

1. In-service monitoring campaign.
   Advantage is taken of on-going monitoring campaigns on board cross Pacific 6500 TEU and an FE-Europe trading 9200 TEU vessel in the Lashing@Sea JIP. This campaign has already demonstrated the effect of bow slamming on whipping. The monitoring campaign will be extended in time as well as with an additional vessel, i.e. 13000 TEU.
2. Structural response analysis for extreme, incident and fatigue loads (Class Societies).
3. Model tests for selected vessel in specific conditions.
4. Software tool development (deliverable).



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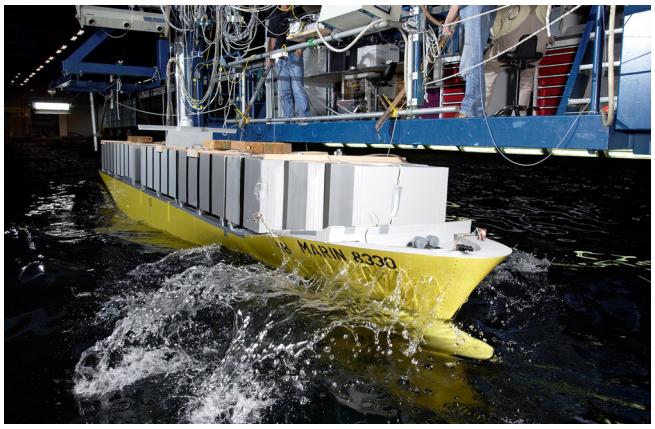
Organisation

TALLSHIP will be conducted as a Joint Industry Project in close co-operation with owners, operators, yards and class societies. Class societies will be involved with their structural analyses, design verification studies and software tool development. Major class societies have assured their co-operation. All participating companies will be represented in the TALLSHIP JIP Steering Group. MARIN will act as JIP manager, sign participation agreements with all members and issue subcontracts.

TALLSHIP JIP will have its meeting in conjunction with the Vessel Operator Forum (www.vesseloperatorforum.com) hosted by one of the members every 6 months. Presentations, reports and other relevant info will be posted on the confidential project web site.



Deliverables

1. Results of monitoring campaigns.
2. Results of strength and fatigue analysis.
3. Results of model tests.
4. Software tools for design.

Costs

The total cost of the present scope is estimated at 2.4 M€, anticipating participation of 10 owners/operators, 7 major yards and 5 class societies, the participation fee is 90 k€ (30 k€ in 2008/2009/2010).

Benefits

1. Feedback from in-service behaviour.
2. Design verification & evaluation.
3. Rule & tool development including in-house software.
4. Common understanding shipping, shipbuilding and certifying authorities.

Schedule

January 2008	Circulation of TALLSHIP JIP Proposal
4 June 2008	Kick-off meeting Grimstad Norway
June 2010	Completion

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