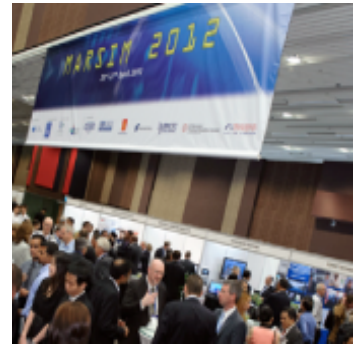
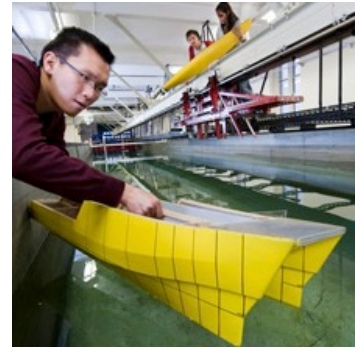


International Conference on Ship Manoeuvrability and Maritime Simulation

**8th – 11th September 2015
Newcastle University, United Kingdom.**

Proceedings and Timetable

The following schedule is for guidance only. The MARSIM 2015 Organising Committee reserves the right to amend the specific timings of individual paper where it is deemed absolutely necessary for the smooth running of the conference.



About MARSIM 2015

International Conference on Ship Manoeuvrability and Maritime Simulation

The aim of the conference is to bring together industry wide expertise from all sectors related to the maneuvering and simulation of ships and floating structures. The objective is to provide a platform for the dissemination of state-of-the-art research and current practice while at the same time nurturing a network for collaboration and commerce.

The MARSIM conference series brings together subject experts and distinguished speakers to discuss and disseminate technical and topical issues, while exhibitors showcase the latest in maritime simulator technology.

This will also be the 42nd AGM of the International Marine Simulation Forum (IMSF).

MARSIM 2015 is sponsored by:



International Marine Simulator Forum

School of Marine Science and Technology,
Newcastle University

South Shields Marine School,
South Tyneside College

Australian Maritime College,
University of Tasmania

Kongsberg Maritime

Rheinmetall Defence Electronics GmbH

The Nautical Institute



KONGSBERG



MARSIM 2015 International Organising Committee

MARSIM 2015 is a fully peer-reviewed conference; ensuring you receive the highest standard of technical papers we can offer. The international review committee is comprised of members with a wide range of expertise and experience; to ensure subject specific evaluation.

Michael D Woodward – Newcastle University

Lars Markusson – DNVGL

Jonathan Duffy – Australian Maritime College

Paul Hodgson – South Tyneside College

Stephen Cross – IMSF Chairman

Zafer Ayaz – Saipem

Michele Viviani – Genova University

Noriyuki Sasaki – Newcastle University

Mehmet Atlar – Newcastle University

Frans Quadvlieg – MARIN

Andres Cura Hochbaum – Berlin University

Alan Murphy – Newcastle University

David Trodden – Newcastle University

Jacek Nowicki – Port Ilawa

Guillaume Delefortrie – Flanders Hydraulics

Evert Lataire – Gent University

Ei-ichi Kobayashi – Kobe University

Dawei Wu – Newcastle University

Xiangyin Meng – Newcastle University

Mel Irving – South Tyneside College

John Hewett – South Tyneside College

Jeremy Gough – South Tyneside College

Mohammed Hossain – South Tyneside College

Overview of the conference schedule

	Monday 7 th	Tuesday 8 th	Wednesday 9 th	Thursday 10 th	Friday 11 th
08:00		Registration and help desk	Registration and help desk	Registration and help desk	Registration and help desk
09:00		Opening Session	Parallel Sessions	Parallel Sessions	Parallel Sessions
10:00					
11:00		Break	Break	Break	Break
12:00		Parallel Sessions	Parallel Sessions	Parallel Sessions	Closing Session
13:00		Lunch	Lunch	Lunch	
14:00		Parallel Sessions	Transport to STC	Parallel Sessions	
15:00	IMSF members reception		Simulator tour		
16:00	IMSF AGM	Break		Break	
17:00		Parallel Sessions		Parallel Sessions	
18:00		Hydrodynamic laboratories tour and reception	STC Reception		
19:00	MARSIM arrival reception and registration		Transport to Newcastle	Conference Banquet	
20:00					
21:00					
22:00					
23:00					

The main activities of the MARSIM 2015 conference take place in the Herschel Building at Newcastle University; just across the road from the Haymarket Metro Station.

Delegate registration covers all conference activities including:

- All breaks and luncheons;
- MARSIM arrival reception;
- Hydrodynamic laboratories tour and reception;
- STC reception (including all transport);
- Conference Banquet at the Discovery Museum including the Turbinya, the Parsons Cavitation tunnel and a tour of the ship model gallery.



+ Day 1 Keynotes

Opening Session

Curtis Auditorium	
Session chair	Michael Woodward
09:00	Paper 1/1/1 Dr. Michael Woodward Opening Introduction
09:10	Paper 1/1/2 Prof. Capt. Stephen Cross Welcome International Marine Simulator Forum
09:30	Paper 1/1/3 Dr. David Clarke Keynote 1 A history of ship manoeuvrability theory and practice
10:00	Paper 1/1/4 Mr. Frans Quadvlieg Keynote 2 The role of the ITTC Manoeuvring Committee

10:30 Morning Break

Sponsored by:
Australian Maritime College

+ Day 1 Papers

Session 2

Curtis Auditorium		Lecture Theatre Two	
Session chair:	Frans Quadvlieg	Knud Benedict	
11:00	Paper 1/2/1 Offline system identification of ship manoeuvring mathematical models with a global optimization algorithm	Paper 1/2/4 Increased effectiveness of simulator training using a human factor & ergonomics perspective	
	Serge Sutulo; C. Guedes Soares	Wendie Uitterhoeve; Kirsten Schreibers	
11:30	Paper 1/2/2 Uncertainty analysis for powering test of an 80000DWT Bulk Carrier	Paper 1/2/5 Culturally aware simulation	
	Weimin Chen, Jian Cui, Guoxiang Dong	Richard Speight, Drew Strannigan	
12:00	Paper 1/2/3 Validation of mathematical manoeuvring models by full scale measurements	Paper 1/2/6 The development of the ship-handling support system based on human characteristic	
	Jeroen Verwilligen, Guillaume Delefortrie, Stijn Vos, Marc Vantorre, Katrien Eloot	Atsushi Ishibashi, Hiroaki Kobayashi	
12:30	Lunch Break Lunch will take place in Newcastle University, Student Union Building		

+ Day 1 Papers

Session 3

Lecture Theatre One		Lecture Theatre Two	
Session chair	Serge Sutulo	Session chair	Thomas Jung
14:00	Paper 1/3/1 Longitudinally directed bank effects	Paper 1/3/4 Innovative simulation tools for learning & teaching ships dynamic and investigation of manoeuvring capabilities	
	Evert Lataire , Marc Vantorre, Guillaume Delefortrie	Knud Benedict, M. Gluch, M. Kirchhoff, M. Schaub, S. Fischer, M. Baldauf	
14:30	Paper 1/3/2 Channel width effects on berthed ship - passing ship interaction from experiments and CFD predictions	Paper 1/3/5 Modelling of ships for simulator training and simulation-augmented manoeuvring support on-board and from the shore	
	Shaun P Denehy, Jonathan T Duffy, Martin R Renilson, Dev Ranmuthugala	M. Schaub, K. Benedict, M. Gluch, G. Milbradt, G. Tuschling, M. Kirchhoff	
15:00	Paper 1/3/3 Experimental study of interaction forces action on a ship hull due to bank effect	Paper 1/3/6 Simulation for the training of pilots and tugboat captains in the expanded Panama Canal	
	Yoshitaka Furukawa, Hiroshi Ibaragi, Yasuaki Nakiri, Katsuro Kijima	Francisco TEJADA	
15:30	Afternoon Break Sponsored by: Australian Maritime College		

+ Day 1 Papers

Session 4

Lecture Theatre One		Lecture Theatre Two	
Session chair	Ei-ichi Kobayashi	Session chair	Egbert Roode
16:00	Paper 1/4/1 Optimising deployment of self-propelled jack-up vessel	Paper 1/4/4 Model course on training for instructors using ship-handling simulators	
	J. Michelsen, O. Lindberg, M. Jeppesen, J. E. Kofoed, J. K. Nielsen, O. Vilmann, M. Macdonald Arnskov	Hiroaki Kobayashi	
16:30	Paper 1/4/2 Instationair Captive Model Tests	Paper 1/4/5 Evaluation method of training scenario for ship manoeuvring simulator exercise in BRM training	
	Rink Hallmann, Frans Quadvlieg,	Michio FUJII, Kenji ASAKI, Masataka KUBONO, Toshiki HAMADA	
	Paper 1/4/3 Modeling and simulation of azimuth stern drive tug in shiphandling simulator	Paper 1/4/6 Key performance indicators for assessing simulator task scenarios	
	Junsheng Ren, Xiufeng Zhang, Huwei Huo	Anton Voytkevich, Aleksejs Bogdanecs, Manuel Fernandez	
17:00	Tour and Reception The conference will be concluded on day one by a reception and an opportunity to take a tour of the Newcastle University Hydrodynmaic Labartoris.		

+ Day 2 Papers

Session 1

Lecture Theatre One		Lecture Theatre Two	
Session chair	Marc Vantorre	Yong Yin	
09:00	Paper 2/1/1 Calculations of manoeuvring performance of ships using adaptive grid refinement with an overset grids method	Paper 2/1/4 Development of a software to identify and analyse maritime traffic situations	
	Yuji Arai, Takanori Hino	Fredrik Olindersson, Carl-Erik Janson	
09:30	Paper 2/1/2 The effect of course-stabilizing fixed fins on manoeuvring performance of a water-jet propelled planing boat	Paper 2/1/5 The range of lookout for assessing collision situations	
	Dong Jin Kim, Sun Young Kim, Nam Sun Son	Akiko Uchino, Hiroaki Kobayashi	
10:00	Paper 2/1/3 A study on captive manoeuvring model test of a ship at large heel condition	Paper 2/1/6 A verification study of a new type guidance scheme by using ship handling simulator and a small boat-based experiment	
	Dong Jin Yeo, Yeon-Gyu Kim, Kunhang Yun	Sin Der Lee, Ching Yaw Tzeng, Young Zehr Kehr	
10.30	Morning Break		

Newcastle University

School of Marine Science and Technology

The School of Marine Science and Technology, is the UK's first marine School which provides a single base for all education, innovation and research related to the sea. Annually, more than 300 students from more than 40 countries, register for accredited degrees in Marine Biology and Marine Technology related streams. Teaching in the School is informed by internationally recognised and industrially relevant research and supported by specialised facilities.

Marine Biologists at Newcastle recognise that in an environmentally conscious era, sustainable use of the seas, conservation of sea life and the management of the marine environment and coastlines are critical. Degrees focus on these current concerns. All marine biology students become experienced ecologists using the facilities at the Dove Marine Laboratory for coastal studies and new Blyth Marine Station which supports the research vessel, *The Princess Royal* for work offshore.

Marine Technologists at Newcastle recognise that new solutions must be found to ensure that the use of the sea and waterways for energy resources, transport and leisure is undertaken in a sustainable way. Research activities using the Hydrodynamics Laboratory and Emerson Cavitation Tunnel as well as *The Princess Royal*, underpin teaching on all undergraduate degree courses.



Postgraduate courses in the School, either taught or by research, span a wide range of activities but association with identified research groups mean that students enjoy close contact with staff and fellow students to provide a friendly and flourishing research culture.

All students studying in the School enjoy an exciting and vibrant learning and recreational environment. The Students Common Room is a hive of activity and often the place to find the Wet Soc committee planning their next event, which could be an outing to a shipyard or to a fish farm, or perhaps discussing the details of the next formal dinner and dance.



+ Day 2 Papers

Session 2

Lecture Theatre One		Lecture Theatre Two	
Session chair	Andreas Gronarz	Stephen Cross	
11:00	Paper 2/2/1 Comparative calculations on steady advancing conditions of free-running model ships reflecting operation limits of engines in waves	Paper 2/2/4 Research into the human-automation partnership, utilising maritime simulation	
	Suzuki Ryosuke, Ueno Michio, Tsukada Yoshiaki	Neil Forbes, Michael Woodward, Kayvan Pazuki, Paul Hodgson	
11:30	Paper 2/2/2 Wave effects on manoeuvring ships in shallow water	Paper 2/2/5 The collection of ASD tugboat operational field data and the usage for simulator modelling & validation	
	Manases Tello Ruiz, Stefaan De Caluwé, Thibaut Van Zwijnsvoorde, Guillaume Delefortrie, Marc Vantorre	Bruce Fuchs, Wei-Yuan Hwang	
12:00	Paper 2/2/3 Manoeuvring simulation of a KVLCC2 tanker in irregular waves	Paper 2/2/6 Dynamic positioning resource management - the use of simulators on complex environments operations training	
	H. Yasukawa, N. Hirata, I. Yonemasu, D. Terada, A. Matsuda	Diego Tavares Bonfim, Johan Ekvall	
12.30	Lunch Break		
	Lunch will take place in Newcastle University, Student Union Building		
14:00	Transport to South Shields Marine School (coaches departing from outside the Student Union)		

South Shields Marine School

South Tyneside College

We are proud to be a world-renowned centre of excellence for marine education and training. Established in 1861, we offer programmes across the whole spectrum of marine education and nautical sciences, including navigation, operations, marine and electrical engineering, communications and catering.

We have a renowned reputation for quality, which has been underpinned by outstanding facilities and significant annual capital investment. Our specialist teaching resources are amongst the best in the world for marine and nautical training. Our knowledgeable, professional team ensures that all your marine personnel will receive an unrivaled training experience.

A complete training environment

We cater for all levels of education and training from Deck, Engine and ET Rating, maritime apprenticeships, all officer trainee programmes through to Senior Officer Certification and up to an honour degree level. We also provide an extensive range of short courses for the marine, offshore and leisure markets.

Our education and training offer is backed up by an extensive range of resources that enables South Shields Marine School to provide all your training needs within two locations at the Marine School and the Marine Safety Training Centre.



Professional Excellence

We pride ourselves on a professional, high quality approach to training for all our marine students. Our highly experienced and knowledgeable team have a wealth of industry experience, so they understand the needs of employers from a broad spectrum of maritime industries from marine to offshore sectors. We can tailor our training to the specific needs of employers and we pride ourselves on our ability to respond quickly to legislative requirements and to meet the needs of the industries, companies and individuals we serve.



+ Day 3 Papers

Session 1

Lecture Theatre One		Lecture Theatre Two	
Session chair	David Trodden	Session chair	Sin-der Lee
09:00	Paper 3/1/1 Analysis of hydrodynamic characteristics and predictions of ship motions on steady advancing conditions in adverse weather	09:00	Paper 3/1/4 Requirements and implementation of the Royal Netherlands navy ship handling simulator (SHS) system
	Suzuki Ryosuke, Tsukada Yoshiaki, Ueno Michio		Eugene R. Miller, Peter Mondeel, Eggo de Roode
09:30	Paper 3/1/2 Evacuation manoeuvre of passenger ship with podded propellers during a tsunami	09:30	Paper 3/1/5 Investigation of effect of roll motion on manoeuvrability using 4-dof mathematical model
	Ei-ichi Kobayashi, Syouta Yoneda, Takuro Kawabata, Wataru Sera, Syunichi Koshimura, Hirotada Hashimoto		Yo Fukui, Yasuo Yoshimura, Hiroyuki Yano; Masatoshi Kondo
10:00	Paper 3/1/3 Fast algorithm for real-time seakeeping simulators	10:00	Paper 3/1/6 Delivering simulation solutions to remote communities
	Grigory Vilenskiy, Dmitry Nikuschenko, Sergey Zaikov		Richard Dunham, John Lloyd

10.30	Morning Break Sponsored by: Rheinmetall Defence Electronics GmbH
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+ Day 3 Papers

Session 2

Lecture Theatre One		Lecture Theatre Two	
Session chair	Evert Lataire	Geir Lilje	
11:00	Paper 3/2/1 Predictions on the manoeuvring behaviour based on virtual captive model tests	Paper 3/2/4 U.S. Army Corps of Engineers' use of ship simulation in structural design	
	Young Jae Sung, Sang-Hun Park, Jae-Hyoung Jun	S. Keith Martin, Dennis W. Webb, Howard Park	
11:30	Paper 3/2/2 RANS Simulation of PMM tests in deep and shallow waters for an inland ship	Paper 3/2/5 Integrated simulation framework based on multi-body dynamics, realistic visualization and hardware for shipbuilding production and offshore installation	
	Yi Liu, Zao-Jian Zou, Jin Chen, Bing-Qian Zhao	Seung-Ho Ham, Myung-Il Roh, Ki-Su Kim, Luman Zhao, Sol Ha	
12:00	Paper 3/2/3 CFD analysis of hydrodynamic force characteristics of pusher and multi barges in steady-state manoeuvres	Paper 3/2/6 Innovation in search and rescue simulation and training - requirements profile of mobile, multi-functional operation stations (MOS)	
	Masaaki Sano, Akio Okuda, Hironori Yasukawa	Patrick Roßner, Max Bernhagen, Thomas Lübcke, Angelika C. Bullinger	

12.30 Lunch Break
Lunch will take place in Newcastle University, Student Union Building

+ Day 3 Papers

Session 3

Lecture Theatre One		Lecture Theatre Two	
Session chair	Johannes Pinkster	Session chair	In-young Gong
14:00	Paper 3/3/1 Experimental and numerical investigation of asymmetrical behaviour of rudder/propeller for twin screw ships	14:00	Paper 3/3/4 Fuel saving strategy on rivers by speed adaption
	G. Dubbioso, S. Mauro, F. Ortolani, M. Martelli, M. Nataletti, D. Villa, M. Viviani		Andreas Gronarz, Helmut Bross
14:30	Paper 3/3/2 Experimental study on the rudder force of the twisted leading edge rudder	14:30	Paper 3/3/5 Uncertainty analysis for roll simulation
	Heejoon Yang, Jisun Lee, Kibum Kim		Nicolas Smith, Michael Woodward, Charles Orji, David Trodden
15:00	Paper 3/3/3 Impacts of rudder configurations on the turning ability of ships	15:00	Paper 3/3/6 From ship handling to maritime incident response simulation - advanced networked simulation
	Jialun Liu, Frans Quadvlieg, Robert Hekkenberg		Thomas Lübcke, Norbert Steigenberger, Claus Bornhorst, Patrick Roßner, Jörg Kemna

15.30 Afternoon Break

Sponsored by:
Rheinmetall Defence Electronics GmbH

+ Day 3 Papers

Session 4

Lecture Theatre One		Lecture Theatre Two	
Session chair	Michele Viviani	Session chair	Fredrik Olindersson
16:00	Paper 3/4/1 Effects of rudder horn and propeller hub vortex for CFD manoeuvring Simulations	16:00	Paper 3/4/4 Nautical studies for the optimization of projects and port operations
	Motoki ARAKI, Kunihide OHASHI, Nobuaki SAKAMOTO		Jose R. Iribarren, Ismael Verdugo, Carlos B. Cal, Raul Redondo
16:30	Paper 3/4/2 Scale effects on free running model tests	16:30	Paper 3/4/5 The use of a ship simulator as a tool for exhaust gas emission estimations
	F. Quadvilieg, R. Tonelli		D. Trodden, A. J. Murphy, K. Pazouki, M. Woodward
17:00	Paper 3/4/3 Hydrodynamic interaction phenomena investigations during the ship overtaking manoeuvre for marine related simulators with the use of CFD methods	17:00	Paper 3/4/6 The simulation of historic ships – The record breaking Tyne built Victorian ‘North Sea Greyhound’ and her Edwardian Blue Riband ‘Greyhound of the Atlantic’ daughter
	Dmitry V. Nikushchenko, Anastasia A. Zubova		Keith W. Hutchinson, Mel Irving
19.30	Conference Banquet		

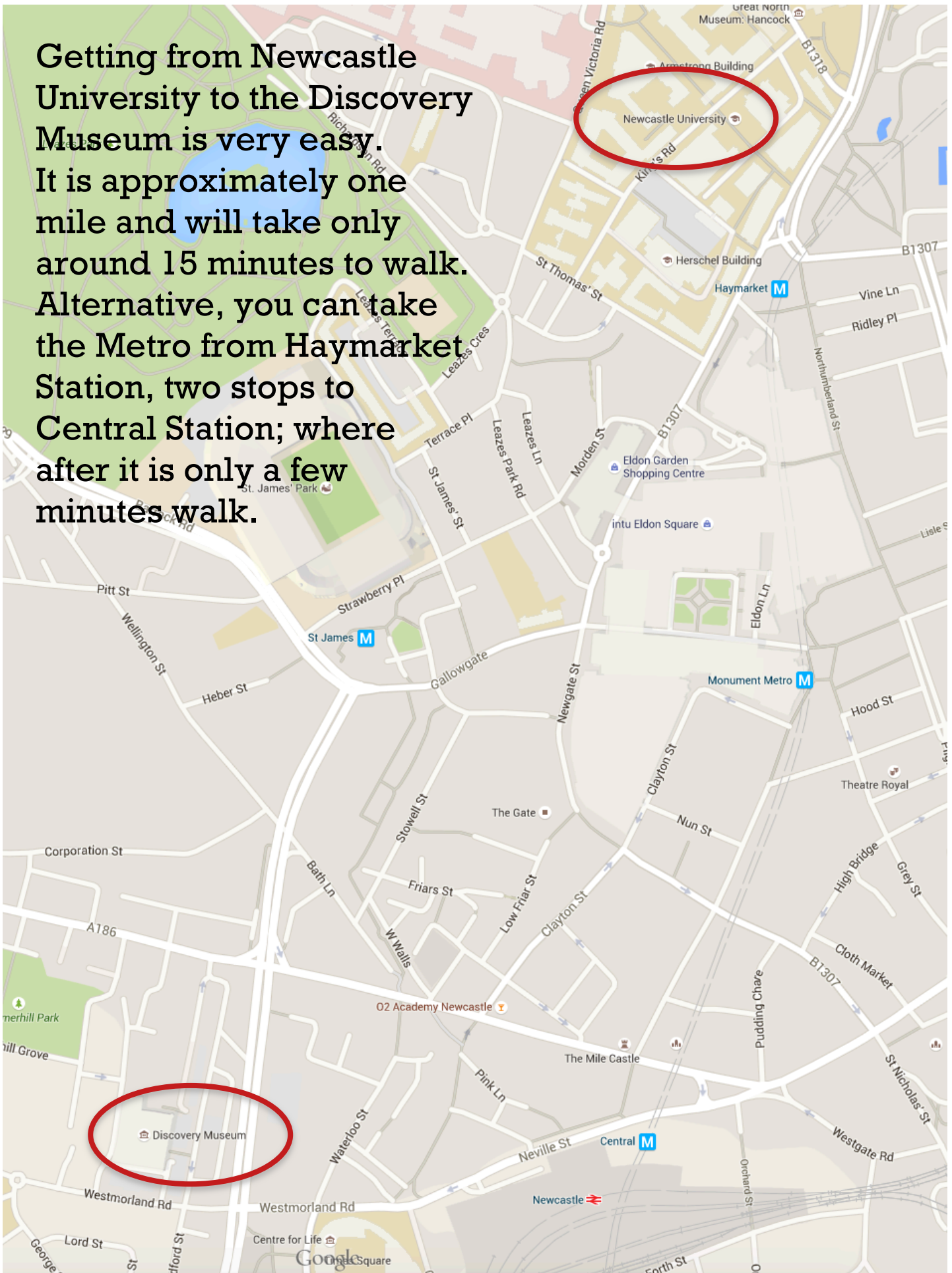
Conference Banquet

The MARSIM conference banquet will be held on the evening of Thursday 10th September 2015, at the prestigious Discovery Museum, in the hart of Newcastle.

The evening will include a Champagne reception on arrival in the Turbinia Hall (top and bottom right). Open access to the ship-model gallery and then up to the spectacular top floor banquet suit (right) for the main event.



Getting from Newcastle University to the Discovery Museum is very easy. It is approximately one mile and will take only around 15 minutes to walk. Alternative, you can take the Metro from Haymarket Station, two stops to Central Station; where after it is only a few minutes walk.



+ Day 4 Papers

Session 1

Lecture Theatre One		Lecture Theatre Two	
Session chair	Maryam Haroutunian	Noriyuki Sasaki	
09:00	Paper 4/1/1 Validation of the manoeuvring behaviour of an estuary vessel	Paper 4/1/4 A paradigm shift in ship handling – the pivot point	
	Stijn Vos, Guillaume Delefortrie, Wim Van Hoydonck	Dr. Seong-Gi Seo	
09:30	Paper 4/1/2 Experimental study on manoeuvrability of KVLCC2 in shallow water by free-running model test	Paper 4/1/5 Research on simulation of mooring lines operation while bearinging and de-bearinging	
	Kunhang Yun, Dong Jin Yeo, Gyehyoung Ryu, Yeong-Ju Lee	Xiaofeng SUN, Yong YIN, Xiufeng ZHANG, Zhongxian ZHU, Shitao ZHAO	
10:00	Paper 4/1/3 Real-time identification of manoeuvrability indices using IIR filters	Paper 4/1/6 Modelling and Simulating of ship in ice	
	Changqing Jiang, Toshio Iseki	Xiufeng Zhang, Yong Yin, Xiaofeng Sun, Hailong Chen	
10.30	Morning Break The break will take place in the Herschel Concourse		

+ Day 4 Papers

Session 2

Lecture Theatre One		Lecture Theatre Two	
Session chair	Michael Woodward	Session chair	David Trodden
11:00	Paper 4/2/1 Wind loads on ships in a complex environment	11:00	Paper 4/2/2 Development of the Transpetro Simulation Center
	Ing. H. J. van Wijhe, Ir W.D. Janssen, prof. dr. ir. B. Blocken		F. Rateiro, D. Taniguchi, E. A. Tannuri, F. P. Rampazzo, J. Menezes Filho, R. V. do N. Júnior, G. F. Oliveira

Lecture Theatre One	
Session chair	Michael Woodward
11:35	Paper 4/2/3 Review of the Simman2014 Workshop on the State of the Art of Prediction Techniques for Ship Manoeuvrability
	Frans Quadvlieg, Claus Simonsen, Janne Otzen, Frederick Stern
12:05	Paper 4/2/4 Closing Session
	M. Woodward and S. Cross
12.20	END

Partners Programme

*Tuesday 8th September
1pm, by coach.*

This first afternoon trip visits the Beamish Museum in County Durham. Beamish is a world famous museum telling the story of the people of North East England during the Georgian, Victorian, and Edwardian periods.

*Wednesday 9th September,
1pm, by coach,*

Half Day coach ride to the Roman Fort Museum and Roman Vindolanda.

The modern world class museum using the latest interpretation techniques and display to tell a very old, very interesting Roman story and ancient buried forts regarded by many as one of Europe's most important and richest archaeological resources.



Post Conference Tour

*Saturday 12th September
9am, by coach.*

An all day trip to Northumberland with admission into Alnwick Castle and a group tour of the castle where Harry Potter was filmed. Enjoy your lunch of soup and sandwich surrounded by the tranquillity of the exquisite Ornamental Garden, where European plants in symmetrical box-edged beds nestle behind 18th century walls.

Another short coach ride to Bamburgh Castle. Spanning nine acres of land on its rocky plateau high above the Northumberland coastline Bamburgh is one of the largest inhabited castles in the country.





Newcastle University
School of Marine Science and Technology,
Armstrong Building, Queen Victoria Road,
Newcastle-upon-Tyne, NE1 7RU,
United Kingdom.

www.ncl.ac.uk/marine