

A Joint WMU - IMO - Arctic Council  
International Conference on  
**Safe and Sustainable Shipping in a  
Changing Arctic Environment**



# ShipArc 2015

25-27 August 2015  
Malmö, Sweden



## Conference Organizing Committee

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### WMU

Neil Bellefontaine, Vice-President (Academic), Professor  
Larry Hildebrand, Professor, Canadian Chair  
Olof Lindén, Professor, Nippon Foundation Chair  
Mia Hedin, Senior Faculty Specialist, PDCs, Conferences & Seminars  
Jennie Folkunger, Research Assistant  
Tafsir Johansson, Research Assistant

### ARCTIC COUNCIL

Peter Oppenheimer, Chief International Section, NOAA  
Drummond Fraser, Operational Liaison Officer, Transport Canada  
Soffia Gudmundsdottir, PAME Executive Secretary

### IMO

Heike Deggim, Senior Deputy Director, Marine Environment Division  
Jack Westwood-Booth, Senior Deputy Director, Maritime Safety Division

### SCIENTIFIC REVIEW COMMITTEES

#### The Polar Code: Implementation and Compliance Assurance

Aykut I. Ölçer, Professor, WMU  
Brice Martin-Castex, Administrator, IMO  
Anita Mäkinen, Chief Adviser, Environment, International Relations & Co-operation, Finnish Transport Safety Agency, PAME

#### Beyond the Polar Code: Assuring Safe and Environmentally Sound Arctic Navigation

Dimitrios Dalaklis, Assistant Professor, WMU  
Hans van der Graf, Senior Technical Officer, Secretary COMSAR Sub-Committee, IMO  
Drummond Fraser, Operational Liaison Officer, Transport Canada, Marine Safety & Security, PAME

### Arctic Governance

Aref Fakhry, Associate Professor, WMU  
Dorota Lost-Sieminska, Senior Legal Officer, Legal Affairs & External Relations Division, IMO  
Peter Oppenheimer, Chief, International Section, NOAA Office of General Counsel, PAME  
Mahin Faghfouri, International Ocean Institute

### Sustainable Arctic Business Development

Momoko Kitada, Assistant Professor, WMU  
Colleen O'Hagan, Technical Officer, OPRC NHS, IMO  
Siv Christin Gaalaas, Director, International Maritime Regulations & Polar Affairs, Maritime Department Norwegian Ministry of Trade, Industry & Fisheries, PAME

### Protection of the Arctic Marine Environment

Jarrod DeWitz, Lecturer, WMU  
Tianbing Huang, Senior Technical Officer, Marine Environment Division, IMO  
David Condino, Maritime Transportation Specialist, U.S. Coast Guard, PAME

### Training, Capacity Building, Science & Research

Olof Lindén, Director of Research & Ph.D. Programme, Professor, WMU  
Milhar Fuazudeen, Head of the Maritime Training & Human Element Section, Maritime Safety Division, IMO  
Staffan Danielson, Analyst, International Affairs, Science Affairs Department, Swedish Agency for Marine & Water Management, PAME

### ROVING RAPPORTEURS

Michael Grey, Columnist & former Editor of Lloyd's List & Fairplay  
Craig Eason, Deputy Editor, Lloyd's List  
Clive Cole, Associate Professor, WMU  
Jim Parsons, Academic Director, Master of Maritime Management, Marine Institute, Memorial University of Newfoundland  
Jack Westwood-Booth, Senior Deputy Director, Maritime Safety Division, IMO  
Heike Deggim, Senior Deputy Director, Marine Environment Division, IMO



## Welcome to ShipArc 2015

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Welcome to Malmö, to the World Maritime University, and to this international conference on Safe and Sustainable Shipping in a Changing Arctic Environment (ShipArc2015).

The Organizing Partners for ShipArc2015 - The International Maritime Organization (IMO), the Protection of the Arctic Marine Environment Working Group of the Arctic Council (PAME/AC), and the World Maritime University (WMU) - have worked collaboratively to design a dynamic and forward-looking programme. You will hear thought-provoking presentations and be engaged in lively discussions around the changing Arctic environment and its governance, how the recently adopted Polar Code and related regulatory and non-regulatory developments can and should be implemented, and how the Arctic business community, as represented by the World Ocean Council, sees its role and responsibilities in this necessarily cross-sectoral, near-future agenda.

The Arctic is a shared, but still unresolved, frontier. A range of stakeholders are taking tentative steps towards accessing its resources and transiting the ice-diminished waters. ShipArc2015 provides the forum for representatives of the diverse Arctic stakeholders to listen, learn, engage, project, and build a shared understanding of how to proceed in the Arctic. We must take careful steps and respect this fragile region that is full of opportunity, as well as responsibility. Through learning more about the unique and changing nature of the Arctic, and understanding the indigenous populations who have occupied and assumed stewardship of this region for millennia, we can work together to ensure its safe and sustainable development.

We extend a very warm welcome and sincerely hope that your participation at the conference will be professionally rewarding and personally enjoyable.

**The ShipArc2015 Organizing Committee**

## Organizing Partners

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Founded in 1983 by the International Maritime Organization (IMO), a specialized agency of the United Nations, WMU is a center of excellence for maritime and ocean post-graduate education and research. WMU offers M.Sc. and Ph.D. programmes, postgraduate diplomas, and Professional Development Courses with the highest standards in maritime affairs. Headquartered in Malmö, Sweden with additional M.Sc. programmes in Shanghai and Dalian, China, WMU promotes the international exchange and transfer of maritime ideas and knowledge.



As a specialized agency of the United Nations, IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented.



The Protection of the Arctic Marine Environment (PAME) is one of six working groups of the Arctic Council that provides a unique forum for collaboration on a wide range of activities directed towards protection of the Arctic marine environment faced by the Arctic governments and the indigenous peoples of the Arctic. The PAME Working Group provides a unique forum for collaboration on a wide range of activities directed towards protection of the Arctic marine environment with a priority to measures related to shipping and offshore oil & gas activities.

## Tuesday 25<sup>th</sup> August 2015 - Setting the Scene

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Room: The Sasakawa Auditorium

Moderator: Professor Larry Hildebrand, WMU

09:00-09:05	Welcome, overview & objectives of ShipArc 2015, Introduction of Roving Rapporteurs	11:40-12:30	<b>Panel Discussion</b> Chair: Dr. Erik Franckx, Professor of International Law, Vrije University, Brussels, Regulatory, governance & stewardship challenges
09:05-09:15	Welcoming address Dr. Cleopatra Doumbia-Henry, President, WMU	12:30-14:00	<i>Lunch, Clarion Hotel</i>
09:15-09:30	Opening address Mr. Koji Sekimizu, IMO Secretary-General		<b>INDUSTRY DEVELOPMENTS, OPPORTUNITIES &amp; CHALLENGES</b>
09:30-10:00	Keynote address Dr. David Carlson, Chief Editor for Earth System Science Data & Director, World Climate Research Programme, <i>State-of-knowledge on changing Arctic environmental conditions</i>	14:00-14:15	Chair: Mr. Peter Hinchliffe, Secretary-General, International Chamber of Shipping
		14:15: 14:30	Mr. Tero Vaureste, President & CEO, Arctia Shipping, Vice-Chair, Arctic Economic Council
10:00-10:30	Dr. Lawson Brigham, Distinguished Professor of Geography & Arctic Policy, University of Alaska, Fairbanks, <i>Drivers of Arctic shipping &amp; marine operation</i>	14:30-14:45	Mr. Ilja Leo Lang, Association of Arctic Expedition Cruise Operators
10:30-11:00	<i>Room 109: Refreshment break &amp; networking</i>	14:45-15:00	Ms. Christine Valentin, European Liaison Director, World Ocean Council
11:00-11:20	Mr. Arsenio Dominguez, Ambassador & Permanent Representative of Panama to the IMO, Chairman MEPC, <i>Regulatory developments &amp; challenges - The Polar Code</i>	15:00-15:30	<b>Panel Discussion:</b> Industry Developments, Opportunities & Challenges
		15:30-16:00	<i>Room 109: Refreshment break &amp; networking</i>
11:20-11:40	Dr. David VanderZwaag, Professor of Law, Dalhousie University, <i>Ocean governance in the Arctic: Conflict, cooperation, challenges</i>	16:00-17:00	Highlights from the opening day & expectations for conference outcome
		17:00	WMU World Bistro, Sponsored Icebreaker Reception & Poster Session





## Wednesday 26<sup>th</sup> August 2015 - Providing the Context

Subthemes	1. The Polar Code: Implementation & Compliance Assurance	2. Beyond the Polar Code: Assuring Safe & Environmentally Sound Arctic Navigation	3. Arctic Governance
<b>Room</b>	328	The Sasakawa Auditorium	106
<b>09:00-09:10</b> Introduction & Session Objectives	Chair: Jeffrey G.Lantz Director Commercial Regulations & Standards, USCG, Chairman of the Council, IMO	Chair: Michele Vespe, Scientific Officer, European Commission, Joint Research Centre, Maritime Affairs Unit, <i>Maritime surveillance &amp; situational awareness in the Arctic</i>	Chair: David VanderZwaag, Professor at Law, Dalhousie University
<b>09:10-09:30</b>	Jeffrey G. Lantz, Director Commercial Regulations & Standards, USCG, Chairman of the Council, IMO, <i>Polar Code: Implementation issues-U.S. perspective</i>	Michele Vespe, Scientific Officer, European Commission, Joint Research Centre, Maritime Affairs Unit, <i>Knowledge discovery of human activities at sea in the Arctic using remote sensing and vessel tracking systems</i>	Torsten Thiele, Founder of Global Ocean Trust, <i>Arctic Governance in the Light of United Nations, General Assembly Resolution (document A/69/L.65)</i>
<b>09:30-09:50</b>	Saied Satei, Doctoral Researcher, School of Law Aberdeen Business School Robert Gordon University, <i>The Polar Code &amp; its influence on the legal status of the Northwest Passage and implications of its potential use</i>	Hans Eilif Larsen, KSAT, <i>Use of satellite SAR observations integrated in Arctic maritime situational awareness</i>	Piotr Graczyk & Hans-Kristian Hernes, Department of Sociology, Political Science and Community Planning UIT The Arctic, University of Norway, <i>Shipping in the Arctic as a major factor in Arctic politics</i>
<b>09:50-10:10</b>	Dominik Walkowski, Law & Administration Faculty of the Adam Mickiewicz University in Poznań, Wardynski & Partners, <i>Arctic shipping &amp; liability for harm to natural resources</i>	Steven Horn, Defence Research & Development Canada, Ottawa, <i>Detection and tracking of ships in the Canadian Arctic</i>	Henning Jessen, Institut für Seerecht und Seehandelsrecht Universität Hamburg, Rechtswissenschaftliche Fakultät, <i>Arctic strategies of non-Arctic states-some common elements</i>
10:30-11:00	Room 109: Refreshment break & networking		
<b>11:00-11:20</b>	Mohammed Essallamy, Maritime Safety Institute, <i>The Polar Code: Gap analysis for protection of marine environment &amp; arctic safety</i>	Mark A. Stoddard, Dr. Melanie Fournier, Dr. Laurent Etienne, Dr. Ronald Pelot & Leah Beveridge, Dalhousie University, Canada, <i>From sensors to sense making: Leveraging open-access scientific data to assess Arctic maritime risks</i>	Erik Røsaeg, Scandinavian Institute of Maritime Law, University of Oslo, <i>Options for Arctic governance</i>

Subthemes	4. Sustainable Arctic Business Development	5. Protection of the Arctic Marine Environment	6. Training, Capacity-Building, Science and Research
<b>Room</b> <b>09:00-09:10</b> Introduction & Session Objectives	<b>335</b> Chair: Christine Valentin, European Liaison Director, World Ocean Council	<b>235</b> Chair: Carl Gustaf Lundin, Director, Global Marine & Polar Programme, IUCN	<b>108</b> Chair: Neil Bellefontaine, Vice President (Academic) & Professor, WMU
<b>09:10-09:30</b>	Tero Vauraste, President & CEO Arctia Shipping, <i>Enhancing sustainable development in the Arctic with strong market connections</i>	Tafsir Johansson, Research Assistant, WMU, <i>Arctic Oil Spill Intervention: In search of an integrated approach for the high seas</i>	Heikki Koivisto, Satakunta University of Applied Sciences, Rauma Finland, Ice navigation training in Rauma Finland, <i>Satakunta University of Applied Sciences as a basis for ensuring safe &amp; sustainable shipping in changing arctic environment</i>
<b>09:30-09:50</b>	Faheem Ali, Annik Magerholm Fet & Dina Aspen, Researcher, Norwegian University of Science & Technology (NTNU), Professor, NTNU, Ph.D. Candidate, NTNU, <i>The role of sustainability in strategic thinking in Norwegian shipbuilding industry</i>	Jessika Fuessel, Technical Adviser at The International Tanker Owners Pollution Federation Limited (ITOPF), <i>Oil spill response in Arctic environments</i>	Akihisa Konno, Associate Professor, Kogakuin University, Japan, <i>Toward the risk assessment of ship navigation in Arctic sea route under decreasing ice condition</i>
<b>09:50-10:10</b>	Odd Jarl Borch and N. Kjerstad, University of Nordland & Aalesund University College, <i>Offshore oil and gas operations in ice infested water-service vessel configuration, ice management and managerial roles - a comparative study of operations in the West Greenland and the Kara Sea</i>	Natalia Andreassen, Odd Jarl Borch, Svetlana Kuznetsova & Sergey Markov, University of Nordland and Northern (Arctic) Federal University, <i>Emergency management in maritime mass evacuation operations - the case of the high Arctic</i>	Melissa Parks, Senior Associate, U.S. Arctic, The Pew Charitable Trusts, <i>Improving communications to enhance maritime domain awareness in the Bering Strait</i>
10:30-11:00	Room 109: Refreshment break & networking		
<b>11:00-11:20</b>	Richard Corley, MARAD, <i>US perspective on Arctic Shipping</i>	Jarrod DeWitz, Dimitrios Dalaklis, Aykut Ölçer & Fabio Ballini, WMU, <i>Arctic Preservation: Exploring the effects of alternative fuel use</i>	Kimura Noriaki, National Institute of Polar Research, <i>Medium-range forecast of the Arctic sea-ice cover using the satellite observation data</i>

## Wednesday 26<sup>th</sup> August 2015 - Providing the Context *(continued)*

Subthemes	1. The Polar Code: Implementation & Compliance Assurance	2. Beyond the Polar Code: Assuring Safe & Environmentally Sound Arctic Navigation	3. Arctic Governance
Room	328	The Sasakawa Auditorium	106
11:20-11:40	David Condino, MARPOL Programs Manager, Facility Safety Branch, Ports & Facilities Division, <i>Ship generated waste in the Arctic: Marine debris, MARPOL &amp; the Polar Code</i>	Torkild Eriksen & Øystein Olsen, Norwegian Defence Research Establishment (FFI), <i>Vessel tracking using automatic identification system data in the Arctic</i>	Julia Olsen & Grete K. Hovelsrud, Nordland Research Institute, <i>Arctic maritime activities in changing climatic &amp; market conditions: Impacts on local community security &amp; adaptation</i>
11:40-12:00	Michael Kingston, Marine Trade & Energy Group, DWF LLP, <i>Implementing the Polar Code: Education about requirements &amp; fostering best practice in operational safety to make it work</i>	J. Ashley Roach, Office of the Legal Adviser, U.S. Department of State (retired); Global Associate & Senior Visiting Fellow, Centre for International Law, National University of Singapore, <i>Beyond the Polar Code: IMO measures for assuring safe &amp; environmentally sound Arctic navigation</i>	Jim Gamble, Executive Director of AIA, AIAS-Marie Curie COFUND Fellow, Aarhus Institute of Advanced Studies, Aarhus University, <i>Hybrid governance in the Arctic: Carving out a political space for coastal indigenous communities in Arctic emergency preparedness &amp; response</i>
12:00 -12:20	Michael Kingston, Marine Trade & Energy Group, DWF LLP, <i>Implementing the Polar Code: Education about requirements &amp; fostering best practice in operational safety to make it work</i>	Burcu Ozsoy-Cicek, ITÜ Maritime Faculty, <i>Safe navigation in the Arctic</i>	Julie Raymond-Yakoubian, Kawerak Social Science Programme, Director, <i>Arctic shipping &amp; Alaskan indigenous communities in the Bering Strait region</i>
12:30-14:00		Lunch, Clarion Hotel	
14:00-14:20	Chair Summary	R. Glenn Wright & Michael Baldauf, GMATEK Inc. Annapolis, Maryland; Ph.D. Candidate, WMU, Associate Professor, WMU, <i>Arctic environment preservation through grounding avoidance</i>	Julie Raymond-Yakoubian, Kawerak Social Science Programme, Director, <i>Arctic shipping &amp; Alaskan indigenous communities in the Bering Strait region</i>



Subthemes	4. Sustainable Arctic Business Development	5. Protection of the Arctic Marine Environment	6. Training, Capacity-Building, Science & Research
<b>Room</b>	335	235	108
<b>11:20-11:40</b>	Ilja Leo Lang, AECO, <i>Sustainable Arctic Cruise Tourism</i>	Marius Ly, Department for Emergency Response, Norwegian Coastal Administration, Head Office, <i>Norwegian waters - shipping gateway to the Arctic ocean</i>	Nathan Gandy, Commandant of Shipmen, Vice President for Academic Affairs, <i>Arctic horizons: Educating the professional mariner for high latitude stewardship</i>
<b>11:40-12:00</b>	Chair Summary	M.S. Wisz, National Institute of Aquatic Resources, Technical University of Denmark, <i>Forecasting the big picture: Arctic ecosystems, climate change, shipping &amp; fisheries</i>	Haibo Xie, Dalian Maritime University, student of WMU, <i>The effects toward maritime higher-education in China after the entry into force of Polar Code</i>
<b>12:00 -12:20</b>		louri Oliounine, UNESCO, <i>International Polar Partnership Initiative</i>	Mathijs Smith, Chair, Arctic JIP Environmental Effects Technical Working Group, <i>A Joint Industry Programme</i>
12:30-14:00		<i>Lunch, Clarion Hotel</i>	
<b>14:00-14:20</b>		Chair Summary	Rasmus Dahlberg, Ph.D. Fellow (Copenhagen Center for Disaster Research), <i>Offshore is onshore</i>

## Wednesday 26<sup>th</sup> August 2015 - Providing the Context *(continued)*

Subthemes	1. The Polar Code: Implementation & Compliance Assurance	2. Beyond the Polar Code: Assuring Safe & Environmentally Sound Arctic Navigation	3. Arctic Governance
Room	328	The Sasakawa Auditorium	106
14:20-14:40		Johanna Salokannel, Juha Knuuttila & Harri Ruoslahti, Laurea University of Applied Sciences, <i>Arctic maritime safety &amp; security - the human element seen from the Captain's table</i>	Proshanto K. Mukherjee & Huiru Liu (P.K.M.) Professor of Law, Dalian Maritime University; (Huiru Liu) L.L.M in Maritime Law, Dalian Maritime University, <i>Legal regime of marine insurance in Arctic shipping: Safety &amp; environmental implications</i>
14:40-15:00		Ulf Siwe, Chalmers University of Technology; Swedish Maritime Administration, <i>Beyond the Polar Code: Assuring safe &amp; environmentally sound Arctic navigation</i>	Onur Sabri Durak, Vice Director of ITU Polar Research Center, <i>Increasing role and participation of non-Arctic states in the governance of Arctic region: A sample of Turkey</i>
15:00-15:20		Zeeshan Raza, Buskerud & Vestfold University College, Department of Maritime Technology & Innovation, <i>Supply chain performance impacts on Arctic transport</i>	Momoko Kitada, Assistant Professor, WMU, <i>Arctic governance &amp; gender: Climate change or social change?</i>
15:20-15:30		Ed Page, U.S. Coast Guard (Retired), <i>Beyond the Polar Code: Assuring safe &amp; environmentally sound Arctic navigation</i>	Buba Bojang, Student, University of Aberdeen, <i>The place of joint development in the sustainable governance of the Arctic</i>
15:30-16:00	Room 109: Refreshment break & networking		
16:00-16:20		James P. Houck, U.S. Coast Guard, <i>Establishing the Arctic Waterway Safety Committee</i>	Chair Summary
16:20-16:40	Chair Summary		
Open evening			

Subthemes	4. Sustainable Arctic Business Development	5. Protection of the Arctic Marine Environment	6. Training, Capacity-Building, Science & Research
<b>Room</b>	335	235	108
<b>14:20-14:40</b>			Leah Beveridge & Dr. Melanie Fournier, Dalhousie University, <i>Navigating the operational &amp; permitting requirements for shipping in the Canadian Arctic: a visualization tool for shipping companies</i>
<b>14:40-15:00</b>			Dimitrios Dalaklis, WMU & University of Aegean, <i>Maritime transport in the Arctic after the introduction of the Polar Code: A discussion of the new training needs</i>
<b>15:00-15:20</b>			Jim Gamble, Executive Director, Aleut International Association, Arctic Marine, <i>Indigenous Use Mapping: Tools for Communities</i>
<b>15:20-15:30</b>			Chair Summary
<b>15:30-16:00</b>	<i>Room 109: Refreshment break &amp; networking</i>		
<b>16:00-16:20</b>			
<b>16:20-16:40</b>			

*Open evening*



## Thursday 27<sup>th</sup> August 2015 - Building the Future Agenda

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Room: The Sasakawa Auditorium

Moderator: Professor Larry Hildebrand, WMU

**08:30-09:30** Reporting out from each Concurrent Session by Roving Rapporteurs  
20 min per Rapporteur

Theme 1. Polar Code, **Jack Westwood-Booth**  
Theme 2. Beyond the Polar Code, **Heike Deggim**  
Theme 3. Arctic Governance, **Michael Grey**  
Theme 4. Sustainable Arctic Business, **Craig Eason**  
Theme 5. Protection of Arctic Marine Env., **Clive Cole**  
Theme 6. Training, Capacity Building, Science & Research, **Jim Parsons**

09:30-09:35 *Short break*

**09:35-10:30** Reporting by Roving Rapporteurs continued

10:30-11:00 *Room 109: Refreshment break & networking*

**11:00-12:15** Components of a Regulatory, Governance, Research & Capacity-Building Agenda

### **Panel Discussion**

**Peter Hinchliffe**, International Chamber of Shipping  
**Laureen Kinney**, Transport Canada  
**Christine Valentin**, World Ocean Council  
**Jeffrey G. Lantz**, United States Coast Guard  
**Arsenio Dominguez**, Chairman, Marine Environment Protection Committee

**12:15-12:30** Conference Summary & Adoption of Action Agenda

**12:30** Closing remarks by WMU President, **Dr. Cleopatra Doumbia-Henry**

Programme subject to change

## Supporting Partner

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The International Business Alliance  
for Corporate Ocean Responsibility

The World Ocean Council is an unprecedented international, cross-sectoral industry leadership alliance on "Corporate Ocean Responsibility".

The World Ocean Council (WOC) brings together the diverse ocean business community to collaborate on stewardship of the seas. This unique coalition is working to improve ocean science in support of safe and sustainable operations, educate the public and stakeholders about the role of responsible companies in addressing environmental concerns, more effectively engage in ocean policy and planning, and develop science-based solutions to cross-

cutting environmental challenges that cannot be solved by one company or industry, such as: invasive species, ocean noise, marine mammal impacts, marine debris, the Arctic, and others.

The WOC is engaging a wide range of ocean industries, including: shipping, oil and gas, fisheries, aquaculture, tourism, renewable energy (wind, wave, tidal), ports, dredging, cables and pipelines, carbon capture and storage, as well as the maritime legal, financial and insurance communities, and others.

A growing number of companies and associations share the WOC vision of a healthy and productive ocean and its sustainable use and stewardship by responsible businesses. They are distinguishing themselves by becoming WOC Members and call on others to join them.