

DANISH MARITIME AUTHORITY

international



e-Navigation:

A Showcase of Progress and Trends

Copenhagen • Oslo • Copenhagen

January 31 - February 2 2017



Countries represented over the last 7 years





WELCOME FROM OMAR FRITS ERIKSSON

Once again it is my pleasure to welcome delegates from 26 countries to the 7th International e-Navigation Underway Conference between Copenhagen and Oslo, and hope you enjoy the sea fare between two of Scandinavia's beautiful capitals.

Since the beginning in 2011 the e-Navigation Underway Conference has attracted several hundred delegates from more than 50 countries on 7 continents and provided access to a multitude of companies and people, prominent in their fields.

This year we warmly welcome Kwang-youl Park, Director General of Ministry of Ocean and Fisheries, Republic of Korea.

The theme for the 2017 Conference will be e-Navigation: A Showcase of Progress and Trends. The focus will be on showcasing the development of practical e-Navigation solutions and testbeds, and discussing whether the necessary level of harmonisation, required for e-Navigation to be a success, has been achieved. Important international stakeholders will share their views and practical solutions will be demonstrated to delegates.

Bon Voyage

Omar Frits Eriksson
Conference Chair

DAY 1

31 January 2017

13:00 Welcome address

Omar Frits Eriksson Dean IALA World-Wide Academy, Conference chair, France

13:10 Opening of the conference

Francis Zachariae Secretary General, IALA, France

Troels Blicher Danielsen Deputy Director General, Danish Maritime Authority

Kwang-youl Park Director General, Ministry of Ocean and Fisheries

Republic of Korea

13:40 Keynote: From test beds to implementation – e-Navigation hits reality

Michael Bergman President, CIRM, UK

14:10 IALA's work in e-Navigation

Michael Card Deputy Secretary General, IALA, France

14:25 IALA webpage on test beds

Seamus Doyle Committee Secretary, IALA, France

14:40 An update on cyber initiatives in the maritime industry

Lars Robert Pedersen Deputy Secretary General, BIMCO, Denmark

15:00 Break

15:30 Progress and trends; the IHO perspective

Gilles Bessero Director, IHO, USA

15:50 Status on the IMO e-Navigation process

John Erik Hagen Regional Director, Norwegian Coastal Administration

16:10 IMPA's view on e-Navigation

Simon Pelletier President, IMPA, UK

16:30 Break

17:00 e-Navigation - the implications for ports

Kevin Richardson President, International Harbour Masters' Association, UK

17:20 e-Navigation from the end users perspective

Johan Granström Senior Manager, Intertanko, Sweden

17:40 e-Navigation – who is paying for the party?

Anders Brödje Manager, Bahamas Shipowners Association

18:00 End of day 1

DAY 2

1 February 2017

General perspectives

8:30 Increased efficiencies through use of e-Navigation services and smart connected ships

Dmitry Rostopshin Director, Transas, Russia
Anders Rydlinger Director, Transas, Sweden

8:50 S-100: the underpinning of e-Navigation

Julia Powell Technical director, NOAA, USA

9:10 New EU funding opportunities to support navigation and search and rescue

Manuel Lopez-Martinez Technology officer, European GNSS Agency, Czech Republic

9:30 Break

A Cluster of e-Navigation Projects

10:00 The Maritime Cloud - underneath it all

Thomas Christensen Project manager, Danish Maritime Authority

André Bolles R&D manager, OFFIS, Germany

Dr. Jin HyoungPark Head of System Integration Management Team, KRISO,

Republic of Korea

10:30 STM going live – the STM test beds

Björn Andreasson Project Manager, SMA, Sweden

Mikael Lind Research Manager, RISE Viktoria, Sweden

10:50 EfficienSea2 – half way there

Bjørn Borbye Pedersen Director, Danish Maritime Authority

11:10 SMART-Navigation: an e-Navigation project focusing on non-SOLAS ships

as well as SOLAS ships

Dr. Han Jin Lee Principal Researcher, KRISO, Republic of Korea

11:30 Break

A Selection of Test Beds

12:00 Route exchange in the SESAME Straits e-Navigation test bed

Todd Schuett Project Manager, Kongsberg, Norway

12:20 Experiences gained from e-Navigation testbed in Finnish VTS's

Tuomas Martikainen Senior officer, Finish Transport Agency

12:40 Test bed for intelligent fairway smoothening path for autonomous vessels

Jorma Timonen Senior Officer, Finish Transport Agency

13:00 Lunch

A selection of Test Beds (cont.)

14:00 Dublin Bay Digital Diamond

Deirdre Lane Commissioners of Irish Lights, Ireland

User Perspectives

14:20 DanPilots perspective/use of e-Navigation

Søren Westerskov Chief Pilot, DanPilot, Denmark

14:40 Display of e-Navigation information

Thomas Porathe Professor, Norwegian University of Science and Technology

15:00 Break (short)

15:20 Group photo

Specific Technical Solutions

15:35 Location sharing system using AIS and RADAR TT information on cloud server

Yasuyuki Niwa Senior researcher, National Maritime Research Institute,

Japan

15:55 Trials of e-Radar/e-Racon positioning system at Singapore Port

Takuo Kashiwa Department General Manager, FURUNO, Japan

16:15 End of day 2

DAY 3

2 February 2017

9:00	Automated ship reporting test bed		
	Fred Pot	Principal, Marine Management Consulting, USA	
9:30	Break (check out)		
10:00	From AiS to IoT		
	Francisco Sarrias	Managing Partner, Marina System Iberica, Spain	
10:20	CIRM-BIMCO pilot project on software maintenance		
	Richard Doherty	CTO, CIRM, UK	
10:30	O Announcing e-Navigation Underway – North America 2017 & e-Navigation Underway – Asia-Pacific 2017		
	Fred Pot	Principal, Marine Management Consulting, USA	
	Sun-bae Hong	Deputy Director, Ministry of Oceans and Fisheries	
		Republic of Korea	
10:50	Panel discussion		
11:50	Conference conclusions		
	Omar Frits Eriksson	Dean, IALA World-Wide Academy, France	
12:20	Closing remarks		
	Francis Zachariae	Secretary General, IALA, France	

12:30 Light lunch

13:00 Conference closes



Omar Frits Eriksson
Dean
IALA World-Wide Academy

Omar Frits Eriksson originates from Iceland, and has a degree in Telematics as well as an MBA in Management of Technology and Innovation. Omar is now working with IALA, and took by September 1st over as Dean of the IALA World-Wide Academy. Previously he was Director of Maritime Technology at the

Danish Maritime Authority.

Omar has also has served as Director for Innovation, Director of Aids to Navigation and was for ten years the Technical Director at the Danish Maritime Safety Administration. Omar has since 1998 been very active in IALA, where he has chaired the Engineering Committee for ten years and the e-Navigation Committee since 2014. As the new Dean of the IALA World-Wide Academy, Mr. Eriksson is eager to bring the Academy safely into the future and to continue to improve maritime safety all over the world.



Francis Zachariae
Secretary-General
International Association of Marine Aids to Navigation and Lighthouse
Authorities (IALA)

Francis Zachariae began the work as Secretary-General of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) in February 2015. Francis Zachariae joined the Danish Naval Academy, followed in 1983 by service aboard several naval ships. From 1988 to 1990 he was Aide-de-

camp to the Minister of Defence. Francis Zachariae went back to sea in 1990 on patrol vessel "Havkatten" which was one of new project "Standard ex" vessels. Two years later he became Project Manager for the procurement of such vessels at the Naval Material Command.

At the same time as he was working with the Danish Ministry of Defence, Francis Zachariae completed a Master of Science in Public Administration, following which he was promoted to Captain (N) and appointed to Brussels to become Branch Chief and Advisor of the EU Council Secretariat. Appointed Deputy Director General of the Danish Maritime Safety Administration (DaMSA) in 2007 he was responsible for navigational information, aids to navigation, coastal rescue, pilotage and regulatory tasks, until the merging of DaMSA with the Danish Maritime Authority in 2011 when Francis became Deputy Directors General. His main tasks were related to maritime regulation, safety of navigation and pilotage in the Danish, Greenland and Faroese waters.



Troels Blicher Danielsen
Deputy Director General
Danish Maritime Authority

Mr. Troels Blicher Danielsen is Deputy Director General of policy, regulation and enforcement at the Danish Maritime Authority (DMA) where he serves on the executive board. Here, he has spearheaded organisational initiatives of digitalization and change management at the DMA.

At the DMA, Mr. Danielsen is responsible for files regarding blue growth and maritime policy., International cooperation, maritime regulation and legal affairs, maritime safety, security and health, ship survey, certification and manning, Port State Control (PSC) and Flag State Control, safety of navigation in Denmark and Greenland, Automatic Identification System (AIS) and enavigation and maritime spatial planning. Beyond that, he is responsible for all files related to the IMO Maritime Safety Committee (MSC) and the Marine EnvironmentProtection Committee (MEPC), as well as serving on the council of theInternational Association of Marine Aids to Navigation and LighthouseAuthorities (IALA). Before joining the Danish MaritimeAuthority, Mr. Danielsen worked for the Danish Ministry of Business and Growth, where he, among other assignments, led the ministry's EU Presidency team in2012. Throughout his professional career, Mr. Danielsen has acquired extensive knowledge of the shipping industry and the blue economy.



Kwang-youl Park
Director General
Ministry of Ocean and Fisheries, Republic of Korea

Kwang-youl Park's academic background is a Master of Marine Policy from the University of Wales, U.K. and a Bachelor of Public Administration, Kyonggi University, Korea. Mr. Park began his career in Korea Maritime and Port Administration, Fisheries Policy Office, Distant Water Fisheries Policy Bureau, Planning and Finance Division, and after ten years moved on to other positions, at

first as First Secretary, Embassy of the Republic of Korea, Beijing, China, then Director, Distribution Policy Division and Director, Oceans Policy and Development Division.

Before Mr Park became Director General for Maritime Affairs and Safety Policy Bureau, he was an administrator for Incheon Regional Office of Oceans and Fisheries and before that he was the administrator in Daejeon Regional Office of Infrastructure Management and Director General for Marine Environment Policy.



Michael Bergmann
President of CIRM, Independent Executive Advisor
BM Bergmann-Marine

Michael Bergmann is independent executive advisor, Senior Advisor for Safebridge GmbH and President of CIRM. He began his career with Jeppesen in 1990 as a Software Engineer and in 2004 he was asked to build up the Jeppesen Marine

Business Unit, progressing to Director Maritime Industry, Affairs and Services working with governments, governmental organizations and industry to change the market in support of advanced navigation and efficiency. In this role he was also responsible to negotiate and maintain all data usage agreements for the Jeppesen Marine business unit. He is an observer at IMO and a member of the IMO e-Navigation sub-committee. He is appointed to the advisory group for the German IMO delegation and also actively participates in IALA, especially on e-Navigation as an Industry Member.



Michael Card
Deputy Secretary-General
IALA

Michael Card is a graduate engineer who has worked with marine aids to navigation initially in government and then in industry. Michael Card took up the position of Deputy Secretary-General of IALA in 2012.



Seamus Doyle Committee Secretary IALA

With a background in telecommunications and radio engineering, Seamus Doyle joined the Commissioners of Irish Lights (CIL) in Ireland where he gained experience in all aspects of marine Aids to Navigation provision and management over 29 years. He was responsible for delivery of engineering strategy, planning,

investment, design and maintenance of aids to navigation to meet agreed performance standards and was a member of the Board of the Commissioners of Irish Lights. He retired from the CIL as head of the Engineering Department and now works as a part time consultant with the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) as technical Committee Secretary to the ENG and ENAV Committees. He was a member of the IALA Radionav Committee and subsequently was vice-chair of the IALA EEP Committee. He is a Chartered Engineer, a Fellow of the Institution of Engineering and Technology, and a Fellow of the Royal Institute of Navigation.



Lars Robert Pedersen
Deputy Secretary-General
BIMCO

Lars Robert Pedersen joined BIMCO as Deputy Secretary-General in early 2010. He is responsible for BIMCO's technical, security and operational activities involving membership services and regulatory developments related to ship operation at international, regional and national levels. Before joining BIMCO he had a career

at A.P. Moller-Maersk involving technical management of the Maersk eet of container ships and prior to that as seagoing officer. Lars Robert holds an unlimited Chief Engineers license.



Gilles Bessero
Director
International Hydrographic Organization (IHO)

Gilles Bessero is Director at IHO, the intergovernmental organization, whose role is to ensure that the world's seas, oceans and navigable waters are properly surveyed and charted to support the safety of navigation and the protection of the marine environment. He oversees the IHO technical programme which

addresses the development of international standards for hydrographic information, products and services.



John Erik Hagen Regional Director Norwegian Coastal Administration

John Erik Hagen has been Regional Director for the Norwegian Coastal Administration for 24 years. He pursued a career in the Norwegian Navy, attending officers' training school and the Norwegian Defence College. During his 10 year military career he also achieved a University Degree in Law, Social Science,

Economics and Business Administration.

He spent several years in management positions in the offshore industry and transportation services and John Erik has functioned as acting Director General of the Norwegian Coastal Administration on behalf of the Royal Norwegian Ministry of Fisheries and Coastal Affairs.

Today he serves in many national and international boards and advisory boards such as Coordinator of the IMO Correspondence Group on e-Navigation. He has also been the Chairman of the Working Group established by the Royal Norwegian Ministry of Fisheries and Coastal Affairs and the Ministry of Transport of the Russian Federation, for the cooperation between Russia and Norway on maritime safety in the Barents area.



Simon Pelletier
President
International Maritime Pilots Association

Captain Simon Pelletier has a keen interest in international affairs affecting marine pilotage. First elected as Vice-President of the International Maritime Pilots Association (IMPA) in 2008, Capt. Pelletier was elected IMPA President in

2014 for a four-year term.

As President, he is responsible for ensuring that pilots from six continents speak with one voice on global issues affecting pilotage and for ensuring that they play a constructive role in discussions with their partners in the international maritime sector and, in particular, with the International Maritime Organization.



Kevin Richardson
President
International Harbour Masters' Association

Kevin has over 40 year's operational experience in the marine industry both ashore and afloat. He started his career as a deck apprentice in 1968 and spent 18 years deep sea in the reefer and container trades in all ranks up to Master before coming ashore in 1986. He moved to Dover in 1987 (the year of

the 'great storm' and the Herald of Free Enterprise disaster) and recently retired in March 2014 as Chief Harbour Master after 27 years in Dover. He became President of the International Harbour Masters Association in the same year and is a past President of the UK Harbour Masters Association. He is an Associate Fellow of the Nautical Institute and is an independent Marine Consultant.



Johan Gahnström
Senior Marine Manager
INTERTANKO

Captain Johan Gahnström is a Senior Marine Manager with INTERTANKO and is issue manager for, among others, Navigation, Ports & Terminals and Port State Control.

Johan has a background as a maritime pilot in Sweden and Qatar and has worked as Harbour Master and VTS manager.



Anders Brödje Manager Bahamas Shipowners' Association

Mr Anders Brödje is Manager for the Bahamas Shipowners Association. He works closely with the Bahamas Maritime Administration on maintaining the position of the Bahamas Flag as a world leading registry. Mr Brödje actively co-operates with shipping bodies to promote mutually beneficial interests, primarily the ICS. Parallel to his role with the Bahamas Shipowners Association, Mr Brödje is also pursuing PhD studies at

Chalmers University of Technology, Sweden. Mr Brödje has previously served in various capacities with the Swedish Maritime Administration, most lately as Senior Research Coordinator, where he is involved in several research and development projects, among others the pan-European MONALISA 2.0 and STM Validation projects. Mr Brodje's has primarily focused on Human Factors and training related aspects and is one of the initiators of the Global e-navigation Testbed. Prior to joining the Swedish Maritime Administration, he served as Commissioned Officer with the Royal Swedish Navy holding various onboard positions and since leaving active duty he retains a role in the Naval Reserve. Mr Brödje holds a Licentiate of Philosophy degree in Maritime Human Factors, a BSc in Nautical Science and is a Master Mariner.



Dmitry Rostopshin Director Transas Marine Ltd.

Dmitry Rostopshin has been working in Transas since 2000. He is involved in research, development and implementation of vessel traffic services as well as coastal and offshore surveillance projects around the world. Currently he is Director of Ship Traffic Control and Management Solutions.



Anders Rydlinger
Product Director Navigation
Transas Marine Ltd.

Mr Rydlinger graduated from the Swedish Naval Academy in 1979 and served as captain in the Swedish Amphibious Forces and Coast Artillery for more than 20 years on various type of ships. 1992-1997 he worked as Project manager for trials and development of Integrated Navigation System for Combat Boat 90, where he became deeply involved in ECDIS development from the user side. In

1997 he joined Transas Scandinavia as a Sales Manager in charge of Navy and Coast Guard customers. In 2003 he was promoted to Managing Director and later moved to work Internationally for the Transas Group. In 2007 he became International Sales and Marketing Director and in 2010 Product Director for Navigation product line in Transas Marine. He combine the work as Product Director Navigation with the interesting job as Program Director e-Navigation, where a lot of focus has been on the EU founded project MonaLIsa2, EfficienSea2 and the recently approved new STM (Sea Traffic Management) Validation project. From 2016 he hold the position as Director for Ship Solutions. Since 2013 he hold a position on the Board of Directors for CIRM as well as member of CIRM technical Steering Comity.



Julia Powell Technical Director NOAA

Julia Powell is the Deputy Chief, for the Office of Coast Survey Development Lab, and represents the United States on various standards committee's in the development of the standards related to electronic navigational charts. She is chair of the IHO's S-100 working group that is working on next generation navigation products., such as underkeel clearance management, high resolution

bathymetry and other integrated products.



Manuel Lopez Martinez Technology Officer European GNSS Agency (GSA)

Manuel Lopez Martinez is a Technology Officer in the European GNSS Agency (GSA), where he is supporting and fostering the adoption of Galileo and EGNOS in maritime, inland waterways and search and rescue applications. He received his PhD in System Engineering and Automation from the University of Seville in

2005. He got a permanent position as associate professor at the University of Seville in 2008, where he was teaching until he joined the GSA in 2013 as second national expert in the Market Development Department.



Thomas Steen Christensen
Project Manager
Danish Maritime Authorities

As a M.Sc. in computer science and mathematics, Thomas has had a variety of managing roles such as head of department, technical director and QA manager in different areas. The fields have been ranging from Biotechnology to software development and medical equipment. In 2007 Thomas entered the maritime

world as a project manager at the Danish Maritime Safety Administration, which later was merged with the Danish Maritime Authority.

From 2008, Thomas's main involvement has been with e-navigation, and has from 2011 to 2016 been leading DMA's e-navigation team. He has also been involved in a number of EU projects focusing on e-navigation; as work package leader in EfficienSea (2009-2012) and ACCSEAS (2012-2015). He is currently project manager of the EU funded project EfficienSea 2 (2015-2018). In IMO and IALA, Thomas is representing Denmark in e-navigation matters.



André Bolles OFFIS Germany

André Bolles received a diploma degree in computer science in 2008. From 2008 to 2011 he worked as a researcher at the University of Oldenburg in the field of data fusion, object tracking and information systems. In 2011, he received a doctoral degree and changed to the position of a group manager at OFFIS. There,

André Bolles is responsible for maritime activities in national and international public and private projects. His working group is responsible for the development of the e-Navigation testbed eMIR and for the technical specification of the maritime cloud, which is developed within the EfficienSea 2 project.



Dr. Jin Hyoung Park
Senior Researcher
Korea Research Institute of Ships and Ocean Engineering

Dr. Jin Hyoung Park is a senior researcher at e-Navigation Research Unit of Korea Research Institute of Ships and Ocean Engineering (KRISO). He is leading "A Fundamental Research for Maritime Accident Prevention System" funded by the Ministry of Oceans and Fisheries (MOF) of Korea. The research project is about e-

Navigation implementation planning in Korea. It includes establishment of a strategic implementation plan for Korean e-Navigation.

As a part of international activities, Dr. Park organized the International Workshop on Global e-Navigation Test Bed (IWGeNT) at KRISO in Daejeon Korea in 2013, and at DMA in Copenhagen that was hosted by DMA in 2014. Currently he is deeply involved in the development of "e-Navigation Lessons Learnt Process" of IALA for the evaluation and analysis of e-Navigation testbed outcomes.



Björn Andreasson
Swedish Maritime Administration

Björn Andreasson is currently project manager at the Innovation & Development department at the Swedish Maritime Administration. He began his career as a flight technician but after a few years decided to change medium and 2008 graduated with a master mariner degree at Linnaeus University. After sailed as a deck officer he joined SMA in 2009 working with long-term planning related to

maritime infrastructure and transport system as well as responsible for major fairway projects. During this period he also complemented his project experience with a master degree in project management before moving on to innovation projects in 2013. Currently Björn is activity leader for Voyage Management, in the Sea Traffic Management (STM) Validation Project, where 300 ships are to be upgraded with STM compatible bridge systems to communicate seamlessly ship to shore using the Maritime Digital Infrastructure.



Mikael Lind Swedish Maritime Administration

Mikael Lind is an Associate Professor and Research manager of the sustainable transports group at Viktoria Swedish ICT and has initiated and heads a substantial part of several open innovation initiatives related to ICT for sustainable transports of people and goods. Lind is also part time at the Swedish Centre for Digital Innovation at Chalmers University of Technology/Gothenburg University, Sweden. Lind

is substantially involved in the STM validation project and is also responsible for the PortCDM testbed in which PortCDM is run in real-life tests in 13 Ports in Europe. He is also one of the founders of Maritime Informatics for applied research of digitalization in the maritime sector.



Bjørn Borby Pedersen
Director
Danish Maritime Authorities

Bjørn Borbye Pedersen has worked with strategy and innovation management at the Danish Maritime Authority for the past six years. He is director of DMA's e-Navigation team. He has been a leading force in the EU project EfficienSea2 in which he is responsible for the work package 'Measures to Maximise Impact' and chairs

the Executive Board. EfficienSea2 has 32 partners, a budget of M11.5Euro and aims at developing the essential solutions that will take e-Navigation from testbeds to real-life implementation. The Maritime Cloud being the evolving concept.

Prior to joining the Danish Maritime Authority Bjørn worked five years in an innovation think thank and two years in management consulting. Bjørn holds an MSc (Econ.) in Management of Innovation and Business Development from Copenhagen Business School combined with MBA studies at National Cheng Chi University, Taipei, and Cox School of Business, Dallas.



Han Jin Lee
Head of SART-Navigation Project Office
Korea Research Institute of Ships & Ocean Engineering (KRISO)

Mr Lee has been head of SMART-Navigation Project Office at Korea Research Institute of Ships & Ocean Engineering since April 2016 managing the SMART-Navigation Project. Mr Lee is also Principal Research Scientist. Mr Lee held the task Ship Handling Simulator in Vessel Traffic Service e-Navigation as Executive Design Director at Wing Ship Technology Co., a spin-off company of KORDI to develop Wing-

In-Ground craft. Earlier Mr Lee was Principal Research Scientist at Maritime & Ocean Engineering Research from 2005 to 2007 taking care of the Ship Handling Simulator, Vessel Traffic Service. Mr Lee is Doctor of Philosophy (Ph.D.), Naval Architecture and Ocean Engineering and also holds a Master's Degree in Naval Architecture and Ocean Engineering from Seoul National University.



Todd Schuett Project Manager Kongsberg

Since earning a graduate degree from the University of Chicago, Todd Schuett has traveled throughout the world and visited numerous port and coastal surveillance centers. As the training manager of Kongsberg Norcontrol IT since 2000, he has instructed hundreds of VTS operators from all corners of the earth, as well as developed one of the first interactive online learning solutions for maritime

surveillance system operations. Prior to joining Kongsberg Norcontrol IT, Mr. Schuett taught at several universities, including Doshisha University and Ritsumeikan University in Kyoto, Japan. He has served as Kongsberg's project manager for the EU funded D3CoS project from which was developed the cooperative Path Planner technology. Mr. Schuett has been a member of the IALA workgroup on eLearning and is a regular delegate for the IALA V-103 Workshops. He is currently the project manager for SESAME Straits, an e-Navigation test bed project funded by the Norwegian Research Council and endorsed by the Straits e-Navigation Alliance.



Tuomas Martikainen Senior Officer Finnish Transport Agency

Tuomas Martikainen has a worked in the maritime industry for 20 years, starting as navigating officer on merchant marine. After ending his career at sea in 2004 he started working in the maritime administration, first as a watch keeper in the VTS. Since 2010 has worked with the development of VTS operations and other maritime

services. Currently he is working as a senior officer for Finnish Transport Agency, participating in several projects and working groups dealing with vessel traffic services and e-navigation.



Jorma Timonen
Senior officer
Finnish Transport Agency

Jorma Timonen joined the Finnish Hydrographic Office, then part of the Finnish Maritime Administration in 1999 working with production, validation and distribution of electronic navigational charts (ENC's). His role soon expanded to international co-operation including working groups within the IHO and Primar. In

2007 he started as coordinator of production plans and schedules of nautical chart products in cooperation with the mariners and maritime schools, icebreakers, pilots and the navy.

In 2012 mr Timonen went to work as deputy bathymetric data manager to coordinate and lead work of six specialists processing all bathymetric data produced by contractors of the Finnish Transport Agency (FTA). In 2013 he moved to the traffic management department of the FTA with focus on planning and coordination of preparedness actions of all maritime actors within the FTA, and various tasks related to risk management and also development of premises of rail, road and maritime traffic centres of the FTA. In 2016 he joined the team which works with project called "Intelligent fairway".

Jorma Timonen have M.Sc in geography from the University of Helsinki.



Deirdre Lane Navigation Services Commissioners of Irish Lights

Deirdre Lane works as Navigation Policy at the Commissioners of Irish Lights. Irish Lights is the General Lighthouse Authority for the island of Ireland that discharges the Irish and UK Government Safety of Life At Sea (SOLAS) convention obligations for the provision of Marine Aids to Navigation. Deirdre started her career with Northern

Marine Management and moved to Irish Lights in 2007 where she sailed as Second Mate and then Chief Mate on the Lighthouse Tender "ILV Granuaile". She moved ashore to the Operations and Navigation Services Department in 2012. Deirdre holds a Master's Degree in Shipping Operations, an Honours Degree in Nautical Science and is a qualified Master Mariner.



Søren Westerskov Chief Pilot DanPilot

Capt. Søren Westerskov began his work as chief pilot at the Danish state owned pilotage DanPilot in 2015. Formerly he was area manager and head of pilotage logistics in the same company. In 2013 he returned from a position as chief pilot in the newly developed Port of Sohar in Oman where he started up a pilotage for

the sultanate and the port. Establishing close cooperation with the port stakeholders (terminals, maritime service providers, shipyards, local business) in order to provide an effective turnaround of ships movements which brings lay time in port down to a level which is competitive and attractive to shipping in the region. He has app. 25 years of experience in the maritime world and have been employed by several Danish shipping companies such as J. Lauritzen, Em. Z. Svitzer, DSB and DFDS A/S during which time he also made lectures for a couple of the Danish maritime educational institutions.

Before becoming a maritime pilot in 2005 he was serving as captain on the passenger ships owned by DFDS Seaways trading in the North European waters. Besides being captain he was deeply involved in the company's implementation of vision and value driven leadership and in recruiting and training foreign crew for the routes outside Scandinavian waters. Until his departure for Oman in 2010 he was member of the board of directors in a local bank. In 2015 he graduated from Copenhagen Business School with an Executive MBA in Shipping and Logistics.



Thomas Porathe
Professor of Interaction Design
Norwegian University of Science and Technology

Thomas Porathe is professor of Interaction Design at Norwegian University of Science and Technology in Trondheim.

He specialises in maritime human factors and information design for the maritime domain. He has participated in several e-Navigation projects like EfficienSea, MONALISA, ACCEAS and MUNIN.



Yasuyuki Niwa Senior researcher National Maritime Research Institute (NMRI)

Yasuyuki Niwa is a senior researcher at National Maritime Research Institute (NMRI). He has been working at NMRI, formerly Ship Research Institute, Ministry of Transport in Japan since 1997. In 1997, he completed a Master of Engineering from Graduate School of Science and Engineering, Tokyo Institute of Technology.

His research eld includes the following areas, maritime radio communication, AIS, ship handling simulator, maritime traffic analysis, e-navigation, GMDSS. He is a participant in IMO COMSAR, NAV and NCSR Sub-Committees.



Takuo Kashiwa
Department General Manager
FURUNO ELECTRIC CO., LTD.

Takuo Kashiwa received the B.S. degree in college of integrated arts and sciences and the Ph. D degree in electronics engineering from Osaka Prefecture University, Osaka, Japan, in 1989, and 1999, respectively. In 1989, he joined Mitsubishi Electric Corporation, where he was engaged in the research and developments of

millimeter-wave monolithic ICs for communications and sensor applications. From 2000 to 2003, he was with Agilent Technologies(now Keysight Technologies), Kawasaki, Japan where he was engaged in research and development of the optical sampling oscilloscopes. In 2003, he joined Furuno Electric Co., Ltd., Nishinomiya, Japan. He is currently the Department General Manager of the technology development & researching laboratory of Furuno Electric. His present research interests mainly cover maritime electronics such as radars, sonars, compasses using GNSS technologies and communication equipment for safe and efficient navigations. He continues to participate e-nav committee of IALA from 2012. Dr. Kashiwa is also the senior member of IEEE and works as Chair of IEEE Microwave Theory & Techniques society(MTTs) Kansai Chapter.



Fred W. Pot
Principal
Marine Management Consulting

Fred Pot has a Master's Degree in Naval Architecture and Marine Engineering from the Technical University at Delft in The Netherlands and an MBA from Stanford. He worked for Oceanroutes, a ship weather routing company, and spent

20 years in management positions at Matson Navigation Company in San Francisco and Honolulu. He has also held senior positions at Holland America Line in Seattle, P&O Princess Cruises in Los Angeles, Cornerstone Systems in Seattle, SeaCAS and MeteorComm in Kent, Washington. Mr. Pot acted as technical advisor to the US Delegation to IEC workgroups that formulated performance standards for AIS-B and for Task-oriented Display of Navigation Information (INS). He wrote several articles about AIS and e-Navigation for Compuship and The Digital Ship, is Program Co-Chair for the e-Navigation Underway (North America) Conferences.



Francisco Sarrias Managing Partner Marina Systems Ibérica S.L

Francisco Sarrias is a MSc Telecom Engineer from the Polythecnic University of Catalonia and since 1994 Managing Partner of Marina System Iberica, a company specialized in supply of technologies to ports and marinas.



Richard Doherty CTO CIRM

Richard Doherty joined CIRM in 2013 as Chief Technical Officer and Deputy Secretary-General. His background is in product and business development and he previously spent 6 years working for Pole Star Space Applications, a leading provider of software solutions to the shipping industry.

Richard is responsible for coordinating the technical work of CIRM and he chairs the organisation's various working groups. He is a member of the Royal Institute of Navigation.



Sunbae Hong
Deputy Director
Ministry of Oceans and Fisheries, Korea

Mr Hong is now the Team Manager of SMART-Navigation project, and he has for many years worked with maritime safety related tasks, such as Port State Control (PSC), anti-piracy measures, marine environment protection, member of IMO Member State Audit Scheme. international coperation regarding IMO and

introduction of Automatic Identification System (AIS). He has also worked with shore-based network, Ship Security Alert System (SSAS) and Maritime Domain Awareness (MDA).

Mr Hong's educational background is Korea Maritime University, deck officers on board ships and World Maritime University.

Name	Company/Organization	Email
José Manuel Alvarez	European Satellite Services Provider (ESSP)	jose-manuel.alvarez@essp-sas.eu
Peter Andersen	Cobham SATCOM	peter.andersen@cobham.com
Björn Andreasson	Swedish Maritime Administration	bjorn.andreasson@sjofartsverket.se
Jens Ekkeby Appell	Fraunhofer IDMT Hearing, Speech and Audio Technology	jens.appell@idmt.fraunhofer.de
Jorge Arroyo	U.S. Coast Guard	Jorge.Arroyo@uscg.mil
Gjermund H. Bakken	Norwegian Hydrographic Service	gjermund.bakken@kartverket.no
Jakob Bang	Danish Maritime Authority	cjb@dma.dk
Frances Baskerville	CIRM	fb@cirm.org
Ralph Becker-Heins	Safebridge GmbH	office@safebridge.net
Michael Bergmann	Victoria Swedish ICT	michael.bergmann@bergmann-marine.com
Gilles Bessero	IHO	gilles.bessero@iho.int
Jinofer Kavasji Bhujwala	AATASH NORCONTROL LTD.	jino@aatash.com
André Bolles	OFFIS Institut for Information Technology	bolles@offis.de
Poul Bondo	GateHouse	pba@gatehouse.dk
Stefan Borowski	Bundeslotsenkammer	stefan.borowski@kielpilot.de
Jan Boyesen	Maritime Development Center	jb@mdc.center
Anders Brödje	Bahamas Shipowners Association	abrodje@bahamasshipownersassociation.com
Willem Brouwers	Cobham SATCOM	willem.brouwers@cobham.com
William Cairns	American Pilots	bcairns@americanpilots.org
Michael Card	IALA	michael.card@iala-aism.org
Deuk Jae Cho	KRISO	djcho@kriso.re.kr
Tomas Groth Christensen	Danish Maritime Authority	tgc@dma.dk
Thomas Steen Christensen	Danish Maritime Authority	thc@dma.dk
Doyoung Chung	ETRI	thisisdoyoung@etri.re.kr
Nick Cutmore	International Maritime Pilots' Association	office@impahq.org
Troels Blicher Danielsen	Danish Maritime Authority	trd@dma.dk
Aline Debievre	IALA	alinedebievre@btopenworld.com
Philippe Dengreville	CS systemes d'information	philippe.dengreville@c-s.fr
Berit Nanna Dissing	Danish Maritime Authority	bnd@dma.dk
Richard Doherty	CIRM	rd@cirm.org
Seamus Doyle	IALA	seamus.doyle@iala-aism.org
Rainer Droste	OFFIS -Institute for Information Technology	rainer.droste@offis.de

Name	Company/Organization	Email
Morten Søborg Elmbo	Furuno Maritime Training	mse@furuno.dk
Omar Frits Eriksson	IALA	omar.eriksson@iala-aism.org
Anette Dybdal Fenger	Danish Maritime Authority	anf@dma.dk
Gabriel Ferrús Clari	Fundación Valenciaport	gferrus@fundacion.valenciaport.com
Gert Frost	DanPilot	gfr@danpilot.dk
Johan Gahnström	INTERTANKO	johan.gahnstrom@intertanko.com
Morten Glamsø	Danish Shipowners' Association	mgl@shipowners.dk
Frank Adler Gottlieb	Danish Maritime Authority	fgo@dma.dk
Josephine Gretlund	Danish Maritime Authority	jog@dma.dk
Yann Guichoux	e-Odyn	yann.guichoux@e-odyn.com
John Erik Hagen	Norwegian Coastal Administration	john.erik.hagen@kystverket.no
Axel Hahn	OFFIS -Institute for Information Technology	axel.hahn@offis.de
Soomi Han	KRISO	sumihan@kriso.re.kr
Freddy Hansen	FURUNO	fh@furuno.dk
Stian Haugland	Rederiet Stenersen AS	snh@stenersen.com
Christian Hauglie-Hanssen	Kongsberg Defence Systems	christian.hauglie-hanssen@kongsberg.com
Bjørn Åge Hjøllo	NAVTOR AS	bjorn.hjollo@navtor.com
Sun-bae Hong	Ministry of Oceans and Fisheries	elfstalker80@gmail.com
Mikael Hägg	Viktoria Swedish ICT	Mikael.Hagg@viktoria.se
Pieter I. Paap	Rijkswaterstaat Water, Verkeer en Leefomgeving t.a.v. Crediteurenadministratie	pieter.l.paap@quicknet.nl
Marat Ismagilov	Kronstadt Technologies (JSC)	Marat.Ismagilov@kronshtadt.ru
Nobuyuki Ito	Japan Radio Co., Ltd.	ito.nobuyuki@jrc.co.jp
Mohd Saiful Redzuan Jamil	Light Dues Board Peninsular Malaysia/Ministry of Transport Malaysia	saiful@mot.gov.my
Palle Broberg Jensen	Scandlines Danmark ApS.	palle.b.jensen@scandlines.com
Jung Sik Jeong	MOKPO NATIONAL MARITIME UNIVERSITY	jsjeong@mmu.ac.kr
Cajsa Jersler Fransson	Swedish Maritime Administation	Cajsa.jerslerfransson@sjofartsverket.se
Jeppe Skovbakke Juhl	ВІМСО	jsj@bimco.org
Sung Heon Jung	DK M-Tech	logixer@dkmtech.com
Fredrik Karlsson	Swedish Maritime Administration	fredrik.karlsson@sjofartsverket.se
Takuo Kashiwa	Furuno Electric Co., Ltd.	takuo.kashiwa@furuno.co.jp
Walter Kenda	Mistral'81 d.o.o.	walter.kenda@mistral81.com
Joon Bum Kim	Ministry of Oceans and Fishieries	jbkim@krs.co.kr

Name	Company/Organization	Email
Torsten Kruuse	Søfartsstyrelsen	torsten.kruuse@gmail.com
Deirdre Lane	Commissioners of Irish Lights	deirdre.lane@irishlights.ie
Tom Buhl Larsen	Danish Maritime Authority	tbl@dma.dk
Kwangil Lee	ETRI	leeki@etri.re.kr
Han Jin Lee	KRISO	hjlee@kriso.re.kr
Junshik Lee	KHOA/IHO	ljs7979@korea.kr
Malin Liljenborg	Swedish Maritime Administration	malin.liljenborg@sjofartsverket.se
Mikael Lind	Viktoria Swedish Ict	Mikael.Lind@viktoria.se
Manuel Lopez Martinez	European GNSS Agency	manuel.lopezmartinez@gsa.europa.eu
Paul Marks	UK Hydrographic Office	paul.marks@ukho.gov.uk
Tuomas Martikainen	Finnish Transport Agency	tuomas.martikainen@fta.fi
Iurii Marushchenko	State Hydrographic Service of Ukraine	belinskyi.v@hydro.gov.ua
Shohei Masaki	Japan Radio Co., Ltd.	masaki.shohei@jrc.co.jp
Roslee Mat Yusof	Light Dues Board Peninsular Malaysia / Marine Dept Malaysia	roslee@marine.gov.my
Bo Mathiesen	Danish Pilot Service	bm@dps.as
Svein David Medhaug	The Norwegian Maritime Authority	sdm@sdir.no
Krzysztof Mendalka	Sprint S.A.	krzysztof.mendalka@sprint.pl
Georg Michelitsch	Airbus Defence and Space GmbH	georg.michelitsch@signalis.com
Hisaya Motogi	Oshima Maritime College	motogi@oshima-k.ac.jp
Koichi Nishimura	TOKYO KEIKI INC.	k-nishimura@tokyo-keiki.co.jp
Yasuyuki Niwa	National Maritime Research Institute	yaniwa@nmri.go.jp
Sewoong Oh	KRISO	osw@kriso.re.kr
Peter Orre	Vega Industries Ltd.	peter.orre@gmail.com
Jin Hyoung Park	KRISO	jin.h.park@kriso.re.kr
Kwang-youl Park	Ministry of Oceans and Fisheries	elfstalker80@gmail.com
In Sung Park	Ministry of Oceans and Fisheries	elfstalker80@gmail.com
Kae-myoung Park	Korean Register of Shipping	kaemyoung@krs.co.kr
Jonathon Pearce	OMC International	j.pearce@omcinternational.com
Bjørn Borbye Pedersen	Danish Maritime Authority	bbp@dma.dk
Lars Robert Pedersen	ВІМСО	lrp@bimco.org
Hannu Peiponen	Furuno Finland Oy	hannu.peiponen@furuno.fi
Esben Pejstrup-Pedersen	Danish Maritime Authority	epp@dma.dk
Simon Pelletier	IMPA	simon.pelletier@videotron.ca
Erik Styhr Petersen	Wartsila Lyngsø Marine A/S	erik.styhr.petersen@wartsila.com

Name	Company/Organization	Email
Thomas Porathe	Norwegian University of Science and Technology	thomas.porathe@ntnu.no
Fred Pot	Marine Management Consulting	fpot@enavsolutions.org
Julia Powell	NOAA	Julia.Powell@noaa.gov
Jean-Jacques Quinquis	CEREMA	Jean-Jacques. Quinquis@cerema.fr
Michael A. Rambaut	Consultant	michael.rambaut@btinternet.com
Kevin Richardson	IHMA-IALA	kevin.richardson1503@gmail.com
John Robinson	Sperry Marine	john.robinson@sperry.ngc.com
Dmitry Rostopshin	Transas	rost@transas.com
Anders Rydlinger	Transas Marine Ltd	rydlinger@transas.com
Christopher Saarnak	Danish Maritime Authority	chs@dma.dk
Francisco Sarrias	Marina System Iberica - MSI	fsarrias@msicom.net
Mario Sattler	viadonau - Oesterreichische Wasserstrassen GmbH	mario.sattler@viadonau.org
Katja Schlesinger	Danish Maritime Authority	ksc@dma.dk
Brian Schmidt Nielsen	DanPilot	bsn@danpilot.dk
Todd Schuett	Kongsberg Norcontrol	todd.schuett@kongsberg.com
Mika Semann	Airbus Defence and Space GmbH	mika.semann@airbus.com
Oleksii Shpachenko	State Hydrographic Service of Ukraine	belinskyi.v@hydro.gov.ua
Michael Siegel	OFFIS Institut for Information Technology	siegel@offis.de
Gurpreet Singhota	Swedish Maritime Administration	gurpreetssinghota@gmail.com
Michael Skov	Danish Maritime Authority	msk@dma.dk
Scott Smith	US Coast Guard	Scott.j.smith2@uscg.mil
Ulf Steden	Safebridge GmbH	office@safebridge.net
Cathrine M. Steenberg	FORCE Technology	cms@force.dk
Michael Strandberg	Danish Maritime Authority	mst@dma.dk
Tor Svanes	NAVTOR AS	tor.svanes@navtor.com
Peter K. Sørensen	FORCE Technology	pks@force.dk
Jonas Terp Nielsen	FURUNO	jtn@furuno.dk
Socrates Theodossiou	TOTOTHEO GROUP	KATHY@SATLINK.COM.CY
Jorma Timonen	Finnish Transport Agency	Jorma. Timonen@fta.fi
Dimitris Toskas	TOTOTHEO GROUP	KATHY@SATLINK.COM.CY
Juergen Troegl	viadonau - Oesterreichische Wasserstrassen GmbH	juergen.troegl@viadonau.org
Dirk Vael	ЕМРА	dirk.vael@skynet.be

Name	Company/Organization	Email
Jeffrey van Gils	Rijkswaterstaat / Water, Verkeer en Leefomgeving	jeffrey.van.gils@rws.nl
Helga Van Noten	Antwerp Maritime Academy	helga.van.noten@hzs.be
Eduard Verbeek	STODEL/Dutch Pilots' Corporation	c.vandenbor@loodswezen.nl
Dierik Vermeir	ALSIC BVBA	dierik.vermeir@alsic.be
Eric Verschoor	Datema Delfzijl	everschoor@datema.nl
Lene Vesterlund	Kongsberg Norcontrol AS	lene.vesterlund@kongsberg.com
Jorge Viso	American Pilots	moanamarine@verizon.net
Benjamin Weinert	OFFIS-Institute for Information Technology	benjamin.weinert@offis.de
Jan Wellmann	Fraunhofer IDMT	jan.wellmann@idmt.fraunhofer.de
Søren Westerskov	DanPilot	sws@danpilot.dk
Philip Wilson	Slipstream Engineering Design Ltd	accounts@slipstream-design.co.uk
Gareth Wimpenny	General Lighthouse Authorities, UK & Ireland	gareth.wimpenny@gla-rrnav.org
Chun Yu	China Classfication Society	cyu@ccs.org.cn
Francis Zachariae	IALA	francis.zachariae@iala-aism.org
Almir Zerem	Viktoria Swedish ICT	almir.zerem@viktoria.se

EXHIBITORS

	Danish Maritime Authority	Denmark
DANISH MARITIME AUTHORITY		
Fraunhofer	Fraunhofer	Germany
FURUNO	Furuno Maritime Training	Denmark
Graham&Partners LIVE EVENT & CONFERENCE MANAGEMENT	Graham & Partners	Denmark
KONGSBERG	Kongsberg	Norway
www.msicom.net	Marina System Iberica - MSI	Spain
OFFIS	OFFIS Institute for Information Technology	Germany
OMC International	OMC International	United Kingdom
Safebridge Interactive maritime online training	Safebridge GmbH	United Kingdom
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