

report

MARIN

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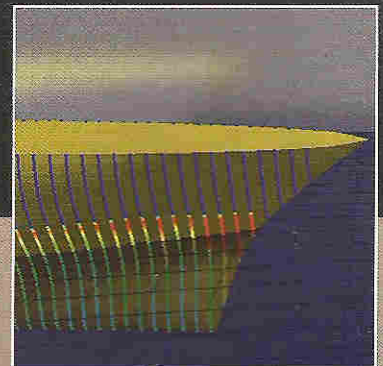
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report

**Bas Polkamp
and Hans Bosch,
Dockwise**

The earlier simulations
take place, the better



*Dockwise pushes the boundaries in remarkable Aasta Hansteen T&I project **Accurate calculation models for manoeuvring simulations** CRS projects examine the impact of waves



6. Dockwise pushes the boundaries in remarkable Aasta Hansteen T&I project

MARIN has been contracted to carry out a wide range of simulation services for the highly complex Aasta Hansteen project.

9. Aasta Hansteen - Bridging engineering to operations

An impressive operation and an impressive project! Aasta Hansteen highlights MARIN's strategy of linking the engineering phase to the operational phase.

12. PanShip developments for fast ship simulation

PanShip has matured into a versatile tool for the prediction of the seakeeping behaviour of fast ships. Here are the latest developments.

14. Simulations - from concept to operation

16. QSHIP allows designers to concentrate on what matters

To support designers and engineers in evaluating design concepts, MARIN has developed the hydrodynamic suite QSHIP.

17. New insight into the response of a semisubmersible floating turbine foundation

Floating foundations for wind turbines present some technical advantages, which is encouraging more industry players to develop new floaters.

18. FATIMA takes on more prominent role in seakeeping assessments

The linear seakeeping code FATIMA is being used more and more at MARIN.

20. XMF leads to development of a multi-purpose simulation platform

The Extensible Modelling Framework (XMF) is a C++ software toolkit serving as a foundation for all MARIN's time domain simulation software developments.

21. CRS projects examine the impact of waves

A string of projects has been carried out in the Cooperative Research Ships, focusing on the prediction of impulsive load due to wave impacts.

22. MARIN helps HWCG plan emergency response system

Numerical analysis and bridge simulation are being used to develop a deepwater containment response system.

24. Accurate calculation models for manoeuvring simulations

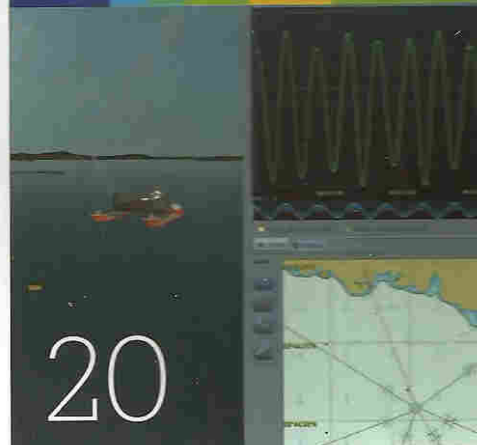
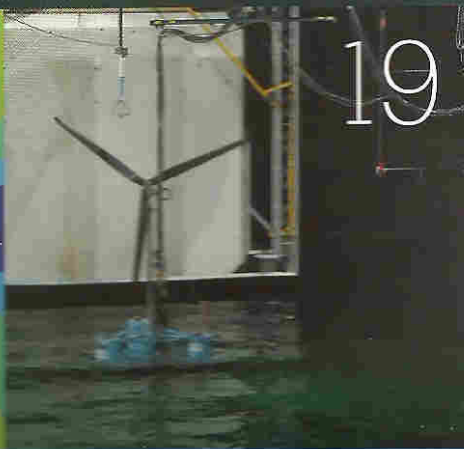
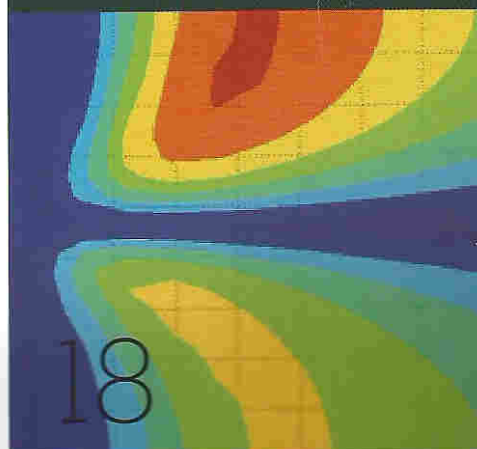
Over the past decades more methodologies have become available.

25. Exploring the future of unmanned transport

MARIN conducts unmanned ship simulations with the help of AIS.

26. 'Wageningen B' is followed by the future-ready C&D-series

MARIN is preparing two new propeller series.



MARIN's news magazine for the maritime industry
August 2015 no. 115

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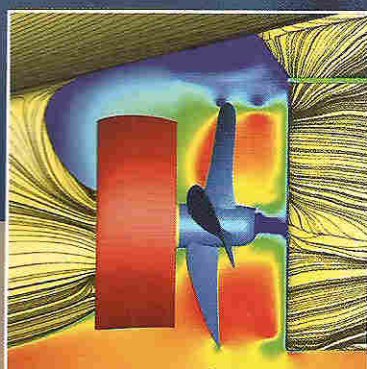
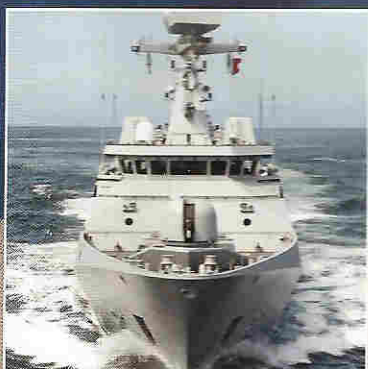
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report

**Oscar van Straten,
Damen Schelde Naval Shipbuilding**

We expect CFD to play
a role going forward



CFD – a future 'numerical towing tank' for naval vessels **ReFRESCO - a CFD code tailored to the maritime world takes shape** From fresh Breathe to hot Savannah



6 **CFD – a future ‘numerical towing tank’ for naval vessels**
 Report interviews Oscar van Straten, an engineer from Damen Schelde Naval Shipbuilding, Research & Technology Support, about the impact of CFD and the long-lasting relationship with MARIN.

9 **ReFRESKO - a CFD code tailored to the maritime world takes shape**
 Continuous refinement of the ReFRESKO Code is taking place. We review recent, current and future steps in its development.

12 **MARIN invests in the future as CFD takes on more prominent role**
 To facilitate the use of reliable CFD in the design and engineering process, MARIN has invested in a new, large computer cluster, and is sharing its CFD code ReFRESKO with its customers.

14 **Complex hull shapes need sophisticated assessment**
 Leading dredging company Van Oord asked MARIN to perform a full assessment of the hull lines of its new hopper dredger.

16 **Calculation of ship-ship and ship-port structure interaction using CFD**
 Carrying out fast and reliable calculations of hydrodynamic interaction forces is a vital part of MARIN's work. A recent project highlights this.

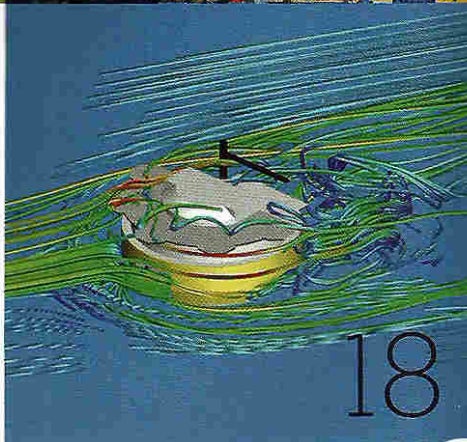
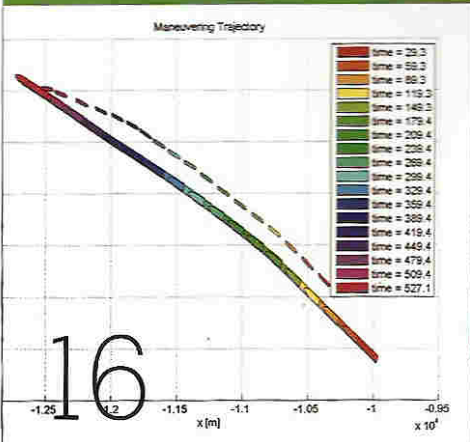
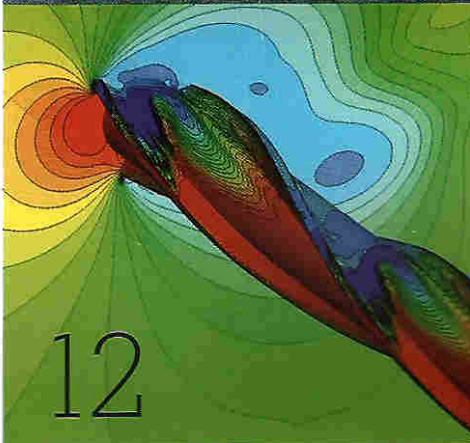
17 **In-depth analysis of anti-roll tanks using CFD simulations**
 In 2014, the behaviour of anti-roll tanks (ARTs) was studied at MARIN by using ReFRESKO CFD simulations to fully understand the working principles.

18 **MARIN uses CFD to assess SSP's revolutionary new HUB design**
 MARIN combined CFD with fast-time simulations and intensive testing on its bridge simulator to explore the full potential of the new SSP HUB.

20 **CFD provides valuable insight into current loads on offshore constructions**
 CFD has become an accurate, efficient and cost-effective design tool to predict current loads on offshore constructions.

22 **MARIN assists clients improve the hydrodynamic performance of submarines**
 Numerical computations are increasingly used to assess submarine designs.

23 **From fresh Breathe to hot Savannah**
 MARIN plays a role in the launch of Savannah, the world's first hybrid superyacht – 'a yacht full of premiers'.



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April 2014 no. 114

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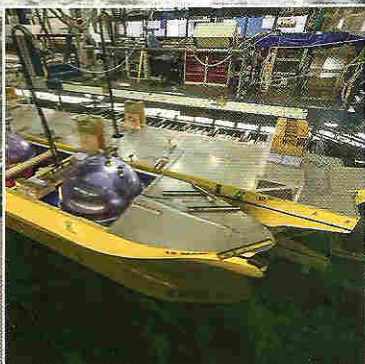
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report

Joel Witz, Hess Corporation

Model tests valuable in identifying and capturing extreme events



Influence of LNG sloshing on offloading operations **Offshore tug simulations in extreme environments**
Highly efficient Tension Leg Platform design, testing and analysis



6 **HESS on why it returns to MARIN to find answers**
 Joel Witz, Global Engineering Advisor at Hess Corporation, has been a regular visitor to MARIN for three decades. Report asks how MARIN's testing facilities have assisted this leading energy firm over the years.

9 **Tension Leg Platform design, testing and analysis**
 Hess' Stampede TLP is tested in the Offshore Basin in waves, wind and current.

11 **WiFi JIP makes it possible to take the next step in foundation design**
 The aim of the Wave impacts on Fixed turbines (WiFi) JIP is to better understand the influence of steep and breaking waves on the foundation and secondary structures of offshore fixed wind turbines.

12 **Influence of LNG sloshing in partially filled tanks on offloading operations**
 Petronas commissions MARIN to perform side-by-side model tests to assess the influence of LNG sloshing in partially filled tanks on an LNGC's motions.

14 **Sharing knowledge, experience and costs through joint R&D**
 A JIP update.

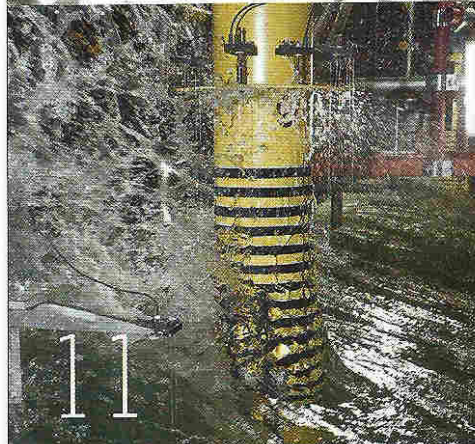
16 **A focus on waves**
 Several research challenges now require advanced wave modelling techniques. For special applications in-house wave generation software has been developed.

18 **Artificial ice research provides fresh insight**
 Experiments with artificial ice in model test campaigns give the industry better insight into working in inhospitable environments.

20 **Offshore tug simulations in extreme environments**
 MARIN's tug simulators were used to investigate equipment requirements and limitations of tugs working in extreme conditions.

21 **Motion based simulator for Dutch Navy – "FS3"**
 A two-year project is underway which will lead to the development of a Fast Small Ship Simulator.

22 **Passage to the High North – when spray matters**
 MARIN investigates how icing impacts operations in the High North.



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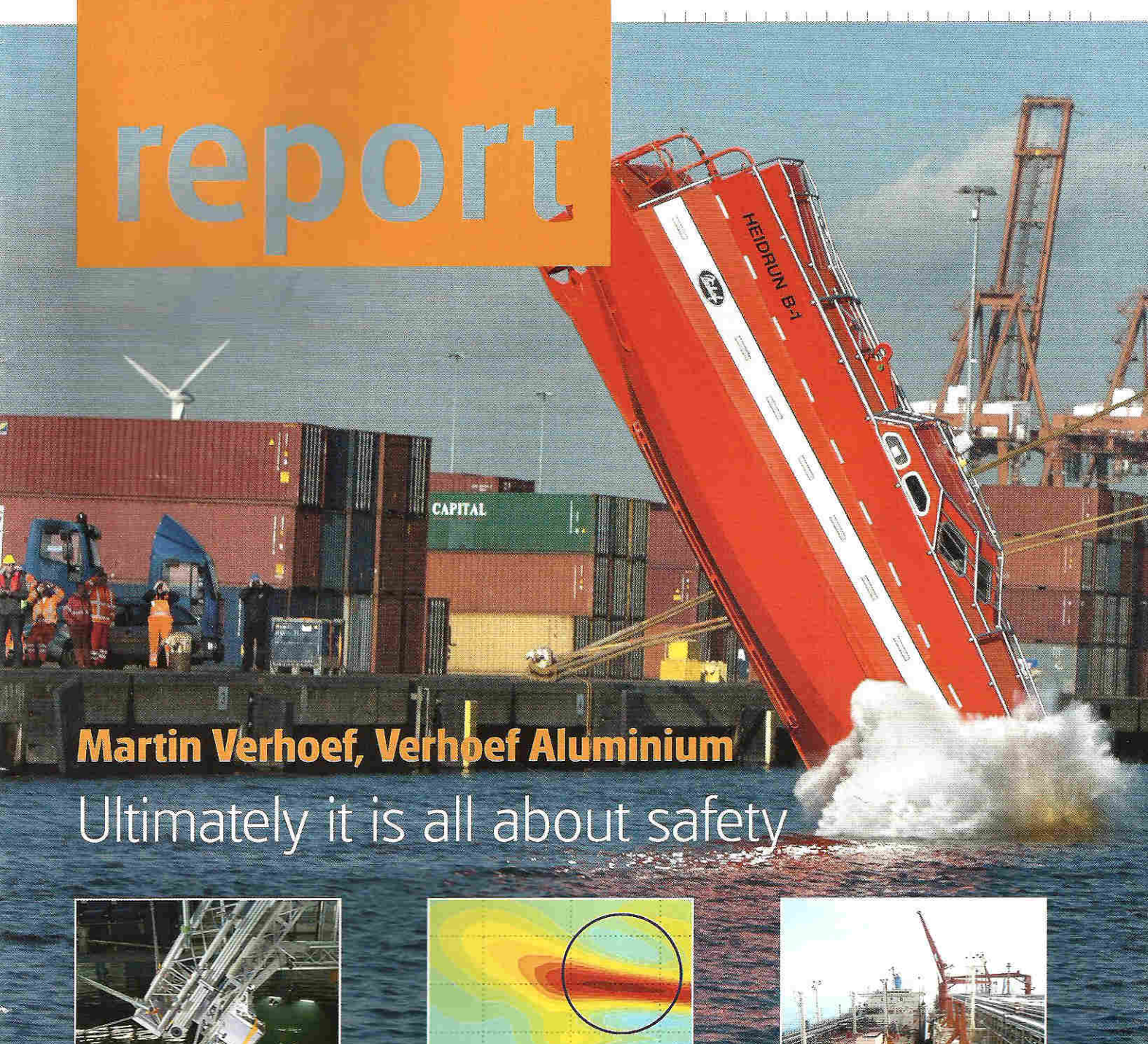


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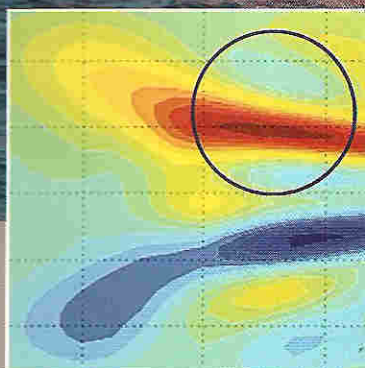
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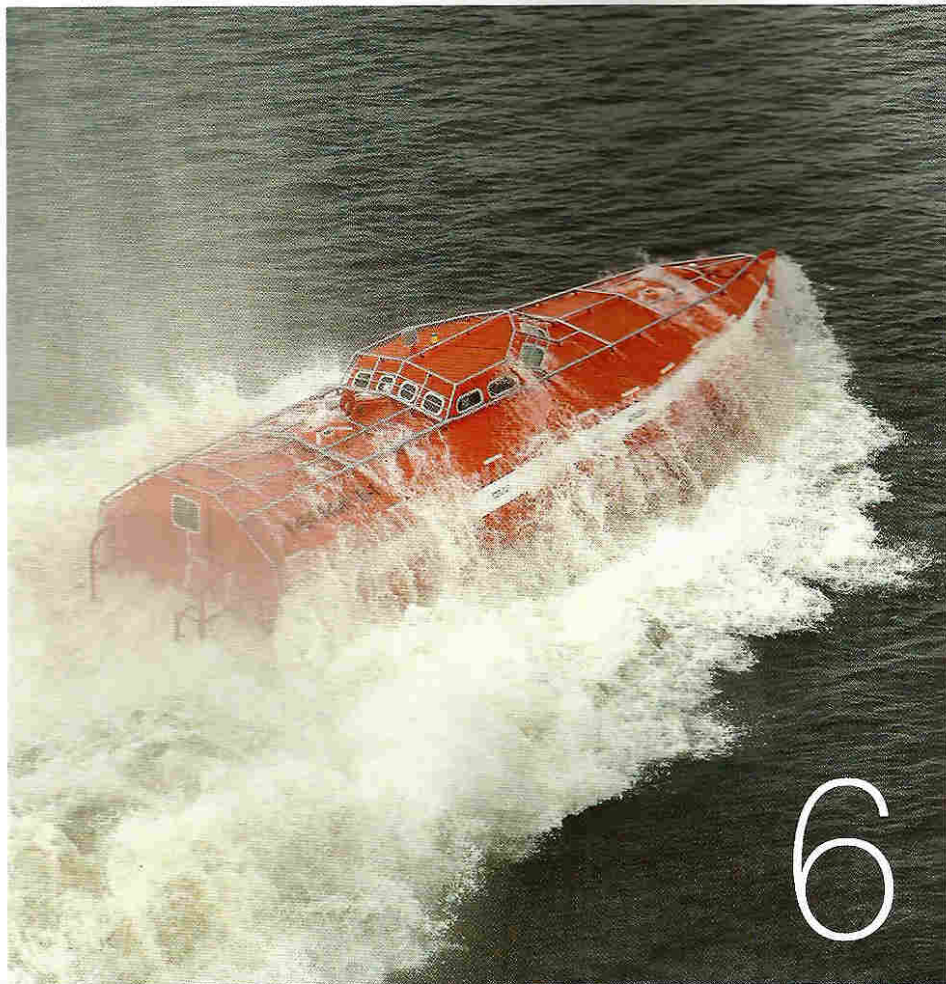


Martin Verhoef, Verhoef Aluminium

Ultimately it is all about safety



Dropsim gives new insight into operational limits of freefall lifeboats **IMO Minimum Power Requirement**
– **A joint way ahead in adverse conditions** Assessing the human factor in offloading operations



6 First in Freefall

Report interviews the only aluminium Freefall lifeboat builder in the world, Verhoef Aluminium.

9 Dropsim gives new understanding of the operational limits of freefall lifeboats

With the successful validation of the software tool Dropsim a huge step forward has been made in determining the operational boundaries of freefall lifeboats.

12 The Human Factor

The human factor has always been an important area of research, and here we outline the many ways MARIN is involved.

14 Assessing the human factor in offloading operations

Quantifying risks during offloading operations by the assessment of human factors is the subject of a fascinating study.

15 Speed@Sea

The goal of the Speed@Sea project was to assess the limiting aspects and criteria for fast sailing vessels.

16 Project provides insight into passenger ship comfort

MARIN starts two-year research programme with the passenger sector to enhance industry knowledge and to improve comfort levels.

18 Collision risk assessed with AIS data

AIS data is now being used to determine the collision risk for offshore installations.

19 IMO Minimum Power Requirement – A way ahead in adverse conditions

New IIP aims to deliver better design for sustained speed in a seaway following new EEDI regulations.

20 ReFRESCO-operation gives unique opportunities in CFD

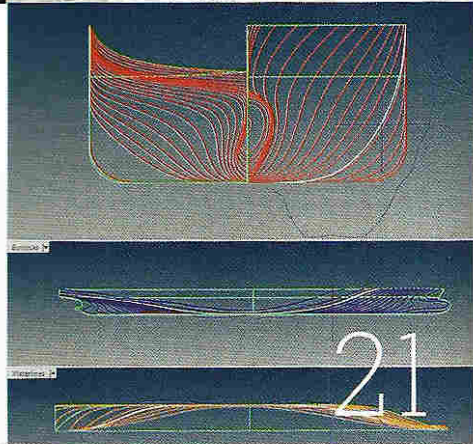
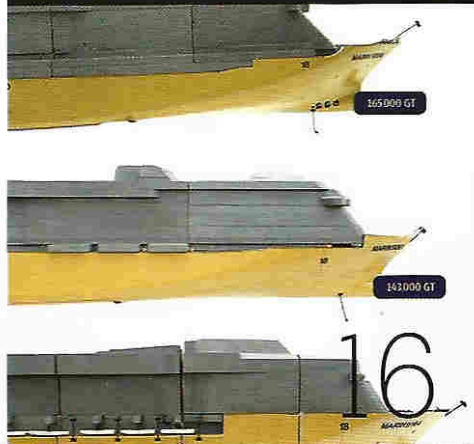
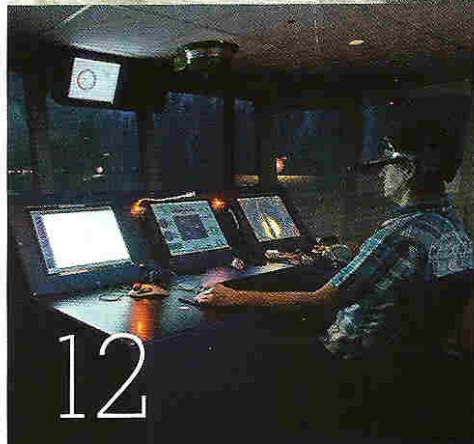
A new maritime CFD development, validation and application was launched.

21 Future-proof hull fairing tool developed

By combining GMS with the strengths of Rhinoceros, MARIN now has a hull shape drawing tool ready for the future.

22 Free concept testing well received by Dutch maritime innovators

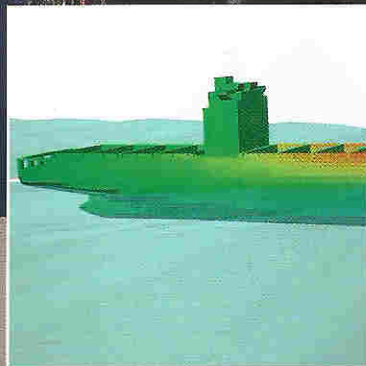
MARIN decided to create a Concept Basin in 2013 and less than a year on, several new initiatives tested there have already been successfully launched.



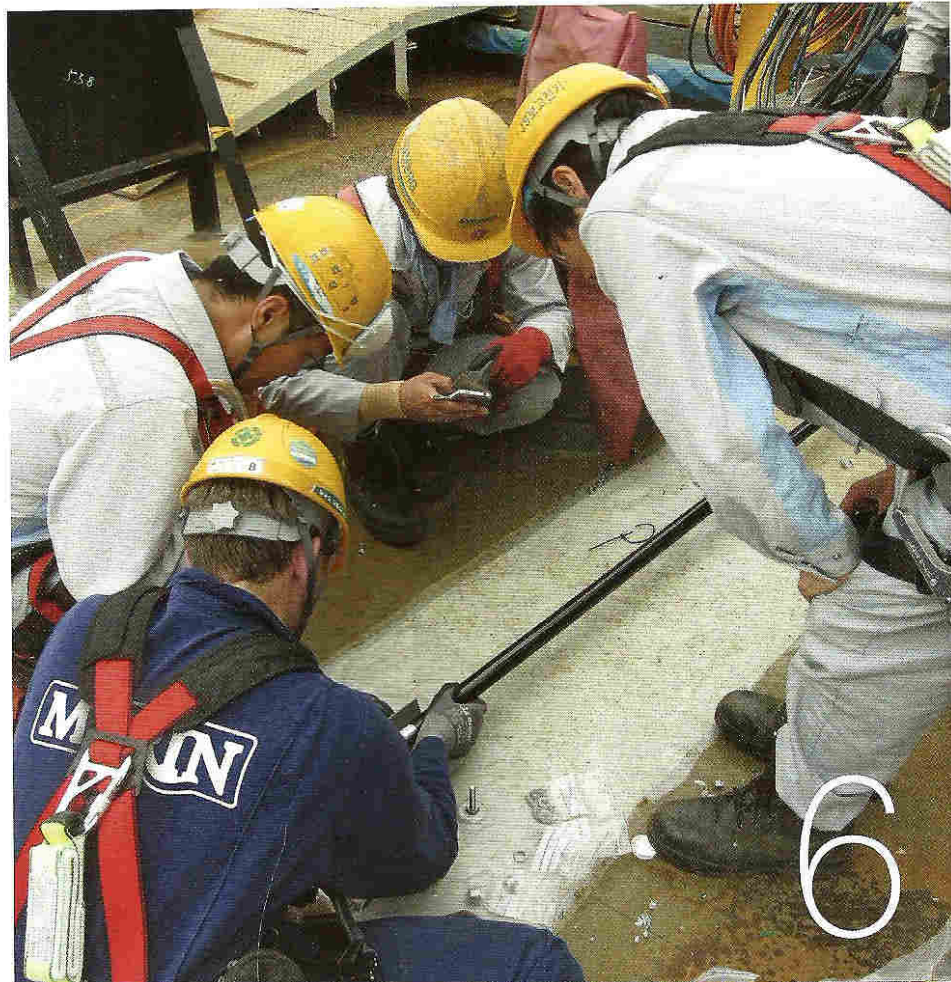
report

Didier l'Hostis, TOTAL

Comparing design assumptions with
operating reality



IceTower project sparks interest **Hydro-structural response simulations play an important role in decision-making** Largest containership in the world 'Triple-E' first tested at MARIN!



6

5 **AHMS has an important role in shedding light on FPSO design assumptions versus operating reality**
 In an exclusive interview, Naval Architect Didier L'Hosotis explains why TOTAL decided to support the Monitas Joint Industry Project.

9 **Dry mooring line monitoring for floating production systems**
 LifeLine initiative aims to develop a dry mooring monitoring alarm system.

0 **Hydro-structural response simulations play important role in decision-making**
 MARIN makes wide scale use of various hydrodynamic tools to calculate structural response. Report highlights some recent applications.

2 **Monitoring to support inspection, maintenance and repair of offshore structures**
 Measurements from an FPSO AHMS used to improve inspection schedule planning.

3 **Quantitative Risk Analysis for LNG terminals**
 Quantitative Risk Analysis for moored, small-scale LNG carriers and LNG barges for a Rotterdam terminal.

4 **MARIN spearheads advanced wave impact modelling initiatives**
 Due to the complexity of wave impact modelling, several new research projects are underway.

6 **IceTower project sparks interest**
 New JIP considers the full-scale monitoring of ice loads.

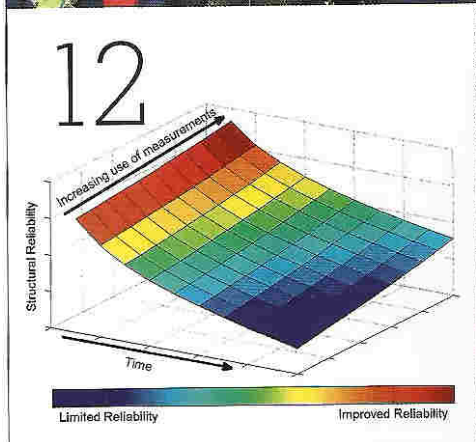
7 **Imaging measurement techniques open up new possibilities**
 The Digital Image Correlation technique has been applied on a wide range of projects. Examples from research programmes are highlighted.

8 **Ensuring design meets operating reality**
 Monitoring - Does your ship perform as expected? Is the operating environment as anticipated? Should the next vessel be the same? MARIN helps provide some of the answers.

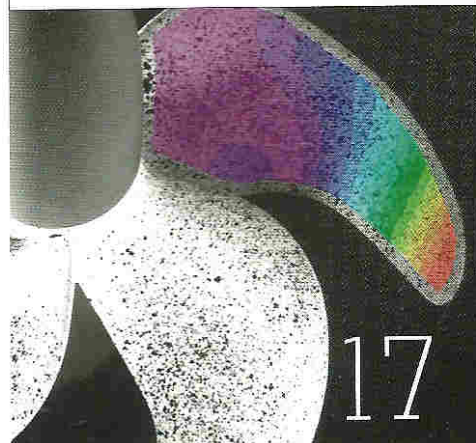
0 **WiFi JIP helps offshore wind industry take the next step in foundation design**
 Structural aspects of offshore wind turbines in extreme loading events are under scrutiny in the Wave impacts on Fixed turbines JIP.

1 **The blue revolution is on its way**
 First Blue Week a great success - an interesting exchange of ideas about renewable activities in the maritime industry.

2 **Largest containership in the world 'Triple-E' first tested at MARIN!**
 MARIN investigates the seakeeping ability of what would become the largest container vessel in the world - Maersk Line's Triple-E.



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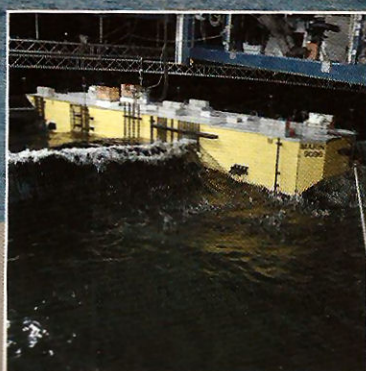


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report



Jan-Peter Bredeveld, Seaway Heavy Lifting We are stretching the limits



OBELICS successfully concludes after two years **Combined efforts on TOTAL's CLOV FPSO**
Freeware for Speed/Power Trial analysis released



6

6 Seaway Heavy Lifting sees the benefits of real-time simulation

Report interviews Jan-Peter Breedevelde, SHL Engineering Director about the company's participation in the OBELICS JIP and the value of real-time simulation for the offshore industry.

9 New initiatives aim to increase the safety of oil and gas offloading operations

The Offloading Operations Joint Industry Project bridges the gap between real world operations and numerical tools.

10 OBELICS successfully concludes after two years

The OBELICS JIP results in the development of an engineering and operation simulator suitable for both designing and training purposes.

12 Logistical scenario analysis for hydrodynamic applications

To calculate the operability of the whole logistics chain MARIN has developed the hydrodynamic scenario analysis program ScenSim.

13 Freeware for Speed/Power Trial analysis released

The new STAIMO software for Speed/Power Trial analysis and reporting on board was released in January for use by the worldwide maritime industry free of charge.

14 aNySIM – a versatile hydrodynamics engineering tool – for now and for the future

During the past 10 years, MARIN has successfully developed and used the time domain simulation program aNySIM.

15 Real time bridge simulations for Sofec 'bring design to life'

Sofec is designing a new FPSO and asked MARIN to evaluate and optimise the offloading procedure.

16 Several Arctic JIP initiatives are underway with a focus on safety and sustainability

The 'Arctic Operations Handbook' project delivered a document with its recommendations for enhancing safe, reliable and sustainable operations in Arctic regions.

18 Boskalis tests new operation on bridge simulator

Boskalis Offshore is working on a project for the installation of two submarine power cables between Java and Bali.

19 Hull integrity assessment of FPSOs for 20 years!

Today fatigue is assessed on board FPSOs with advanced hull monitoring systems with automatic and extensive data analyses.

20 Combined efforts on TOTAL's CLOV FPSO

MARIN carried out model tests, real-time simulations and a full-scale monitoring campaign considering different operational and design aspects of the CLOV FPSO.

22 Emissions reduction initiative in the Port of Rotterdam

Studies show that carrying out ship emission calculations, based on AIS data, can offer significant benefits.

23 New North Sea route structure successfully implemented

Rijkswaterstaat used MARIN's expertise concerning risk assessments, safety studies and traffic analysis to initiated major changes in the overall route structure on the Dutch part of the North Sea.



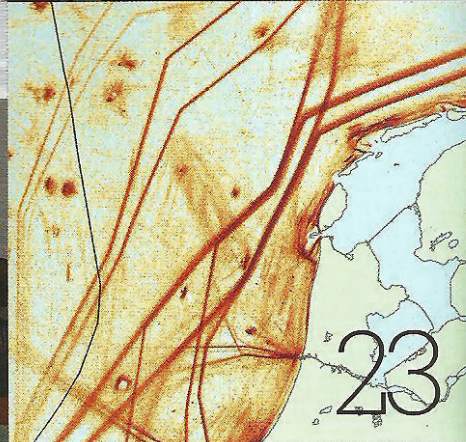
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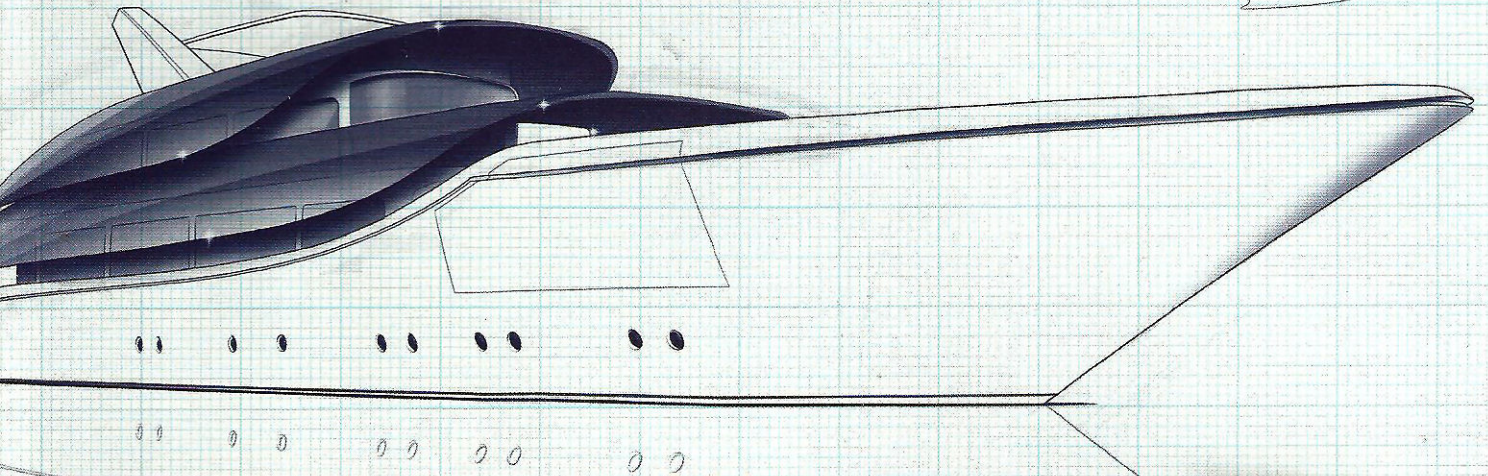
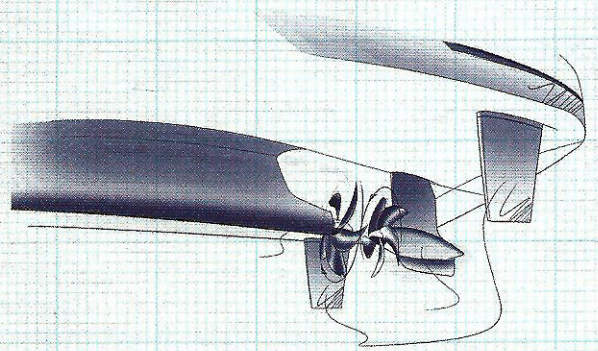


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report



Ronno Schouten, Feadship

Pioneering concepts are turned into reality



Station keeping performance of arctic drillship concept under test **Reducing large design loops for yacht concepts** Desktop studies turn new offshore initiatives into safe and efficient solutions



6 Building yachts others do not dare to build
 Feadship's superyachts are world-renowned and MARIN is often at the start of the process - when pioneering concepts are turned into reality. Report interviews Ronno Schouten, Head of Design.

10 Free slots available at new Concept Basin
 In a bold new initiative designed to stimulate Dutch maritime innovation, MARIN has created a Concept Basin.

11 Hydrodynamic software suites make design concept evaluation more efficient
 To support designers and engineers in evaluating design concepts more efficiently, MARIN has developed the hydrodynamic suites QSHIP and QPROP.

12 Significant upgrade of Anti Roll Tank (ART) design services
 MARIN has recently invested in new methodologies and modern tools to improve its services related to ART design

14 New propeller optimisation process can analyse 10,000 designs a day!
 A newly developed propeller optimiser makes it much faster to identify propeller-hull reactions and reach design decisions.

16 Pioneering 'HUB' design tested on bridge simulator
 The HUB simulations proved to be a great way of experiencing and verifying a completely new design - using and improving it along the way.

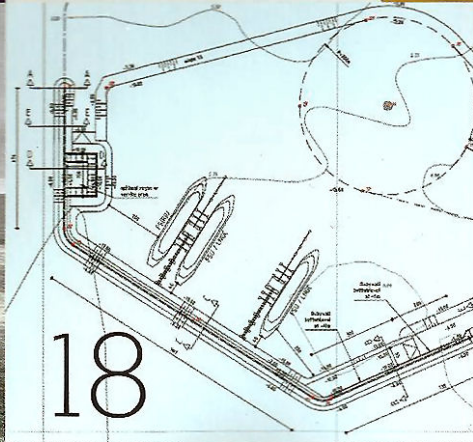
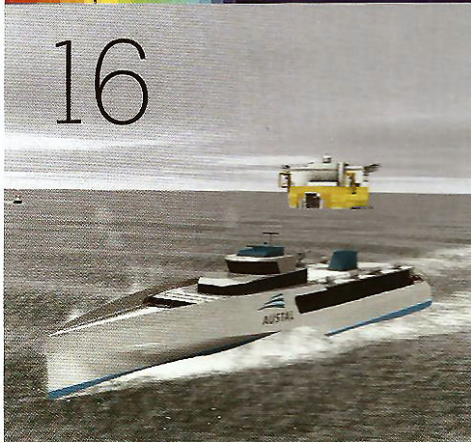
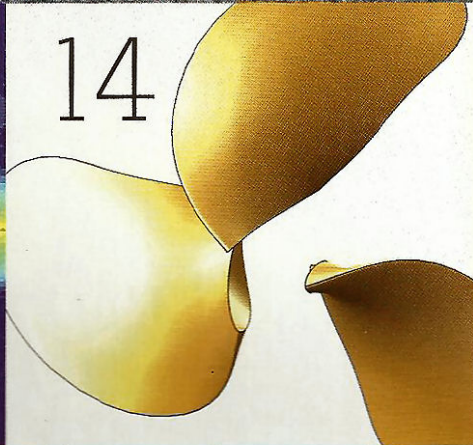
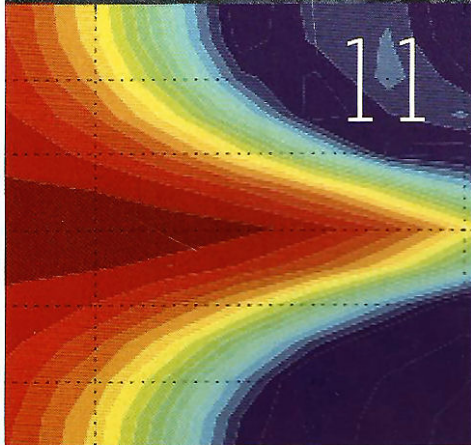
17 Proven concepts re-emerge in a new era of ultra large containerships
 With the ever-increasing size of container vessels, can propulsion concepts of 10 years ago still be applicable?

18 New Montevideo LNG terminal goes ahead based on MARIN & ARCADIS' concept designs and studies
 A team from MARIN and ARCADIS prepared the preliminary design and evaluated the maritime access of the new terminal.

20 Desktop studies turn new offshore initiatives into safe and efficient solutions
 MARIN USA works closely with offshore clients during the concept phase of their projects as ideas are turned into reality.

22 Station keeping performance of arctic drillship concept under test
 When Ulstein Sea of Solutions took part in a concept design competition for an arctic drillship, MARIN was asked to investigate the concept variations.

23 Structural response calculations for a new FPSO concept for SHELL
 MARIN has taken the first step in creating a hydro-structural coupling using DIFFRAC enabling more complex hull designs to be used in structural analysis.



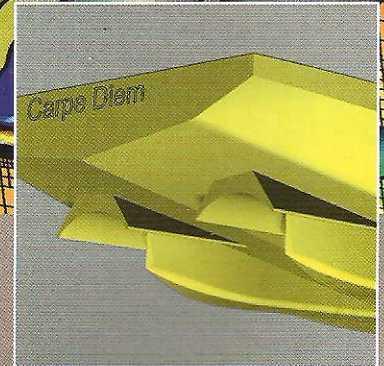
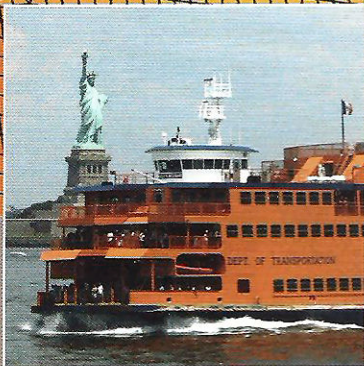
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MARIN

report

David Connolly, Shell

Energy saving is basically
good business practice



First ever investigation into VSP-induced hull-pressure fluctuations **Shell goes 'back to basics' in its search for energy efficiency** Barge optimisation leads to cuts in fuel consumption

6



6 Shell goes 'back to basics' in its search for energy efficiency

Energy saving at Shell is an intrinsic part of its business. David Connolly, Shell Lead Principal Maritime and Marine Technologist at Shell Shipping & Marine Technology, tells Report how energy saving is basically good business practice.

9 Barge optimisation leads to cuts in fuel consumption

MARIN has a specialist inland waterway transport team dedicated to improving the performance of inland vessels. Already tests show that impressive fuel savings of at least 10% to 20% are possible.

12 MARIN launches BlueWeek

During this new JIP week, seminars and Joint Industry Projects focussing on renewable energy and nature-inspired solutions will be presented.

14 ReFRESCO plays major role in understanding and designing Energy Saving Devices

The advantages of using ReFRESCO to study ESDs are explored.

16 Retrofitting for energy savings and emissions reduction

MARIN helps analyse the value of retrofitting in terms of energy savings and emissions reduction.

18 Design for Sea – Design for Efficiency

The "Design For Sea" JIP aims to show the impact of a ship designed for service on the Energy Efficiency Design Index.

20 Improved hull optimisation using PARNASSOS Explorer

MARIN's in-house RANS optimisation tool PARNASSOS Explorer is helping the industry discover more about the optimal hull form in order to improve performance and save energy.

22 Designed for waves

Platform Supply Vessels are the ultimate challenge when it comes to ship design. While calm water performance is important, for these ships harsh weather conditions and high sea states are their playground. Havyard asked MARIN to perform model tests for its new vessels.

23 First ever investigation into VSP-induced hull-pressure fluctuations

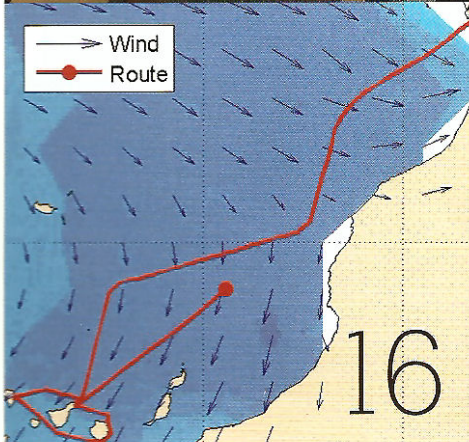
For the first time an investigation into Voith Schneider Propulsor-induced hull-pressure fluctuations has been carried out as part of a New York City Department of Transportation study to retrofit the Molinari Class Ferries. Energy efficiency was one of the objectives.



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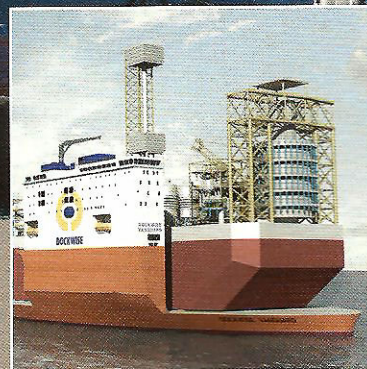
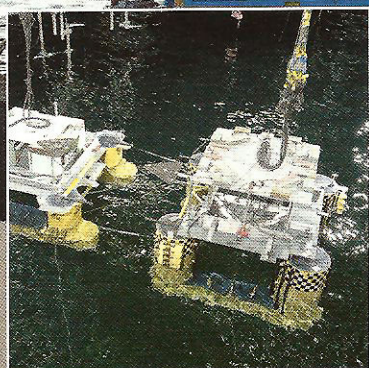


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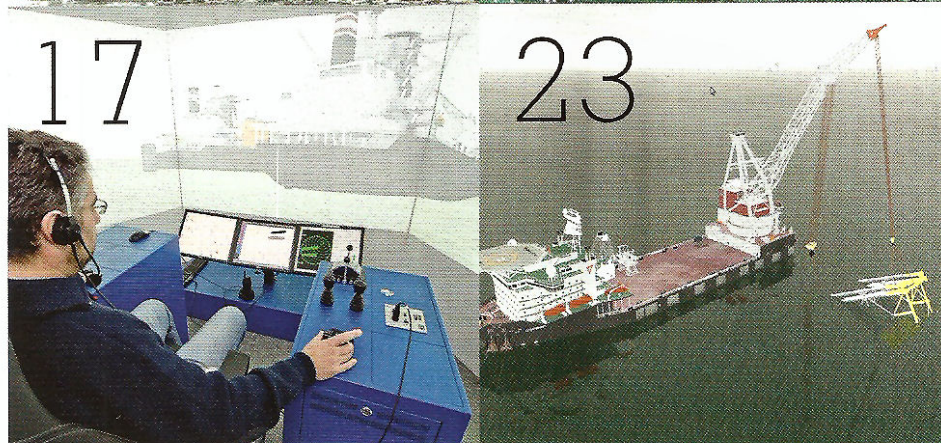
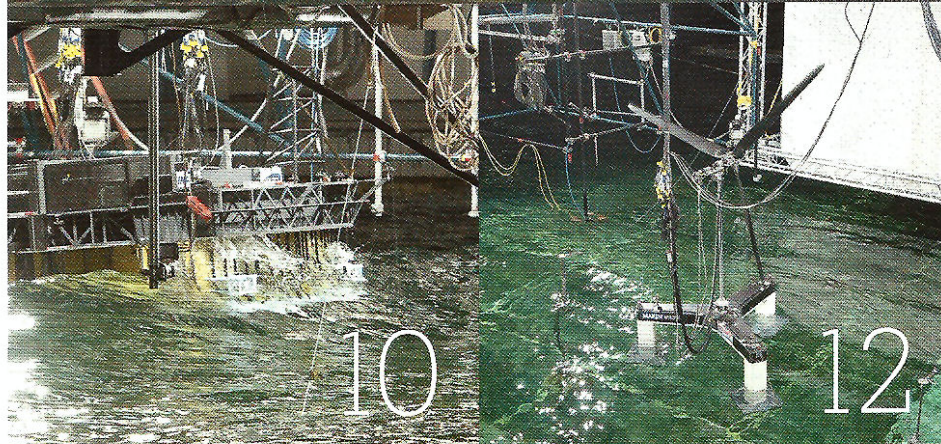
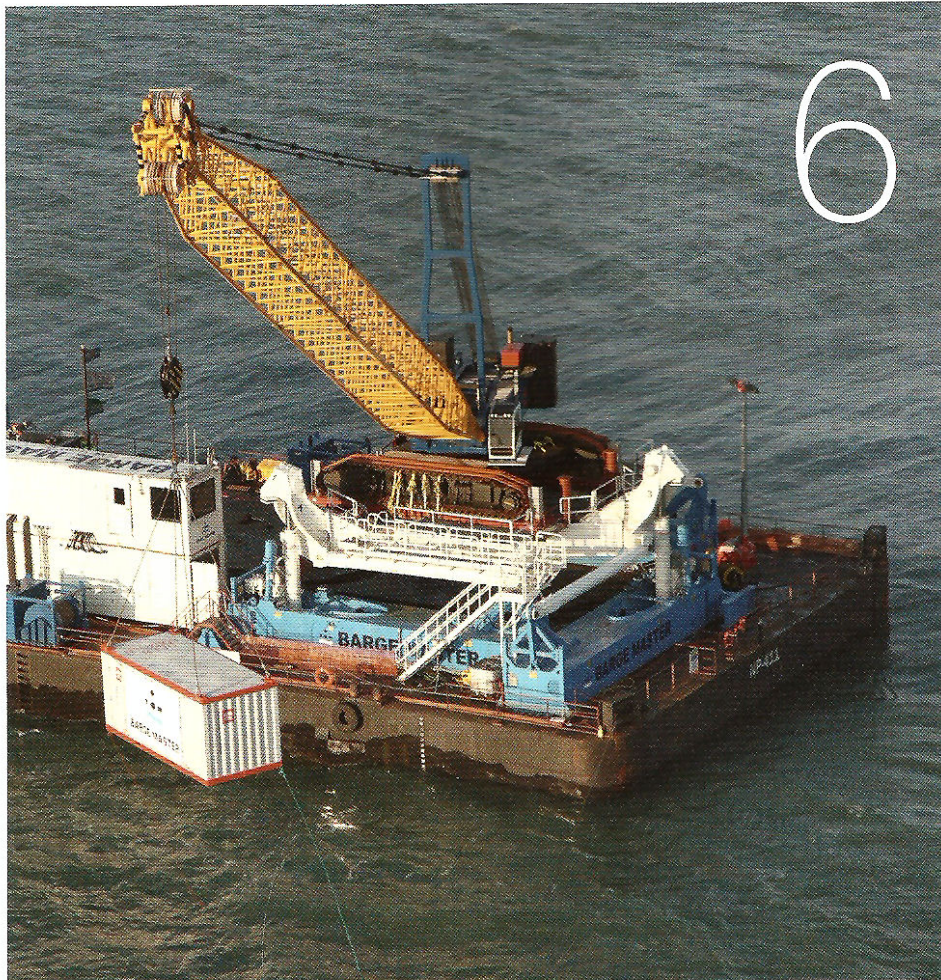
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Martijn Koppert, Barge Master

We speak the same
technical language



Complex model tests on MOHO NORD Tension Leg Platform **Investigating the challenges of the deep** Minimising fatigue damage during FPSO transport

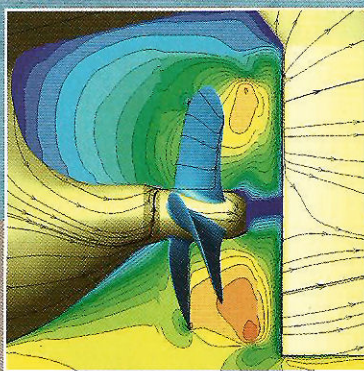
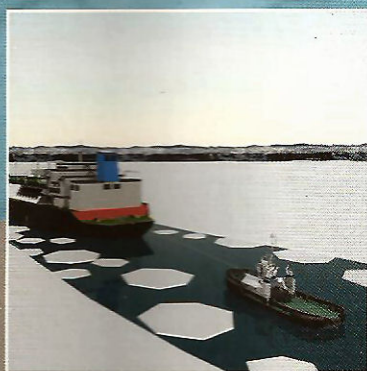


- 6** **Successful testing campaign for the Barge Master**
Martijn Koppert, creator and director of Barge Master, explains how the success of a test campaign at MARIN paved the way for the start of this pioneering product, which is already being warmly welcomed by the industry as a solution for safe, motion compensated offshore lifting.
- 9** **Investigating the challenges of the deep**
New deepsea mining concepts under test in the Deep Water Offshore Basin.
- 10** **Tests for one of the largest floating platforms in the world**
MARIN carries out a model test campaign for Samsung Heavy Industries for a semi-submersible, which is destined for the Ichthys Field, offshore Australia.
- 11** **Efforts to improve the modelling of thrusters continue**
New thrusters built with a 7-degree tilted thruster axis.
- 12** **MARIN goes with the wind**
Model tests for floating wind turbine concepts
- 13** **Wind Load modelling JIP underway**
MARIN is conducting fundamental research into wind modelling, aiming to develop a generic, practical outcome for the industry.
- 14** **Complex model tests on MOHO NORD Tension Leg Platform**
In an ambitious campaign the MOHO NORD TLP was extensively tested in the Offshore Basin.
- 16** **Minimising fatigue damage during FPSO transport**
Using dedicated tools, MARIN can advise about how to minimise fatigue damage already in the design phase of an FPSO.
- 17** **MARIN introduces two full tug simulators**
MARIN has upgraded two part task simulators into full tug simulators. And they are already proving a big success with clients.
- 18** **Joint R&D in JIPs**
An update on the latest Joint Industry Projects
- 21** **SHARES shows unique results**
The SHARES project on the understanding of thruster dynamics is showing unique results, both at full and model scale.
- 22** **New Monitas Group successor of Monitas JIP**
Following the success of the Monitas JIP, which will complete this year, a new group is being created to provide Monitoring Advisory Systems for offshore floating structures in the future.
- 23** **Obelics JIP successfully achieves goals as project concludes**
The "Operability of Ballasting and Lifting Operations of Extreme Loads with Integrated hydrodynamics" JIP is concluded after two years of intense cooperation.

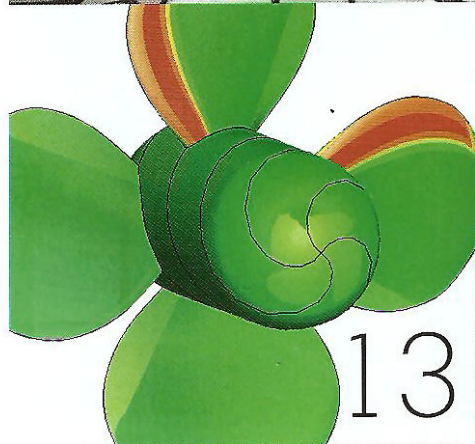
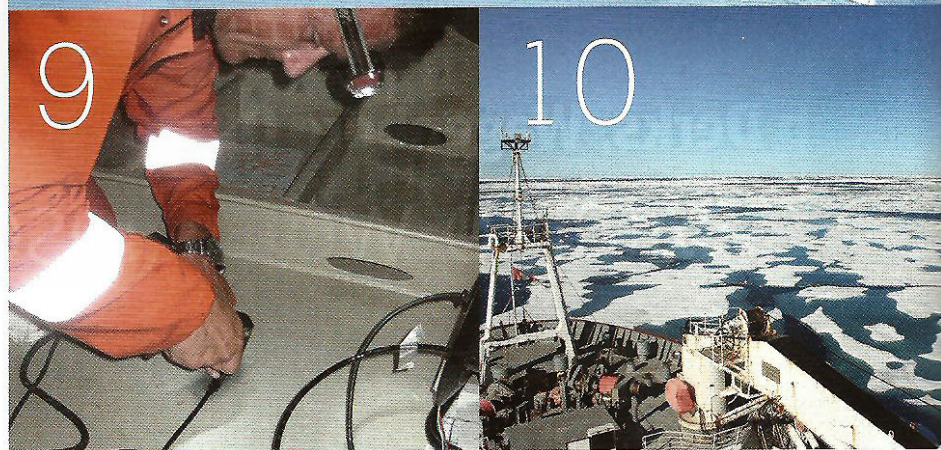
report

Bob Derks, Wagenborg Offshore

It is vital to work closely together



Simulation training for operations in ice **Complete propulsion system simulation with ReFRESCO**
Ice crushing propeller dynamics revealed



- 6** **New Wagenborg vessels to take on challenge of world's harshest environments**
 Report interviews Bob Derks, Director Business Development Royal Wagenborg Offshore about the company's ambitious plans for these frozen regions.
- 9** **Wagenborg's new IMSV "SERKEBORG" instrumented for ice trials**
 MARIN's Trials & Monitoring group equipped the "SERKEBORG" with an extensive monitoring system.
- 10** **Into the Arctic onboard the James Clark Ross**
 In 2012 the ice strengthened research ship James Clark Ross left Iceland, set course northwards and ventured into the Arctic. MARIN monitored the sea ice conditions and their impact on the ship's course and station keeping capabilities.
- 12** **IceStream JIP launches**
 A pilot project evaluates ice flow control measures.
- 13** **Numerical prediction of propeller loading due to sea ice**
 As part of the Cooperative Research Ships (CRS) consortium, MARIN has undertaken a project to better understand and predict loads on propellers in ice.
- 14** **Ice crushing propeller dynamics revealed**
 Report provides an update of the pioneering work of the PROPOLAR team.
- 16** **Simulation training for operations in ice**
 With demand for training for ice operations increasing, MARIN extends its ice simulation capabilities.
- 17** **Initiative to create Arctic Engineering JIP Week gains momentum**
 The quest for knowledge continues: various Arctic initiatives are highlighted.
- 18** **Complete propulsion system simulation with ReFRESCO**
 Within the EU project STREAMLINE, the ReFRESCO team has developed new techniques facilitating advanced simulations of the complete propulsion system.
- 20** **MARIN and Conoship propose changes to EEDI regulatory framework for small general cargo ships**
 The cause of the large scatter in the Energy Efficiency Design Index (EEDI) values of small, general cargo ships is investigated.
- 22** **Geometry always at the heart of MARIN's work**
 Computational geometry is at the heart of much of MARIN's day-to-day business, which includes the hull, appendages, propulsion design and optimisation, to the milling of models and detailed CFD calculations.
- 23** **Increasing demand for Vessel Traffic Simulation training**
 Over the past few years training VTS operators using the very latest simulation technology has become a core competence of MARIN.

report

Henning Luhmann, Meyer Werft GmbH

A 30-year research partnership
and still counting



The Depressurised Wave Basin delivers the world's first images of cavitation and ventilation in waves
Successful home game for FPSO Forum Live testing of fatigue predictions for USCG



6 Meyer Werft and MARIN: a 30-year research partnership and still counting

Report highlights this very special relationship.

9 Voyage Planner in RISING success

MARIN models the hydrodynamics of an inland waterway vessel for the EU-backed RISING project.

10 The DWB delivers the world's first images of cavitation and ventilation in waves!

History was made on May 22 when the first-ever cavitating and ventilating images appeared on the monitors at the new Depressurised Wave Basin.

12 Yachting focus

MARIN carries out a wide range of yachting projects, from studies in comfort to the relatively new area of Dynamic Positioning.

14 Setting new standards in container ship design

MARIN is tasked with developing the hull lines of the Seaspan Saver, a 10,000 TEU container vessel, which has been entirely designed with a low operational cost profile in mind.

15 LAURA Phase 2 gets underway

The Launch and Recovery of any small navy craft (LAURA) JIP enters its second phase and calls for new participants.

16 North Sea near misses under scrutiny

The Dutch government asks MARIN to develop methods to automatically detect near misses and other hazardous encounters from AIS data.

18 Live testing of fatigue predictions for USCG

An extensive project for the United States Coast Guard gets underway.

20 Meeting the dredger propulsion challenge

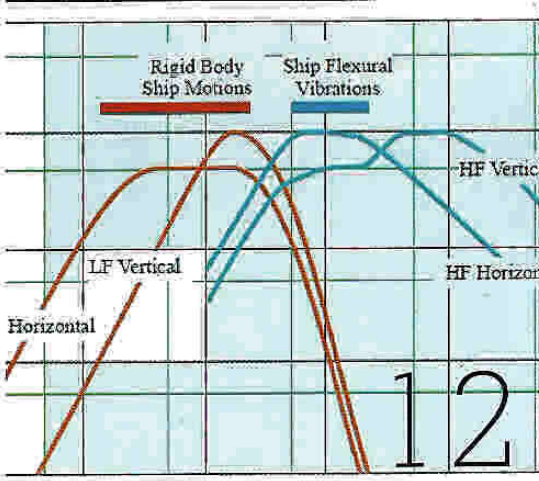
Employing its full range of tools and experience, MARIN is successful in supporting the industry in the complicated field of dredger propulsion.

21 MARIN examines effects of passing ships

Model tests to investigate the effects of passing ships are performed in the Shallow Water Basin.

22 New WAGENINGEN CD propeller series

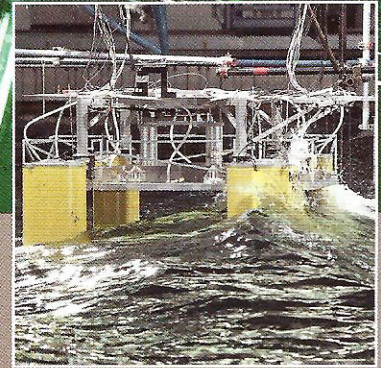
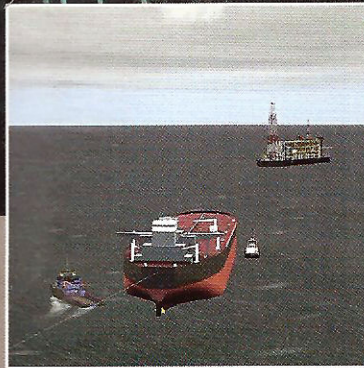
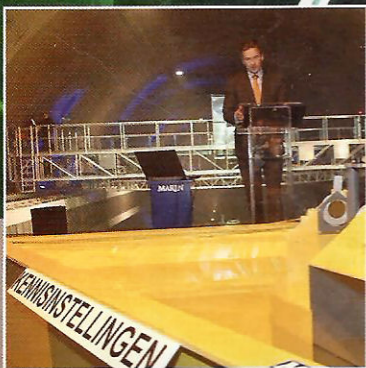
The open water characteristics for a large systematic series of Controllable Pitch Propellers were recently measured at MARIN.



report

Interview with MARIN's president Bas Buchner

We offer the integrated solutions the industry needs



Official opening world's first Depressurised Wave Basin **MARIN offers offshore industry the "Total package"** Enforcing wave impact research



6 MARIN: A leading world research institute offering integrated solutions

Report interviews President Bas Buchner about MARIN's new strategy plan.

9 MARIN opens world's first Depressurised Wave Basin

MARIN's unique Depressurised Wave Basin (DWB) was officially inaugurated on March 19 by Maxime Verhagen, the Dutch Minister of Economic Affairs, Agriculture and Innovation.

10 Enforcing wave impact research

We highlight Joint Industry Projects that are making significant contributions to building up knowledge on problems related to wave impacts.

12 CFD - an increasingly important research tool

Report highlights applications of Computational Fluid Dynamics (CFD) in a number of Joint Industry Projects in which model tests and CFD calculations are combined to obtain better insight into flow problems.

14 Tackling the unknowns about Vortex Induced Motions

Even after extensive tests, many uncertainties still surround Vortex Induced Motions (VIM) but there are several initiatives tackling this issue.

16 FPSO Forum returns home

After 11 years, MARIN is delighted to be hosting the FPSO Forum again on May 9.

18 MARIN offers offshore industry the "Total package"

Over the years TOTAL has been a frequent visitor to MARIN's bridge simulators. Report focuses on the work that has been carried out for TOTAL's fleet of Floating Production Storage and Offloading (FPSO) vessels.

20 Giant six-legged robot gives MARIN model the shakes

Luckily all is not as it seems...Report introduces MARIN's new hexapod oscillator.

21 Wave added resistance

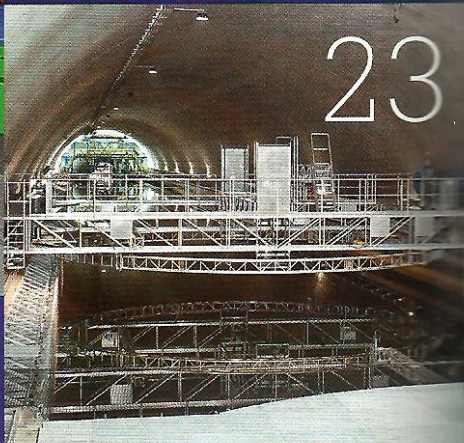
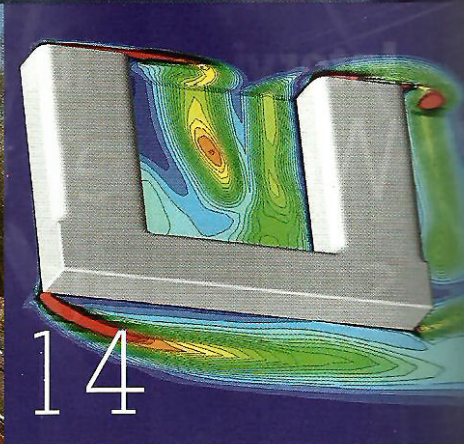
Model tests for the evaluation of ship designs should not only be performed in calm water but also in waves. The new DWB helps unravel some of the mysteries of wave added resistance

22 Damaged stability & flooding simulations more important as vessels get bigger

With the increasing size of cruise vessels and ferries, and hence the potential consequences in the case of a loss, the capability to evaluate the dynamic behaviour of damaged ships is becoming more and more important.

23 Silence is golden...especially underwater

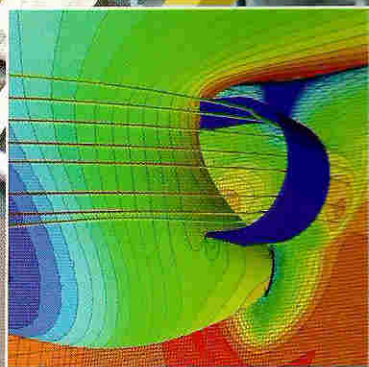
MARIN introduces a new silent towing carriage in a bid to further the industry's knowledge about underwater-radiated noise.



report

New Depressurised Wave Basin

Unique research possibilities

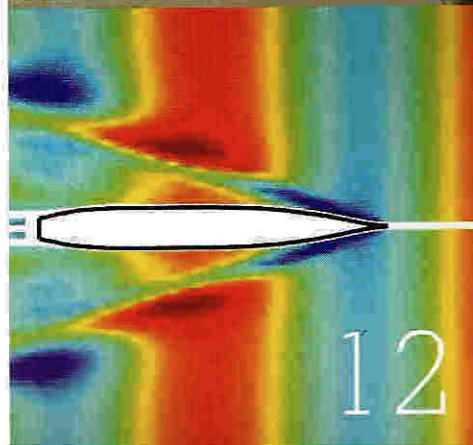


MARIN spearheads propulsion improvements **Moonpool mysteries, investigating the unknowns of the moonpool** Advanced training programme for Ems River passage



6 MARIN opens new Depressurised Wave Basin marking a world first

MARIN has combined a depressurised towing tank with a wave maker - creating a world first. Report interviews the project leaders about the challenges of this unique project.



9 Determining wind loads with CFD

Computational Fluid Dynamics are playing an increasingly important role in the assessment of wind loads.

10 CFD techniques facilitate better understanding of scale effects

To accurately predict a ship's resistance and the propulsion efficiency, a good understanding of scale effects is a prerequisite. CFD is playing an important role.

12 Prediction of added resistance of ships in waves under further scrutiny

MARIN investigates the merits of a Rankine source method in the prediction of added resistance.



14 The Blue Revolution is coming!

Natural propulsion is making a comeback: new initiatives and concept opportunities

16 MARIN spearheads propulsion improvements

There is renewed interest in special devices that improve propulsion. Together with the industry, MARIN is actively investigating them.



18 Moonpool mysteries

Investigating the unknowns of the moonpool.

20 Thawing out the challenges of ice loads

Ice loads on the propellers of pods are the focus of one of the "Cooperative Research Ships" working groups.



21 Reliable speed assessment more relevant than ever

The speed-power characteristics of ships have always been at the core of ship design and now they are becoming even more important

22 MARIN gets to grip with the elusive Human Factor

MARIN has taken the decision to step into this new and highly complex field.

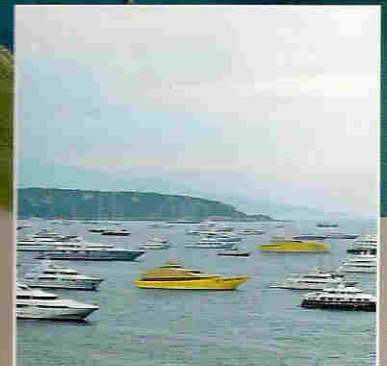
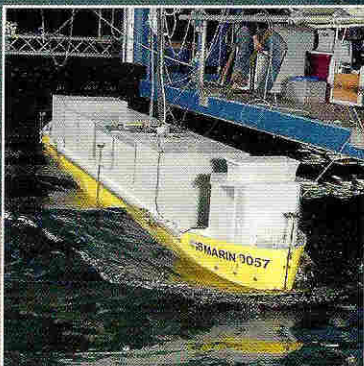
23 Advanced training for Ems River passage

An advanced training programme has been set up to help pilots tackle the challenges of the Ems River in Germany.

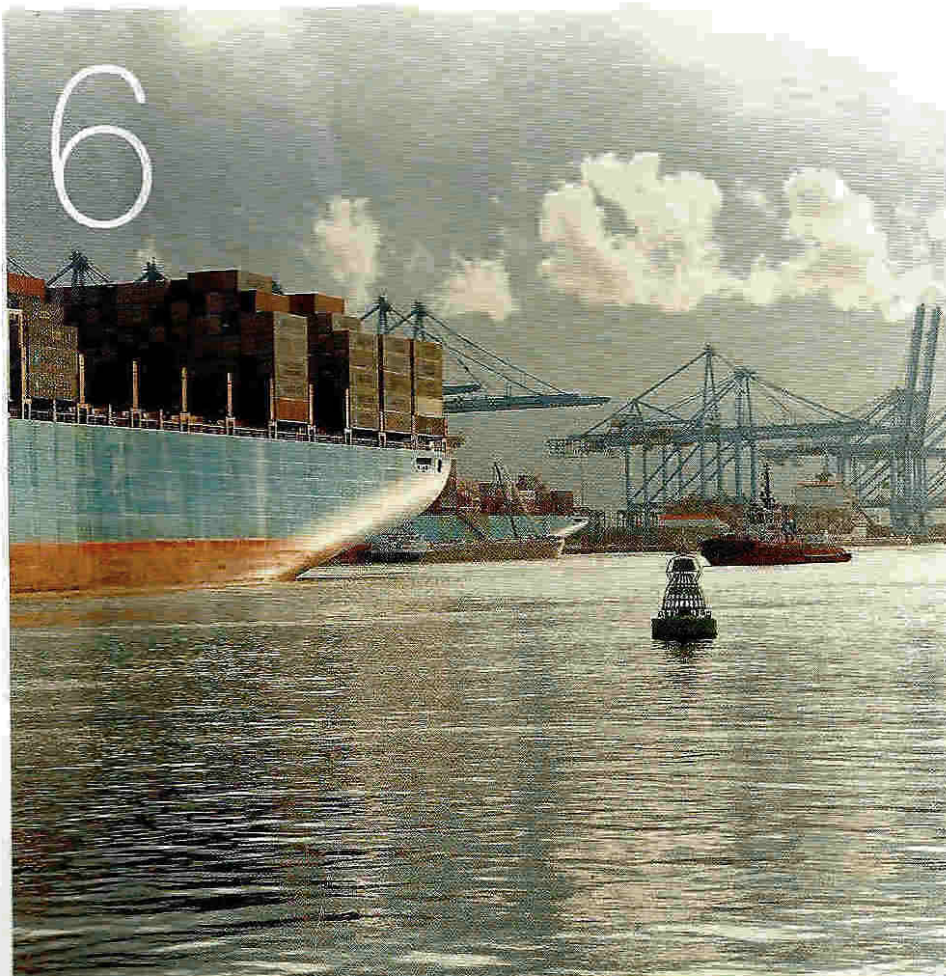
report

Port of Rotterdam focuses on safety, efficiency and the environment

Interview with one of the world's largest ports



Inland waterway transport is the subject of many MARIN studies **The impact of ships that pass in the night... or in the day** Special pages on yachting - a highly demanding market



6

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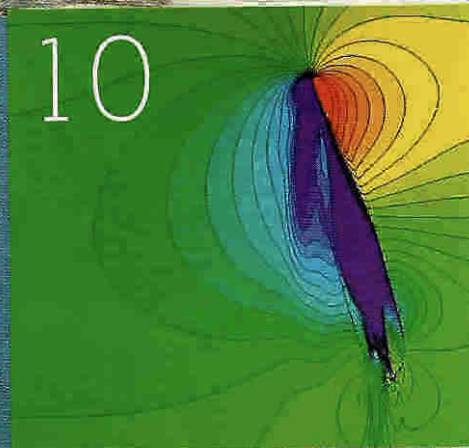
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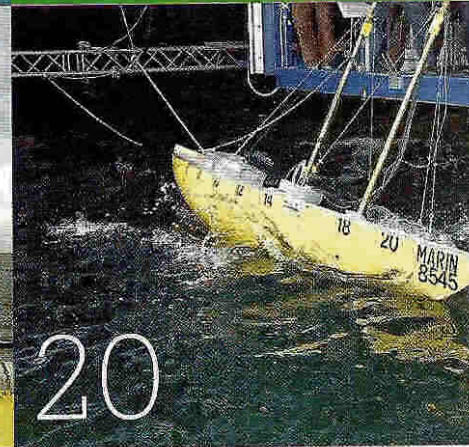
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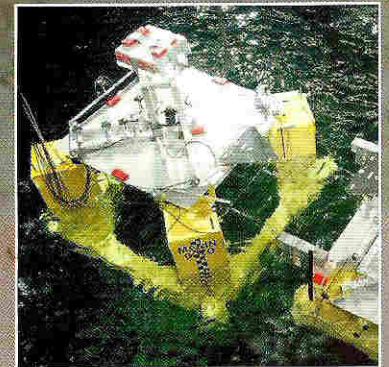


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report

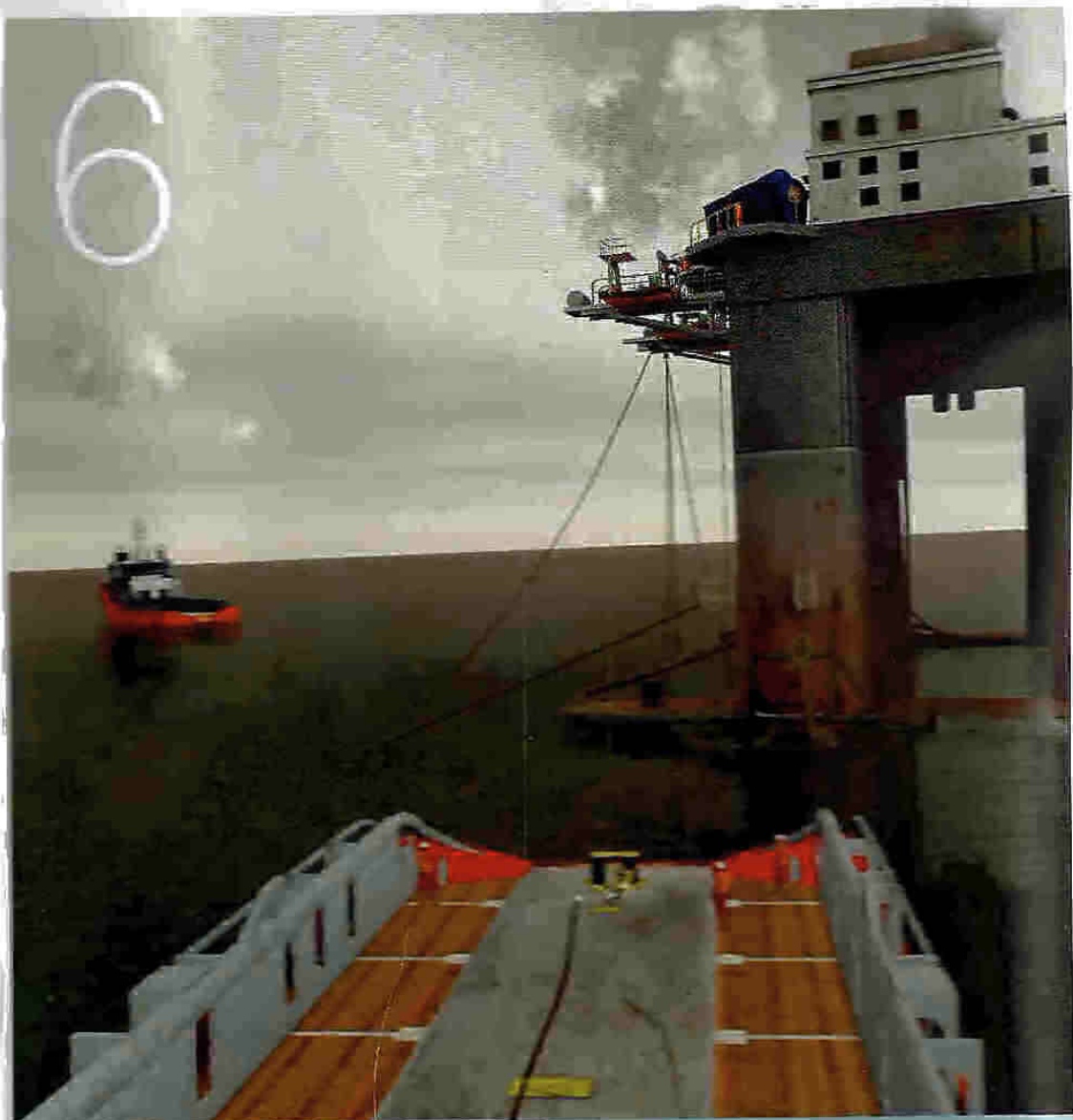
Mark Randall, Swire Pacific Offshore

World-class Anchor Handling Simulator



Deepwater pit proves popular for TLP model tests **Valuable training on LNG Floating Storage and Regasification Unit** Complex coupled model tests for Petrobras

OFFSHORE
SPECIAL



6 MARIN, MPRI and Swire Pacific Offshore (SPO) develop a world-class deepwater Anchor Handling Simulator

Report interviews Captain Mark Randall, Project Manager of the Swire Marine Training Centre (SMTC) in Singapore about whether the simulator has lived up to expectations.

9 June 2011: 30th OMAE Conference & the Floating Wind Turbine Challenge!

10 Deepwater pit proves popular for TLP model tests

We delve the inner depths of the deepwater pit and examine these challenging projects.

12 Valuable training on LNG Floating Storage and Regasification Unit

MARIN's Full Mission Bridge simulators provided simulation training for what is believed to be the world's first FSRU installed offshore.

14 Complex coupled model tests for Petrobras

Model tests were carried out simultaneously on three floaters in MARIN's Offshore Basin. The complexities of this test programme are unravelled for the first time.

16 Increasing interest in tests for Vortex Induced Motions

Report highlights the latest VIM tests.

18 MARIN has the wind in its sails

With the growth in renewable energy, there is an increasing focus on offshore wind. MARIN is actively participating in the development of the offshore wind energy sector.

20 Managing fatigue in riser systems

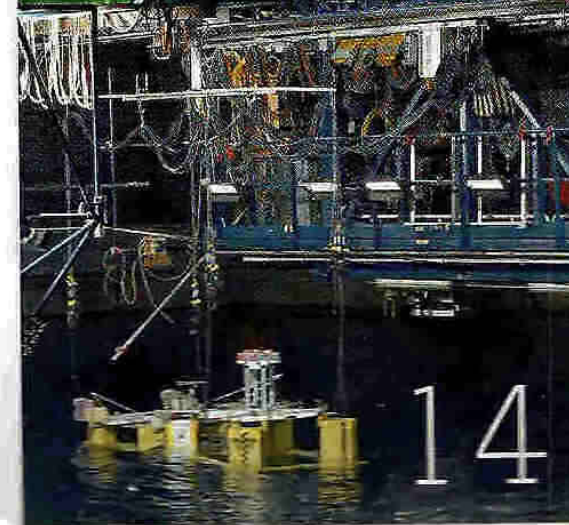
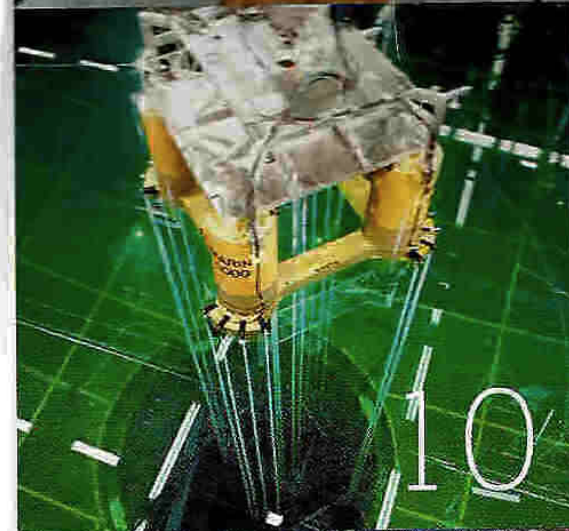
Report puts the new MonaRisa Joint Industry Project in the spotlight.

21 CrackGuard – it's all in the name!

A new JIP will help ensure the structural integrity of marine structures. Report cracks the case open.

22 L&R study for new GOWIND OPV

DCNS chose MARIN to conduct an operability study of the Launch and Recovery system to be installed on the new GOWIND type Offshore Patrol Vessels.



report

Marcos Donato Ferreira, Chairman FPSO Research Forum and JIPs closely linked



CRS - 41 years and still going strong **Working Networks - professional and social networks in the maritime industry** Green team eyes sustainable opportunities

**JIPs & NETWORKS
SPECIAL**

In memoriam George Remery



6 FPSO Research Forum firmly positioned at the heart of the industry

Interview: Marcos Donato Ferreira, the new Chairman of the FPSO Research Forum outlines his thoughts on the Forum's tasks for the future.

9 Green team eyes sustainable opportunities

Report highlights the work of our Greenship team that looks for "green" opportunities both within and outside of MARIN.

10 Working Networks

Report examines the crucial role played by both professional and social networks in the maritime industry.

12 Cooperative Research Ships - 41 years and still going strong

CRS embodies the true cooperative spirit and four decades on it still finds interesting subjects to tackle.

14 Cooperative Research Navies develops new FREDYN software

In 2010 the CRN celebrated its 20th anniversary. CRN's broad-ranging activities and working groups are focused on, together with the very latest FREDYN software developments.

16 The Magnificent Seven

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

19 Is cargo securing in need of shoring up?

Supported by the Dutch government, MARIN initiated the Lashing@Sea Joint Industry Project to obtain a snapshot of current cargo securing practices as a base for ongoing and future research and innovation.

20 New tests advance sloshing knowledge

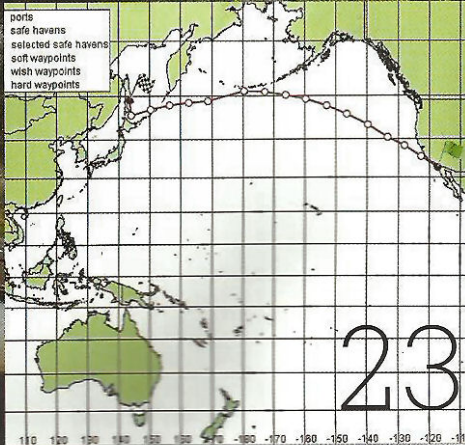
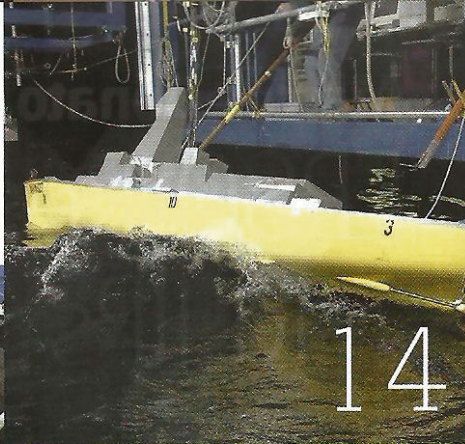
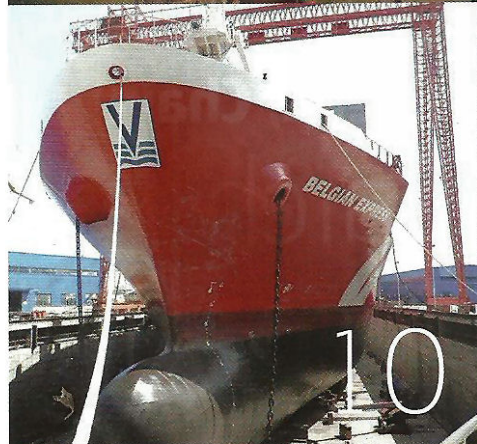
Report outlines MARIN's efforts to advise the industry about reducing the risks of sloshing.

22 SAFETUG: a unique €3 million JIP concludes

SAFETUG is recognised as a unique platform that contributes to a safer and more efficient industry. Report takes a look back at this highly successful project.

23 Safetrans celebrates 10th anniversary!

With the release of SafeTrans 5 and the active participation of the Safetrans members, it now becomes clear that SafeTrans will be the 'de facto' standard for the marine transportation industry.



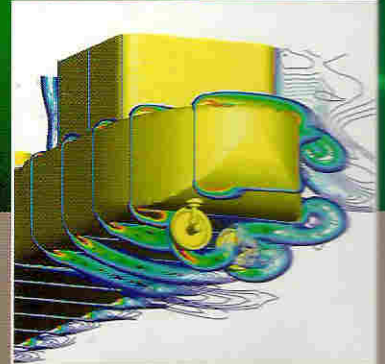


report



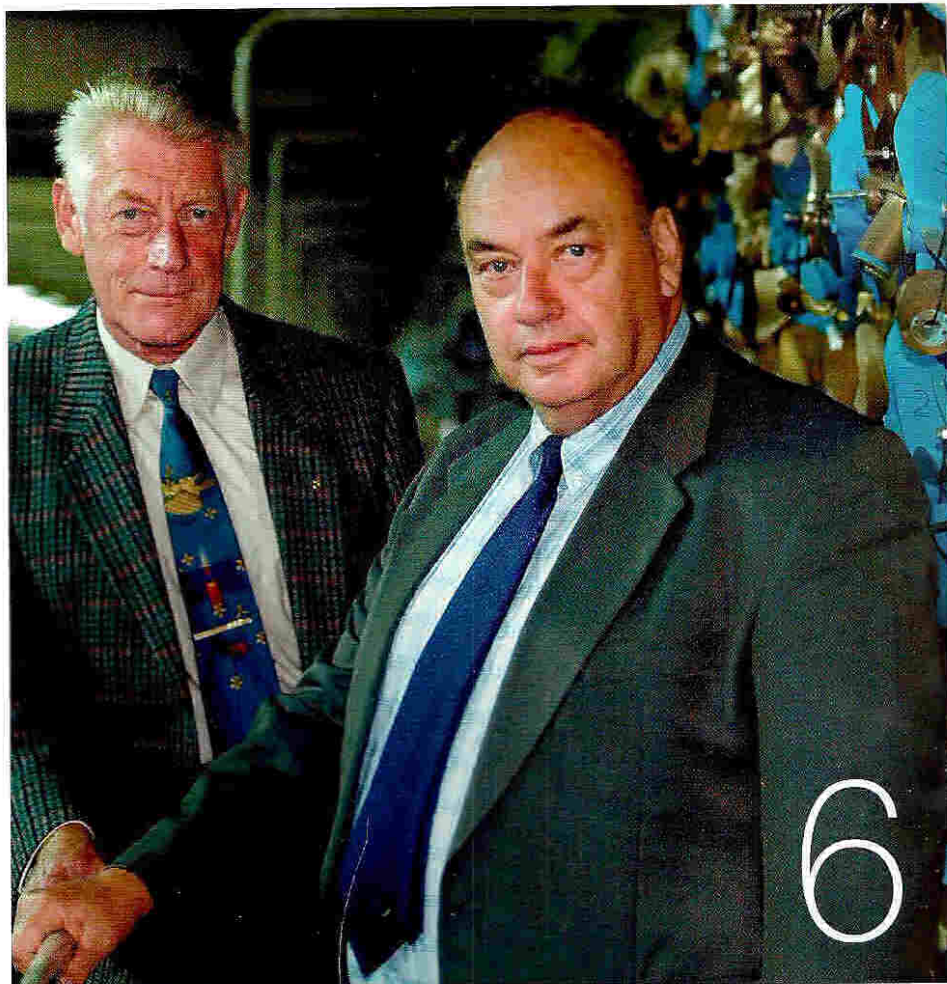
Holtrop-Mennen

Ground-breaking method



Cooperative Research Navies continues code improvement and validation 20 years on
CFD helps optimise yacht design process Quality checking CFD

**VALIDATED
MODELS**



6 Holtrop-Mennen founders reveal the secret of method's long-lasting success

In the naval architect world Holtrop-Mennen is a household name. As Jan Holtrop and Frits Mennen retire after more than 40 years at MARIN, Report asks them to reflect on their ground-breaking achievement.

9 Big Foot spotted at MARIN!

World's deepest TLP, "Big Foot", becomes MARIN's 9,000th test model

10 CFD versus PIV

Computational Fluid Dynamics (CFD) is playing an increasing important role in today's maritime industry. Report outlines efforts to improve quality levels

12 Quality checking CFD

Computational Fluid Dynamics (CFD) has carved out a firm position in the MARIN portfolio. But how reliable is CFD?

14 CFD helps optimise yacht design process

Although CFD started as a complex technology with huge potential it is now at the heart of our engineering, complementing and in some cases replacing, model testing.

16 Cooperative Research Navies continues code improvement and validation 20 years on

We catch up with the work of the Cooperative Research Navies (CRN) group as it celebrates its 20th anniversary

17 Quantifying quality

Outlining MARIN's work to provide measurement results with a specified confidence level

18 Correlation of speed-power predictions by model tests

MARIN's model-scale and full-scale services generate a wealth of high quality validation material to provide customers with reliable power predictions

20 Risk assessment at sea – even a challenge for SAMSON

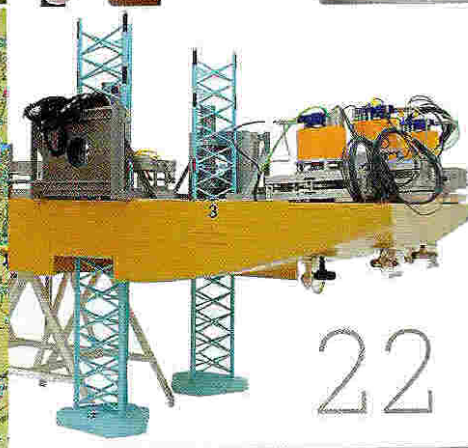
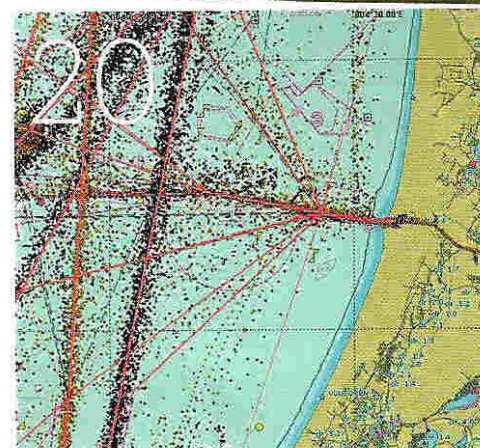
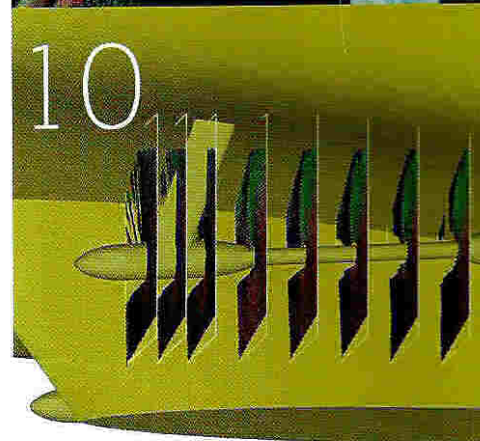
MARIN's risk assessment tool Safety Assessment Model for Shipping and Offshore on the North Sea (SAMSON) takes on the challenge

21 Pulling together in ROPES JIP

ROPES JIP investigates the effects of passing ships on the motions and the mooring loads of berthed vessels

22 Pioneering purpose-built wind turbine installation vessels under test

MARIN tests Beluga Hochtief Offshore's installation vessel design



report

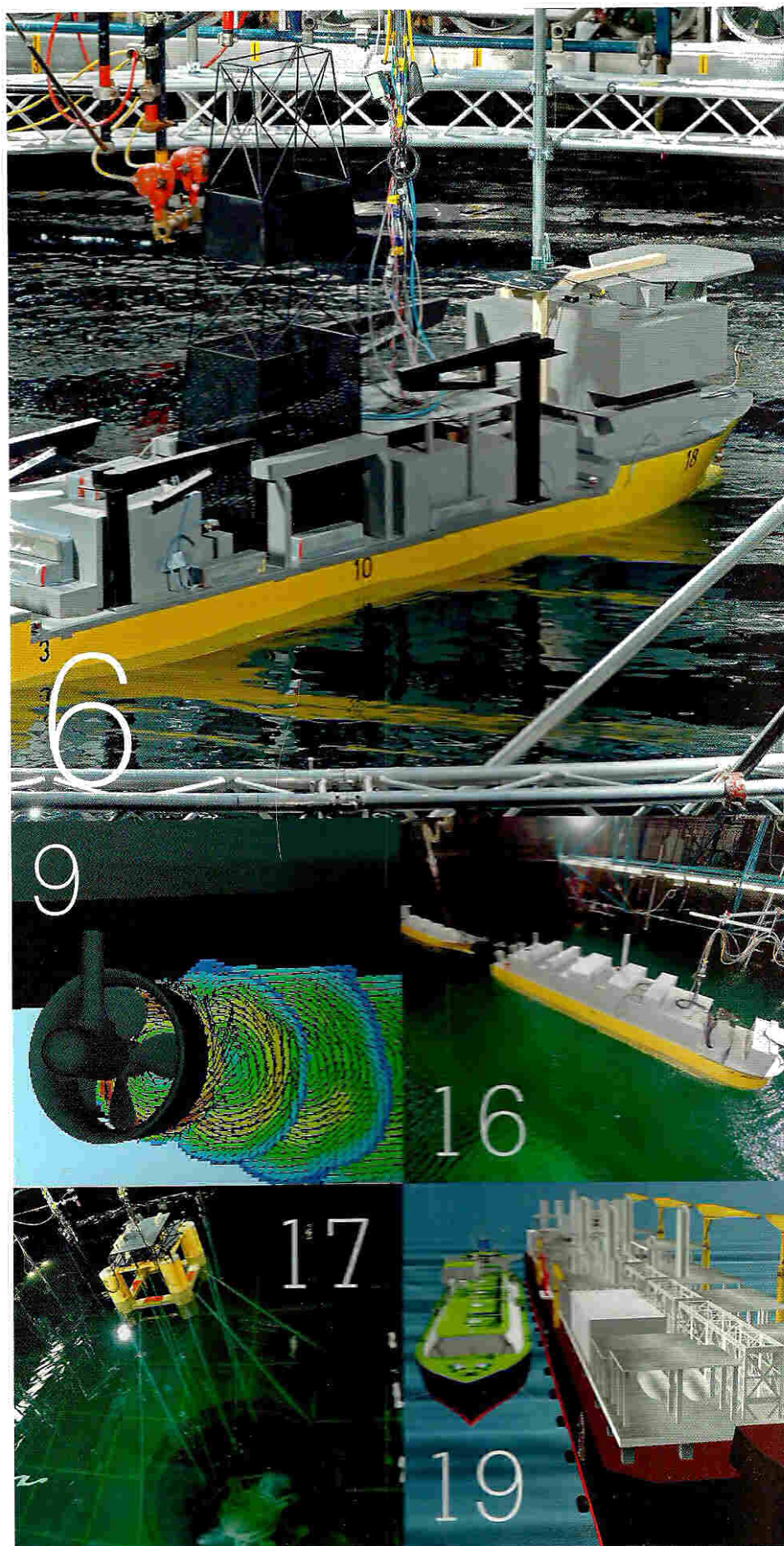
Gurbachan Virk, Transocean

Four decades of DP innovation



BigLift Shipping and MARIN in joint aNySIMpro operations **INPEX's eternal flame in Indonesian Arafura Sea** Simulator training for the Munin FPSO

**OFFSHORE
SPECIAL**



6 Four decades of DP innovation at Transocean

Gurbachan Singh Virk, a Transocean Consultant and formerly Manager of Engineering, Global Marine Drilling Company, is interviewed about DP innovations over the last four decades and Report asks how he sees the future.

9 Full depth TLP model testing no problem in MARIN's Offshore Basin

With a 30 m deep pit, MARIN's Offshore Basin is ideal for testing Tension Leg Platforms in ultra deep waters without truncating their tendons.

10 New initiatives probe thruster interaction effects

Today newly developed tools enable more detailed measurements and computer simulations of the thruster on DP vessels. This has lead to new research to improve the understanding of thruster interaction effects.

13 Tandem offloading of LNG by means of DP

SBM commissioned MARIN to perform model tests to investigate the feasibility of tandem offloading of LNG from an LNG FPSO to a shuttle tanker kept in position by a full DP system.

14 CFD for offshore applications

In 2009, MARIN took a major step towards the commercial application of Computational Fluid Dynamics (CFD) tools for offshore-related problems. Here Report outlines achievements so far.

16 Sharing knowledge, experience and costs through joint R&D

Joint Industry Projects continue to form the backbone of much of MARIN's work. Report provides an update on the many offshore JIPs.

18 BigLift Shipping and MARIN in joint aNySIMpro operations

In a joint project, MARIN and BigLift Shipping are investigating ways to optimise the thruster replacement procedure.

19 INPEX's eternal flame in Arafura Sea

The Japanese operator INPEX asked MARIN to take on a wide-ranging role in the Abadi gas project.

20 Fatigue Lifetime Assurance with Monitas

MARIN is completing a specification and pilot application Joint Industry Project of advisory monitoring systems for FPSOs. The envisaged project goals have now been successfully realised and the JIP team has decided to go ahead with linking the Monitas system with Risk Based Inspections.

21 Heerema's DCV Balder instrumented for lifetime extension

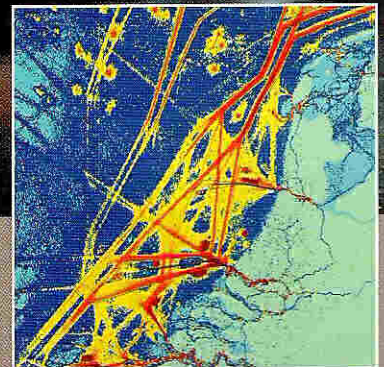
Heerema Marine Contractors contracted MARIN to design, install and maintain a Fatigue Monitoring System for the J-Lay Tower of the Deepwater Construction Vessel Balder to extend its lifetime.

22 Bridge Simulator training for the Munin FPSO

MARIN provided Bridge Simulation training for the Munin and again, this proves to be an effective tool in preparing a team for a very challenging job.

report

Raimo Hamalainen, STX Europe Challenged by Oasis of the Seas



MARIN develops unique Underwater Measurement System **The next generation in cruising**
matched by its equivalent in model testing GIS ideal for spatial analysis of AIS data

THE ART OF
MEASURING



6 Measuring success

STX Europe and MARIN - A cooperation spanning nearly three decades

Raimo Hamalainen, Head of Hydrodynamics in Turku, STX Finland, talks about the many pioneering developments the two organisations have worked on together and the challenges presented by the development of Royal Caribbean's Oasis of the Seas cruise liner.



9 Oasis of the Seas - the next generation in cruising matched by its equivalent in model testing

As this magnificent ship prepares for its maiden voyage Report takes the opportunity to focus on the measurement techniques used in this interesting and challenging project.

12 MARIN advances model thruster control technology

Thruster load measurements, combined with advanced control systems, give insight into the operational aspects of dynamically positioned vessels. Recent developments are discussed.

14 Propeller observations improve dramatically with new borescope technique

Detailed propeller observations and observations in a wider range of light conditions are now possible.

15 Lifetime prediction moves a step closer with Fatigue Damage Sensor

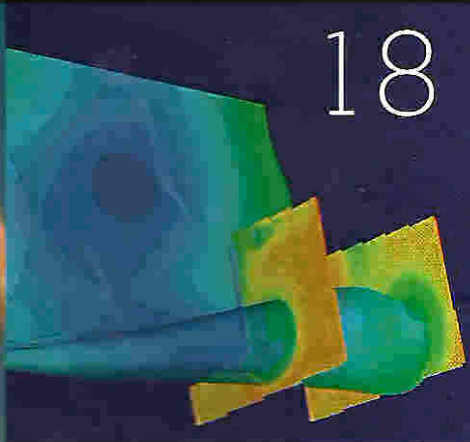
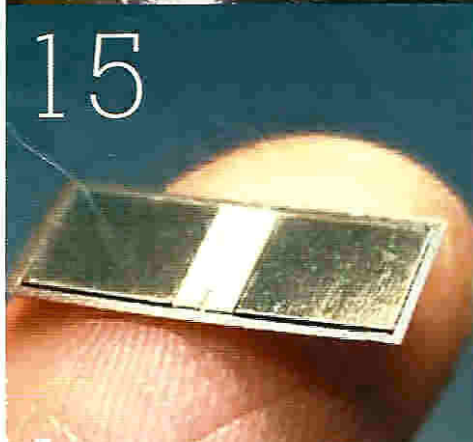
The Fatigue Damage Sensor (FDS) is being deployed in several Joint Industry Projects and is already being applied commercially.

16 Sloshing impacts captured in 110 full-scale tests

Report highlights the innovative techniques MARIN has developed for measuring full- and large-scale sloshing impacts within the Sloskel project.

18 New stereo-PIV system proves a valuable tool for the future

Stereo Particle Image Velocimetry (PIV) is an important tool for the experimental validation of CFD calculations and for obtaining flow field information. Report outlines how this can then be used for appendage or propeller design.



20 Saving time with quasi-steady technique

The latest development in propulsion testing comes under the spotlight.

21 GIS ideal for Spatial Analysis of AIS data

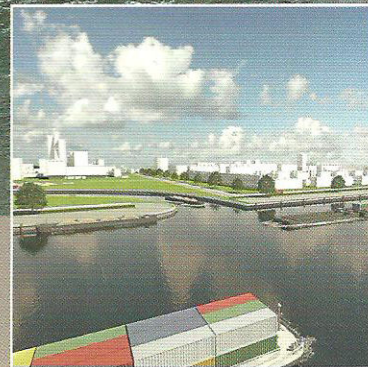
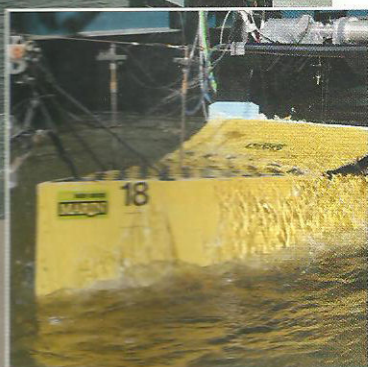
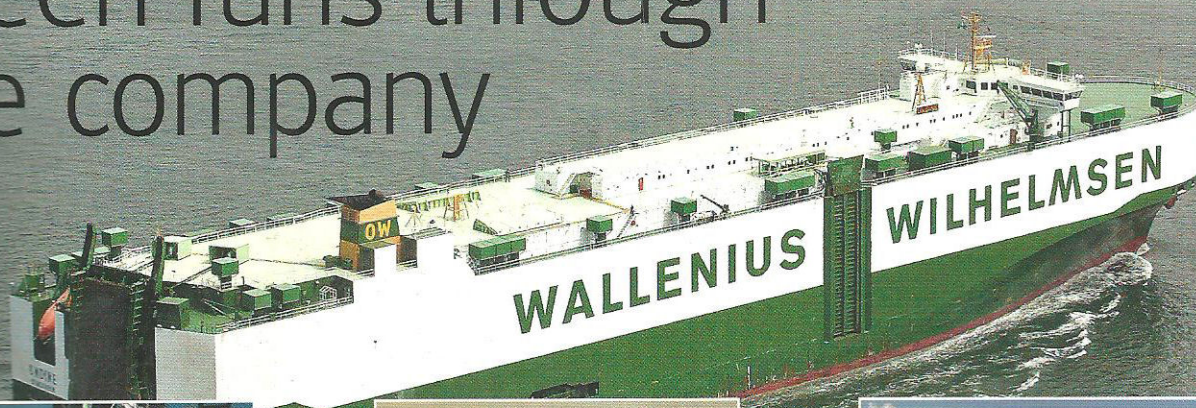
Bringing data from the Automatic Identification System (AIS) and Geographic Information Systems (GIS) together proves particularly useful for spatial planning.

22 MARIN develops unique Underwater Measurement System

New Underwater Motion Measurement System unveiled.

report

Jesper Lögdstöm, Wallenius Green runs through the company



Green energy from green water **Safety assessment for offshore wind farms with SAMSON** Inland navigation plays an increasingly important role

GREEN
SPECIAL



06

06 Wallenius – a green pioneer

Wallenius has a reputation for being one of the “greenest” shipping companies in the world. Jesper Lögström, Design Manager – Stability & Hydrodynamics of Wallenius Marine, tells Report how going green involves more than painting vessels.

10 Integrated design approach helps reduce fuel consumption and emissions

A number of design issues that can achieve fuel savings for new or for existing vessels are explored.

12 New Renewable Energy Team (RENT) launches

MARIN forms a new team of experts to answer your questions about advances in the offshore renewable energy field.

13 Sustainability and renewable energy - a key focus

MARIN applies its tools and experience to the design and hydrodynamic analysis of water turbines.

14 Safety assessment for offshore wind farms with SAMSON

MARIN examines the impact wind farms have on shipping.

15 SWAY's special deep-water wind turbines

Norwegian renewable energy company SWAY has developed a concept for wind turbines that can produce power in deepwater locations. Report outlines a series of model tests.

16 Green energy from green water

Wave energy represents a significant untapped energy source. MARIN looked at the offshore industry for inspiration as to how it can be better utilised.

18 Exactly how foul is the fouling problem?

MARIN grapples with slime to discover its impact on ship performance.

20 Tackling tug emissions with Green Tug and E³ projects

MARIN is working on several research projects that aim to reduce emissions from harbour tugs. Report outlines the projects.

22 Two new JIPs launch

An update on two of the latest Joint Industry Projects, one investigating the mysteries of the moonpool and the other, looking into the efficiency gains of two and three bladed propellers on slow-steamers.

23 Assessing the value of kite traction

Pilot simulations get underway following increasing interest in kite traction.

24 VIRTUE boosts the role of CFD in ship hydrodynamics

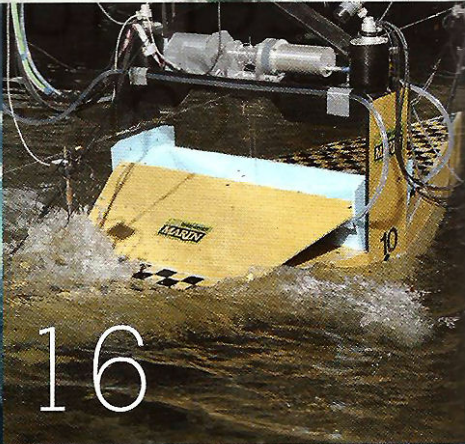
The work of the 6th-Framework EU project VIRTUE is highlighted.

26 Inland navigation plays an increasingly important role

Report outlines MARIN's intensified focus on the inland sector.



15



16



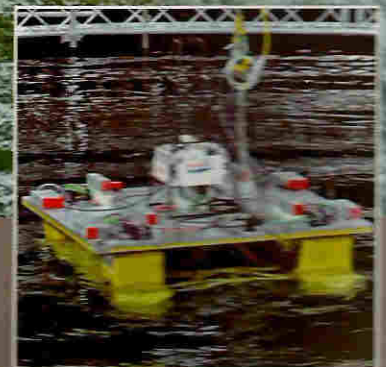
19



20

report

Sverre Haver, StatoilHydro Extreme waves exposed



Pieter Schelte: a multi purpose model test project **Tombua Landana** transports undergo **fatigue assessment** DP simulations and model testing - on the spot!

**OFFSHORE
SPECIAL**



06



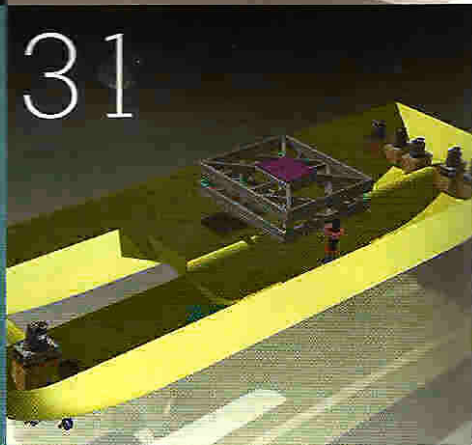
11



16



27



31

06 Extreme waves exposed

In a rare interview Sverre Haver of StatoilHydro talks about his fascination with extreme waves.

10 OWME project makes technological breakthrough

Onboard real-time prediction of vessel motions now possible two minutes in advance!

11 Rock on! MARIN tests Fall Pipe Ship design for Boskalis

The specific requirements asked for a special approach.

12 Dynamic Positioning under the spotlight

DP applications are an increasing part of MARIN's work. DP projects are highlighted.

14 DP simulations and model testing - on the spot!

MARIN has a long history in Dynamic Positioning model testing. Recent projects are highlighted.

16 2009: "The year of LNG"

Report reviews MARIN's many LNG projects.

18 The flight of the condor...

A Condor computer cluster is being used increasingly frequently to help analyse downtime events in the LNG sector, Report explains.

19 Full-scale sloshing tests underway at MARIN

The confidential work of the Sloshei project group is unveiled.

20 A world first as the Adriatic LNG terminal is placed at final destination

Simulator training helps ensure a Smooth Operation

22 The state of Current Affairs

The latest news bulletin on the "Current Affairs" Joint Industry Project.

23 New code FreSCo reveals what goes on under the surface

FreSCo is a new unsteady, multi-phase, viscous flow CFD code being developed by MARIN.

24 Multiple scales give maximum insight

In the process of evaluating an offshore structure, model tests, simulations and offshore (full-scale) measurements complement one another. This integrated approach is outlined.

26 aNySIMpro: the future of validated multi-body simulations

MARIN's in-house, multi-body, time domain simulation already proves successful.

27 Pieter Schelte: a multi purpose model test project

MARIN has carried out extensive model tests on the multi-purpose offshore operations vessel.

28 Frigg QP jacket gets 'on the move' at MARIN

Although the lift and tow of the Frigg QP Jacket structure is scheduled for later this year, the platform was already 'on the move' in MARIN's Offshore Basin.

29 MARIN and Oceânica work in tandem

MARIN and Oceânica joined forces to study the tandem offloading operation of the first FPSO in the Gulf of Mexico for the Petrobras Cascade/Chinook development.

30 Tombua Landana transports undergo fatigue assessment

Heerema Marine Contractors contracts MARIN to monitor barge motions.

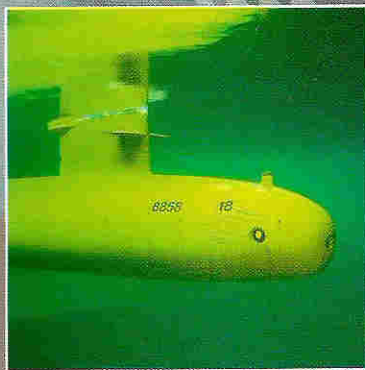
31 Model making to the tune of 150 a year

How does MARIN produce an average of 120 ship models and 30 propeller models a year?

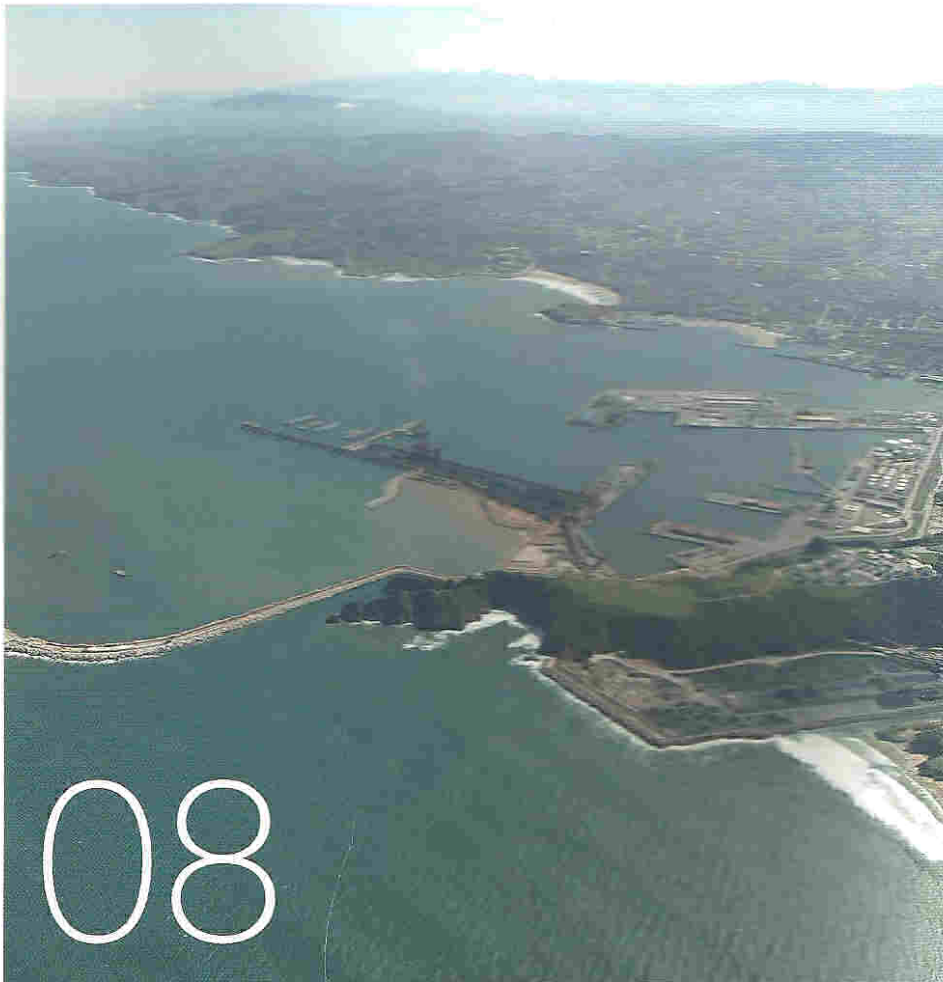
report

Royal Netherlands Navy

Our partnership is based on trust



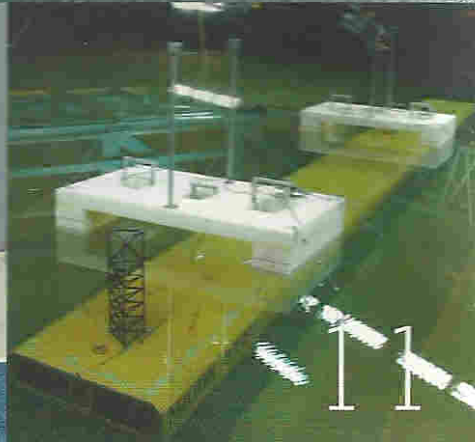
MARIN assesses amphibious capabilities of the Royal Netherlands Navy **Free Running Model tests shed light on the elusive world of the submarine** MARIN contributes to unique Korean motorway project



08



13



11



17



21

04 News

06 Dynamic Loads on Pods

CRS working group develops unique mathematical model to determine loads.

08 Port of Gijón extension project gets the MARIN touch

Deltares and MARIN perform model tests and simulations in a bid to improve the operability of a port extension operation.

10 MARIN contributes to unique Korean motorway project

The Busan-Geoje Fixed Link comprises two cable-stayed girder bridges and a tunnel, crossing the bay of Jinhae. Scale model tests and computer simulations conducted at MARIN.

11 Shuttle tool now ready for side-by-side Offloading Operations

Side-by-side offloading and offloading from a jetty or Gravity Based Structure.

12 Simulator answers increasing demand for VTS training

New features prove popular as Port of Amsterdam installs a MARIN VTS simulator

Navy Special 13-23

13 Report interviews Jaap Huisman,

LCF Project Manager for the Royal Netherlands Navy Directorate of Materiel – Procurement Division

16 New unstationary test techniques in the MARIN basin

A recent campaign on the "naval combatant 5415" deploys the new techniques

18 Free Running Model tests shed light on the elusive world of the submarine

Report reveals some of the latest developments in this underwater world.

20 MARIN assesses amphibious capabilities of the Royal Netherlands Navy

The latest amphibious developments are brought on to dry land and examined by Report.

22 FreSCo successfully predicts flow around submarine hull

Insight into submarine hydrodynamics indispensable when it comes to safety. Teaming up with the Royal Netherlands Navy to find out more.

23 Plugging the knowledge gap - Surface ship radiated flow noise project completed

Project addresses a shortfall of knowledge into the mechanisms that govern noise due to the flow around the hull.

A yellow model boat, labeled 'MARIN 8230', is shown in a hydrodynamic tank. The boat is moving through dark water, creating a large splash. The tank is supported by a complex metal structure with various pipes and cables. The MARIN logo is visible in the top right corner.

MARIN

Challenging wind and waves in fuel consumption
Yachting Mini Special
Hydrodynamic design: tool for fuel savings
Service Performance Analysis

Report

Report is a newsletter of MARIN August 2008 no. 94

4



Challenging wind and waves - their impact on fuel consumption

Speed loss and fuel consumption are always important points of attention when it comes to *certifying* *rebuilding* performance.



Frisian Solar Challenge 2008

MARIN sponsored the TUD solar boat by performing CFD and by design and manufacture of two propellers; in doing so it helped the team to victory.

18



Yachting section

Report presents several specialist articles for the Yachting industry.

22



Saving while sailing

MARIN hosts the launch of the "Inland shipping fuel saving competition". During a special mini competition, some 42 vessels participated and the Full Mission Bridge Simulator proved the perfect tool for skippers and shipping companies to be confronted with their sailing behaviour.

Ship emissions in the port of Rotterdam revealed by AIS data

7

Reducing fuel consumption high on the agenda at MARIN

8

Fuel savings for DP vessels

9

Create3s: Reducing costs for shortsea shipping

10

Is slowing down always the answer to combat soaring oil prices?

11

Service Performance Analysis helps cut fuel costs

12

Vessel Operators Forum meets in Norway and France

16

CFD casts new light on transom stern design

17

News/At your service

23

The MARIN logo is located in the top right corner. It consists of the word "MARIN" in a bold, white, serif font, set against a dark blue rectangular background. The background of the entire page is a dark green, textured image of a hydrodynamic testing tank with various equipment and structures visible.

MARIN

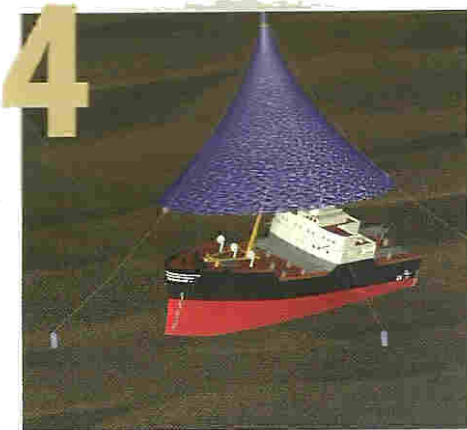
DIFIS new tool in preventing oil disasters
aNySIM-Pro: new way of sharing hydrodynamic software
www.e-MARIN.com online!
New kid on the block: pipe spiralling

Report

Report is a newsletter of MARIN April 2008 no. 93

MARIN leads EU project for the prevention of environmental disasters

DIFIS aims to develop a cheap and flexible system to remove oil from shipwrecks. The DIFIS project is highlighted.



SBM MoorSpar under test

The MoorSpar is a new SBM Atlantia mooring system design that allows an FPSO to be moored using existing yoke technology. MARIN performed an extensive set of model tests simulating Gulf of Mexico conditions.

Pipe spiralling is the new kid on the block

A new method for the installation of offshore pipelines has been developed and tested by Wintershall. MARIN was contracted to perform measurements and to validate strength assessment calculations.



Tandem offloading simulations for the Agbami FPSO

The Agbami FPSO vessel is one of the largest production vessels ever built. Model tests held at MARIN have now been followed by nautical studies.

Two Prosafe FPSOs under test at MARIN

Early cooperation key to success

Dynamic Positioning: Drilling for the Future

Model test investigation of flow phenomena around air

Elevated Support Vessel (ESV) passes tests with flying colours

Computational Fluid Dynamics now applied to offshore

aNySIM-Pro: the Professional Hydrodynamic Solution

OWME system assists motion critical operations offshore

21st FPSO Research Forum and JIP Week to focus on harsh environments

FPSO positioning simulation

MARIN develops anchor-handling simulator for Swire Pacific Offshore

Tackling the potential problems of open moonpools

Current Affairs JIP improves current insight

Offshore engineers enthusiastic about applied hydrodynamics course

e-MARIN: a new way of working!

MARIN launches new Business Unit - Consultancy and Integrated Projects Service

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**Lashing@Sea focuses on cargo securing loads
CFD takes charge
New Compact Manoeuvring Simulator
Joint Industry Projects**

Report

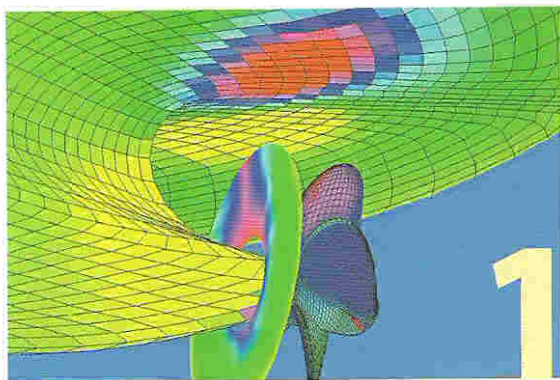


The Achilles heel of sea transport

Bigger ships, optimised hull structures and new cargo securing systems, are continually pushing the boundaries of technology. Lashing@Sea project aims to make sure lashing keeps pace.

Lamalco installs own Compact Manoeuvring Simulator

With impressive fleet growth, Lamalco took the next step and bought its own Tug Simulator. Report interviews Captain Toby Freeman, Lamalco's Group Training Superintendent, about the project.



MARIN beats the panel!

Conflicting requirements of high efficiency and comfort mean designers have to come up with more balanced propeller designs and pay more attention to the details of the propulsor and propulsor hull interaction. Computational tools help provide an early assessment of the propulsor performance.



CFD takes charge

MARIN's viscous-flow solver PARNASSOS – a good alternative for flow-aligned orientation of hull appendages.



Jubilee symposium 'Future Waves'

Historic milestones, opportunities and challenges at special symposium "Future Waves". Report takes a look at this unique celebration.

MARCOL

MARIN has developed a new quantitative tool for the analysis of collision events. This amazing new tool is already handling a million collision scenarios a week.

RAPID Explorer – a bold step forward in hydrodynamics

New tool provides a speedy discovery of Ship's Wave Making

BAE Systems and MARIN collaborate on Landing Platform Dock concept development

The design process and technical challenges come under the microscope in this joint project.

Borescope breakthrough

High-speed cavitation observation through a 12 mm hole! Report provides an up-date on this challenging project.

Valid – new fatigue study led by US Coast Guard

The American Bureau of Shipping, Bureau Veritas, Lloyd's Register, MARIN and USCG, join forces to tackle fatigue issue.

SAFETUG II prepares to launch

As the very successful SAFETUG I joint industry project draws to a close, SAFETUG II is following sharp on its heels. This time the focus will be on tug design for operations in waves.

Hydro-Testing Alliance celebrates first anniversary!

Report looks at the first year of this unique alliance which aims to enhance maritime testing infrastructure in the EU

News / At your service

News flashes on courses, exhibitions and events.

Special Issue on OTC 2007

MARIN

75 years

Deep pit attracts full-tendon Shenzi TLP
Extreme waves in focus
New way of sharing hydrodynamic software
On Board Wave and Motion Estimator

Report

Report is a newsletter of MARIN April 2007 no. 91



Extreme waves in focus

As hurricanes Ivan, Katrina and Rita demonstrate the importance of extreme waves on all types of offshore structures, MARIN focuses its research on extreme waves through model tests, offshore measurements and numerical simulations.

On Board Wave and Motion Estimator project supports motion-critical operations offshore

An innovative system has been developed to predict quiescent periods in floater motions some two minutes in advance.



FPSO industry set to flock to Houston for 19th Research Forum and JIP Week

MARIN USA in Houston will jointly host the event with SOFEC. Report provides a taste of what's on at "the" industry meeting place.



MARIN's Next Top Models

Recent developments in the offshore industry show an increasing interest in DP assisted vessels and MARIN is supporting this demand by broadening its modelling techniques.

MARIN's new man in Houston

Interview with Arjan Voogt.

Rising to the challenge as free standing and hybrid risers increase in popularity

Free standing risers are now often the basis for a number of deep and ultra deep water developments.

Deepwater FPSO for Brazil under scrutiny

Model tests were recently carried out. Report provides an up-date on this challenging project.

Njord Gas Export Project

One of the largest crane vessels in the world installed two gas modules onto a FPU... all at model scale.

MARIN conducts Thunder Hawk VIM testing

The ATLANTIA Thunder Hawk Deep Draught Semi was successfully tested in the MARIN facilities.

SHUTTLE

Simulation tool optimises tandem offloading operations.

aNySim-Pro

A new way of sharing hydrodynamic software.

Mapping the road to safety for LNG vessels

As LNG demand continues to grow and capacity increases, design and operations come under the spotlight.

News / At your service

News flashes on courses, exhibitions and events.

10

12

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Deep pit attracts full-tendon Shenzi TLP

With its deep pit of 30 m, the Offshore Basin offers the possibility of testing TLPs with their full tendon length, even in ultra-deep waters.

**Jubilee Special
'Future Waves'**



MARIN celebrates its 75th Jubilee
Offshore: where do we go from here?
Full-scale investigations – an Ocean of Knowledge
Linking hydrodynamics to safety of maritime operations

Report

Report is a newsletter of MARIN February 2007 no. 90



MARIN 75 years

As MARIN celebrates its 75th Jubilee, Report interviews president, Arne Hubregtse. Arne stresses that MARIN was founded by the industry and for the industry. "We have always been driven by customer and industry needs."



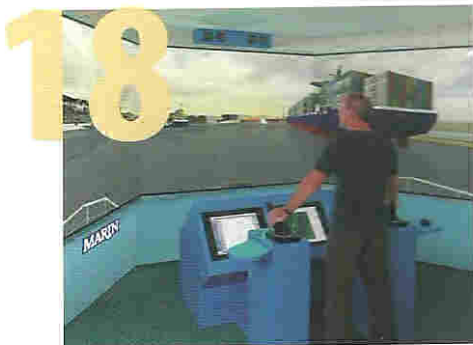
Offshore: where do we go from here?

Offshore hydrodynamics – the past, present and future.



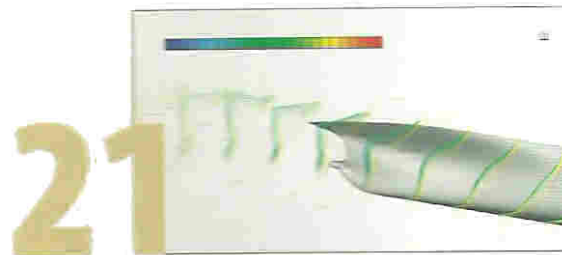
Full-scale investigations – an Ocean of Knowledge

Full-scale investigations are an essential part of MARIN's work and they increasingly support operations in shipping and the offshore industry.



Linking hydrodynamics to safety of maritime operations

35-years of simulation technology.



To R&D or not to R&D?, that is the question...

Hydrodynamic research and development is, and always has been, a crucial part of MARIN's activities. But as global challenges grow, R&D is considered even more essential for industry competitiveness.

Full block ships always a challenge

The development of full block ships is examined, along with the work MARIN has undertaken to help optimise designs.

'Creating' succes

In the age of star ships and micro-computers, the image of Short Sea Ships and Inland Navigating Ships can appear old-fashioned at first glance but all is not as it first appears.

MARIN answers increasing demand

The need for high-speed passenger and time-sensitive goods, transportation is continually growing. How is MARIN meeting this demand?

Five decades of innovation and a great future

During the last decades the size of the vessels, the available power and the requested service speeds, have increased dramatically. The highlights of the last 50 years.

VIM tests for multi-column platforms

Report takes a closer look at current affairs.

Safe passage of nuclear sub

As BAE SYSTEMS constructs the first of its nuclear Astute Class submarines, MARIN made sure that the submarine could make its way safely to open sea.

50 JIPs are flourishing

MARIN sees the Joint Industry Project as a crucial part of its business.

Safe tug provides first conclusions

The tug industry is extremely busy and changing rapidly.

News / At your service

News flashes on i.e. courses and exhibitions.

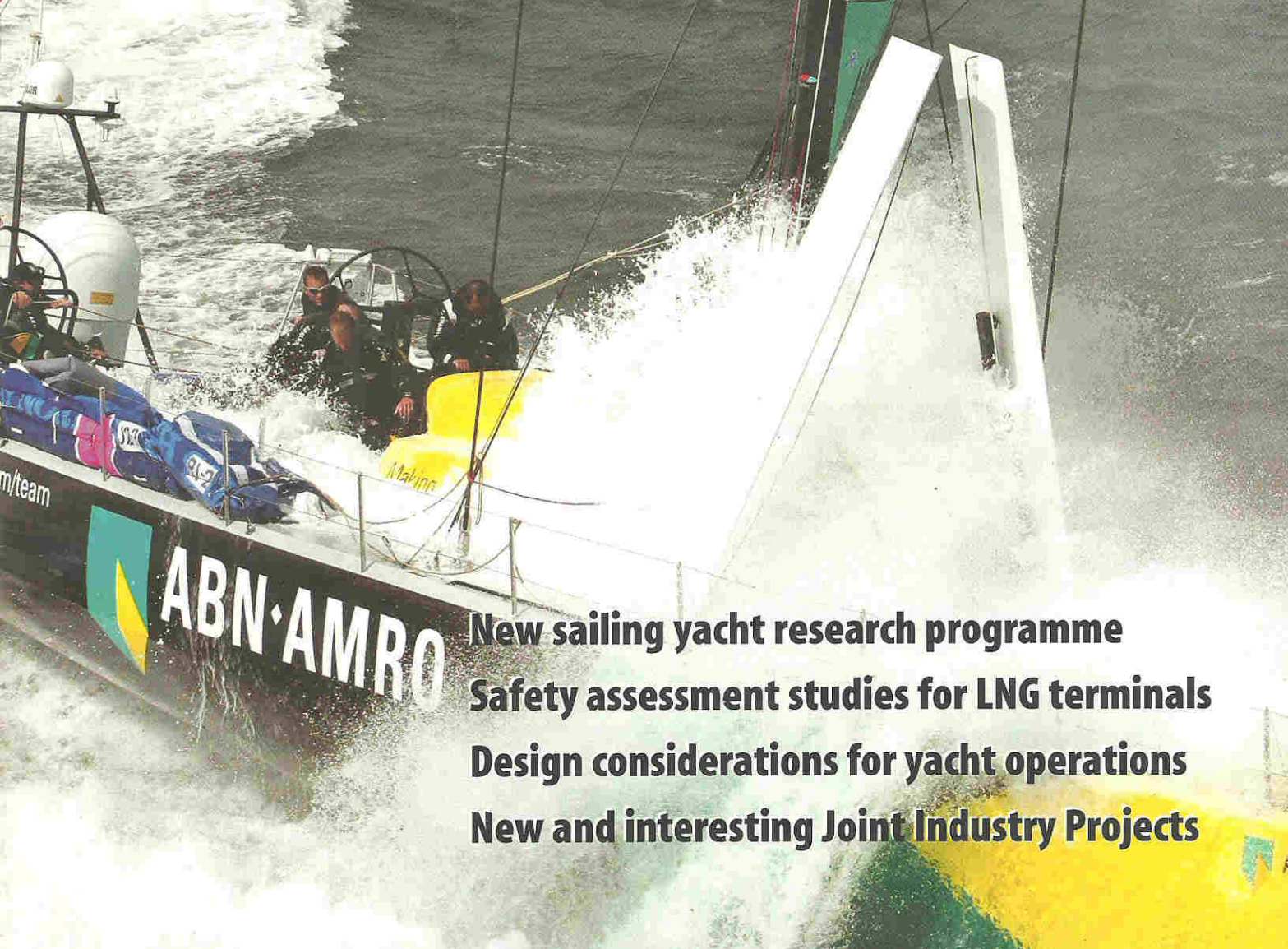


In Memoriam Dick van Manen

Sadly, on December 9th Prof.dr.ir. J.D. van Manen, passed away unexpectedly. Dick van Manen worked in propeller research for many years. He was MARIN's third President from 1972 to 1986. With his great enthusiasm and optimistic attitude, he made significant contributions to both ship propulsion science and to the development of our institute.

Ships Operations

MARIN



New sailing yacht research programme
Safety assessment studies for LNG terminals
Design considerations for yacht operations
New and interesting Joint Industry Projects

Report

Major research programme for the sailing yacht market

MARIN has become increasingly involved in delivering hydrodynamic services to the sailing yacht market from competitions such as the Volvo Ocean Race and the Americas Cup to the growing private yacht market.



4

Cost-effective and fast troubleshooting

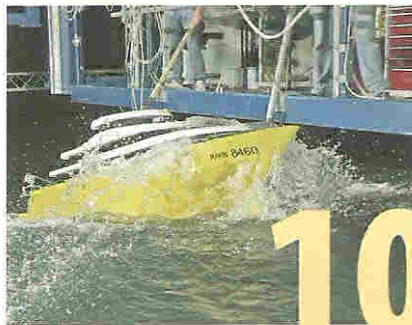
MARIN continuously masters its capabilities to assist designers and operators in securing acceptable noise and vibration levels on board their ships and offshore structures.



8

Design considerations for yacht operations

Helping yacht owners' dreams come true... With over 150 projects for large motor yachts in the last 20 years, MARIN plays a vital role in assisting designers develop strategies for operational conditions.



10



Safety Assessment Studies for new LNG terminals

As demand for LNG continues to grow, MARIN is carrying out a number of Safety Assessment Studies. An update of a study covering nautical safety in the port of Rotterdam.

6



9

'Color Fantasy' an example of a successful joint project

MARIN contributes to an innovative cruise ferry project that shows the value of good collaboration between the owner Color Line, shipyard Aker Finnyards and suppliers.

Economy, GULLIVER's new travel GULLIVER is for the first time being commercially utilised to answer new questions.

12

SafeTrans & Cost Effective Operations

The SAFE design and operation of marine TRANSPorts, and a new project for Cost Effective Operations of ships.

13

The right vessel for the right job

CEO project to explore in-depth knowledge of ships and ship design, in day-to-day management and operations.

13

New patrol vessels for the French customs

Hydrodynamic development for two new patrol vessels of the French customs took place in the spring of this year.

14

Lashing@Sea in pursuit of safety and efficiency

A new JIP addresses the worrying issue of containers overboard.

15

www.e-marin.nl set to go live!

With the key themes: Quality, Intuitive, User guidance
www.MARINSHIPADVICE.nl set to go live!

16

Tug Assist Tool

News on a new tool to assist tugs.

16

SPA JIP

News on the Service Performance Analysis project to reduce fuel bills.

17

News / At your service

News flashes on i.e. courses, exhibitions, the MARIN jubilee and MARIN website.

18

Special Issue
on OTC 2006

MARIN

Marco Polo JIP gives insight into hurricanes
TLPs, Spars, Semis and FPSOs: all regular guests
UMS: MARIN's special eye for underwater
First decommissioning projects tested

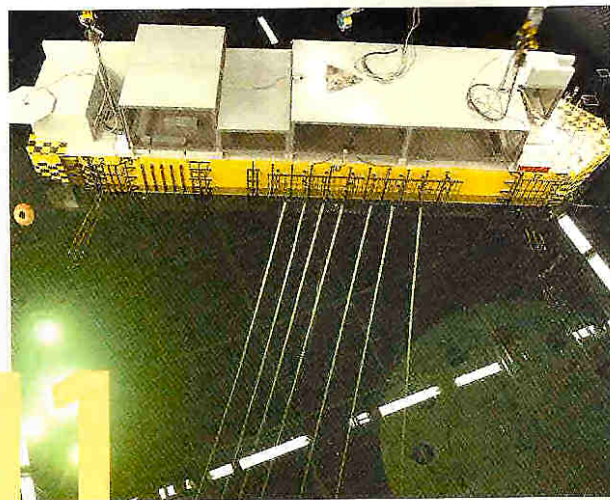
Report

Report is a newsletter of MARIN April 2006 no. 88



It takes two to tango

For structures working in close proximity sudden wind squalls can be a concern. Amerada Hess Equatorial Guinea Okume TLP and TAD Vessel in wind squall: a perfect tango.



FPSOs

West of Africa FPSOs are on a straight course to a reliable mooring.



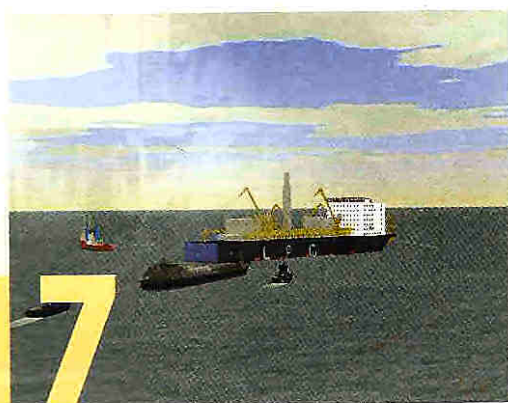
The Spars' sparring partner

In recent years the Spar concept has been a regular visitor to Wageningen. MARIN puts Spars through their VIM tests.



MARIN makes light work of heavy decommissioning projects

With several structures in the North Sea oil and gas fields reaching the end of their design life, their removal is a delicate operation. MARIN helps lift the burden.



Always at your side

A side-by-side mooring study for the Sanha and side-by-side model tests on LNG offloading.

Monitas JIP

Although seemingly impossible, gigabytes are translated into one page of advice.

Decision support technology comes under the spotlight

There is set to be an increasing number of heavy cargo transports and offshore installations. MARIN assesses the pros and cons of decision support technology.

Marco Polo JIP generates excellent hurricane data

As hurricanes Ivan, Katrina and Rita, take their toll, there is even more need for in-depth research. The Marco Polo JIP sheds fresh light on the subject.

Study confirms VIM impact an important aspect for deep draught semi-submersibles

MARIN explores the effect of Vortex Induced Motions on recently-developed deep draught semi-submersibles.

Bridging the VIV GAP..

MARIN works together with SBM to study the challenging hydrodynamic aspects of the Gravity Actuated Pipe concept.

JIPs focus in on Offshore LNG

With LNG terminals having the full attention of the offshore industry, MARIN focuses on the related hydrodynamic issues.

News / At your service

News flashes on exhibitions and courses.

colophon

Report is a newsletter of MARIN,
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The Netherlands, Phone: +31 317 49 39 11,
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Printing 5.000

Editorial Board Arne Hubregtse, Jan Otto de Kat,
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Cover Marco Polo Rig. Courtesy: Anadarko petroleum Corporation

Editorial consultant Helen Hill

Design & Production

Communicatie & Onderneming B.V.,
Bavel, The Netherlands

07. 2005

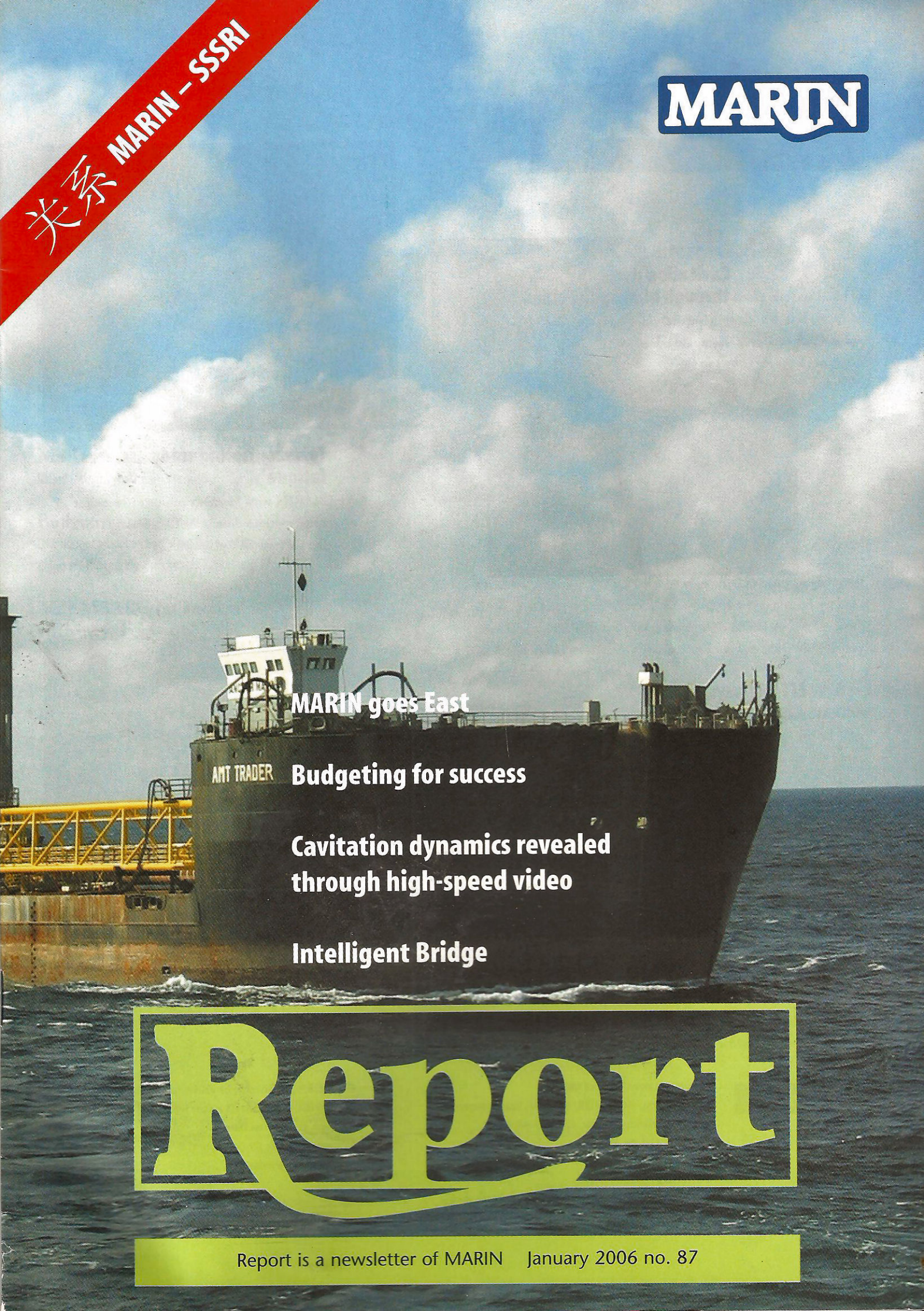
itorial staff has made every attempt to ensure the accuracy of tents. However, experience has shown that, despite the best ns, occasional errors might have crept in. MARIN cannot, y, accept responsibility for these errors or their consequences. rks or questions, please contact Ellen te Winkel.

E-mail: E.te.Winkel@marin.nl

For more information or a subscription to MARIN Report, please visit our website: www.marin.nl.

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MARIN



MARIN goes East

AMT TRADER Budgeting for success

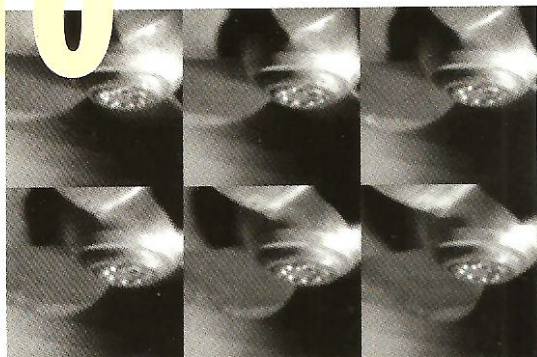
Cavitation dynamics revealed through high-speed video

Intelligent Bridge

Report

Cavitation dynamics revealed through high-speed video

High-speed video cameras reveal cavitation dynamics.

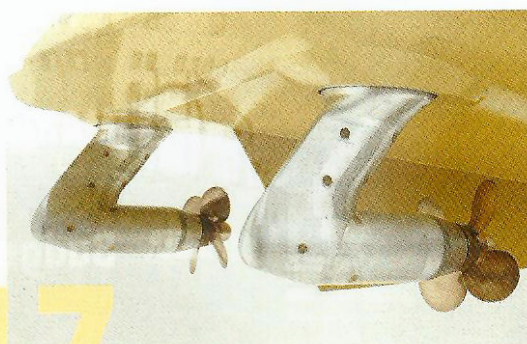
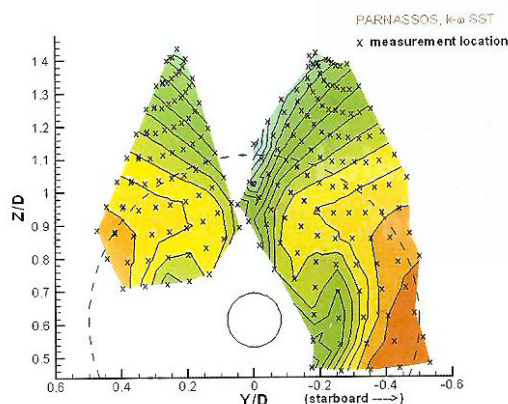


Tow monitoring study assesses fatigue

MARIN wins Heerema contract to monitor barge motions during the transportation of the Valdemar AB platform.

EFFORT pays off

Full-scale CFD validation project completed.



Model pod innovation improves accuracy and flexibility

A new approach using a dedicated electric motor inside the pod instead of the mechanical right angle drive is highlighted.

More power means more cavitation research

Report interviews cavitation guru Gert Kuiper who has retired from MARIN after nearly 40 years.

MARIN goes East

MARIN cements its relationship with China and joins forces with SSSRI.

MTU Detroit Diesel sails ahead

Sound research replaces guess-work.

Budgeting for success

Low budget model testing is not just a matter of doing the job quickly and cheaply. Report explains.

To EMBARC on success with new FSA-tool

An FSA-tool that can assess risk and evaluate the consequences of strategic changes in traffic management.

Monitoring software

MARIN supplies monitoring software for Imtech UniMACS® Integrated Bridge System.

EPS shaftless thruster

The award-winning EPS shaftless thruster offers a new concept for quiet manoeuvring.

Challenge RNN

SAMSON takes up the challenge laid down by the Royal Netherlands Navy.

News/At Your Service

News flashes on Courses, ITS, OTC, CAV 2006 and Donation.

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Fax: +31 317 49 32 45

Cover HMC transport of Valdemar AB platform jacket
Editorial consultant Helen Hill
Design & Production
Communicatie & Onderneming B.V.,
Bavel, The Netherlands



CFD versus model tests

Blended wing body technology

Aft-body slamming

Twin-gondola LNG carrier design

Report

CFD versus model tests, which one will be the winner?

MARIN and IHC debate the issue of CFD versus model testing.



Cooperation helps wing the way to success

For a study of blended wing body technology MARIN made one of the most complex models ever tested.



Intercepting the Interceptor

Both MARIN and Deltamarin talk about the Interceptor on large, relatively-slow, merchant ships.



Inboard noise from cavitating propeller tip vortices under scrutiny

Report looks into one of the major discussion topics among clients.

MARIN addresses aft-body slamming concerns

Many designers face the possibility of slamming when applying a relatively-flat aft-body. MARIN probes this issue.

Scenario simulations for profitable shipping

The balancing act between operational performance and building costs is sometimes difficult to achieve. Simulations may have the key.

PELS proves to be a "SMOOTH" operator

Research on air-lubricated ships is close to being converted into practical applications.

Major steps forward in twin-gondola LNG carrier design with the aid of CFD

CFD tools are playing an important role in the development of LNG carrier design.

New JIP brings sea trials up to speed

Reports looks at what made leading shipowners take a fresh look at sea trials.

Lashing@Sea

This JIP aims to die down the problem of containers lost at sea.

News/at your service

News flashes on exhibitions, courses, PIV and Simulators.

Special Issue on
OTC 2005

MARIN

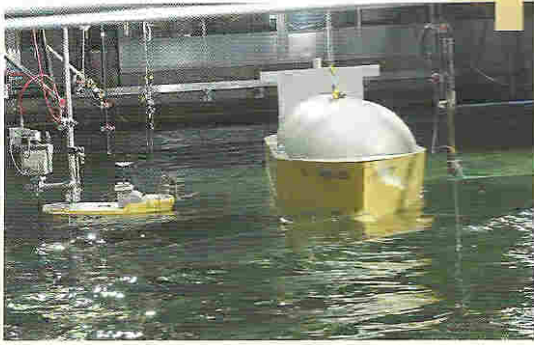
Tug behaviour in waves
Girassol buoy under tension
Simulating offloading operations
Deep thoughts about shallow water

Report

Report is a newsletter of MARIN April 2005 no. 85

Tug behaviour in waves

The operation of assisting tugs can limit the uptime of offshore terminals significantly.



4

Offloading LNG leads to increasing demand for LIFSIM program

LIFSIM program also set to be extended with Dynamically Positioned functionalities.



Sharing & Caring in FPSO R&D

As the 15th FPSO Forum & JIP Week approaches, Report gives the reader a taste of what's on offer in Houston.

12



Girassol buoy under tension

As TOTAL E&P Angola awards the Tension Measurement System contract to MARIN, Report outlines the scope of the work.

6



8

New publication on Deepwater CALM Buoy

A series of large-scale model tests on the behaviour of deepwater CALM buoys was recently carried out on behalf of Bluewater Energy Services in MARIN's Offshore Basin.

8

Ivan the Terrible captured on disk

The Marco Polo Tension Leg Platform has been subjected to an extensive monitoring campaign. How is it running?

10

A busy year for VIV test apparatus in High Speed Basin

The newly-developed riser VIV test apparatus in the High Speed Basin has seen a productive year with three successful test campaigns.

11

Spar Vortex Induced Motion in current and waves towing tank

Recent tests carried out at MARIN on Spar VIM response are set to be revealed at OMAE, 2005.

16

Deep thoughts about shallow water

... more than 70 people dip their toes into the 'Shallow water hydrodynamics' seminar

17

Underwater measurement system for motions of submerged structures

Accurate measurement systems on submerged structures are hard to come by. MARIN tests address the problem.

18

News/At your service

Special symposium, Cruise and Ferry London, MARIN at OTC.

19



Simulating offloading operations from a DP controlled FPSO

As the Minin FPSO temporarily replaces an FPSO at Xijiang, MARIN's simulator proves vital for training the crew.

14

MARIN

Special Issue on
Cooperative Research Ships (CRS)

MARIN

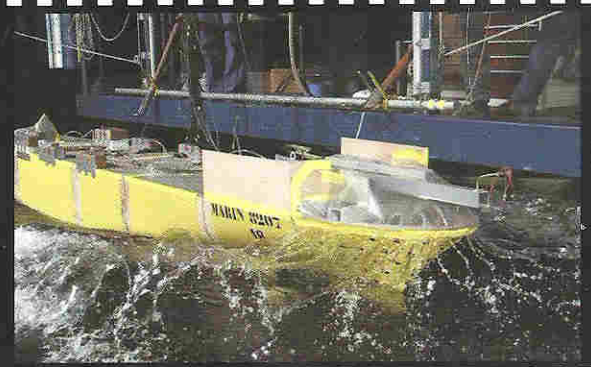


35th Anniversary CRS, 1969-2004

Ship resistance, propulsion and PODs

Front runner in steering en manoeuvring

Design development high on agenda



Report

Report is a newsletter of MARIN November 2004 no. 84

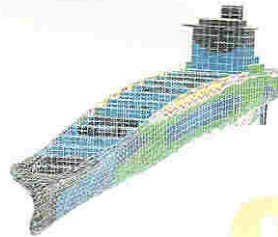
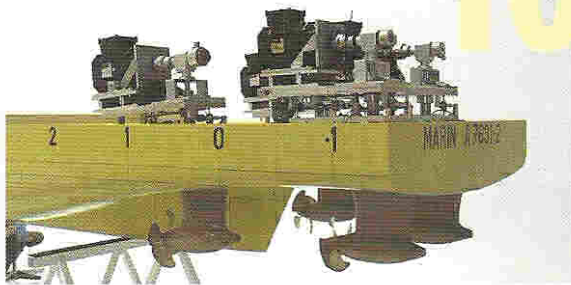
CRS, the past, the present and the future

As the Cooperative Research Ships (CRS) group has reached its 35th anniversary Report takes a look at this unique organisation.



Ship resistance, propulsion and PODs

Report takes a look at just a few of the recent subjects tackled by the associated CRS working groups.



From 1969 to the present day CRS is just as relevant

The American Bureau of Shipping and Chantiers de l'Atlantique, members that have been onboard since the very beginning, give their views on the success of CRS.



Design development always high on CRS agenda

There is always room for ship concept development studies in CRS.

Practical solutions to challenging steering problems

Now approaching its 15th year, the CRS manoeuvring group has become a front runner in addressing steering and manoeuvring issues.

Seakeeping studies throughout the decades

Throughout its existence the CRS community has devoted considerable attention to the effects of waves on the ship. Report touches on the most significant developments.

Hull structural loads a continual focus of attention

With ship owners, classification societies and shipyards among its members, it is no surprise that the research area of ship structures has received lots of attention in the CRS community.

News/At your service

Specialist slamming workshop provokes lively debate, no unwelcome surprises with hull integrity monitoring JIP, and diary dates for courses in 2005.

MARIN

**Special Issue on
Hydrostructural Research**

MARIN

Stimulating simulators

ComFlow: new wave impact load tool

EXCALIBUR cuts through acoustic problems

RAPID Release 3.8: free CD-ROM

Report

Report is a newsletter of MARIN August 2004 no. 83

Ship and offshore operators benefit from structural monitoring

Predictions made in design can be evaluated against actual behaviour.



4



10



15

Stimulating simulators

MARIN provides tailor-made simulator solutions.



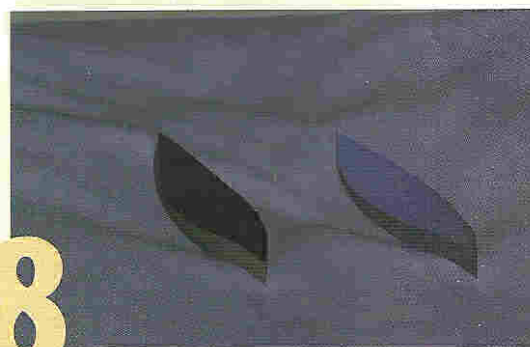
8

SAFE-FLOW brings a major step forward in FPSO safety

Joaquín López-Cortij of IZAR FENE shipyards: "These results will certainly change future FPSO design and operation."

Getting a grip on deep water riser VIV

As industry digs deeper understanding VIV becomes even more important.



18

Get acquainted with RAPID release 3.0

For years MARIN's RAPID CFD software has proven to be a reliable tool to improve the hydrodynamic aspects of ship designs. Now an update is available. Run the enclosed CD-ROM for a presentation.

ELAST study ends with interesting results

The three-year Co-operative Research Ship project ELAST reveals that there is a correlation between bow-flare slamming and whipping.

6

Offshore industry gets in on the act ComFLOW-2, the new, wave impact load tool project, officially kicks-off in Singapore.

7

EXCALIBUR cuts through acoustic problems

MARIN's acoustic panel code for propeller source strength determination lives up to the legend.

12

New tests seek solutions to slamming problems

Impulsive loads experienced by ships in waves degrade directly and indirectly, performance and safety.

14

MASTering the art...

The "Best Mast" project aims to tackle the problems of mast design.

16

Joint Industry Projects: the lifeblood of the industry

JIPs vital to promote mutual understanding.

17

News/at your service

News on: SMM Hamburg, Ship design courses, ISO 9001: 2000, METS 2004, Rotterdam Maritime and SNAME 2004.

19

MARIN

Special Issue on OTC

MARIN

Marco Polo arrives home

FPSO FORUM & JIP Week

Successful DP FPSO study

Simulations and tests for Visund

Report

FPSO Research Forum

Dr. Gorf on the increasing importance of the FPSO and the future role of the Forum.



Marco Polo arrives home

Full-scale monitoring JIP to benchmark the world's deepest Tension Leg Platform.



Snorre TLP

The Snorre Tension Leg Platform (TLP) is awaiting modifications to the topsides.



SAMSON

Collision risk assessment for offshore installations.



FPSO FORUM & JIP Week

Sharing Floating Production expertise benefits the whole industry.



DP FPSO study proves a success

Demand for FPSOs for ultra deep waters continues to grow. IZAR FENE Shipyards led a feasibility study into the DP FPSO.

New High Reynolds VIV test set-up

BP opts for novel riser design.

Combined Model Tests and Simulations in the Lift

Installing new topside modules on an existing FPU in deep water can be a challenging task.

Weather impact assessed in ExxonMobil STS study

Ship-to-ship (STS) transfer of crude oil and petroleum cargoes has become common practice within the marine industry.

Offshore research activities in 2004

MARIN's own offshore research program is closely related to the needs of the industry.

LNG seminar hits the right note with the industry

Two-day seminar on LNG shipping operations attracted a lot of attention both from the industry and the regulators.

Ultimate strength under scrutiny in new project

MARIN and partners embark on a full-scale verification test of the ultimate strength of hull girders.

News/at your service

News on: OTC 2004, OMAE Specialty Conference, Offshore Papers 2004 and the Hybrid S.

MARIN

Special Issue on LNG

MARIN

Focus on new offshore LNG concepts

Reducing risks at LNG terminal

Fast-time ship manoeuvring simulation in the spotlight

Sea trials: what you order is what you get

Report

Report is a newsletter of MARIN December 2003 no. 81

MARIN focuses on new offshore LNG concepts

An update on innovative gas-receiving terminal concepts.



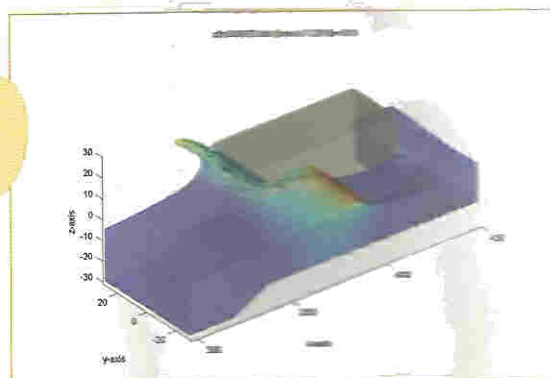
MARIN plays key role in design of booming LNG fleet

MARIN's involvement in the design and operation of LNG carriers.



LNG shipping interfaces: Ports, Terminals and Offshore

MARIN and SIGTTO have organised a two-day seminar on LNG shipping operations.



GBS run up study combats hurricane aftermath

MARIN investigates the wave run up for a GBS in the Gulf of Mexico.



Risks reduced at LNG terminal thanks to MARIN studies

A close look at a port safety study for the port of Ferrol in Spain.



California Dreamin' over first floating LNG terminal

A feasibility study is carried out of the first floating LNG import terminal off the coast of California.

Motion simulations for NnwaDoro

Motion behaviour and weather thresholds were tested for LNG project offshore Nigeria.

Big Sweep model tests for Bluewater

Model tests on a Big Sweep LNG offloading system.

LNG SPM model tests for SBM

Soft Yoke Mooring and Offloading system for LNG transfer was tested in the Offshore Basin.

Fast-time ship manoeuvring simulation comes in the spotlight

Fast-time simulation models are the appropriate tool to assess limitations and risks of offshore facilities.

Coupling effects on large LNG tanks

The coupling effects on large LNG tanks will be tackled in a Joint Industry Project.

CFD-based optimisation process improves dramatically

Parametric hull form deformation and automated parallel processing have improved hull form optimisation.

What you order is what you get

Sea trials are essential to obtain high quality wind and wave data.

MARIN Training Course 2004

"Hydrodynamics of Floating Offshore Structures"

MARIN



MARIN

Energy saving technique hits the headlines

Podded popularity sees MARIN building bridges

Concern rises with Dongedijk re-investigated

MARIN tackles day-to-day ship performance quantification

Report

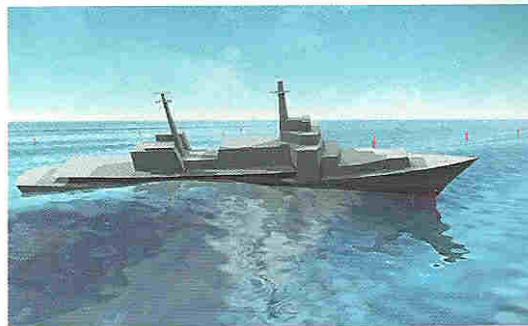
Report is a newsletter of MARIN September 2003 no. 80

Podded popularity sees MARIN building bridges

Bridge between technical properties of podded system and its safe and efficient use in practice.



6



Cooperative Research Navies focuses on dynamic stability and safety

Navies continue joint research on capsize risks and safety of intact and damaged ships.

9



11

Mega performance for Mega Yachts

Joint Industry Project investigates performance of latest generation of mega yachts in operational conditions.

JIP finds shielding effects have significant impact

Results of the Offloading Operability Joint Industry Project, as the first phase nears conclusion.



13

Tugs and towing focus of industry projects

A discussion of two project proposals: one JIP on tugs that operate in exposed conditions and a tow force program to develop a tool to estimate bollard pull.

16



- Concern rises with Dongedijk re-investigated 4
- Studying survivability with FREDYN 5
- A further step forward with SafeTrans 6
- MARIN tackles day-to-day ship performance quantification 8
- SAMSON helps assess the risk of wind farms 10
- Energy saving technique hits the headlines 12
- SMACS project investigates hi-tech software performance 14
- Risk Based Maintenance System development: RBM-up 15
- DP Excellence JIP: "Ultra Reliable DP for the future" 15
- MARIN launches new company Qnowledge 17
- Vessel owners join forces to set standards for sea trials 17
- News/ at your service 18

MARIN

Special Issue
Offshore Technology Conference 2003

MARIN

MSCN provides vital FPSO training

MARIN focus on SHELL's offshore LNG developments

Specialised tests for Spar optimisation

Venturing into the deep with DP-FPSO

Report

Report is a newsletter of MARIN April 2003 no. 79

10th FPSO JIP Week & FPSO Research Forum proves a Spanish success

More than 100 people representing 35 different companies gather in Spain to discuss the latest developments in the offshore sector.



4

MARIN answers clients needs whether offshore or on-board

Report explains how MARIN helps to close the gap between computation, model testing and reality.

14



Storms and even hurricanes no problem for Atlantis PQ semi

MARIN puts one of the largest semi-submersibles through its paces.

11



MARIN focus on SHELL's offshore LNG developments

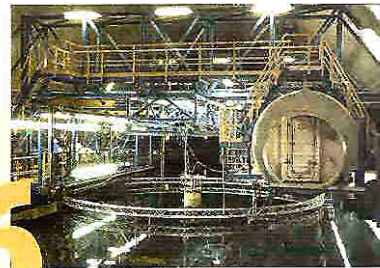
SHELL asks MARIN to investigate offshore LNG mooring possibilities.

12

Specialised tests for Spar optimisation

Truss Spar tests show that both the choice of mooring system and current profile can have a significant influence on the VIV response.

16



A JIP update

New and ongoing and new Joint Industry Projects to be discussed during the next FPSO JIP Week.

5

MARIN gets ART-ful in search for innovation

PROSAFE's Articulated Riser Tower will support deep-water risers from the well head to an FPSO.

6

MSCN provides vital FPSO training

How the right training can never be underestimated.

7

Girassol links simulations, model tests and full-scale monitoring

TotalFinaElf contracts MARIN for motion analyses of the Girassol FPSO.

8

Venturing into the deep with DP-FPSO

IZAR FENE Shipyards takes the plunge and starts a Joint Industry Project to develop a Dynamically-Positioned FPSO for ultra deep waters.

10

Managing fatigue with JIP FPSO Live

A new JIP is being carried out with Bluewater Energy Systems and Det Norske Veritas.

17

MARIN plays a role in future hydrodynamic research of floating structures

A view at key challenges in designing, constructing and installing floating systems.

18

News / at your service

MARIN's agreement with NMRI, information on the traditional hydrodynamic courses and MARIN's presence at the OTC and Cruise & Ferry.

1

colophon

Report is a newsletter of MARIN,
2, Haagsteeg, P.O.Box 28, 6700 AA Wageningen,
The Netherlands, Phone: +31 317 49 39 11,
Fax: +31 317 49 32 45

Printing 5000

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Cover Installation of the Girassol FPSO offshore Angola.
Courtesy TFE.

Editorial consultant Helen Hill

Design & Production

Communicatie & Onderneming B.V.,
Consultants for internal and external
communication, Bavel, The Netherlands

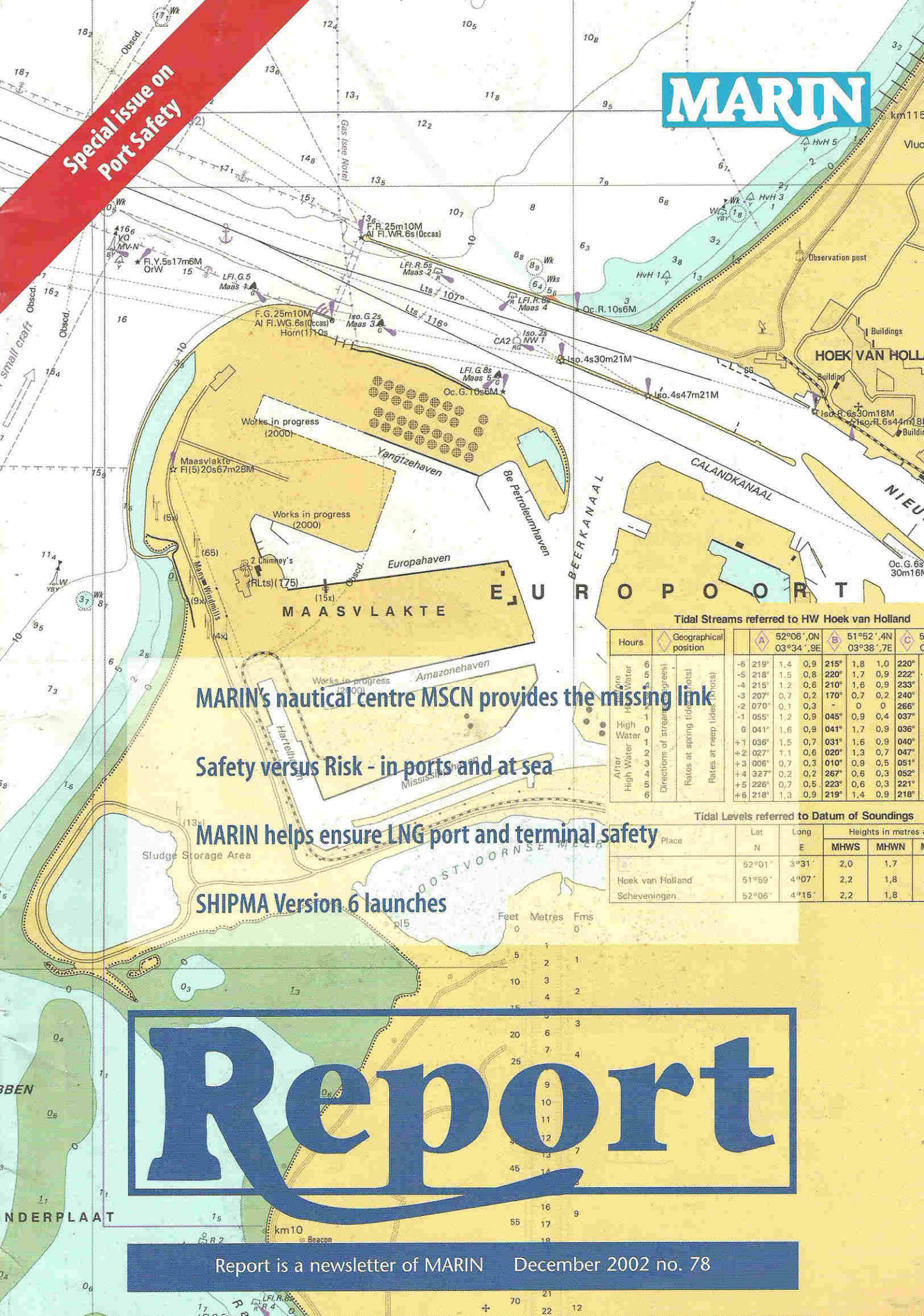
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E-mail: E.te.Winkel@marin.nl

Special issue on Port Safety

MARIN



MARIN's nautical centre MSCN provides the missing link

Safety versus Risk - in ports and at sea

MARIN helps ensure LNG port and terminal safety

SHIPMA Version 6 launches

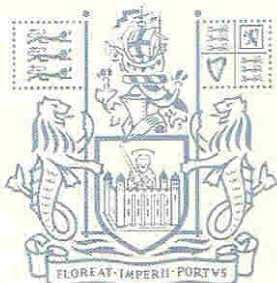
Tidal Streams referred to HW Hoek van Holland

Hours	Geographical position	A	B	C
6	52°06',0N 03°34',9E	218°	215°	220°
5	52°06',0N 03°34',9E	218°	220°	222°
4	52°06',0N 03°34',9E	215°	210°	233°
3	52°06',0N 03°34',9E	207°	170°	240°
2	52°06',0N 03°34',9E	070°	0	266°
1	52°06',0N 03°34',9E	055°	045°	037°
0	52°06',0N 03°34',9E	041°	041°	036°
1	52°06',0N 03°34',9E	036°	031°	040°
2	52°06',0N 03°34',9E	027°	020°	047°
3	52°06',0N 03°34',9E	006°	010°	051°
4	52°06',0N 03°34',9E	327°	267°	052°
5	52°06',0N 03°34',9E	226°	223°	221°
6	52°06',0N 03°34',9E	218°	219°	218°

Tidal Levels referred to Datum of Soundings

Place	Lat	Long	Heights in metres	
			MHWS	MHWN
Hoek van Holland	52°01'	3°31'	2,0	1,7
Scheveningen	51°59'	4°07'	2,2	1,8
	52°06'	4°15'	2,2	1,8

Report

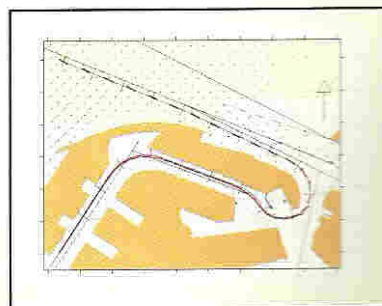


Safety and efficiency go hand-in-hand at the Port of London Authority

With the Port of London (PLA) Authority's mission statement containing key words such as safe, sustainable and competitive, Report interviews Bruce Richardson, the Chief Harbour Master and the Pilotage Manager, Richard Carr.

MARIN's nautical centre MSCN provides the missing link

Here the work of MSCN is considered as it continues to strive for 'a safe and efficient' maritime environment.



SHIPMA Version 6 launches

A closer look at the latest version of fast-time simulation model, SHIPMA.

A SWATH solution for River Westerschelde ferries

As the Province of Zeeland and Damen Shipyards Gorinchem opt for a SWATH solution, MARIN does the tests.



New EFFORT in full-scale CFD validation

As the first meeting of the European Full-scale Flow Research and Technology project (EFFORT) kicks-off at MARIN, Report outlines the project and its aims.

Safety versus Risk - in ports and at sea

Port authorities need to keep the levels of risk in their ports as low as reasonably possible. Recent safety and risk assessment initiatives are examined.

MARIN helps ensure LNG port and terminal safety

One issue always high on the maritime industry's list of priorities concerns the design of port lay-outs and terminals and the need for high safety standards.

Adverse conditions overcome with help of bridge simulator

MARIN can now offer officers the chance to experience the impact of adverse weather conditions, while still in the safety of a bridge simulator.

Cavitation on waterjet pump made visible

Wärtsilä Jets, the Royal Netherlands Navy and MARIN joined forces in a bid to research the cavitation characteristics of waterjet impellers.

Euroyards in the FASST lane...

The Fast Advanced Short Sea Transportation (FASST) project rises to the challenge.

JIP "Monitoring 9000t" already gets results

An update on the Joint Industry Project "Monitoring 9000t" which is investigating the structural loads and responses of large, multi-purpose, container vessels.

News / at your service

Information on the traditional hydrodynamic courses and the inauguration of MARIN's Depressurised Towing Tank.



Jubilee issue
1932-2002

MARIN

Report

Report is a newsletter of MARIN August 2002 no. 77



4

A bright future ahead says former president

Former president Marinus Oosterveld has witnessed 40 years of the institute's history and he describes why he believes MARIN is in a good position for the future.

MARIN digs deeper to answer needs of offshore sector

As the rapidly-changing offshore sector demands ever-deeper testing facilities, MARIN has to ensure it always has the right facilities. Johan Wichers of MARIN USA explains.



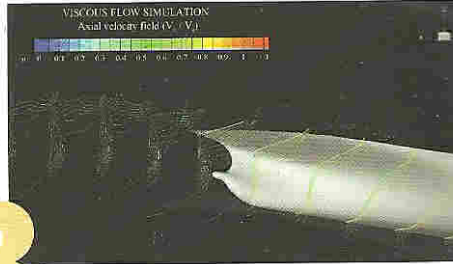
6



9

From tugboat to modern cruise liner

Report demonstrates how MARIN has been serving the shipping industry throughout its history.



13

MARIN ensures industry has right tools for the job

Seven decades of tool development at MARIN and in the wider ship Hydrodynamic community, have brought great advances. Here Report examines these developments.

MSCN offers bright view on the future

MSCN celebrates 10 years of in-house manoeuvring simulator development and wins Port of London Authority contract.



16



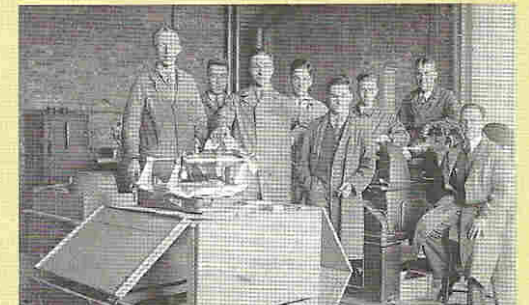
18

News/at your service

Satisfied customers, the inauguration of the upgraded Depressurised Towing Tank, MARIN's presence at the SMM and SNAME exhibitions and the latest news on our hydrodynamics courses.



Official start of the NSMB, 1932



Propeller manufactory, late thirties



Wax model shop, late thirties



Royal yaught Piet Hein, 1937

colophon

Report is a newsletter of MARIN,
2, Haagsteeg, P.O.Box 28, 6700 AA Wageningen,
The Netherlands, Phone: +31 317 49 39 11,
Fax: +31 317 49 32 45

Printing 5000

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Cover The people of MARIN today
Photographs AV dept. MARIN
Editorial consultant Helen Hill
Design & Production
Communicatie & Onderneming B.V.,
Consultants for internal and external
communication, Bavel, The Netherlands

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Special issue for
Offshore Technology Conference 2002

MARIN

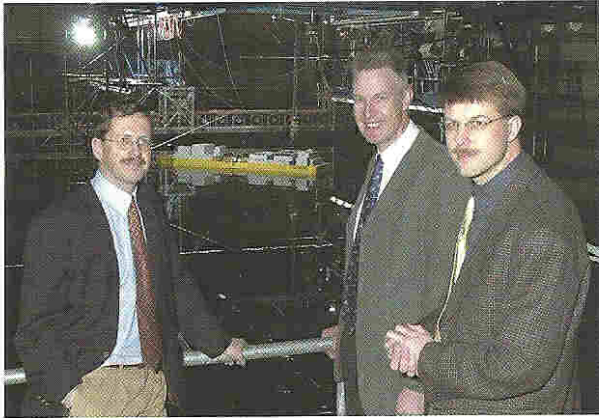
Deepwater innovations offshore Brazil

Drilling semi-submersible set for Caspian Sea

New TLD concept tackles harsh environments

New lines for LNG carrier set future standards

Report

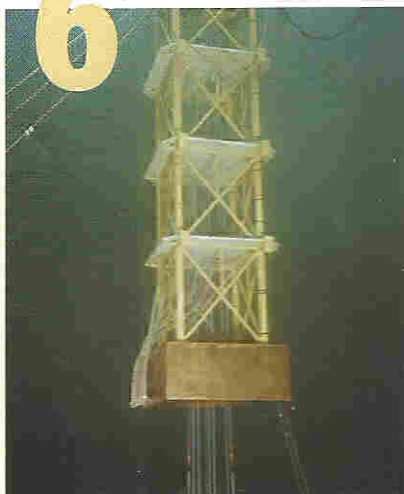


4 MARIN aims to play an important role in the offshore industry

2001 saw MARIN getting increasingly involved in the offshore industry. Bas Bucher, Henk van den Boom and Jos van Doorn explain the increasing role of the offshore sector in their work, both now and in the future.

Two leading truss Spar players choose MARIN model testing

Two major players in the truss Spar field, CSO -Aker and J. Ray McDermott, choose MARIN for model tests.



10 Drilling semi-submersible set for Caspian Sea

MARIN recently carried out verification studies, including both model tests and hydrodynamic calculations, on a new drilling semi-submersible.

16 Initiatives flow from Lisbon FPSO JIP Week

The last FPSO JIP week proved again invaluable with new initiatives like the Offloading Operability and Roll JIP.



18 Wildlife inspires MARIN in DP-JIP

A Joint Industry Project on Dynamic Positioning technology takes its inspiration from an unusual source.

MARIN helps improve CALM buoy design
Report outlines two recent buoy model test projects carried out for SBM and Bluewater Energy Services in its Offshore Basin.

New TLD concept tackles harsh environments
MARIN has been heavily involved in testing a state-of-the-art concept, SBM's Tension Leg Deck (TLD). Report looks at its ability to operate in harsh environments.

Full-scale VIV tests for marine riser applications
Report on Vortex-Induced Vibrations (VIV) and a new VIV software analysis tool.

Deepwater innovations offshore Brazil
Brazilian oil company Petrobras works together with the university COPEE/UFRJ on the development of the Sub Surface Buoy (SSB) concept.

New tools examine nautical safety of offloading operations
MARIN is at the forefront of nautical safety assessment developments. Report explains.

New lines for LNG carrier set future standards
French naval engineering company Gaztransport & Technigaz and MARIN get together to develop a new set of lines for LNG carriers.

MARIN spearheads JIP into future role of the tug
MARIN is starting a Joint Industry Project designed to examine the new and more demanding role of the tug.

News/at your service
The traditional training courses on hydrodynamics, MARIN's presence at the OTC and ITS and an outline of model tests and simulations for floating pipes.

**NAVION SCANDIA
STAVANGER**

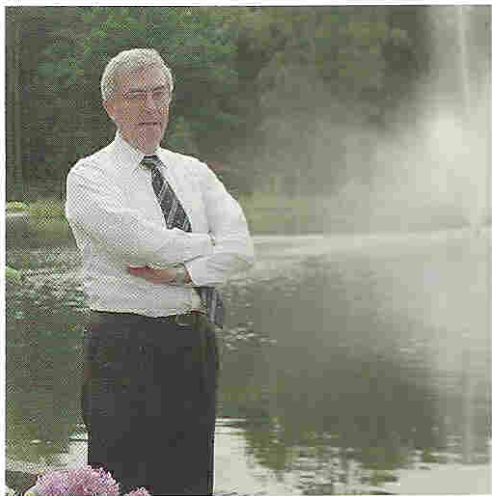
**Hydrodynamic advice ensures dream yachts
become reality**

'Pods in Service' initiative provides invaluable data

**Upgraded Depressurised Towing Tank welcomes
first customer**

Santa Fe's Development Driller undergoes DP tests

Report



4 MARIN/Chantiers relationship continues to flourish

MARIN's relationship with leading French shipping yard Chantiers de l'Atlantique already stretches some 50 years. To celebrate Report talks to Roger Lepeix, Chantier's head of hydrodynamics, who has been a familiar face in the Wageningen headquarters for almost 30 years.

8 Hydrodynamic advice ensures dream yachts become reality

MARIN meets the challenge and makes dreams come true while at the same time, it works within technical and financial constraints.



'Pods in Service' initiative provides invaluable data

Report outlines the short history of the Joint Industry Project 'Pods in Service' and looks at its contribution to future design.



15 Tanker escort turnaround by Rotortug

KOOREN SHIPBUILDING AND TRADING is developing in close corporation with MARIN the next generation of Rotortugs capable of open sea escorting.

6 DK Group's air lubricated Ro-Pax vessel undergoes rigorous testing but comes up trumps

The Rotterdam DK Group commissioned MARIN to perform powering, manoeuvring and seakeeping model tests for a special air lubricated Ro-Pax vessel.

10 Upgraded Depressurised Towing Tank welcomes first customer

MARIN was very proud to welcome the first customer of its upgraded and modernised Depressurised Towing Tank when it carried out tests for DAMEN SHIPYARDS.

11 Santa Fe's Development Driller undergoes DP tests

As Santa Fe builds a new semi-submersible rig capable of operating in water depths up to 7,500ft, MARIN is playing a fundamental role in its development and testing.

14 Welcome to SOROLLA and FORTUNY

After having met their first waves in Wageningen, SOROLLA and FORTUNY entered service this summer. Report explains MARIN's role.

15 News/at your service

An outline of two interesting projects: open sea escorting by Rotortug and speed and manoeuvring trials on containership Carolina.

MARIN

SWATH comes under scrutiny

MARIN plays key-role in HSF-ARCoS project

Decent proposals at 7th FPSO JIP Week

Speed trials on cruise liner OLYMPIC VOYAGER

Report



5 SWATH comes under scrutiny

Seakeeping and manoeuvring ability of SWATH design come under the spotlight.



6 MARIN plays key-role in HSF-ARCoS project

A focus on the HSF-ARCoS (Advanced Ride Control System development for a High Speed Ferry) project and the relevant numerical modelling and tank testing procedures.



9 Offshore research aids future design

Offshore research continues to help improve future design. Here are some of the latest projects.

13 Speed trials on cruise liner OLYMPIC VOYAGER

MARIN conducted sea trials for the latest generation high-speed craft which becomes number one in the race against time.



4 The sky is the limit...

Bigger proves to be better as shipowners make the choice for increasingly larger vessels. MARIN intends to be at the cutting-edge of the development of the next generation of the world's container vessels.

8 PARNASSOS to tackle larger class hulls

MARIN announces that the program PARNASSOS can now handle a larger variety of hull forms.

10 Decent proposals at 7th FPSO JIP Week

The latest FPSO JIP Week again provided an excellent platform for exchanging expert industry knowledge and for discussing recent industry developments.

12 Simulator successes

A large number of organisations ranging from the Royal Navy to oil producing giants are using simulators to support company policy. Report explores this trend.

14 News/at your service

Tailor-made courses for ship designers, an impression of the grand opening of the new facilities and MARIN's presence at SNAME and Europort.

MARIN



**Deepwater exploration
and production solutions**

FPSO tandem offloading

Queen of the Atlantic

Air lubricated hulls and propulsors

Report



DeepStar model tests and new Deepwater Offshore Basin, a perfect match

DeepStar's FPSO, SPAR and TLP were exposed to Hurricane and Loop currents in the new Deepwater Offshore Basin.

Deepwater exploration and production solutions



The offshore industry has shown overwhelming interest in the Offshore Basin's unique wind, wave and current generation capabilities. Some challenging projects at a glance.

Queen of the North Atlantic



The new fast ocean liner Queen Mary 2 will be equipped with an innovative propulsion and steering system. An extensive study proved the feasibility of this new design.

Radiance sails straight through Ems

Mega cruise ship 'Radiance of the Seas' built at the German Jos Meyer Shipyard sailed its first voyage at MARIN.



Air lubricated hulls and propulsors

Reducing the frictional resistance of ships by means of air cavities in the ship's bottom is rarely applied. Some recent developments.



Offshore engineers' numerical toolbox

Some interesting projects indicating why offshore simulation programs and offshore engineers are a perfect combination.

OWASE II: capturing waves

Accurate information on wind, waves and currents available on board is becoming ever more important. MARIN participated in this JIP to obtain a complete and reliable measurement tool for wave climates.

FPSO tandem offloading

TOTALFINAELF E&P Angola intends to develop the Dalia field offshore Angola. A variety of simulations were executed to determine the economic feasibility of tandem offloading with a spread-moored FPSO.

'Offloading Operability' and 'FPSO Roll'

MARIN has started two JIPs on the offloading from FPSOs and the roll motions of FPSOs in harsh and mild environments.

Ferry good

On overview of MARIN's contribution to the development of ferries over the past years.

JIPs contribute to safety at sea

A sketch of two Joint Industry Projects aiming at the design for safety of Ro-Ro passenger ferries.

MARIN

**New President Remery sees
hurricane of potential at MARIN**

**MSCN's manoeuvres
for improved ship safety**

**GULLIVER,
a ship designers' edge**

Report



New President Remery sees hurricane of potential at MARIN

George Remery, MARIN's newly appointed president, in his first interview for MARIN Report, sees exciting times ahead for the company.

MARIN helps Shell study LNG floating production options

First there were Floating Production Storage and Offtake systems, or FPSOs. Now get ready for FLNGs, or Floating Liquefied Natural Gas, a new offshore production challenge, explored by MARIN for its client Shell.



SMB plays vital role in bulk carrier safety probe

The loss of ships like the MV Derbyshire and other bulk carriers has thrown these ships into sharp international safety focus. As you might expect, MARIN's Seakeeping and Manoeuvring Basin is at the front end of research to explore the challenges faced by such ships in heavy seas.



MARIN takes to the seas for full-scale CFD validation tests

The Mediterranean island of Elba was the backdrop for MARIN's Trials & Monitoring group to perform a successful series of full-scale flow measurements on board the NATO Research Vessel "Alliance" earlier this year.



On test: Halter Marine's new tug-barge design

An extensive model testing program of a new generation articulated tug and barge (AT/B) unit recently underway at MARIN.

MSCN's manoeuvres for improved ship safety

Johan de Jong, manager of MARIN's Nautical Centre MSCN, addresses ship safety in a detailed interview.

New measurement and control systems – the integrated approach

Demand is growing for increasingly complex model tests, and where better to look for the latest in developments than in MARIN's Seakeeping and Manoeuvring and Offshore Basins.

GULLIVER, a ship designers' edge

The tools of the ship design trade often have very little to do with the difficult decisions a ship's master must make in every day operations. But change is afoot: Introducing GULLIVER.

News/at your service

An at-a-glance guide to all that's newsworthy in the fast changing hydrodynamic world of MARIN

MARIN

Depressurised Towing Tank:
bigger, better, quicker

Lloyd's Register and MARIN
- a relationship in research

PODs - the revolution progresses

MARIN's captive capabilities boosted

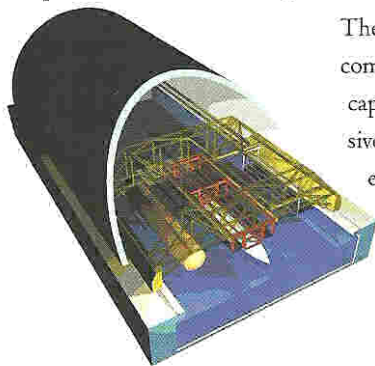
Report

Links with Lloyd's

Lloyd's Register and MARIN have enjoyed a friendly and beneficial relationship for more than a quarter century – we celebrate the fact by talking to one of the classification society's senior figures.



Depressurised Towing Tank - bigger, better, quicker



The end of this year will see completion of the DTT, where capabilities have been comprehensively enhanced. We present a detailed focus on the tank, and its implications for current and future research.

Silent running



The search by modern navies for propeller designs to delay cavitation inception is charted by MARIN's Bert Koops and Tom van Terwisga.

Pod revolution

Increasingly, modern newbuildings feature pod production as shipping's love-affair with these



versatile propulsion systems gains momentum. The first of two pod-oriented reports in this issue.

Rotor research

It is rare these days for a new design to fire the imagination – but that's what happened in Rotterdam when KOTUG unveiled its new tug propulsion system. MARIN's important involvement in this project is reviewed here.



TIPVOR: US and Dutch navies unite to battle cavitation

MARIN is a major participant in a US-Dutch collaborative project which promised to significantly advance capabilities.

Cavitation realities

Jan-Bart Verkuyl ponders the effect of scale on the tricky dilemma that is cavitation.

Advancing the tools of the trade

MARIN's ability to develop advanced new research tools has always been impressive – Gert Kuiper reveals some new developments.

JIPs – collaboration is the key

MARIN's Henk Valkhof is interviewed to explain the growing popularity of Joint Industry Projects.

Model pods

Modern pods require – and get – a sophisticated approach in the test tank, says Cornel Thill.

Steady as she goes

Frans Quadvlieg and Reint Dallinga dispense with some popular misconceptions about course keeping.

MARIN's captive capabilities boosted

The new Computerised Planar Motion Carriage (CMPC) has some revealing capabilities, discussed here by Frans Quadvlieg.

News/at your service

A thumbnail sketch of some developments at MARIN and upcoming events in the maritime world.

MARIN



MARIN

**New Offshore Basin -
in Depth Focus**

Deepwater - the Texaco View

Storms at the Click of a Switch

Challenge of the Shallows

Report

Report is a quarterly newsletter of MARIN June 2000 no. 70



Deepwater: an industry perspective

We interview Paul Devlin, Texaco's senior model test specialist, and in so doing test the waters of his industry's ambition to tap ever deeper offshore areas.

Basin 'without parallel'

Johan Wichers, vice president Offshore USA, outlines MARIN's links with the offshore sector and its



ambition – personified in the new Offshore Basin – to forge stronger than ever links for the future.

Before the great flood

We sent Consultant Bas Buchner into the new



Deepwater Offshore Basin armed only with a camera to conduct this unique photographic tour of the facility, days before it was flooded.

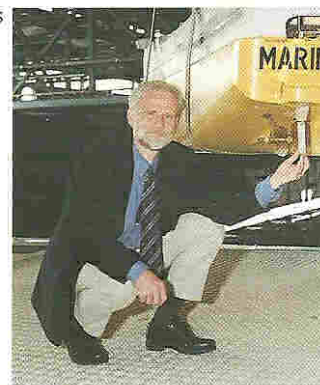


On test: Spain's new hospital ship

Spanish yard S.A. Juliana Constructora Gijonesa's new hospital ship was thoroughly tested at MARIN, as Martin van Hees reports.

Hydrodynamically set for new challenges

Advanced research is the order of the day in the new Seakeeping and Manoeuvring Basin as Jan Blok, senior researcher R&D Projects, explains.



Current affairs

Jaap de Wilde and Bas Buchner discuss the role the new Offshore Basin will play in supporting the sector as it faces new deepwater challenges.



Storms at the click of a switch

Bas Buchner reports on the effort to develop top-of-the-range systems for the new Offshore Basin.

Shallow waters run deep

Researchers Frans Quadvlieg and Serge Toxopeus chart a course through the shallows, exploring the problems ships face in shallow water depths.



MSCN and the human touch

Jos van Doorn reports on MSCN's offshore consultancy service, which has many versatile strings to its bow.



News/at your service

A thumbnail sketch of some developments at MARIN and upcoming events in the maritime world.

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**Smit Engineering Relies on MARIN's
Knowledge**

**NEOKEMP: New Ship for Inland
Waterways**

Steering High Speed Ferries

Correlation of Cavitation

Report

Report is a quarterly newsletter of MARIN March 2000 no. 69

Smit International relies on MARIN's knowledge

Mr. H. Holtackers explains in what way MARIN contributes to research at Smit Engineering. With MARIN's help, Smit International adapted the Smit Pioneer to become a Multi Purpose Offshore Installation Vessel.



Steering high speed ferries

Ferries face many challenges in their day-to-day business. MARIN contributed to the research for Ficantieri's



high-speed ferry design by determining the manoeuvring characteristics in a very early design stage.

Advanced calculation tools ask for more complex model tests

The computational means MARIN has available are advancing so fast that the model tests used to validate

the calculations become more complex as well. René Huijsmans explains how MARIN provides the best possible service to the offshore sector.



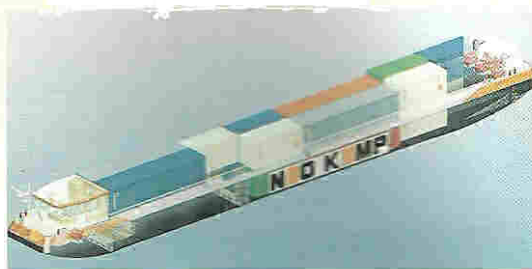
Providing service to the industry is a spearhead for T&M

According to Henk van den Boom of Trials & Monitoring the three main components of his product group are supporting ship trials, long-term monitoring and specialist measurements.



NEOKEMP: a small ship, a big future?

NEOKEMP is a completely new concept: a truck crossing water. This ship has been designed to transport goods over the Dutch inland waterways. MARIN contributed to this concept.



FPSO Integrity JIP reaches second phase

The first part of the FPSO Integrity JIP has been completed.

MARIN DPCAP, thruster interaction in DP

The software program DPCAP, developed by MARIN, calculates the capacity of a system at an early stage of the design process.

STMS; sea trials for measurement systems

During the sea trial, MARIN's new Sea Trial Measurement System proved to be reliable and robust.

Correlation of Cavitation

In the JIP Correlation of Cavitation MARIN performed full-scale measurements on the 'P&O Nedlloyd Tasman' to validate predicted cavitation behaviour and pressure fluctuations.

JIP 'Workability of dredgers offshore'

The workability of dredgers is of vital importance for the Dutch dredging industry. MARIN started a JIP together with the Dutch dredging industry to research this.

JIP FLOW: Floater LOading by Waves

In the JIP FLOW, MARIN works together with its partners and two universities to examine green water loading and wave impact loading for FPSO's.

SeaLance on air

Model tests were carried out for the SeaLance to measure the required power in calm water and in waves.

DELPROP

One of the computational models available at MARIN for the design and analysis of propellers is DELPROP.

News/At your service

A thumbnail sketch of some developments at MARIN and upcoming events in the maritime world.

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**MARIN Sales Instrument for
Dutch Shipbuilding Industry**

**Revolutionary Wide Body
Type Hopper Dredger**

Safety Culture Develops at Sea

PARNASSOS: Viscous Flow Prediction

Report

Report is a quarterly newsletter of MARIN December 1999 no. 68

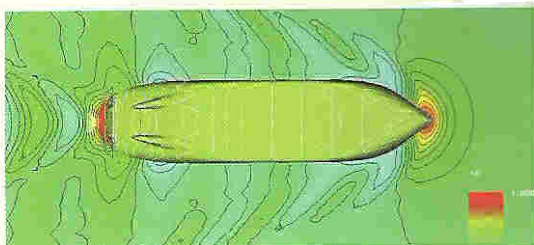


4 **MARIN sales instrument for Dutch shipbuilding industry**

The Dutch shipbuilding industry is facing a few difficult years. An interview with M.A. Busket, president of the VNSI.

8 **Revolutionary wide body type hopper dredger**

MARIN tested a model of a new revolutionary Hopper Dredger. This research was conducted for Boskalis, who have ordered the ship to be built now.



9 **BHP Buffalo: no slippery slope**

Mooring an FPSO on a seabed with a slope is a novelty. MARIN performed a design verification study for the mooring system.



Safety culture develops at sea

After several disasters with ferries, safety has become an even more important issue in the European Community. In this interview, Dr. Jan Otto de Kat explains how MARIN contributes to safety at sea.



Shipbuilding industry recognises MARIN as a propulsion specialist

Dr. Ir. Tom van Terwisga explains the research of the Propulsion Systems group.

Podded propulsion - shiphandling simulation meets reality

Podded propulsion is nowadays applied on large vessels as well as on small ships. MARIN's Nautical Centre MSCN developed a full-mission ship bridge simulator fitted with a podded propulsion system.

Research on ship manoeuvring

MARIN has an extensive systematic experimental program on hull forces. The experiments were successful and the results are incorporated in the generic manoeuvring simulation programs.

30 years NSMB CRS 1969-1999

The NSMB CRS was co-founded by MARIN to investigate the hydrodynamic problems of rapidly increasing ship sizes for bulk cargoes. The group changed into a research group, working on hydrodynamic problems for all ship types.

PARNASSOS: viscous flow prediction as a design tool

MARIN's code PARNASSOS is dedicated to a specific class of applications. It has now matured to a level that it can be applied reliably and efficiently.

News/at your service

A thumbnail sketch of some developments at MARIN and upcoming events in the maritime world.

MARIN

the
For

**MARIN's New Seakeeping
and Manoeuvring Basin**

Pilotage Training on the Humber

**RAPID: Wave Pattern Calculations
available on PC**

**Podded versus Conventional
Propulsion**

Report



Pilotage Training on the Humber

Captain Paul P. Hames is Harbour Master Humber (UK) who works with MARIN's Nautical Centre MSCN and shows the possibilities of using simulators for pilot training.

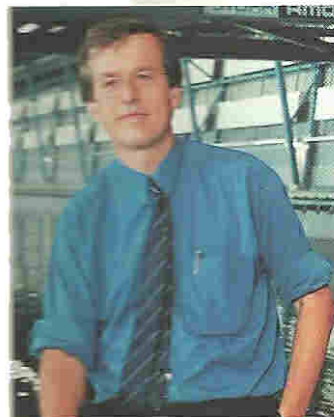
MARIN's New Seakeeping and Manoeuvring Basin

In the area of Seakeeping and Manoeuvring there is an increasing demand for concept development and design verification for a variety of innovative concepts and hull forms capable of performing at higher speeds and in rougher climates. MARIN's basin meets these requirements.



Design Verification Study for Dutch Government Patrol Vessel

In close co-operation with the designer and owner, an extensive study has been carried out for a patrol vessel that will inspect fishing vessels in the Dutch coastal zone.



"Expertise Essential at MARIN Seakeeping"

An interview with Reint Dallinga. Hydrodynamic expertise is at the root of all MARIN services. In Seakeeping this expertise is used to help finding and verifying a balance between performance and safety in ship design.

"A good Controllability Prime Demand"



An interview with Frans Quadvlieg. A ship design may well fulfil the strictest demands, but if manoeuvrability and controllability leave much to be desired, the shipowner will not sail for reasons of safety and economy.

Comparison between Manoeuvring with Conventional and Podded Propulsion

Mr. Quadvlieg and Toxopeus explain the difference between manoeuvring with conventional and podded propulsion. Podded propulsion can improve the manoeuvring characteristics. However, the aft ship design has to be modified accordingly.

Propellers-in-Service Effects

The cavitation inception speed is mostly focused on ideal, calm water conditions. Nowadays, real-world situations are applied. MARIN and the Dutch Navies are working together to study the changes in the propeller wake.

PODs in Service

Henk van den Boom and Henk Valkhof discuss the safety and reliability of Podded Propulsors under Operational Conditions.

Successful Follow-up for DP-JIP Initiative

MARIN's initiative for a Joint Industry Project (JIP) on Dynamic Positioning received stimulating and interesting response from oil companies, drilling contractors, engineering companies and DP manufacturers.

RAPID: Wave Pattern Calculations Now Available on PC

RAPID progress in efficiency and user-friendliness. A very intuitive program according to test users.

News/at your service

A thumbnail sketch of some developments at MARIN and upcoming events in the maritime world.



6

10

12

13

14

18



Special insert for the
Offshore Technology Conference, Houston
This issue: Free CD-ROM:
MARIN Third Millennium Maritime Research

MARIN

**General government making
high demands of MARIN**

**Deep water Dynamic Positioning
Dutch Innovative Installation Concepts**

Super fast ferries for Greece

**Hydrodynamic development for
world's largest ever cruise ship**

Report



4 Central government making high demands of Marin

The government considers MARIN as one of the major technological institutes. An interview with A.A.H. Teunissen of the ministry of Economic Affairs.

Super Fast Ferries for Greece

The German firm, Howaltswerke Deutsche Werft, is building four super fast ferries to be used in Greek waters.



Reliable and Economic Deep Water Developments

Bas Buchner, principal consultant of MARIN's Offshore Product Group, discusses how the institute can help the industry, even when all prices are at an all time low.



18 Resistance and Propulsion

The Resistance and Propulsion Group has a prominent place within the Projects Department.

Offshore Technology Conference 1999

As usual MARIN attends the OTC 1999, 3 to 6 May in Houston. This Report edition includes a special insert.



JIP 'Offshore LNG Offloading System'

Steve Hickman talks about the importance of developing a safe and reliable offloading system for LNG.

Relative Motions: absolutely important

Relative Motion in Tandem Offloading Investigated in JIP: The critical relative motions of FPSO and LNG shuttle tanker are investigated.

Cotunav Fast Ferry

The Norwegian firm, Fosen Mekaniske Verksteder, commissioned MARIN to check the performance of its fast ferry design in waves.

The good approach

MARIN's Nautical Centre MSCN simulates the dynamics of shuttle approaches to FPSO.

New Tandem Offloading

Using dedicated numerical models, MARIN simulates offloading behavior. It will become a regular part of our capabilities.

Maneuvering with cruise ships

Cruise ships are becoming increasingly larger, but ports are remaining the same. One possible solution is increasing controllability and maneuverability.

World's Largest Cruise Ship

Royal Caribbean International has commissioned Kvaerner Masa Yards to build three giant cruise ships. The length will be 311 meters, and the passenger capacity is 3800.

MARIN



MARIN

**Short-Sea/Inland Container Ship:
a new sea creature**

**Computational Fluid Dynamics
program reduces ship wash**

**MARIN's Nautical Centre MSCN:
Consultancy and Training**

**INBISHIP: Common European
Inland Vessel Concept**

Report

Short-Sea/Inland Container Ship

A container ship that crosses the inland/short-sea barrier? Sijmen Vonk, managing director of Amasus Shipping, discusses the economics of this new sea animal.

4



MARIN's Nautical Centre MSCN: Consultancy and Training

MSCN, which recently officially opened its new state-of-the-art simulators, provides training for those working on ships and shore. Less well known are its consultancy services. MSCN's Manager Johan de Jong discusses its activities and possible new trends.

11

INBISHIP Common European Inland Vessel Concept

The goal of this concept is to design and develop an innovative inland ship concept, and to check it by means model- and full scale-testing.

6

Whale Tail Hits The Road

After two years of Research and Development, Whale Tail Systems (WTS) has developed a cycloidal driven foil propulsor, called Whale Tail Wheel®.

10

Ecotrans

This model is intended to quantify the economic merits of container transport by water and is being used to compare vessel concepts and analyze transport schedules.

11

Coastal Push Tug-Barge Development

MARIN was involved in the design of an open-hatch tug-barge system concerning information about the loads on the coupling system and design verification in terms of the sustained speed and inflow of water under adverse weather conditions.

14

The Vaporetti of Venice

Using Computational Fluid Dynamics (CFD) program, RAPID, MARIN helps streamline the design of the Venetian water buses (vaporetti) for the new millennium. Ship wash will be substantially reduced.

16

CFD

Dr. Hoyte Raven, senior researcher R&D projects, about Computational Fluid Dynamics (CFD) programs.

20

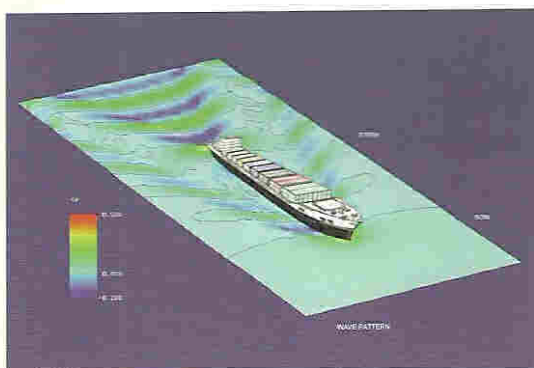
Opening of New, Upgraded Simulators

MARIN's Nautical Centre MSCN opened its upgraded VTS and VTMS simulator facilities on October 22.

21

Sea-River Shipping

An overview of a project designed to explore the expanding needs and viable possibilities of short-sea/inland shipping in increasingly congested Northwestern Europe. Participants, promises and some technological aspects of the venture.



Ship Wash

There is an increasing demand for early specification of how much wash new vessels will generate.

18



A photograph of a worker in a blue jumpsuit and orange hard hat, seen from behind, working on a large, complex industrial machine. The machine has large, curved, metallic components. The lighting is dramatic, with strong highlights and deep shadows.

**MARIN Partner in
Future-Proof Navies**

Modernization IT

**Maneuvering with
Podded Propulsors**

Propulsion Research

Report



Future-Proof Navies

Like many institutions that have been around for awhile - and intend to endure - the Royal Dutch Navy takes a long view: looking ahead 20 to 25 years. Projects must factor in not only today's, but tomorrow's, technology. And the bottom line must be future-proof.



Ship-Based Wave Measurements

Waves often interfere with any determined human efforts at sea, and can be costly - in terms of damage and down time - and dangerous. Together with industry and other institutes, MARIN is developing technology to get a full picture of their behaviour.

Propulsor R&D

Cavitation is the low pressure pockets created by a moving propeller and can cause vibrations, propeller erosion and im-



plosions. MARIN is a leading edge explorer in this turbulent area.

Smit Pioneer:

Full DP Offshore Installation Vessel

Testing DP capabilities of a converted multi-purpose installation vessel demonstrates the strengths of both numerical and scale model tests. The former in early design stages: the latter when closing in on the target.



Focus on Thrusters 1 & 2

Two MARIN research projects, one completed and one projected, take on thrusters. One purpose is to study the complexities of thruster-thruster, and thruster-hull interactions.

IT Modernization: Inside and Out

There's a big modernization push going on within MARIN across the board. This will help the institute work better with itself and, consequently, work better for its clients.

Maneuvering with Podded Propulsors: Pluses and Minuses

Podded propulsors are not only in the spotlight for potential efficiency gains, but also for maneuvering. Again the message is, details are everything.

Increasing Interest in Podded Propulsion

Podded propulsion units are generating a lot of interest in the maritime industry. Vessels that are benefitting - or might benefit from them in the near future - include ferries, tankers, dredgers, icebreakers and offshore support vessels.

'SALM' for Frigid Sakhalin Waters

A unique SALM for a hostile environment was recently tested by the institute. It is uncoupled in the winter and re-coupled in the spring.

In Brief

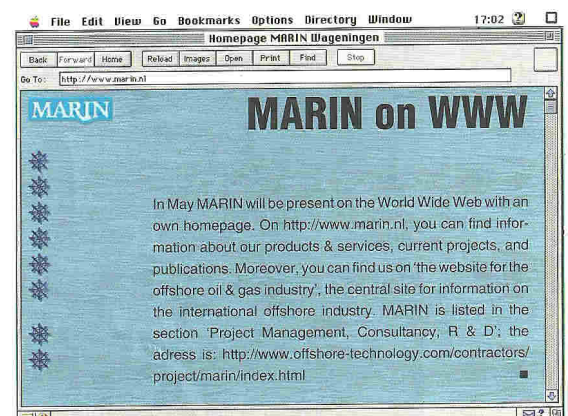
A thumbnail sketch of some developments at MARIN, and upcoming events in the maritime world.

MARIN

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REPORT

- 775 **DP for Deepwater
Drilling: Semi with 8 Thrusters Tested**
- 776 **5th Generation Drillship Discoverer Enterprise**
- 778 **Jotun Field FPSO**
- 779 **LNG Carriers Safely Moored to Jetties**
- 780 **Simulator Training a Need for Marine
Operations**
- 781 **New Offshore & Seakeeping Test Facilities
Open Third Quarter '99**
- 782 **To Serve You Better MARIN to Open an Office
in Houston**
- 782 **MARIN at your Service**
- 783 **Hydrodynamic Research on a Deepwater
Drilling Vessel**
- 783 **Invitation to Visit MARIN at OTC '98**
- 784 **MARIN Committed to Further Development of
DYNFLOAT**
- 786 **Brand New 'Look and Feel' for Software
Development**
- 787 **RUNSIM, a New DP Simulation and Model
Testing Environment**
- 788 **Joint FPSO Research**
- 789 **SafeTrans JIP Sets Sail**
- 790 **PRADS '98**
- 790 **MARIN on WWW**



110 q91

MARIN

REPORT

- 759 MSCN Comes on Board**
- 760 Global Loads for a Surface Effect Ship and...**
- 762 ...Global Loads of a Large-size Catamaran**
- 763 Sagging and Hogging of the Ship's Hull Girder in a Seaway**
- 764 Non-linear Ship Motions and Hull Loads**
- 766 Hydrodynamic Hull Pressures in a Seaway**
- 767 Siri Central Field Development Jack-up Model Tests**
- 768 Green Seas Loading on the Forebody of a Ship**
- 769 Sea Fastening for Heavy Lift Transport: 'Fasten your Seatbelts'**
- 770 'GreenLab' Software: Model Tests at your Fingertips**
- 772 'MERCURY' Speed Trial Analyses**
- 773 New High-Accuracy Compact Motion Sensor Unit**
- 774 Comfortable in Waves**

110 q91

MARIN

REPORT

- 743 Hull Form Development for Large Fast Ferries**
- 745 Crabbing Simulations: Interactive Port of Call**
- 746 Modernization of MARIN Hydrodynamic Test Facilities under way**
- 748 Model Tests for a SWATH Pilot Tender**
- 750 JIP Thrusters**
- 751 Flexibility as a Challenge in Angola**
- 752 Varg Field FPSO: DP Assisted Mooring**
- 753 Troll-C and Åsgard FPU Transport on a Mighty Servant**
- 754 Safety of Sea Transports and Dry & Wet Tows**
- 755 MARIN Courses**
- 756 Course Content**
- 756 Simulation of Sheet Cavitation on a Hydrofoil**

110 q91

MARIN

MARIN

REPORT

- 731 JIP on FPSO Integrity
- 733 Curlew FPSO in the Central North Sea
- 733 Whale Tail Wheel
- 734 LNG Transshipment at Sea
- 734 Joint Interest in Progress
- 735 Towing Very Long Flowline Bundles
- 736 JIP on Tandem Mooring
- 736 Wandoo Platform Successfully Installed
- 737 DYNFLOAT JIP Completed
- 737 STAMOOR: a Wide Variety of Catenaries
- 737 Bridging Europe
- 738 Innovative Testing for an Innovative Design
- 739 Mega Cruise-liners Moored to an Open Jetty
- 740 MARIN Tests for MARLIM
- 741 Joint Effort on MacCulloch FPSO Mooring Tests
- 742 Invitation to Visit MARIN at OTC '97
- 742 Visit to MARIN by Her Majesty Queen Beatrix

Visit to MARIN by Her Majesty Queen Beatrix



*Her Majesty Queen
Beatrix visited
MARIN.*

110 q91

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