

THE CONFERENCE PROGRAMME



**Faculty of Navigation
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and



**15th JUBILEE INTERNATIONAL
CONFERENCE
ON
MARINE NAVIGATION
AND SAFETY OF
SEA TRANSPORTATION**

TransNav 2023

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THE CONFERENCE PROGRAMME



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Honorary Fellowship of TransNav

The 7th International Symposium on Marine Navigation and Safety of Sea Transportation TransNav 2007

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 20 - 22 June 2007

Prof. Michał Holec	Poland	Prof. Kinzo Inoue	Japan
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Prof. Józef Urbański	Poland	Prof. Chaojin Shi	China
Prof. Władysław Rymarz	Poland	Prof. František Vejražka	Czech Rep.
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The 8th International Symposium on Marine Navigation and Safety of Sea Transportation TransNav 2009

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 17 - 19 June 2009

Prof. Daniel Duda	Poland	Prof. Vidal Ashkenazi	UK
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The 9th International Symposium on Marine Navigation and Safety of Sea Transportation TransNav 2011

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 15 - 17 June 2011

Prof. Włodzimierz Filipowicz	Poland	Prof. Masao Furusho	Japan
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The 10th International Conference on Marine Navigation and Safety of Sea Transportation
TransNav 2013

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 19 - 21 June 2013

Prof. Wiesław Galor	Poland	Prof. Yasuo Arai	Japan
Prof. Krzysztof Kołowrocki	Poland	Prof. Avtandil Gegenava	Georgia
Prof. Zbigniew Pietrzykowski	Poland	Prof. Melchor Magramo	Philippines
Prof. Roman Śmierzchalski	Poland	Prof. F.X. Martinez de Oses	Spain
Prof. Cezary Specht	Poland	Prof. Homayoun Yousefi	Iran

The 11th International Conference on Marine Navigation and Safety of Sea Transportation
TransNav 2015

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 17 - 19 June 2015

Prof. Jerzy Czajkowski	Poland	Prof. Anatoli Alop	Estonia
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The 12th International Conference on Marine Navigation and Safety of Sea Transportation
TransNav 2017

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 21 - 23 June 2017

Prof. Krzysztof Czaplewski	Poland	Prof. Sauli Ahvenjärvi	Finland
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Prof. Jerzy Mikulski	Poland	Prof. Tae-Gweon Jeong	Korea
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The 13th International Conference on Marine Navigation and Safety of Sea Transportation TransNav 2019

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 12 - 14 June 2019

Prof. Andrzej Banachowicz	Poland	Prof. Paolo Alfredini	Brazil
Prof. Zbigniew Burciu	Poland	Prof. Michael Baldauf	Germany
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The 14th International Conference on Marine Navigation and Safety of Sea Transportation TransNav 2021

jointly organized by the Faculty of Navigation of the Gdynia Maritime University and The Nautical Institute
Gdynia, 16 - 18 June 2021

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Prof. Tomasz Neumann	Poland	Prof. Renato Filjar	Croatia
Prof. Aleksander Walczak	Poland	Prof. Thomas Porathe	Sweden
Prof. Adam Wolski	Poland	Prof. Jin Wang	UK

Hevelius Award winners:

2019	Prof. Mirosław Jurdziński	Poland
2021	Prof. Vidal Ashkenazi	United Kingdom

Ulysses Award winners:

2019	Capt. Szczepan Kowalewski	Poland
2021	Capt. John Lloyd	United Kingdom



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*Prof. Dr. Adam Weintrit, Master Mariner, FRIN, FNI
Chairman of the Conference
Rector of the Gdynia Maritime University
Head of the Poland Branch of The Nautical Institute*

Opening Address for TransNav 2023 Message from Conference Chairman President of the Gdynia Maritime University

Ladies and Gentlemen, Distinguished Guests, Dear Participants of TransNav 2023,

It is my pleasure and honour to welcome you to **TransNav 2023**, the 15th Jubilee International Conference on Marine Navigation and Safety of Sea Transportation jointly organized by the Faculty of Navigation, Gdynia Maritime University and The Nautical Institute. Welcome to virtual Gdynia. I am glad that such a large group of stakeholders is ready today for a remote debate and exchange of views. Many thanks to everyone for participating.

The delegates are from over hundred institutions from many countries around the world (79): Albania, Algeria, Angola, Argentina, Australia, Austria, Azerbaijan, Bangladesh, Belgium, Benin, Brazil, Bulgaria, Canada, Chile, China, Croatia, Cuba, Cyprus, Czechia, Denmark, Dominica, Egypt, Estonia, Finland, France, Georgia, Germany, Ghana, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Jordan, Kenya, Korea, Latvia, Lebanon, Liberia, Lithuania, Luxembourg, Malaysia, Malta, Montenegro, Morocco, Myanmar, Netherlands, Nigeria, Norway, Oman, Pakistan, Panama, Philippines, Poland, Portugal, Romania, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Venezuela and Vietnam.

As you can see almost 80 countries are involved in TransNav 2023 as the Scientific Committee members, reviewers, authors of papers, presenters, moderators, panellists, chairmen, attendees, sponsors and our partners. Among us there are Presidents and Rectors of the Universities and Academies, deans of faculties, directors of institutes, heads of departments, scientists, researchers, professors, lecturers and students, master mariners, skippers and yachtsmen, representatives of international organizations, maritime institutions in higher education, universities and academies, maritime administration, institutes of navigation, professional and scientific societies, space and maritime safety agencies, hydrographic, meteorological and oceanographic offices, ports, transport and logistics companies, shipping industry, shipowners, navy, shipyards, coastguards, classification societies, and marine manning agencies.

This time our special guest is Captain André L. LeGoubin, the President of The Nautical Institute. Welcome to Prof. Krzysztof Czaplewski, President of the International Association of Institutes of Navigation (IAIN), branch chairmen of The Nautical Institute from Philippines, Ukraine and Poland, presidents of the national navigation institutes, and many other excellent guests joined our Conference, especially members of the Scientific Programme Committee.

To conclude, I believe that the 15th TransNav 2023 Jubilee International Conference will serve as a good discussion platform for safety at sea, maritime security and protection of the maritime environment. I wish you an enjoyable and productive visit to Gdynia. I wish all participants fruitful discussions! Special thanks to our partners, sponsors, volunteers and members of the Organising Committee for their hard work, especially Prof. Tomasz Neumann, Executive Chair of TransNav Conference.

With kindest regards,

*Prof. Dr. Adam Weintrit, Master Mariner, FRIN, FNI
Chairman of the Conference*



Captain André L. LeGoubin, MNM MA FNI
President of The Nautical Institute

Captain André L. LeGoubin MNM MA FNI
President – The Nautical Institute

André is currently employed as a Mooring Master in the lightering trade, undertaking underway ship-to-ship transfers of oil, offshore in the USA and South America, having decided to return to sea in the summer of 2012 after over eight years ashore, working as a Marine Consultant in Houston, Texas.

He emigrated from the UK to the USA in January 2004, leaving the London Pilotage Service where he was a first class marine pilot. Before becoming a pilot, André was Master of high-speed ferries, initially hydrofoils, then mono- and multi-hull ro-ro/passenger vessels.

André's seagoing career formally (he left school with almost 6 months sea time!) began with Cunard Shipping Services Ltd. where he served as a deck officer in various ranks, gaining experience of a wide variety of vessels.

In 2009 he achieved a Pass with Distinction, MA Work Based Learning Studies (Marine Accident Investigation), from Middlesex University, London and he was elected a Fellow of the Nautical Institute in the same year. Following on from his research degree, André wrote the book *Mentoring at Sea – The 10 minute challenge* which was published by the Nautical Institute in December 2012.

In October 2013 André was awarded the British Merchant Navy Medal for services to the maritime industry and The Nautical Institute.

André and his Wife live in Florida, USA and have three adult children, all settled in various parts of the US.

Opening Address of the President of The Nautical Institute

It is with great pleasure that I join you all today at the opening of the 15th International Conference on Marine Navigation and Safety of Sea Transportation – TransNav 2023. As President, on behalf of our Chief Executive Officer, Captain John Lloyd and our over 9,000 members, The Nautical Institute welcomes you in person to Gdynia, Poland.

When I addressed you in 2021 at the opening of the 14th International Conference, as Senior Vice President, I said that I hoped that for the 15th International Conference we would be meeting in person again. I am delighted to say that my hope has materialized and here we are. I think this is the largest ever TransNav and a truly international audience so, as we share our experience and our knowledge, let's make this conference the best yet.

I have been associated with TransNav since 2008 when I was asked to submit a technical paper for consideration. At that time, I was just completing my MA studies at Middlesex University, and I had plenty of research material to use so, I wrote my very first paper. It was accepted and in 2009 here I was, at this prestigious faculty, with some of the maritime world's leading global experts, with the President and CEO of The Nautical Institute, and completely out of my depth!

Who would have thought some 14 years later I would be addressing you as President of The Nautical Institute. Thank you, Captain Adam and everyone here in Poland for giving me that start that has, in part, led to me being here today. I am truly grateful. I believe this is your first TransNav since being appointed Rector. Our sincere congratulations on that.

As you may know I am an active seafarer. I came off my last ship just three days ago, so I am current in the maritime industry. Many of you have sailed in the past but are now active ashore – that's normal, isn't it? What I do sometimes find is that in our rush to save the environment, to develop the next great navigation instrument or to implement further legislation on shipping, there is a tendency to forget about the seafarer, the end user of the development.

This is so important as it is us, the seafarers that must use it, implement it, or comply with it. I would urge you as you go about your business, please do consult with today's seafarers at every opportunity and make sure that what you are developing will work onboard today's modern Merchant Navy vessels.

Many of us are reaching the end of our careers so it is essential that we include the next generation of seafarers in these discussions. Our leaders of tomorrow are here with us today, on our ships, in our offices, in our schools and in our homes. We must engage with these younger career professionals and share our knowledge, experience, and thoughts with them, for they will be navigating our maritime industry into the future.

Finally, thank you to all the authors and contributors for your work. I look forward to hearing of your future successes which, like me, may have started here at TransNav.

Captain **André L. LeGoubin**, MNM MA FNI
President of The Nautical Institute



Prof. Tomasz Neumann
Dean of the Faculty of Navigation of the Gdynia Maritime University
Executive Chair of the TransNav Conference

Opening Address

Message from Dean of the Faculty of Navigation, GMU

Distinguished Guests, Ladies and Gentlemen,

It is my pleasure to welcome panelists, moderators, chairmen, speakers and all other participants to the 15th Jubilee International Conference on Marine Navigation and Safety of Sea Transportation.

Fortunately, hard times, Covid-19 pandemic times, have passed, which changed our entire lives. We largely moved then to the virtual world. As you remember perfectly, we could not meet at conferences or conventions, and most of the scientific events took place remotely. This was also the case with Transnav 2021 Conference. For the first time in 30-year history of our conference, we conducted a conference in a remote way. And over two hundred participants took part in it. It was a big challenge for us. I hope that you rated positively our virtual meeting that was only a substitute for real meeting. Hence, so many participation in our conference after a two-year break.

All submitted papers approved by the Scientific Committee will be published in the TransNav journal. Some of them have already been published, you can find them on the journal's website. I would like to take this opportunity to invite you to publish in our journal. It is worth noting that the papers are indexed in such databases as Web of Science and Scopus.

As the Dean of the Faculty of Navigation of the Gdynia Maritime University, and on behalf of the Organizing Committee I would like to thank you for your participation. I hope that the broad spectrum of presented papers will allow the participation to obtain a wider view on the problems of marine navigation and safety of sea transportation and will provoke fruitful discussions on new trends.

I sincerely hope that during the next edition of the TransNav conference, we will be able to meet again in June 2025 in Gdynia.

*Prof. Tomasz **Neumann***

*Dean of the Faculty of Navigation of the Gdynia Maritime University
Executive Chair of the TransNav Conference*

15TH JUBILEE INTERNATIONAL CONFERENCE ON MARINE NAVIGATION AND SAFETY OF SEA TRANSPORTATION

TRANSNAV 2023

21-23 June 2023, Gdynia, Poland

PROGRAMME OVERVIEW

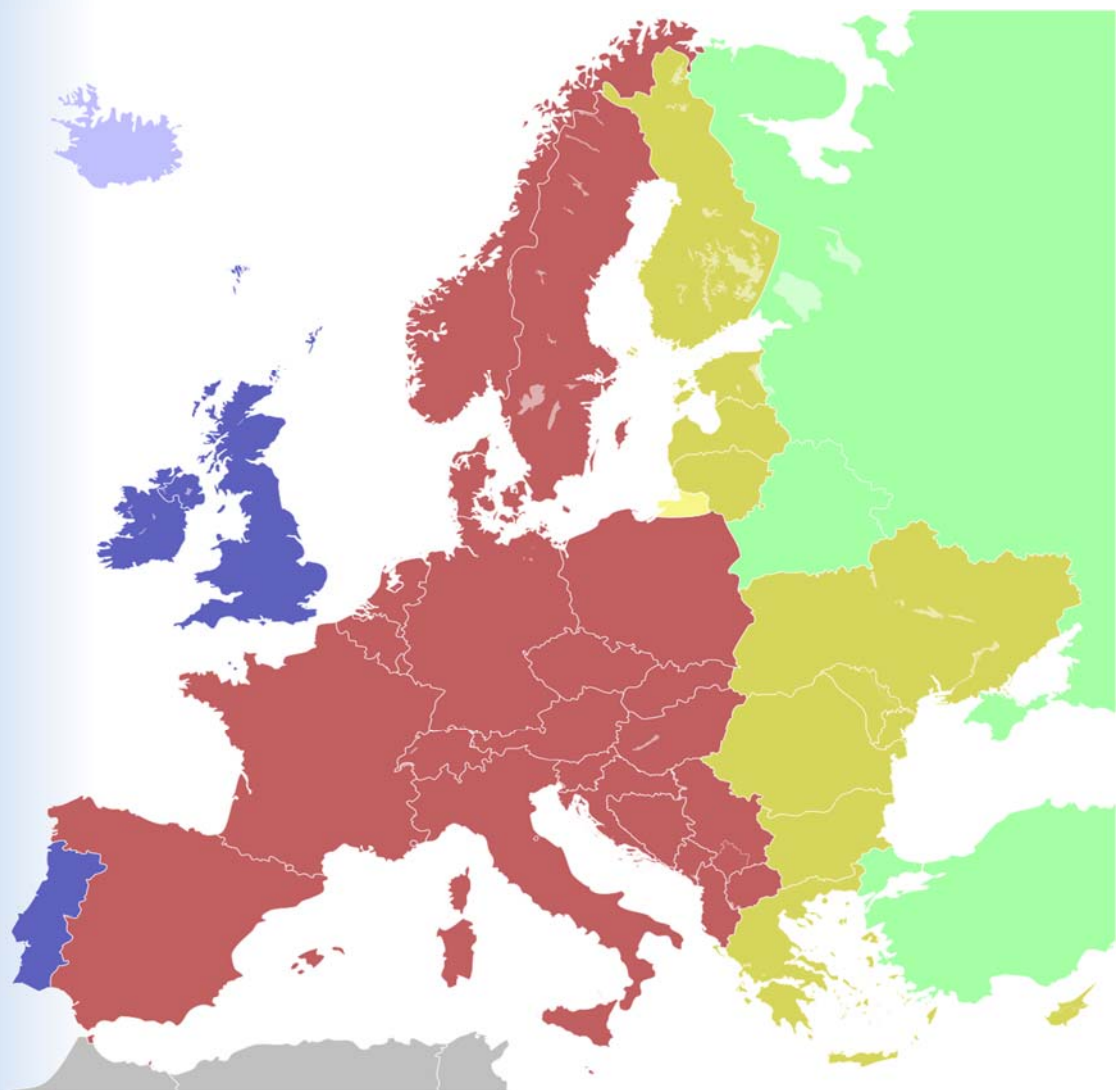
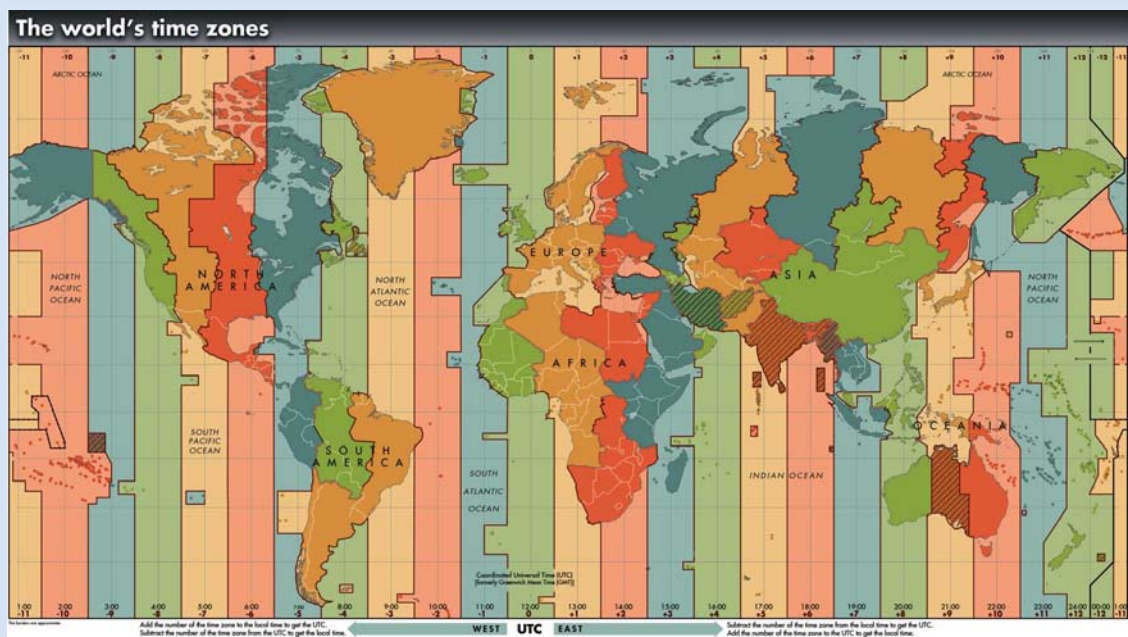
Wednesday 21st June 2023			
0800-1000	Registration in the Main Hall of the Gdynia Maritime University, Morze Szt. 41-47		
0900-1000	Main Aula of GdMU (Hall in the name of Tadeusz Meioster)		
1000-1100	Opening Ceremony (Session A0)		
1000-1100	Main Aula of GdMU		
1100-1130	Plenary Session A1		
1100-1130	Advances in Marine Navigation and Safety of Sea Transportation		
1130-1200	Coffee Break		
1200-1300	Parallel Specialist Sessions	Room A13 Session G1 Inland Shipping	Room A14 Session G2 Car Emission
1300-1330	Break	Room A15 Session G3 Global Shipping	Room A16 Session G4 Marine Transport
1330-1445	Transfer to the Faculty of Navigation, Składowa Kosciuszki		
1445-1530	Lunch in „Róża Wiatrow” Restaurant		
1530-1600	Registration in the Hall of the GdMU Faculty of Navigation, Al. Jana Pawła II 3		
1600-1630	Parallel Specialist Sessions	Aula Session C1 Miscellaneous 1	Room P105 Session D1 Safety at Sea 1
1630-1700	Coffee Break		
1700-1800	Parallel provided Specialist Sessions	Aula Session C2 Research Projects	Room P105 Session D2 Route Planning
1800-1900	Free Time		
1900-2000	Banquet Room on Ground Floor of Hotel Mercury Gdynia		
2000-2300	Gdynia, Hotel Mercury Gdynia Centrum Gala Dinner		

Thursday 22nd June 2023			
0800-1000	Registration in the Hall of the GdMU Faculty of Navigation, Jana Pawła II Ave. 3		
0900-1030	Auditorium Maximum - Plenary Session A2		
1030-1045	Maritime Autonomous Surface Ships (MASS)		
1045-1145	Coffee Break		
1145-1200	Coffee Break		
1200-1300	Parallel Specialist Sessions	Aula Session C3 Anti-Collision	Room P105 Session E3 Student Session
1300-1445	Lunch in „Róża Wiatrow” Restaurant		
1445-1600	Parallel Specialist Sessions	Aula Session C4 MET2	Room P105 Session E5 Case Studies
1600-1630	Coffee Break		
1630-1730	Parallel Specialist Sessions	Aula Session C5 Port Operation	Room P105 Session E6 Drones
1730-2000	Free Time		
2000-2300	Optional for volunteers - Visit to the Naval Museum in Gdynia		
2300-2400	Optional for volunteers - Visit to the Naval Museum in Gdynia		
2400-2500	„Vinegre” Restaurant at the Naval Museum in Gdynia		
2500-2600	Gdynia, seaside, on the top of the Museum (3rd Floor)		
2600-2700	Friends Evening		

Friday 23rd June 2023			
0900-1000	Technical and Sightseeing Tour by Bus		
1000-1100	Departure from The Faculty of Navigation		
1100-1200	Tour by Bus to Malbork and Gdwin (Pomerania)		
1200-1300	Arrival in Malbork		
1300-1400	Guided tour to Malbork - the monumental Gothic castle built by the Order of Teutonic Knights in XIV and XV century, included on the List of Human Heritage of the UNESCO		
1400-1500	Guided Sightseeing of Malbork Castle		
1500-1600	Coffee and Refreshment Break		
1600-1700	Departure from Malbork to Gdwin		
1700-1800	Show at Gdwin Teutonic Castle		
1800-1900	Gdwin Castle - a former castle of the Teutonic Order, built after 1290		
1900-2000	Dinner at Gdwin Restaurant		
2000-2100	1600 - 1630 Closing Ceremony		
2100-2200	Departure from Gdwin to Gdynia		
2200-2300	Arrival in the hotels		

Dear Participant, during the TransNav Conference 2023 the Faculty Reading Room (Room No 013) with access to Internet will be open.

Note: All sessions are open for students



All times used in the Conference Programme are set at Central European Summer Time.
Central European Summer Time = Polish Local Time = UTC + 2 Hrs

Wednesday 21st June 2023

0800 - 1000 Registration in the Main Hall of the Gdynia Maritime University, Morska Str. 81

Plenary Session A0 - Opening Ceremony

0900 - 0945 **Place:** Main Lecture Hall (Aula) of the Gdynia Maritime University, Morska Str. 81
Chairmen: *André L. LeGoubin (The Nautical Institute), Adam Weintrit (Poland)*

Welcome Address

Adam Weintrit, Chairman of the Conference, Rector of Gdynia Maritime University

Opening Address for TransNav 2023

André L. LeGoubin, President of The Nautical Institute

Opening Address, containing the words of the official opening of the Conference

Adam Weintrit, President of Gdynia Maritime University

Overview of the 15th Jubilee International Conference on Marine Navigation and Safety of Sea Transportation TransNav 2023

Adam Weintrit, Chairman of the Conference

The Ulysses and Hevelius Awards and presentation of their winners

Adam Weintrit, Chairman of the Conference

0945 - 1000 Short Performance of Gdynia Maritime University's Choir under the direction of *Karol Hilla*

Plenary Session A1 – Advances in Marine Navigation and Safety of Sea Transportation

1000 - 1100 **Place:** Main Lecture Hall (Aula) of the Gdynia Maritime University, Morska Str. 81
Chairmen: *Tor Einar Berg (Norway), Ryszard Wawruch (Poland)*

Is There Still a Place for Traditional Navigation Techniques Onboard Today's Modern Merchant Vessels?

André L. LeGoubin (United States)

Improvement of Maritime Competencies

Janusz Uriasz (Poland)

Big Data - Digital Twins-Marine Traffic Safety - What is the Link

Pentti Kujala (Finland)

The Magical Number 80%, Plus or Minus 50

Krzysztof Wróbel (Poland)

1100 - 1130 Coffee Break

1100 - 1105 Official family photo in front of the main building of the University
Photographer: Radosław Czaja

0830 – 1130 Interviews and a short film about the Conference
TV Redactor: Marek Kański



PARALLEL SPECIALIST SESSIONS

Session G1 – Inland Shipping

- 1130 - 1300 **Place:** Lecture Hall A13, Basement of Mechanical Faculty, Gdynia Maritime University
Chairmen: *José Carlos Bernardino (Brazil), Teresa Abramowicz-Gerigk (Poland)*
- Simulation Study to Assess the Effect of Ship Beam on the Navigable Flow Conditions in Paris
Marc Mansuy (Belgium), Maxim Candries (Belgium), Katrien Eloot (Belgium)
- Multi-sensor Integration of Hydroacoustic and Optoelectronic Data Acquired from UAV and USV Vehicles on the Inland Waterbody
Oktawia Lewicka (Poland)
- The Use of the DEMATEL Method to Analyze Factors Influencing the Usage of Inland Waterway Transport
Emilia Skupień (Poland)
- Improvement of Manoeuvring Properties of Inland Navigation Units by Using the Magnus Effect
Zbigniew Burciu (Poland)
- A PPP Baseline Approach for Bridge Passing
Christoph Lass (Germany)
- 1300 - 1330 **Break:** Transfer by Bus to Skwer Kościuszki, Gdynia
- 1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Session G2 – Gas Emission

- 1130 - 1300 **Place:** Lecture Hall A14, Basement of Mechanical Faculty, Gdynia Maritime University
Chairmen: *Paolo Alfreddini (Brazil), Magdalena Bogalecka (Poland)*
- Effectiveness of Current Technology in GHG Reduction – A literature Survey
Tom Klakeel (Australia), Mohan Anantharaman (Australia), Rabiul Islam (Australia), Garaniya Vikram (Australia)
- An Analysis of The Carbon Footprint in Maritime Transport: Challenges and Opportunities for Reducing Greenhouse Gas Emissions
Adrianna Karaś (Poland)
- Impact of Late and Early Fuel Injection on Main Engine Efficiency and Exhaust Gas Emissions
Zoran Pavin (Croatia), Vlatko Knežević (Croatia), Josip Orović (Croatia), Marko Valčić (Croatia)
- A Low Emission Coastal Cruise Vessel – MV Havila Capella
Tor Einar Berg (Norway), S. Moe (Norway), Daniel Leinebo (Norway), O. Rabliås (Norway)
- Alternative Fuels – Prospects for the Shipping Industry
Marzenna Popek (Poland)
- 1300 - 1330 **Break:** Transfer by Bus to Skwer Kościuszki, Gdynia
- 1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Session G3 – New Trends in Global Shipping

- 1130 - 1300 **Place:** Lecture Hall A15, Basement of Mechanical Faculty, Gdynia Maritime University
Chairmen: *Angelica Baylon (Philippines), Jan Pawelski (Poland)*
- Safe Vessel Operations – The Tacit Knowledge of Navigators
Leif Ole Dreyer (Norway)
- Maritime Sustainability and the Need for Global Performance Indicators in Shipping: An Empirical Investigation Based on the Shipping KPI Standard by BIMCO
Evangelos-Frantzeskos Darousos (Greece), Maximo Q. Mejia Jr (Philippines), Ioannis Panteladis (Greece), Aspasia Pastra (Greece)
- Development of Model for Measuring Audit Quality in Maritime Safety Management
Deepak Raj Sharma (India)
- Application of Virtual Reality for Remote Ship Inspections and Surveys – A Systematic Review
Abubakar Sheriff (Liberia), Mohan Anantharaman (Australia), Rabiul Islam (Australia), Oanh Nguyen (Australia)
- Naval Use Cases of 5G Technology
Dariusz Zmysłowski (Poland), Paweł Skokowski (Poland), Krzysztof Malon (Poland), Krzysztof Maślanka (Poland), Jan Kelner (Poland)

1300 - 1330 **Break:** Transfer by Bus to Skwer Kościuszki, Gdynia

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Session G4 – Problems of Maritime Transport

- 1130 - 1300 **Place:** Lecture Hall A16, Basement of Mechanical Faculty, Gdynia Maritime University
Chairmen: *André L. LeGoubin (United States), Marek Szymoński (Poland)*
- A New Architectural Framework for Digitalization of Maritime Intelligent Transport Systems
Marianne Hagaseth (Norway), Ørnulf Jan Rødseth (Norway), Terje Krogstad (Norway), Magnus Bakke (Norway)
- Multicriteria Assessment of Green Logistics in Taiwan’s Maritime Freight Transport: Green Packaging and Green Transportation as Driving Aspects
Raditia Yudistira Sujanto (Indonesia), Sheng-Long Kao (Taiwan), Ming-Feng Yang (Taiwan)
- Ships-To-Ship Magnetic Mooring Systems – The New Perspectives
Paweł Kolakowski (Poland), Andrzej Łebkowski (Poland), Grzegorz Rutkowski (Poland)
- Analysis of Noise and Vibration Levels Recorded on Selected New Generation DP Class Shuttle Tankers Operated in the Arctic Offshore Sector
Grzegorz Rutkowski (Poland), Jarosław Korzeb (Poland)
- Legal Principles and Guarantees of Realisation of Gender Equality in the Labour and Social Sphere Using the Example of Seafarers
Oleksandr Shemiakin (Ukraine), Natalia Krestovska (Ukraine), Vladimir Torskiy (Ukraine), Alla Ivanova (Ukraine), O. Kostyria (Ukraine)

1300 - 1330 **Break:** Transfer by Bus to Skwer Kościuszki, Gdynia

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

1430 - 1530 Registration in the Main Hall of Faculty of Navigation, GMU, Jana Pawła II Ave. 3

PARALLEL SPECIALIST SESSIONS

Session B1 – Ship Maneuvering

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Michael Baldauf (Germany), Lucjan Gucma (Poland)*
- A Ship Manoeuvring Desktop Simulator for Developing and Validating Automatic Control Algorithms
Hongwei He (China), Evert Lataire (Belgium), Thibaut Van Zwijnsvoorde (Belgium), Guillaume Delefortrie (Belgium)
- Development and Validation of an Operational Fast Time Ship Manoeuvring Solver to Increase Navigation Efficiency in Horizontally Restricted Waterways
Mohammadreza Fathi Kazerooni (Iran), Masoud Rahimian (Australia), Marcus Tree (Australia), Tim Womersley (Australia), Simon Mortensen (Australia), Bugge Jensen (Denmark)
- Vessel-Fender Contact Force Modelling for a Real-time Ship Manoeuvring Simulator
Felipe Marino Moreno (Brazil), Humberto Akira Uehara Sasaki (Brazil), Humberto Shigueki Makiyama (Brazil), Eduardo Aoun Tannuri (Brazil)
- Comparative Analyses of Manoeuvring Patterns in Real and Virtual AtoN Environment
Ivan Mraković (Montenegro), Rino Bosnjak (Croatia)
- Risk Assessment of Port Manoeuvres of a Chemical Tanker Vessel
Teresa Abramowicz-Gerigk (Poland), Andrzej Hejmlach (Poland), Maciej Randak (Poland)
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session C1 – Miscellaneous, Part 1

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Lecture Hall (Aula)
Chairmen: *Mohan Anantharaman (Australia), Jerzy Herdzyk (Poland)*
- Socio-Economic Factors in the Event of an Oil Spill in the North Adriatic
Valter Suban (Slovenia), Urban Pegan (Slovenia), Jure Demsar (Slovenia), Danijela Tuljak-Suban (Slovenia), Marko Perković (Slovenia), Vinko Bandelj (Croatia)
- Responding to Spills of Marine Distillate Fuels
Justiina Halonen (Finland)
- The Length of the Navigation Season in the Current Conditions of Climate Change on the Northern Sea Route
Tadeusz Pastusiak (Poland)
- Opening and Closing Trends for Navigation on the Northern Sea Route in the Light of Changes in the Ice Cover on the Seas of the Siberian Shelf in the Years 2008-2020
Andrzej A. Marsz (Poland), Tadeusz Pastusiak (Poland), Anna Styszyńska (Poland)
- Theoretical Analysis of Uncertainties Influencing on the Port Organizational Ecosystem's Functioning in the Context of Port Organizational Ecosystem's Resilience
Elena Valioniene (Lithuania), Erika Župerkienė (Lithuania)
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session D1 – Maritime Education and Training (MET) – Part 1

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Room No. 110
Chairmen: *Vladimir Torskiy (Ukraine), Sambor Guze (Poland)*
- Current Challenges in Professional Education and Training of Seafarers at Management Levels on Oil Tankers
Vinko Pavić (Croatia), Sandra Tominac Coslovich (Croatia), Nina Kostović (Croatia), Ivan Mišlov (Croatia)
- Perceived Quality of Safety Training Onboard Ship – The Swedish Case
Carl Hult (Sweden)
- Study on Education and Training Methods to Enhance Non-technical Skills of OICNW Using the Psychological Test
Manabu Saito (Japan), Takahiro Takemoto (Japan)
- Expectations of Maritime University Students of Future Work on a Ship
Natalia Kłopotek (Poland), Przemysław Dmowski (Poland), Agata Szkiel (Poland)
- Promoting Active Online Interaction with Maritime English Students
Valentyna Kudryavtseva (Ukraine), Svitlana Barsuk (Ukraine), Olena Frolova (Ukraine)
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session E1 – Safety at Sea, Part 1

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Room P105
Chairmen: *Salman Nazir (Norway), Henryk Śniegocki (Poland)*
- Prediction of Ship's Speed Through Ground Using the Previous Voyage's Drift Speed
Daiki Yamane (Japan), Toshiyuki Kano (Japan)
- Cognitive Task Analysis to Understand Icebreaker Decision Making
Mashrura Musharraf (Bangladesh), Ketki Kulkarni (India), Steven Mallam (Canada)
- Mooring Area and Mooring Buoys Plan
Zvonimir Lušić (Croatia), Danijel Pušić (Croatia)
- Position Fixing and Uncertainty
Włodzimierz Filipowicz (Poland)
- The DIA-Method for Navigational Integrity
Peter Teunissen (Netherlands)
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Panel Session M1 – Annual General Meeting of the Polish Navigation Forum (PNF)

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Room 121 (Faculty Board)
Chairmen: *Janusz Uriasz (Poland), Adam Weintrit (Poland)*
- This is a close meeting. Program distributed to members of the Polish Navigation Forum (PNF) by the chairman Prof. Janusz Uriasz.
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session B2 – Electronic Chart Display and Information System (ECDIS)

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Sheng-Long Kao* (Taiwan), *Krzysztof Naus* (Poland)
- The Role of the ECDIS on the Development of Situational Awareness – a Study on Grounding Accidents
Mate Barić (Croatia), *Luka Grbić* (Croatia), *Ljiljana Peričin* (Croatia), *Roko Jelić* (Croatia)
- Evolving ECDIS: Concept Development Through Different Manufacturer Models Comparison
Srđan Žuškin (Croatia), *David Brčić* (Croatia), *Marin Uroda* (Croatia), *Marko Strabić* (Croatia)
- IHO S-100 Data Model and Relevant Product Specification
Seojeong Lee (South Korea), *Hyoseung Kim* (South Korea)

1730 - 2000 Free Time

Session C2 – Maritime Research Projects

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Lecture Hall (Aula)
Chairmen: *Mariana Panaitescu* (Romania), *Andrzej Borys* (Poland)
- The Application of Mixed Reality and UAS Technology in Port Decision-Making Process Based on PASSport Project
Lucjan Gucma (Poland), *Bartosz Muczyński* (Poland), *Mateusz Bilewski* (Poland), *Maciej Gucma* (Poland), *Marco Nisi* (Italy)
- Repository of Data on Epidemic Situations on Sea Vessels
Izabela Bodus-Olkowska (Poland), *Ilona Garczyńska* (Poland), *Andrzej Lisaj* (Poland), *Marcin Mąka* (Poland), *Mariusz Dramski* (Poland), *Aris Chronopoulos* (Greece), *Tomaz Gregoric* (Slovenia), *Heikki Koivisto* (Finland), *German de Melo Rodriguez* (Spain), *Reza Ziarati* (Turkey), *Krzysztof Filipiak* (Poland)
- Review of European Maritime Certification of Competence Practices
Ugurcan Acar (Turkey), *German de Melo* (Spain), *Niall Curran* (Ireland)

1730 - 2000 Free Time

Session D2 – Route Planning

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Room No. 110
Chairmen: *Takahiro Takemoto* (Japan), *Włodzimierz Filipowicz* (Poland)
- Effect of Ship Neural Domain Shape on Safe and Optimal Trajectory
Józef Lisowski (Poland)
- The Concept of Determining the Ship's Route Based on the Capability Plots
Jakub Wnorowski (Poland), *Aandrzey Łebkowski* (Poland)
- Global and Local Planning of Ship Route Using MATLAB and Simulink
Oleksandr Kupraty (Ukraine), *Mirosław Tomera* (Poland)

1730 - 2000 Free Time

Session E2 – Renewable Energy

1630 - 1730

Place: Gdynia Maritime University, Faculty of Navigation, Room P105

Chairmen: *Zvonimir Lušić (Croatia), Joanna Soszyńska-Budny (Poland)*

Considerations Regarding Oiling System for Offshore Wind Turbines

Mariana Panaitescu (Romania), Fanel-Viorel Panaitescu (Romania), Paula-Gabriela Panait (Romania), Andrei-Alexandru Scupi (Romania)

Analysis of Alternative Configurations of Ship Power Systems Using Biofuels and Renewable Energy

Jerzy Herdzik (Poland)

The Future of Energy in Ships and Harbors

Graciliano Nicolas Marichal Plasencia (Spain), Deivis Ávila Prats (Spain), Angel Conesa (Spain), Jose Angel Rodríguez (Spain), Gregorio Iglesias (Spain)

1730 - 2000

Free Time

2000 - 2300

Gala Dinner – Banquet Room on Ground Floor of Hotel Mercure Gdynia Centrum,
Address: Armii Krajowej Str. 22, Gdynia

(Evening dress)



Mercure



During the Gala Dinner, nominations for **Honorary Fellowship of TransNav** will be announced.



Gdynia is a city in the Pomeranian Voivodeship of Poland and an important seaport of the Gulf of Gdańsk on the south coast of the Baltic Sea. Located in Kashubia in Eastern Pomerania, Gdynia is part of a conurbation with the



spa town of Sopot, the city of Gdańsk and suburban communities, which together form a metropolitan area called the Tricity (*Trójmiasto*), with a population of over a million people. Gdynia is a relatively modern city. Its architecture includes the 13th century St. Michael the Archangel's Church in Oksywie, the oldest building in Gdynia, and the 17th century neo-Gothic manor house located on Folwarczna Street in Orłowo. The city also holds many examples of early 20th century architecture, especially monumentalism and early functionalism, and modernism. A good example of modernism is PLO (Polish Ocean Lines) building situated at 10 Lutego Street. The surrounding hills and the coastline attract many nature lovers. A leisure pier and a cliff-like coastline in Kępa Redłowska, as well as the

surrounding Reservation Park, are also popular locations. In the harbour, there are two anchored museum ships, the *ORP Błyskawica* destroyer and the *Dar Pomorza* tall ship frigate. A 1.5 kilometre long promenade leads from the marina in the city centre, to the beach in Redłowo. Most of Gdynia can be seen from Kamienna Góra (54 metres above sea level). The decision to build a major seaport at the Gdynia village was made by the Polish government in 1920. Construction of Gdynia seaport was started in 1921. Till the end of 1930 docks, piers, breakwaters and many auxiliary and industrial installations were constructed or started. In 1938 Gdynia was the largest and most modern seaport on the Baltic Sea, as well as the tenth biggest in Europe. The city was constructed later than the seaport. In 1925 a special committee was inaugurated to build the city; city expansion plans were designed and city rights were granted in 1926. The city started to grow significantly after 1928.



Gdynia today is poised at an interesting stage in its development, riding on the crest of Poland's economic reforms. With a population of over 250,000 and one of the most buoyant economies in the whole of Poland, Gdynia is certainly going places, and it can no longer be dismissed as the grey counterpart of neighbouring Gdansk and Sopot. Certainly, it has none of the flamboyant sweep of its neighbours. Gdynia has plenty of tricks up its sleeve. And belying its reputation as a business hub, Gdynia is certainly no pauper when it comes to cultural attractions. The city can boast one of the country's top film festivals (often dubbed the 'Polish Cannes').

Hotel Mercure Gdynia Centrum offers views of the sea, Kościuszko Square and Dar Pomorza and ORP Błyskawica Museum Ships. They are all within a 5-minute walk, as well as a sandy beach and a large beach playground.

Mercure Gdynia Centrum is situated in a quiet area, 300 m from the Batory shopping centre and 150 m from Świętojańska Street with several coffee houses, restaurants and shops. The Gdynia Oceanarium is 500 m away. Lech Walesa Airport in Gdańsk is within 20 km and it is 3 km to Railway Station Gdynia Główna. The hotel has a large, fenced car park.

The City center is a great choice for travellers interested in food, restaurants and harbours. This is our guests' favourite part of Gdynia, according to independent reviews.



Thursday 22nd June 2023

0800 - 1000 Registration in the Main Hall of Faculty of Navigation, GMU, Jana Pawła II Ave. 3

PLENARY SESSION

Plenary Session A2 – Maritime Autonomous Surface Ships (MASS)

0900 - 1030 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *André L. LeGoubin (United States), Adam Weintrit (Poland)*

The Overview of Risk Analysis Methods and Discussion on Their Applicability for Power System of Autonomous Ships

Ivana Jovanović (Croatia), Nikola Vladimir (Croatia), Hrvoje Cajner (Croatia), Maja Perčić (Croatia)

From Ship to Shore – Studies Into Potential Practical Consequences of Autonomous Shipping on VTS Operation and Training

Tomke Janssen (Germany), Michael Baldauf (Germany), Gianiti Claresta (Indonesia)

Control of Electric Drive Tugboat Autonomous Formation

Wojciech Koznowski (Poland), Andrzej Łebkowski (Poland)

Integration Test Procedures for a Collision Avoidance Decision Support System Using STPA

Spencer Dugan (United States), Roger Skjetne (Norway), Krzysztof Wróbel (Poland), Jakub Montewka (Poland), Mateusz Gil (Poland), Ingrid Bouwer Utne (Norway)

Analyzing the Feasibility of an Unmanned Cargo Ship for Different Operational Phases

Pauline Røstum Bellingmo (Norway), Egil Wille (Norway), Håvard Nordahl (Norway), Odd Erik Mørkrid (Norway), Even Ambros Holte (Norway)

1030 - 1045 Coffee Break – Room 114 & Outside Terrace

PARALLEL SPECIALIST SESSIONS

Session B3 – Global Navigation Satellite System (GNSS)

1045 - 1145 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Peter J.G. Teunissen (Netherlands), Cezary Specht (Poland)*

A Method and a Model for Risk Assessment of GNSS Utilisation with a Proof-of-Principle Demonstration for Polar GNSS Maritime Applications

Emanuela Malić (Croatia), Nenad Sikirica (Croatia), Darko Špoljar (Croatia), Renato Filjar (Croatia)

EGNOS Performance in Several Maritime Campaigns

Elisabet Lacarra (Spain), Rodrigo Gonzalez (Spain), Manuel Lopez-Martinez (Spain)

Challenges Related to the IMO's Standardization of GNSS

Paweł Zalewski (Poland), Michael Bergmann (Germany), Ryszard Wawruch (Poland), Adam Weintrit (Poland)

1145 - 1200 Coffee Break – Room 114 & Outside Terrace

Session C3 – Collision Avoidance

- 1045 - 1145 **Place:** Gdynia Maritime University, Faculty of Navigation, Lecture Hall (Aula)
Chairmen: *Dimitrios Dalaklis (Greece), Józef Lisowski (Poland)*
- Operationalising Automation Transparency for Maritime Collision Avoidance
Koen van de Merwe (Netherlands), Steven Mallam (Canada), Øystein Engelhardtson (Norway), Salman Nazir (Norway)
- A Nature Inspired Collision Avoidance Algorithm for Ships
Agnieszka Lazarowska (Poland)
- A COLREGs-Compliant Decision Support Tool to Prevent Collisions at Sea
Michele Martelli (Italy), Srdan Žuškin (Croatia), Raphael Zacccone (Italy), Igor Rudan (Croatia)
- 1145 - 1200 Coffee Break – Room 114 & Outside Terrace

Session D3 – Marine Accidents

- 1045 - 1145 **Place:** Gdynia Maritime University, Faculty of Navigation, Room No 110
Chairmen: *Carl Hult (Sweden), Piotr Kopacz (Poland)*
- Analysis of Pier Contact Accident in Busan New Port of South Korea by System-Theoretic Accident Model and Processes (STAMP)
Sora Kim (South Korea), Wangui Juliet Wamugi (Kenya), Gokhan Camliyurt (Turkey), Young Soo Park (South Korea), Dae Won Kim (South Korea)
- Duties of the Ship's Master in the Event of a Maritime Accident as a Type of Insured Loss
Marija Pijaca (Croatia), Božena Bulum (Croatia), Željka Primorac (Croatia)
- Collision and Contact – Analysis of Accidents at Sea
Magdalena Bogalecka (Poland)
- 1145 - 1200 Coffee Break – Room 114 & Outside Terrace

Session E3 – Student Session

- 1045 - 1145 **Place:** Gdynia Maritime University, Faculty of Navigation, Room P105
Chairmen: *German de Melo (Spain), Grzegorz Rutkowski (Poland)*
- Maritime Accident Information – Entrants' Evaluation of Dissemination Forms
Olaf Kocur (Poland), Kinga Żochowska (Poland)
- Risk Assessment While Maneuvering a Loaded Bulk Carrier in Close Proximity to a Vessel Performing Underwater Work
Grzegorz Rutkowski (Poland), Angelika Bożek (Poland)
- Increased Emergency Preparedness in Coastal Aquaculture
Katarzyna Mielniczek (Poland), Grzegorz Rutkowski (Poland), Jakub Szymon Ratajczak (Poland), Mikołaj Mirosław Wieczorek (Poland)
- 1145 - 1200 Coffee Break – Room 114 & Outside Terrace

Session F3 – Land Navigation

- 1045 – 1145 **Place:** Gdynia Maritime University, Faculty of Navigation, Room 121 (Faculty Board)
Chairmen: *Arnaud Serry (France)*, *Tomasz Praczyk (Poland)*
- The Hexapod Modernization Process and Its Impact on the Locomotion Efficiency of the Unit
Natalia Popowniak (Poland)
- Small Island Public Transport Service Levels: Operational Model for Estonia
Tõnis Hunt (Estonia), *Ulla Tapaninen (Finland)*, *Riina Palu (Estonia)*, *Andres Laasma (Estonia)*
- Best Possibilities of Using Innovative Drive Systems for Various Types of Electric Vehicles for Seaports, Container and Logistics Terminals
Krzysztof Bielawski (Poland), *Mirosław Chmieliński (Poland)*, *Oskar Kreft (Poland)*, *Gerard Wiśniewski (Poland)*
- 1145 - 1200 Coffee Break – Room 114 & Outside Terrace

PARALLEL SPECIALIST SESSIONS

Session B4 – Safety at Sea, Part 2

- 1200 - 1330 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Srdan Žuškin (Croatia)*, *Paweł Zalewski (Poland)*
- Multi-ship Encounter Situation Analysis with the Integration of Elliptical Ship Domains and Velocity Obstacles
Zhaoxi Cheng (China), *Pengfei Chen (China)*, *Junmin Mou (China)*, *Linying Chen (China)*
- Bridge Ergonomic Design: A Review
Michał Stopa (Poland), *Rafał Szlapczyński (Poland)*
- Amplitude Spectrum of Dynamic Oscillations of Compass Errors
Krzysztof Jaskólski (Poland), *Andrzej Felski (Poland)*
- Modelling Ship Officer Performance Variability Using Functional Resonance Analysis Method and Dynamic Bayesian Network
I Gde Manik Sukanegara Adhita (Indonesia), *Masaki Fuchi (Japan)*, *Shoji Fujimoto (Japan)*, *Tsukasa Konishi (Japan)*
- Design of Software for Underwater Vehicles Operating in a Swarm
Tomasz Praczyk (Poland), *Krzysztof Naus (Poland)*
- 1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Session C4 – Maritime Education and Training (MET), Part 2

- 1200 - 1330 **Place:** Gdynia Maritime University, Faculty of Navigation, Lecture Hall (Aula)
Chairmen: *Ulla Tapaninen (Finland)*, *Karol Korcz (Poland)*
- Maritime Students’ Use and Perspectives of Cloud-Based Desktop Simulators: CSCL and Implications for Educational Design
William Gyldensten (Norway), *Astrid Camilla Wiig (Norway)*, *Charlott Sellberg (Sweden)*
- Development of Maritime VR Training Applications and Their Use in Simulation Networks: Fast Rescue Boat Training in EMSN Connect
Arbresh Ujkani (Germany), *Ashwarya Kumar (Germany)*, *Robert Grundmann (Germany)*

A Multiple Case Study of METI Cybersecurity Education and Training: A Basis for the Development of a Guiding Framework for Educational Approaches
Jeric Bacasdoon (Philippines), John Bolmsten (Sweden)

Stakeholders of Maritime Apprenticeships in Terms of Quality of Education
Katarzyna Muszyńska (Poland), Henryk Śniegocki (Poland)

Modern Cadet Training, The Challenge Between the Various Training Systems and New Demands Set by the Industry
Kamil Formela (Poland), Rino Bosnjak (Croatia), Volker Pusch (Germany)

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Session D4 – Miscellaneous, Part 2

1200 - 1330 **Place:** Gdynia Maritime University, Faculty of Navigation, Room No 110
Chairmen: *Gisela Müller-Plath (Germany), Aleksandra Wilczyńska (Poland)*

Conceptual Nautical Dimensions for Paraguay River Waterway Amelioration Works in Critical Stretches (Brazil)
João Pedro Sanchez (Brazil), Paolo Alfredini (Brazil)

Analysis of Traffic and Navigation Conditions on Nowy Świat Canal
Marta Schoeneich (Poland), Joanna Soszyńska-Budny (Poland), Aleksander Cisek (Poland)

Potential Reduction of Dredging Volumes in the Access Channel to the Port of Santos through the Use of Jetties
Lucas Martins Pion (Brazil), Jose Carlos de Melo Bernardino (Brazil)

How Method for Determining Location of LNG-FSRU Terminal
Piotr Mrozowski (Poland)

Reliability Evaluation of Electrochemical Energy Storage Systems Supplying the Ship's Main Propulsion System
Piotr Szewczyk (Poland), Andrzej Łebkowski (Poland)

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Bilateral Discussions

1200 - 1330 **Place:** Gdynia Maritime University, Faculty of Navigation, Room P105

The organizers provide a place to conduct bilateral discussions and meetings of conference participants regarding conducted and future joint research projects

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Panel Session M2 – Meeting of the Waterborne Transport Section of the Committee of Transport, Polish Academy of Sciences (STW KT PAN)

1200 - 1330 **Place:** Gdynia Maritime University, Faculty of Navigation, Room 121 (Faculty Board)
Chairman: *Adam Weintrit (Poland), Wojciech Wawrzyński (Poland)*

This is closed meeting (in Polish). Program distributed to STW KT PAN members.

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

POSTER SESSION

Session P1 - Miscellaneous Problems of Navigation

- 1200 - 1330 **Place:** Gdynia Maritime University, Faculty of Navigation, Lower Hall under Planetarium
Chairmen: *Elena Valionienė (Lithuania), Przemysław Wilczyński (Poland)*
- P1** - Dirac Delta as a Useful Technical Tool in Modelling Signals but Hard to Think About It as a Physical Signal Itself
Andrzej Borys (Poland)
- P2** - Operations of Maritime Autonomous Surface Ships
Andrzej Borys (Poland)
- P3** - Safety Management on Ro-Ro Passenger Ships
Marek Szymoński (Poland)
- P4** - Selected Aspects of Student Education in the Field of Air Transport
Milan Dzunda (Slovakia), Lucia Melníková (Slovakia), Peter Dzurovčin (Slovakia)
- P5** - The Navigation Infrastructure of Airports and New Trends in ATM
Milan Dzunda (Slovakia), Nikola Gedrová (Slovakia), Lucia Melníková (Slovakia)
- P6** - Analysis of the Capacity of Intersections with Fixed-time Signalling Depending on the Duration of the Green Phase for Pedestrians
Monika Ziemska-Osuch (Poland), Dawid Osuch (Poland)
- P7** - Accessibility Management System for Integrated Interchanges
Katarzyna Chrużik (Poland), Iwona Krzyżewska (Poland), Piotr Uchroński (Poland)
- P8** - Degradation Data Self-Analysis Layer for Integrated Maintenance Activities
Janusz Szpytko (Poland), Yorlandys Salgado Duarte (Cuba)
- P9** - Model of the Signal of the Galileo Satellite Navigation System
Milan Dzunda (Slovakia), Sebastián Čikovský (Slovakia), Lucia Melníková (Slovakia)
- P10** - Model of the Random Phase of Signal E6 of the Galileo Satellite Navigation System
Milan Dzunda (Slovakia), Sebastián Čikovský (Slovakia), Lucia Melníková (Slovakia)
- P11** - Prospects for the Implementation of the Oder-Danube International Waterway in the Context of the Latest Political Landscape in the Czech Republic
Jakub Łoginow (Poland), Sławomir Skiba (Poland)
- P12** - Model of Radio-Communications Platform Supporting Inland Navigation
Andrzej Lisaj (Poland)
- P13** - Expert as Interviewer – Methodological Challenges in Use of Qualitative Interviews in Maritime Research
Deepak Raj Sharma (India)
- P14** - Relevance of Philosophical Approach to Values in Social Science to Maritime Research
Deepak Raj Sharma (India)
- P15** - Principles of Obtaining Inspector's Qualifications in a Classification Society
Michał Dampc (Poland), Henryk Śniegocki (Poland)

1330 - 1445 **Lunch** at the “Róża Wiatrów” Restaurant

Session B5 – Marine Simulators

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Michele Martelli (Italy), Maciej Gucma (Poland)*
- Low-Fidelity Radar Implementation for Real-Time Ship Maneuvering Simulator with Unity3D
Bruno Leite (Brazil), Mauro Pereira Jr. (Brazil), Edgar Szilagyi (Brazil), Eduardo Tannuri (Brazil)
- Simulation Environment in Python for Ship Encounter Situations
Lukasz Stolzmann (Poland), Joanna Szlapczyńska (Poland)
- Playing to Learn? Competition and Playfulness in Maritime Simulation
Mari Starup (Norway), Charlott Sellberg (Sweden), Astrid Camilla Wiig (Norway)
- How Does Maritime Situation Awareness Depend on Navigation Automation and Mental Workload? A Sea Simulator Experiment
Gisela Müller-Plath (Germany), Johannes Lehleitner (Germany), Julian Maier (Germany), Jannes Silva-Löbbling (Germany), Hao Zhang (China), XiaoXiao Zhang (China), Shiqing Zhou (China)
- Seeking the Best Practices of Assessment in Maritime Simulator Training*
Hasan Mahbub Tusher (Norway), Salman Nazir (Norway), Samrat Ghosh (Australia), Risza Rusli (Malaysia)
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session C5 – Operational Problems of Ports and Harbours

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Lecture Hall (Aula)
Chairmen: *Stefano Ricci (Italy), Andrzej Grzelakowski (Poland)*
- Environmentally Friendly Cruise Seaports in Northern Europe – Onshore Power Supply
Joanna Kizielewicz (Poland)
- Polish Container Ports, New Baltic Hubs?
Arnauld Serry (France)
- Super Seven “S” Trends (SSST) that Shape the Future of Philippine Global Ports
Angelica Baylon (Philippines)
- Displacement Measurement System for Small-Scale Vessels Berthed in Physical Models of Port Terminals
Roberto de Oliveira Bezerra (Brazil), Jose Carlos de Melo Bernardino (Brazil), Rafael Esferra (Brazil)
- Application of Innovative Structural Strengthening Elements in the Form of Carbon Fibers in the Repair of Marine Hydrotechnical Structures on the Example of the Implementation of the Strengthening of the Coal Pier in the Northern Port of Gdansk
Aleksandra Wawrzyńska (Poland), Tomasz Mioduszewski (Poland)
- 1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session D5 – Marine Environment

- 1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Room No. 110
Chairmen: *Mate Barić (Croatia), Marzenna Popek (Poland)*

Potential Use of Mangroves as Nature-Based Solutions to Improve Navigation Conditions in a Port in Southern Brazil

Leonardo Sanches Previti (Brazil), Paolo Alfredini (Brazil)

Waves, Currents and Seabed Level Change in the Port of Gdynia During Extreme Events

Patryk Sapięga (Poland), Tamara Zalewska (Poland), Agnieszka Wochna (Poland)

Increased Emergency Preparedness in Coastal Aquaculture

Cecilie Salomonsen (Norway), Ørjan Selvik (Norway), Tor Einar Berg (Norway), Trine Thorvaldsen (Norway)

Aggregating Sea Surface Hydrodynamic Forecasts From Multi-Models for European Seas

Vilnis Frishfelds (Latvia), Jun She (Denmark), Jens Murawski (Denmark), Jacob Woge Nielsen (Denmark)

Evaluation of Consumers' Awareness of the Impact of UV Filters on Marine Ecosystems

Aleksandra Wilczyńska (Poland), Monika Engler-Jastrzębska (Poland)

1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session E5 – Case Studies

1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Room P105

Chairmen: *Pentti Kujala (Finland), Jan Kelner (Poland)*

Shipping Related Activities and Their Environmental Impact – Lessons Learnt from the Estonian Case Study

Mari-Liis Tombak (Estonia), Ulla Tapaninen (Finland),

Open-loop Scrubbers and Restricted Waterways: A Case Study Investigation of Travemünde Port and Increased Sulphur Emissions Immediately After the Scrubbers are Turned Off

Elias Altarriba (Finland), Sirpa Rahiala (Finland), Taru Tanhuanpää (Finland)

Digital Transformation in Ferry Shipping – Case Study in the Baltic Sea Region

Dominika Kaczerska (Poland), Joanna Kizielewicz (Poland), Katarzyna Skrzyszewska (Poland)

Proposal of New Criteria Model on the Classification of Ports Open to Public Transport of the County Importance: Case Study – Zadar County

Ana Gundić (Croatia), Dino Zupanović (Croatia), Mate Barić (Croatia), Ljiljana Peričin (Croatia)

Sustainable Mobility Planning – Gdynia Maritime University Case Study

Agnieszka Kaszuba (Poland), Adam Przybyłowski (Poland), Klaudia Kościk (Poland), Andrzej Lachowicz (Poland), Michał Kuzia (Poland)

1615 - 1630 Coffee Break – Main Hall, Lower Hall, Room P105 & Outside Terrace

Panel Session M3 – Annual General Meeting of the Poland Branch of The Nautical Institute

1445 - 1615 **Place:** Gdynia Maritime University, Faculty of Navigation, Room 121 (Faculty Board)

Chairmen: *André L. LeGoubin (United States), Adam Weintrit (Poland)*

This is an open meeting. Program distributed to members of the Poland Branch of the Nautical Institute.

1615 - 1630 Coffee Break – Room 114 & Outside Terrace

Session B6 – Artificial Intelligence (AI)

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Seojeong Lee* (South Korea), *Dariusz Barbucha* (Poland)
- Modern Method Based on Artificial Intelligence for Safe Control in the Marine Environment
Mostefa Mohamed-Seghir (Poland)
- Optimization of Daily Operations in the Marine Industry Using Ant Colony Optimization (ACO)-An Artificial Intelligence (AI) Approach
Abdullah Sardar (Australia), *Mohan Anantharaman* (Australia), *Vikram Garaniya* (Australia), *Faisal Khan* (Canada)
- VerifAI: Framework for Functional Verification of AI-based Systems in the Maritime Domain
Thomas Stach (Germany), *Paul Koch* (Germany), *Manfred Constapel* (Germany), *Martin Portier* (Germany), *Helmut Schmid* (Germany)

1730 - 2000 Free Time

Session C6 – Critical Elements of Maritime Transport

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Lecture Hall (Aula)
Chairmen: *Nenad Sikirica* (Croatia), *Tomasz Neumann* (Poland)
- An Approach to the Analysis of Critical Elements of Transport and Logistics Networks Using Graph Theory
Adriana Strzelczyk (Poland), *Sambor Guze* (Poland))
- Cyber Threats for Present and Future Commercial Shipping
Jan Pawelski (Poland)
- State-Sponsored and Organized Crime Threats to Maritime Transportation Systems in the Context of the Attack on Ukraine
Rafał Cichocki (Poland)

1730 - 2000 Free Time

Session D6 – Emergency, Distress and Life Saving

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Room No. 110
Chairmen: *Anatoli Alop* (Estonia), *Krzysztof Czaplewski* (Poland)
- Key Points of the Modernized GMDSS System
Karol Korcz (Poland)
- Investigating Abandonment Errors in Cruise/Passenger Ships: Researching the Reasons Leading to Life-Losses During an Evacuation
Antonios Andreadakis (Greece), *Dimitrios Dalaklis* (Greece), *Nikitas Nikitakos* (Greece)
- Numerical Prediction of Pneumatic Life Raft Performance
Edyta Książkiewicz (Poland), *Jacek Jachowski* (Poland)

1730 - 2000 Free Time

Session E6 – Drones

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Room P105
Chairmen: *Špiro Ivošević (Montenegro), Andrzej Łebkowski (Poland)*
- Comparative Analysis of Unmanned Aerial Vehicles Used in Photogrammetric Surveys
Mariusz Specht (Poland), Szymon Widźgowski (Poland), Andrzej Stateczny (Poland), Cezary Specht (Poland), Oktawia Lewicka (Poland)
- Shoreline Extraction Based on LiDAR Data Obtained Using an USV
Armin Halicki (Poland), Mariusz Specht (Poland), Andrzej Stateczny (Poland), Cezary Specht (Poland), Oktawia Lewicka (Poland)
- Anti-drone Sensors, Effectors, and Systems – A Concise Overview
 Detection & Classification in Sentinel-1 SAR Images
Dariusz Zmysłowski (Poland), Paweł Skokowski (Poland), Jan Kelner (Poland)

1730 - 2000 Free Time

Session F6 – Container Transport

- 1630 - 1730 **Place:** Gdynia Maritime University, Faculty of Navigation, Room 121 (Faculty Board)
Chairmen: *Thomas Pawlik (Germany), Przemysław Dziula (Poland)*
- Modernisation of Container Ship Fleets: State of Play and Consequences for the Baltic Sea
Ronan Kerbiriou (France)
- Fire Management on Container Ships: New Strategies and Technologies
Stefano Ricci (Italy), Bala Shyam Sasi Kumar Ravikumar (India), Luca Rizzetto (Italy)
- Global Maritime Container Transport Market Under The Covid-19 Crises; Its Evolvment, Integration And Regulatory Challenges
Andrzej Grzelakowski (Poland)
- 1730 - 2000 Free Time
- 1930 - 2000 Optional for volunteers -Walk along the Seaside Boulevard in Gdynia
 1930 - 2000 Optional for volunteers - Visit in Naval Museum in Gdynia
- 2000 - 2300 **Friends Evening in Vinegre Restaurant** at the Naval Museum in Gdynia
 Gdynia, seaside, on the top of Museum (3rd Floor)
(casual clothes)



Thursday 22nd June 2023

ACCOMPANYING PERSONS' PROGRAMME

0800 - 0900 Registration in the Main Hall of Faculty of Navigation, GMU, Jana Pawła II Ave. 3

Touristic Trip - Sightseeing

0900 - 1700 **Round Trip:** Gdynia – Oliwa – Gdańsk – Sopot – Gdynia
Responsible Person: *Maria Łozińska (Poland)*

0900 Meeting Point – Faculty of Navigation

0930 - 1000 Car/Bas trip from Gdynia to Gdańsk

1000 - 1100 Guided tour to Oliwa Cathedral - the post Cisterian Complex (a short pipe organ concert for music lovers will be held there)

1100 - 1300 Guided walk through the **OLD TOWN IN GDAŃSK**

Explore the **GOLDEN GATE, DŁUGA STREET, DŁUGI TARG, GREEN GATE and the MOTŁAWA QUAYSIDE.**

Immerse yourself in the thousand year-old GDAŃSK - its history, architecture and atmosphere.

GDAŃSK is a Hanseatic city that is a city belonging to the Hanseatic League - a Medieval League of towns in northern Germany and adjacent countries for the promotion and protection of commerce.

Museum of Amber in Gdańsk deserves the title of the World Capital of Amber. Jewellery and utensils of amber have been produced here for centuries. The Museum of Amber displays natural lumps of the resin and its inclusions, as well as finished products, e.g. jewellery, cutlery and chests. You will learn how amber is formed, how it is extracted, what its properties are, and how it has been worked over the ages.

Take a walk along *the Długa Street* and all the other streets that run parallel to it as well as *the Długie Pobrzeże* quayside. A stroll along *the Długa Street* is something not to be missed: *the Upland Gate (Brama Wyżynna)*. *Długa Street* is the main road of the town where you will admire beautifully renovated 16th-17th century houses, one of them being *Uphagen's House*. It houses *the Museum of History of Gdańsk*.

All these magnificent buildings are in the vicinity of *the Main Hall*. Step in and you will find yourself for a treat-the magnificent interior which was renovated not so long ago.

Nearby, on *the Market Square* you will find the *symbol of Gdańsk the Neptune's Fountain* just behind is the *beautiful Court of Artus, the New House of the Court* and the amazing *Golden House* with *'the Lady in the Window'*.

Last not least is *the Długi Targ*, at the end of it you will see *the Green Gate*, with the picturesque quayside stretching beyond it and *the Granary Island* facing the quayside. *National Maritime Museum* is situated on the quayside of *the Ołowianka Island*.

1300 - 1400 Lunch in Restaurant in Gdańsk

1400 - 1600 Visit in Sopot (optional)

1630 - 1700 Return to hotels
(In case of bad weather alternative attractions will be proposed)

1930 - 2000 Optional for volunteers -Walk along the Seaside Boulevard in Gdynia
 1930 - 2000 Optional for volunteers - Visit in Naval Museum in Gdynia

2000 - 2300 **Friends Evening in Vinegre Restaurant** at the Naval Museum in Gdynia
 Gdynia, seaside, on the top of Museum (3rd Floor)
(casual clothes)



“Vinegre” Restaurant

One of the most attractive venues opened in Gdynia. Located on the top floor of the Naval Museum, enter via the museum entrance even if it looks closed during the evening and take the lift up to the third floor where the doors open onto some of the best views of the bay available in the city. This is an extremely attractive modern space with a large terrace, but despite its size it still feels like a perfect spot for an intimate dinner. The menu is heavily influenced by the Mediterranean region and you'll find a mouth-watering menu of tapas, salads, pastas, seafood and meat dishes. Professional and friendly service add extra points and this looks set to become one of our favourite places for entertaining visiting guests.



Friday 23rd June 2023

0900 - 1000 Registration in the Main Hall of Faculty of Navigation, GMU, Jana Pawła II Ave. 3

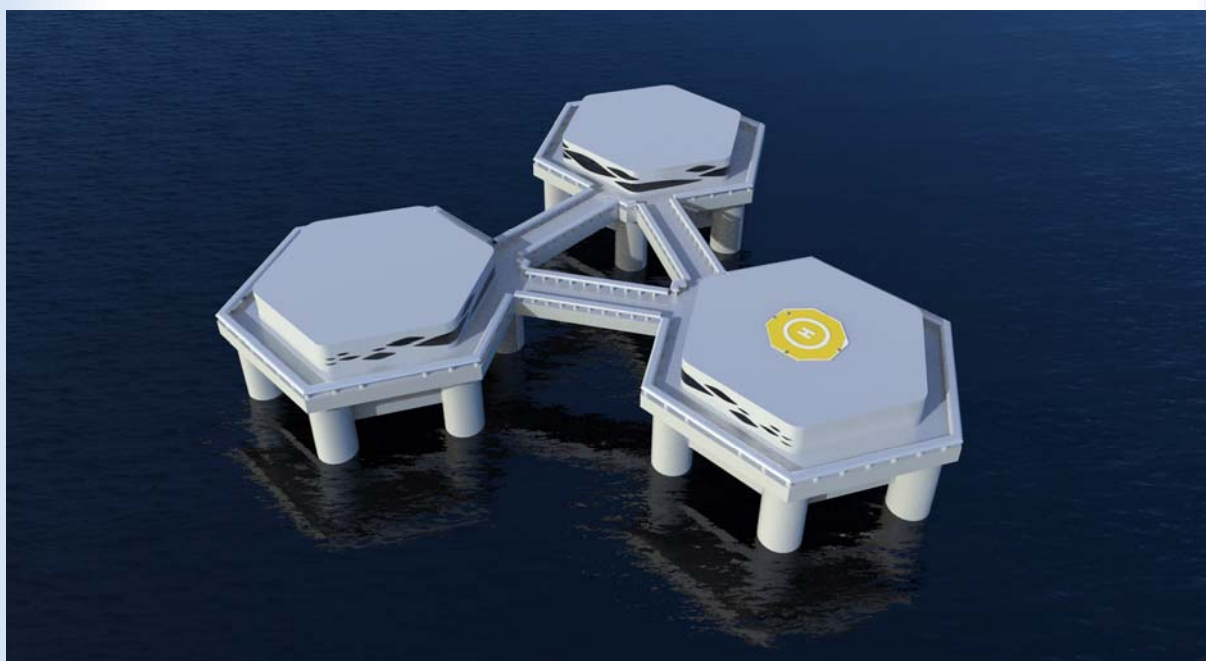
PLENARY SESSION

Plenary Session A4 – Baltic Center for Monitoring and Research of the Marine Environment (in Polish)

Sesja Plenarna A4 – Bałtyckie Centrum Monitoringu i Badań Środowiska Morskiego

1000 - 1200 **Place:** Gdynia Maritime University, Faculty of Navigation, Auditorium Maximum
Chairmen: *Zbigniew Burciu (Poland), Dorota Pyć Poland)*

This is a close meeting. Program distributed to invited guests by prof. Z. Burciu.



*Baltic Center for Monitoring and Research of the Marine Environment
– project announced by Gdynia Maritime University*

Friday 23th June 2023

0900 - 1900	Technical Guided Tour to to Malbork - the monumental Gothic castle built by the Order of Teutronics in XIV and XV century, included in the UNESCO World Heritage List
0900	Departure by bus from The Faculty of Navigation
1100	Arrival in Malbork
1100 - 1300	Castle tour and coffee break Guided tour to Malbork - the monumental Gothic castle built by the Order of Teutronics in XIV and XV century, included in the UNESCO World Heritage List Guided Sightseeing of Malbork Castle Coffee and Refreshment Break
1300	Departure from Malbork to Gniew
1400 - 1600	Show of medieval knights' fights at Gniew Teutonic Castle

Plenary Session K1 – Closing Ceremony

1600 - 1630	Place: Restaurant at Gniew Castle Chairmen: <i>Adam Weintrit, Tomasz Neumann</i>
1600 - 1630	Closing Speech <i>Adam Weintrit, Chairman of the Conference</i> <i>Best Paper Award</i> `` <i>Best Presentation Award</i> <i>Best Poster Award</i>
1630	Departure from Gniew to Gdynia
1830 -1900	Arrival at the hotels*

* possible exit in Gdańsk or Sopot for night sightseeing

Malbork Castle is the largest castle in the world built with 12-15 million bricks it is even bigger than Windsor Castle. Malbork Castle is listed on UNESCO World Heritage Site and is visited by over 500,000 tourists each year. It is home to a museum with 40 thousand items including one of Europe's largest collection of medieval architectural elements, a collection of artistic amber wares – unique all over the world, an impressive set of old weapons and military equipment, or the extensive coin collection, relating to the historic mints in Malbork.

The Castle of the Teutonic Order in Malbork (Polish: Zamek w Malborku; German: Ordensburg Marienburg) is a 13th-century Teutonic castle and fortress located near the town of Malbork, Poland. It is the largest castle in the world measured by land area and a UNESCO World Heritage Site.



It was originally constructed by the Teutonic Knights, a German Catholic religious order of crusaders, in a form of an Ordensburg fortress. The Order named it Marienburg in honour of Mary, mother of Jesus. In 1457, during the Thirteen Years' War, it was sold by Bohemian mercenaries to King Casimir IV of Poland in lieu of indemnities and it then served as one of several Polish royal residences and the seat of Polish offices and institutions, interrupted by several years of Swedish occupation, fulfilling this function until the First Partition of Poland in 1772. From then on the castle was under German rule for over 170 years until 1945, albeit largely falling into disrepair as military technological advances rendered the castle a mere historical point of interest. The construction period is a point of debate, however, most historians generally accept the 132 years between 1274 and 1406 as the construction time.



The castle is a classic example of a medieval fortress and, on its completion in 1406, was the world's largest brick castle. UNESCO designated the "Castle of the Teutonic Order in Malbork" and the Malbork Castle Museum a World Heritage Site in December 1997. It is one of two World Heritage Sites in the region (north-central Poland), together with the "Medieval Town of Toruń", which was founded in 1231.

Malbork Castle is also one of Poland's official national Historic Monuments (Pomnik historii), as designated on 16 September 1994. Its listing is maintained by the National Heritage Board of Poland.



Gniew Castle is a former castle of the Teutonic Order built after 1290. By the Second Peace of Thorn (1466) it became Polish and was given to Duke Jan de Jani of the Clan of Ostoję, the voivode of Pomerania by the King. It has been expanded and rebuilt several times since. The castle has been restored in the late 20th century.

The Order of Brothers of the German House Saint Mary In Jerusalem took possession on the land of Gniew in 1283. Based on the law of Chelmno in 1297 the city stood next to the Teutonic castle built to the pattern of convent castles. The monumental silhouette along with the church of St. Nicholas is still constitute the characteristic dominant of the southern panorama of Gniew.

The Gniew Castle was the most powerful claim of the Teutonic Order on the left bank of the Vistula. Built at the turn of the 13th and 14th centuries, it was the home of the Knights commanders, and in the times of Poland, when the town belonged to Poland, it was a mayor's seat. The castle was rebuilt in several times (granary, prison) and eventually burned in the Great Fire in 1921.

In the years 1968-1974, the first stage of the reconstruction of the castle was made, completed by laying the ceiling over the top storey, roofing the building and covering the roof with ceramic tiles. Under the public works in 1992, the Council of the Town and Commune of Gniew began the second stage of renovation including the construction of the ceiling in the west and east wings, adaptation of the interior and reconstruction of the chapel as well as adaptation of the Castle Hill to serve tourism purposes. Currently the Gniew castle is owned by the corporation of castles 'Zamek Gniew'.



Statement of Scientific Committee

Qualified and approved papers not included in the Conference Programme for various reasons, which will not be presented at the Conference, but will be published in the TransNav Journal:

Assessing the Effects of a War on a Container Terminal: Lessons from Al Hudaydah, Yemen

François Guiziou (France)

Graphical Tools to Facilitate the Selection of Manoeuvres to Avoid Collision

Leonid Vagushchenko (Ukraine), Alexandr Vagushchenko (Ukraine)

Construction and Analysis of New Mathematical Models of the Operation of Ship Propellers in Different Maneuvering Modes

Oleksandr Kryvyi (Ukraine), Mykhaylo Miyusov (Ukraine), Mark Kryvyi (Ukraine)

Analysis of Known and Construction of New Mathematical Models of Forces on a Ship's Rudder in an Unbounded Flow

Oleksandr Kryvyi (Ukraine), Mykhaylo Miyusov (Ukraine), Mark Kryvyi (Ukraine)

Psychological Internalization of Marine Self-Concept During Studies and on Board (108)

Saulius Lileikis (Lithuania)

Simulation Study on the Influence of Tugboats Capacity on the Safety of Simultaneous Emergency Unberthing

I Putu Sindhu Asmara (Indonesia), Abdullah Kharis (Indonesia), Muhammad Anis Mustaghfirin (Indonesia), Cahya Ardie Firmansyah (Indonesia)

Determination Of The Loading On The Open Wagon Body When Rolling On The Train Ferry

Juraj Gerlici (Slovakia), Glib Vatulia (Ukraine), Alyona Lovska (Ukraine), Oleksandr Kravchenko (Ukraine), Josef Harušinec (Slovakia), Andrej Suchánek (Slovakia)

Investigation Into the Dynamic Load of the Container with Sandwich Panel Walls when Transported by Train Ferry

Glib Vatulia (Ukraine), Juraj Gerlici (Slovakia), Alyona Lovska (Ukraine), Yevhen Krasnokutskyi (Ukraine), Josef Harušinec (Slovakia), Pavol Stastniak (Slovakia)

Revisiting Unsinkable Ships: From Titanic to Helge Ingstad, the Long-Standing Issues and Persistent Risks of Ship Disasters

Kaare Johansen (Norway), Ove Tobias Gudmestad (Norway)

Antifouling and Anticorrosive Protection of Renewable Energy Marine Structures with TiO₂-Based Enamel

David Salvador Sanz (Spain), Sergio García (Spain), Laura Trueba-Castañeda (Spain), David Boullosa-Falces (Spain), Alfredo Trueba (Spain)

Environmental Risk Assessment in the Background of Armed Conflict in the Black Sea Area. A Case Study for a Container Terminal in the Port of Constanța

Nicolae-Ovidiu Stefanov (Romania), Livia Rauca (Romania)

Cybersecurity of the Processes of Manoeuvring in Confined Waters

Ihor Surinov (Ukraine), Dmytro Shumilov (Ukraine)

Diagnostics and Troubleshooting of Ships Digital Electronics Systems

Sergey Mikhailov (Ukraine), Aleksandr Veretennik (Ukraine), Igor Kulyeshov (Ukraine)

Socioeconomic Factors and Navigational Safety among Marine Pilots in Lagos Ports

Saheed Babatunde Lawal-Fagbo (Nigeria), Adeniyi Olufemi Oluwakoya (Nigeria), Adeyinka Ajayi-Peters (Nigeria)

Numerical Prediction of Ship's Self-Propulsion Parameter by Using CFD Method

Nguyen Thi Ngoc Hoa (Vietnam)

Discrete Laws of Capacitor Control of Asynchronous Generator Voltage

Leonid Vyshnevskyi (Ukraine), Mykola Mukha (Ukraine), Dmytro Vyshnevskyi (Ukraine), Alla Drankova (Ukraine)

Development of a Supplemental Learning Material in Mathematics for Seamanship (Trim and Stability)

C.K.S. Gabasa (Philippines), T.S. Melliza (Philippines)

A Study of Efficiency Regarding Port Operations on a Passenger Ferry

Erik **Klovning** (Norway)

AIS R-Mode Trilateration for GPS Positioning and Timing Insurance

Aleksandr **Shishkin** (Ukraine), Victor **Konovets** (Ukraine), Vitaliy **Koshevyy** (Ukraine)

Cyber Risk Assessment for SHips (CRASH)

Aybars **Oruc** (Norway), Georgios **Kavallieratos** (Norway), Vasileios **Gkioulos** (Norway), Sokratis **Katsikas** (Norway)

Comparative Assessment of Magnesium, Copper, and Zinc Addition to Aluminium Waste Casting for Improving Ship Material Behaviour

Kiryanto **Kiryanto** (Indonesia), Tuswan **Tuswan** (Indonesia), Samuel **Samuel** (Indonesia), Ahmad **Firdhaus** (Indonesia), Dio **Ergana** (Indonesia), Theo Nadiyas **Juneva** (Indonesia), Lazuardi Virman **Firdaus** (Indonesia)

Analysis of Inhibiting Factors in Shipyards in Classterizing Shipyards on the Northen Coastal of ACEH Indonesia Using the Fuzzy AHP Method: A Preliminary Study

Thaib **Rizwan** (Indonesia), Makwiyah A. **Chaliluddin** (Indonesia), Hayatun **Nuvus** (Indonesia), Muhammad **Arif** (Indonesia), Yusrizal **Muchlis** (Indonesia), A. **Akhyar** (Indonesia)

External Maritime Policy of the EU: A Unilateral Initiative of Greece in the IMO

Dimitrios **Grekos** (Greece)

Corrosion Waste Impact to Ship Girder Strength Through Life Cycle

Yordan **Denev** (Bulgaria)

Bilge and Oily Water Treatment During Operation of Vessel

Oleksiy **Malakhov** (Ukraine), Oleksand **Palagin** (Ukraine), Andrii **Naydyonov** (Ukraine), Konstantin **Lykhoglyad** (Ukraine), Andrii **Bondarenko** (Ukraine)

Optimization of Port of "Novi Sad" for the Acceptance of River-Sea Vessels

Svetislav **Šoškić** (Serbia), Milan **Kresojevic** (Serbia), Nikola **Slavkovic** (Serbia), Bajrami **Serif** (Serbia)

Use of Simulations to Predict Lifeboat Survivability in Extreme Waves and the Effectiveness of Coxswain Performed Actions

Randy **Billard** (Canada), Robert **Rees** (Canada), Brian **Veitch** (Canada), Antonio **Simoës Re** (Canada)

Analysis and Optimisation of Best Practice for Proper Lookout at Night

Abdul **Khalique** (United Kingdom), Alan **Bury** (United Kingdom), S. **Loughney** (United Kingdom)

The Use of Hybrid Learning in Improving Academic Achievement

Darul **Prayogo** (Indonesia), K.A. **Indriyani** (Indonesia), D. **Tiocvana** (Indonesia), W.P. **Anggraini** (Indonesia), D.Y. **Aryani** (Indonesia), I. **Saraswati** (Indonesia), A. **Maharanin** (Indonesia), M. **Masrurroh** (Indonesia)

CERP: A Maritime Cyber Risk Decision Making Tool

Erlend **Erstad** (Norway), Rory **Hopcraft** (United Kingdom), Juan Dorje **Palbar** (United Kingdom), Kimberly **Tam** (United Kingdom)



Main Areas of the TransNav Conference Interests:

- Nautical Science; Marine Navigation; Current Practical Applications, Developments and Deployments of Positioning, Navigation and Timing (PNT) Systems
- Safety and Security of Maritime Shipping; Safety at Sea; Role and Importance of Safety in Maritime Transportation; Global Cooperative Interoperability
- Sea Transport and Transportation Technology; Technological Advances in Maritime Transportation; Advanced Application and Future Developments
- Growing Sustainability Challenges in the World's Oceans; Ocean Research and Governance; Technology Development in Maritime and Ocean Engineering
- Safety and Environment Protection at Sea; Health, Safety and Environment Protection Policy; Ocean Sustainability, Governance and Management; Green Production
- Global Shipping Industry; Recent Trends and Future Perspectives for Maritime Shipping; Emerging Technologies; Civil Protection and Disaster Management
- Geodetic, Hydrographic and Navigational Support of Human Activity at Sea; Human Impacts on the Ocean; Safety of Life at Sea; Human Element in Shipping
- Essential Geodesic based Trajectories in Navigation: Loxodrome (Rhumb Line), Orthodrome (Great Circle), Great Ellipse and Geodesic Line; Oblate Spheroid
- Geometry of Navigation; Computational Geometry in Navigation and Path Planning; Surface Navigation; Meridian Convergence; Direct and Inverse Problems
- Geodesy; Geodetic Systems; World Geodetic System WGS-84; Land Surveying; Geodetic Surveying and the Adjustment of Observations; Plane Survey
- Hydrography; Sea Surveying; Hydrographic Service; Hydrographic Survey Methods and Equipment; Sounding; Processing and Sharing of Geospatial Data
- Marine Cartography; Chart Projections; Chart Datum; Coastal and Ocean Mapping; Hydrographic Survey Map; Simultaneous Localization and Mapping (SLAM)
- Geospatial Sciences; Geographic Information Systems (GIS); GIS Technology; Geoinformatics; Geomatics and GIS in Maritime Applications; GIS Software
- Spatial Data Analysis; General Bathymetric Chart of the Oceans (GEBCO); Mobile Mapping Technologies (MMT); Virtual, Artificial and Augmented Reality
- Geovisualization; Animated and Dynamic Cartography; Generalization and Multi-Scale Representation; Marine Data Presentation, Plotting, Charting, Mapping
- Earth Observation; Application of Integrated Interactive Media to Mapping and Visualizing Geographical Information; Global Ocean Observing System (GOOS)
- Spatial Planning of Maritime Areas; Maritime Spatial Planning Directive; Marine Protected Areas (MPA); Earth and Marine Sciences (EMAS); Marine Spatial
- Remote Sensing Applications in Marine Science and Technology; Global Monitoring for Environment and Security (GMES); Monitoring the Oceans from Space
- Earth Information Science; Geophysics; Geodynamics; Geoscience; Environmental Science and Geography; Virtual Geographic Environments (VGE);
- Marine Digital Terrain Model; Marine Digital Elevation Model; Numerical Maps; Marine Geospatial Data; Terrain Models of the Seabed; 3D Mapping
- Electronic Chart Display and Information System (ECDIS); Electronic Chart System (ECS); Electronic Navigational Charts; Chartplotters; Digital Mapping
- Nautical Charts and Publications; Navigational Charts: SNC, ENC, RNC, DNC, 3DNC; Nautical Charts Production; Admiralty Maritime Products and Services
- Inland, Sea-River, River and Pilot Navigation Systems; Inland Shipping; Canals and Inland Waterways; River Information Services (RIS); Inland ECDIS

- Maritime Safety Information; Presentation of Navigation-Related Information; User Interface; Navigational System Receiver; Multi-Functional Display (MFD)
- Phases of Navigation; Routing of Ships and Associated Protected Measures; Ship Reporting; Traffic Separation Schemes (TSS); Waterways Design;
- Route Planning and Route Monitoring; Voyage (Passage) Planning; Ship's Routing; Ocean Routes; Optimization of Navigation Trajectory; Shipping Lane
- Integrated Navigational Systems INS; Integrated Bridge Systems IBS; Integrated PNT Technology; Electronic Navigation; Portable Pilot Unit (PPU)
- Multisensor Integration; NMEA Standards; NMEA Protocol; NMEA Interface; Communication Between Marine Electronics; Radio Communication
- Inertial Navigation; Multi-Sensor Navigation; Indoor Wayfinding; Urban Navigation; Pedestrian Navigation; Personal Navigation; Underground Mine Navigation
- Orienteering; Inertial Systems for Positioning & Orientation; Sensor Based Navigation: Optical Processing, Sensor Fusion, Multiconstellation GNSS
- Remotely Operated Vehicle (ROV); Autonomous Navigation (Car, Boat, UAV, USV, UUV, ASV, AGV); Maritime Drones: Flying, Swimming and Diving
- e-Navigation Concept; Strategy for the Development and Implementation of e-Navigation; Maritime Service Portfolios (MSPs); Data Communication
- Global Satellite Navigation Systems GNSS (GPS, GLONASS, Galileo, BeiDou, QZSS, IRNSS); GNSS Vulnerabilities; Embracing the Multi-GNSS Era
- Satellite Geodesy; Active Geodetic Networks; GNSS Ground Based Augmentation Systems (GBAS); Space Based Augmentation Systems (SBAS); MSAS
- Emerging Application Areas for GNSS; GNSS Interference, Jamming and Spoofing; Cyber Attacks; Next Generation GNSS; GNSS Receiver Development
- GNSS Training, Awareness and Promotion; Multi-GNSS Receivers and Emerging Navigation Satellite Systems; DGNSS, GNSS Hardware Technology; eGNSS
- GNSS Meteorology; Space Weather and Atmospheric Effects on GNSS; GNSS Environmental Sensing; GNSS Earth Observation; Robust GNSS Services
- Integration of Satellite Navigation, Geospatial Information Management and Wireless Communication Systems; Wireless and Optical Communications
- PNT (Positioning, Navigation, and Timing); Time and Navigation; Clocks Technology and Timing Applications; Resilient PNT; Time and Frequency Transfer
- Astronomy; Planetary Science; Astro Navigation; Nautical Almanac; Celestial Navigation: Formulas and Calculations; Planetarium and Space Observatory
- Nautical Equipment, Appliances, Tools, Instruments and Accessories; Marine Converters and Calculators; Instrumentation; Vintage Navigation Tools
- Earth Magnetism; Magnetic Compass; Gyroscope; Mechanical, Fiber Optic and Ring Laser Gyro Compasses; Vintage Marine Compasses; Pelorus; ePelorus
- Radio Frequency Technology; Radio Based Navigational Systems; Radio Navigation; Long-Range Navigation System (LRNS); Enhanced Loran - eLoran
- Deep Space Navigation; Target-Relative Navigation; Radiometric Tracking Technique; Navigating in Deep Space; Deep-Space Positioning System (DPS)
- Determining the Ship's Position; Position Fixing; Accuracy and Precision; Accuracy Standards for Navigation; Application of Kalman Filter to Estimate Position
- Terrestrial Navigation; Pilotage & Dead Reckoning (DR); Navigational Infrastructure; AtoN; Virtual Aids to Navigation; AIS AtoN (Real, Synthetic and Virtual)
- Precise Point Positioning (PPP); Real-Time Kinematic (RTK) Positioning; Location-Based Services (LBS); Positioning Infrastructure; Alternatives to GNSS
- Vision, Lidar, and Inertial Technologies for GNSS-Denied Navigation; Augmented Reality and Navigation; Electronic Position Fixing System (EPFS)

- Real-Time Locating System (RTLS); Ranging and Angulating; Multilateration (MLAT); European Geostationary Navigation Overlay Service (EGNOS)
- Dynamic Carrier Allocation Techniques; Mobile Positioning and Tracking; Localization Techniques; Satellite and Terrestrial Radio Positioning Techniques
- Vision Based Localization; Next Generation 3D Network Localization, Tracking, and Navigation; Mobile Data Management for Location-Based Services
- Automation Aspects in Transport and Navigation; Informatics in Control, Automation and Robotics; Optimization Methods; Wayfinding; Path Finding
- Techniques, Algorithms and Methods in Navigation; Deep Space, Aviation, Marine, Offshore, Underwater, Land, Urban and Inland Water Applications
- Maritime Casualties, Ship Safety, Maritime Risk, Safety Culture; Maritime Safety Culture in Digitalization; Design for Safety; Eye Tracking Glasses
- Safety of Ships and Port Operations; Facilities & Cargo Handling; Marine Cranes; Port Management; Warehouses & Cargo Storage; Ship-to-Ship Cargo Transfer
- Status and Role of Sea Ports in Transport Corridors; Marinas, Ports and Harbours Development; Seafront Wharf Structures; Green Port and Shipping
- Cargo Work: Loading, Discharging and Stowing Cargo; Stowage Plan; Cargo Surveying; Draught Survey; Carriage of Cargoes; Transport of Commodities
- Commodity Science; Dangerous and Hazardous Goods; IMDG Code; Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- Containerization; Container Shipping, Vessels and Terminals; TEU & FEU; Container Tracking; Safe Transport of Containers by Sea; Container Lashing
- Liquefied Natural Gas (LNG): Fuel, Stock, Market, Storage, Process, Transport, Vessels, Terminals, Containers, Stations, Companies, Stakeholders, Procedures
- Hydrotechnics; Hydrotechnical Infrastructure; Hydrotechnical Structures and Constructions: Power Plants, Waterways, Bridges, Locks, Dams, Turbine Houses
- Inland, Ocean, Marine, Coast and Offshore Infrastructure and Engineering; Analysis and Design of Deepwater and Coastal Structures, Civil Engineering
- Marine Industry; Ocean, Coast, Offshore and Ship Technology; Offshore Surveying; Offshore Support Vessels (OSV); Ocean, Offshore and Arctic Engineering
- Offshore Energy, Gas & Oil; Renewable Ocean Energy; Green Energy Logistics; Wind Turbines; Ocean Wave Energy Resource; Smart Energy Systems
- Automation, Robotics, Underwater Technology and Offshore Constructions; Fundamentals of Marine and Offshore Systems Design and Construction
- Innovations and New Marine Technology, Vehicles, Constructions, Structures, Facilities, Equipment and Related Matters; Wing in Ground (WIG) Crafts; Hydrocrafts
- Maritime Traffic Engineering; Traffic Analysis; Traffic Control System; Multilane Traffic Flow; Traffic Flow Theory and Simulation; Marine Traffic Data
- Organization and Management of Vessel Traffic; Piloting; Vessel Navigation and Traffic Services for Safe and Efficient Ports and Waterways
- Systems of Control, Guidance and Monitoring of Traffic; Vessel Traffic Service VTS, VTMS, VTMS; Monitoring, Control and Surveillance (MCS)
- Ship Manoeuvring in Shallow and Confined Water; Ship to Ship Interaction; Ship Squat; Bank Effect; Side-Wall Effects; Under Keel Clearance; Ship Grounding
- Naval Hydrodynamics and Manoeuvrability of Ships; Ship Behaviour in Shallow and Confined Water; Manoeuvring in Waves, Wind, Current and Swell
- Modelling of the Ship Dynamics; Numerical Simulation of Ship Motion; Steering of the Ship Motion; Steering Control Systems; Autopilot Systems
- Ship Stability and Buoyancy; Analysis of Stability; Ship Stability, Dynamics and Safety; Floodability, Insubmersibility, Unsinkability of a Ship; Trim & Strength

- Ship Motion; Degrees of Freedom; Numerical Modelling of Propulsion, Control and Ship Motions in 6 Degrees of Freedom; Manoeuvring and Control of Craft
- Ship Stability and Seakeeping; Static and Dynamic Stability Criteria; Ship Displacement; Buoyancy; Floodability; Watertight Compartments; Heeling Moment
- Sea Wave Theory; Ocean Wave Modelling; Computational Fluid Dynamics (CFD); Fluid Mechanics; Vibrations; Ocean Dynamics; Mastery of the Seas
- Hydraulic Phenomena: Flow in Channels, Maritime Flows, Tides and Waves; Sedimentology in Rivers, Estuaries and Coastal Waters; Water Supply Systems
- Global Ocean Ecosystem Dynamics; Coastal Ecosystems; Marine Ecosystem Monitoring; Deep-Sea Exploration; Mining and Exploitation of the Seabed
- Deploying Positioning, Sensor and Navigation Systems in Sectors such as Autonomy, Smart Infrastructure, Medical Care, Disabilities, Indoor Tracking, Agritech
- Water Resources, Hydrology and Hydraulic Engineering; Limnology; Physical, Chemical, Biological, Geological and Technical Oceanology; Ocean Monitoring
- Mechanical Engineering; Machinery Construction & Operation; Ship Propulsion; Pitch Propeller; Main Engine & Auxiliary Machinery; Engine Room Simulator
- Ship Generator and Power Supply; Applied Mechanics and Mechanical Automation; Diagnostics of Marine Engineering; Thermodynamics; Oils and Lubricants
- Fuel Bunkering; Vessel Efficiency & Fuel Management; Energy Monitoring; Energy Efficiency Measures for Marine Shipping; Future Fuel for Marine Industry
- Ship Maintenance and Repair; Anti-Corrosion for Maritime Industries; Smart Coatings for Materials Protection; Marine Paints, Coatings, Adhesives & Sealants
- Health Monitoring of Maritime Structures; Stress & Fatigue Analysis; Structural Dynamics; Forces & Moments Acting on Ships; Advance Materials Research
- Structural Life Extension for Offshore Installations and Marine Vessels Masterclass; Condition Monitoring and Fault Diagnosis; Cathodic Protection
- Submarine Cables and Pipelines; Cable and Pipe Transits for Marine Industries; Laying Undersea Cables and Pipelines; Cables for Offshore Wind Turbines
- Navy; Marine Defense; Warship Technology; Defense, Security & Military News; Military Challenge; Safety of Transport and Disposal for Explosive Ordnance
- Shipbuilding Industry; Shipyards; Ship Repair Yards; Recycling of Ships; Industrial Restructuring; Ship Repair & Conversion; Marine Construction and Welding
- Naval Architecture; Ship Design; Ship Production; Ship Construction: Plate Machining, Assembly of Hull Units and Block Erection; Floating Dry Docks
- Naval Weapon; Naval Warfare; Naval Forces and Military Technology; Undersea Maritime Threats, Swarming Technology and Anti-Submarine Warfare
- Naval Construction and Engineering; Mathematics and Computers in Naval Engineering; Naval Research; Naval Technology; Naval Operations; Convoys
- Tactical Navigation for Military Vehicles; Warship ECDIS (WECDIS) and Tactical Awareness Solutions; ECDIS-Navy; Digital Nautical Charts (DNC)
- Leadership, Management, Command and Control; The Responsibility of Leadership in Command; Leadership and Teamworking Skills; Command of the Ship
- Maritime English; Standard Marine Communication Phrases (SMCP); Communications in Multinational Shipping Industry; International Code of Signals (ICS)
- International Standardization of Navigation Terminology; Glossary of Nautical Terms; Standard Marine Navigational Vocabulary; Maritime Terms & Definitions
- Radiolocation; Ground-based, Ship-borne and Airborne Radars; Automotive Radar; Radar Image Matching; Radar Overlay; Radar Applications; 3D Radars
- Marine Radar; Radar Equipment; FMCW, SAR/RAR, ARPA, EPA, ATA; Radar Theory and Techniques; Radar Transponders; Radar Technology & Navigation

- Rules of the Road; Collision Regulations (Colregs) and Anti-Collision; Preventing Collisions at Sea; Collision Avoidance; Marine Accident Reconstruction
- Ship Domain - A Criterion of Navigational Safety Assessment; Concept and Empirical Model of Ship Domain for Navigation in Restricted Waters; 3D Domain
- Ship Handling and Manoeuvring; Manoeuvring Characteristics and Interaction; Seamanship; Safety, Freedom of Manoeuvre, and Decision-Making Advantage
- Intelligence, Surveillance and Reconnaissance (ISR); Tracking Systems; Mobile Vehicle Tracking and Monitoring; Navigation for Safety-Critical Applications
- Automatic Identification System (AIS); Long Range Identification and Tracking (LRIT); Satellite AIS (SAT-AIS); AIS-Based Initiatives; Maritime ISR
- Electronic Log Book; Voyage Data Recorder (VDR), Simplified-VDR (S-VDR); Black Box; Data Recording; Voyage Reports and Documentation
- Safety, Security and Emergency in Transportation; Cyber Security Vulnerabilities; Risks to Infrastructure and Industries; Maritime Cyber Security; e-Security
- Marine Salvage; Maritime Search and Rescue (SAR); Towing Operations; Search and Rescue Satellite Aided Tracking (SARSAT) System; Escape
- Maritime Tragedies; Disasters at Sea and Their Impact on Shipping Regulation; Survival in Maritime Disasters; Survival Data Analysis; First Aid to Survivors
- Piracy and Armed Robbery; Maritime Terrorism; Refugees and Stowaways; Smuggling; Armed Security on Board; Coast Guards, Border Protection
- Life-Saving Service; Life-Saving Appliances (LSA); Immersion Suits; Shipboard Firefighting; Fire Protection Engineering; Safety Signs; Evacuation Procedures
- Bridge Team Management (BTM); Bridge Resource Management (BRM); Bridge Team Training; Teamwork; Crew Manning; Sea-Based Maritime Careers
- Duties and Liabilities of the Ship's Captain; Master's Responsibility and Authority; Emergency Procedures; Pilot-Master Relationship; Elite Maritime Selection
- Ballast Water Management; Ballast Water Treatment (BWT) Solutions; Water Purification (Filtration, Sedimentation, Distillation, Flocculation and Chlorination)
- Human Factor; Ergonomics; Human Errors and Marine Accidents; Human-Computer Interaction; Human and Machine Relationship; Situation Awareness
- Oil and Chemical Spills; Sea Pollution and Environmental Protection; Protection of Water Resource; Marine Conservation; Water and Wastewater Treatment
- Marine Environmental Science; Marine and Environmental Biology and Zoology; Biodiversity; Chemical Science; Aquatic, Fishery and Marine Biology
- Crew Resource Management; Safe Manning; Stress and Fatigue; Human Resources in Transport; Behavioural Techniques for Seafarers to Reduce Stress at Sea
- Maritime Employment and Competitiveness; Seafarers Work, Family Life; Organizational and Health Behavior at Sea; Maritime Occupational Health Service
- Maritime Psychology; Women Seafarers in Shipping; Gender; Maritime Sociology; Dangerous Diseases & Disorders of Seafarers; Medical Care for Seafarers
- Marine Resource Assessment; Natural Resource Management; Operation in Hostile Environments; Marine Ecology; Marine Debris; Garbage and Waste
- Modelling and Simulation of Marine Systems; Advanced Numerical Algorithms; Mathematical Modelling; Computational Modeling, Simulation and Applied Mathematics
- Full Mission Bridge Simulators; Navigational Simulators; Ship Handling Simulators; Ship Manoeuvring Simulators; Virtual Reality Training Simulators
- Ships Surveys, Audits, Vistitations, Inspections and Certifications; Port State Control (PSC); Flag State Control (FSC); Implementation of IMO Instruments
- Maritime Education and Training (MET); IMO Model Courses Validation; STCW Implementation; Computer-Based Assessments in Seafaring Training

- Frontiers in Educational Methods; Computer Based Training (CBT); e-Learning and Virtual Innovations; Pedagogy and Didactics; Distance Learning; LLL & CE
- Web Technologies for Open Access to Maritime Learning and Education; Smart and Virtual Learning; Digital Education, Innovation & Knowledge Management
- History of Marine Cartography and Historical Cartography; Historical Nautical Charts; Sea Charts; Mappa Mundi; Portolan Charts; Mercator Projection
- History of Navigation; Marine Navigation in Ancient Times; Historical Navigation Instruments & Accessories; Ocean Mythology, Mysteries, Gods & Monsters
- Maritime Civilizations; The History of Maritime Technology; Historic Maritime Vessels; Naval Battles; Wrecks; Maritime Tradition, Customs and Ceremonial
- Marine Archaeology; Underwater Research; Underwater Exploration; Deepwater Archaeology; Historic Shipwrecks; Loss, Salvage and Demolition
- Marine and Coastal Geography; Marine GIS; Ocean Informatics; Data Visualization Technologies in Earth and Marine Sciences; Numerical Weather Prediction
- Tides and Tidal Currents; Tides and Tide Prediction; Ocean Surface Currents; Warm and Cool Surface Flows; Ocean Salinity and the Global Water Cycle
- Nautical Meteorology and Oceanography; Limnology and Aquatic Sciences; Green Navigation; Marine Weather Phenomena; Monsoons; Trade Winds; El Niño
- Weather Routing; Marine Weather Forecast; Ice Patrol; Weather Radar; Heavy Weather; Tropical Cyclones and Impact of Extreme Storms; Ocean Passages for the World
- Ocean Disaster Assessment and Prevention; Emergency Networks for Public Protection and Disaster Relief; Extraordinary, Amazing Ocean Phenomena
- Atmospheric and Oceanic Sciences; Climatology; Climate Change; Global Warming; Coastal Risks and Sea Level Rise; Protection of Global Climate
- GNSS-based Machine Guidance and Control Methods for use in Agriculture, Construction, Surveying and Mining; GNSS Algorithms and Techniques
- Geotechnical Engineering; Geohazards (Volcano Eruptions, Landslides, Floods, Earthquakes, Seismicity, Tsunami Waves); Disaster Prevention and Mitigation
- Polar Research; Safe and Sustainable Traffic in Ice/Winter Conditions; Arctic Navigation; Ice Navigation; Arctic Marine Shipping Assessment (AMSA)
- Integrated Coastal Zone Management (ICZM); Environmental Management; Coastline Marine Service; Dredging; Maritime Spatial Planning (MSP) Platform
- Marine & Coastal Protected Areas; Particularly Sensitive Sea Area (PSSA); Ships Routeing Measures to Protect PSSAs; Greenhouse Gas Emissions in Shipping
- Marine Biotechnology; Biology, Ecology, Behaviour of Marine Animals; Biological, Animal, Human, Cognitive Navigation, and Quantum Technologies
- Fisheries and Aquaculture; Fish Farming; Fishing Industry; Ecosystem Approach to Fisheries and Aquaculture; Fishery Oceanography; Fishing Boats & Supplies
- Cruise Shipping; Passenger Ferries; High Speed Crafts (HSC); Ocean Travel; Passenger Terminals; Crisis Management & Human Behaviour on Passenger Ships
- Nautical Tourism and Yachting; Sailing Vessels; Small and Pleasure Crafts; Marine Leisure Industry; Water-Based Tourism, Sport, Leisure and Recreation
- UNCLOS; Delimitation of Maritime Boundaries; Maritime Zones; Exclusive Economic Zone (EEZ); Territorial Waters; Contiguous Zone; Jurisdiction at Sea
- Advanced Maritime Policy and Governance; Maritime Administration (MARAD); Global Maritime Situational Awareness; Maritime Domain Awareness
- Maritime Law, Insurance and Arbitration; Law at the Sea; International Maritime Conventions, Protocols and Codes (SOLAS, MARPOL, STCW, FAL, etc)
- Communication, Electrical, Electronic and Control Engineering; Technology of Antennas; Microwave Theory and Technique; Optics and Photonics

- Information and Communication Technology; Information Technology and Applications in Maritime Sector; Information Technology Management
- Computer Engineering; Digital System Design; Computer Applications in Maritime Engineering; Design of Maritime Information Systems; Computer Networks
- Computer Science; Information Processing and Engineering; Computer Aspects of Technological Change; Computer Graphics; Computer Animation; Internet
- Security and Information Assurance; Information and Coding Theory; Cryptography and Information Security; Malicious and Unwanted Software; Spyware
- Maritime Clouds; Digital Data Exchange; Secure Cloud Computing and Big Data; Data Integrity; Multi-Sensor and Data Fusion; Data Science; Blockchain
- Multimedia, Network & Communication Technology & Application; Communications Services & Multimedia Applications; Satellite & Space Communications
- Marine Telecommunications; Global Maritime Distress & Safety System (GMDSS); Emergency Position-Indicating Radiobeacon (EPIRB); Connectivity at Sea
- Domain Awareness and Decision Advantage, from the Seabed to Space; Hybrid System of Satellite Communications Technology; Interactivity via Satellite
- Wireless Maritime Services & Mobile Technology; 5G Wireless Networks; Network Management, Privacy & Security; e-Technology; Constraint Solving
- Signal & Image Processing; Data Transmission, Processing and Analysis; Radio Propagation; Multi-function Antennas; Radio Frequency Identification (RFID)
- Expert Systems and Marine Applications in Navigation, Safety at Sea, Shipping and Maritime Transportation; Research and Development in Expert Systems
- Fuzzy Logic; Artificial Intelligence Technologies; Artificial Neural Network ANN; Fuzzy Inference Systems; Fuzzy Inference in Artificial Intelligence; Neuroscience
- Decision Support Systems and Artificial Intelligence Methods in Maritime Transport; Shipping Operation Intelligent Decision Support System; Decision Tree
- Neuroevolution; Artificial Immune System; Reinforcement Learning; Genetic Algorithms; Numerical Optimization; Evolutionary Computation; Neural Networks
- Telematics in Maritime Transportation; State-of-the-Art Telematics Systems; Applications to Automated, Semi-Autonomous, and Full-Autonomous Systems
- Intelligent Transportation System (ITS); Maritime Intelligent Transportation Systems; Global Intelligent Transport Systems Market; Transport System Telematics
- Autonomy in Transport Systems; Modelling of Autonomous Vehicle Operation in Intelligent Transportation Systems; Autonomous Maritime Ecosystem
- Smart Vehicles: Connectivity Technologies and ITS Applications; Location Technologies for Intelligent Transportation Systems; Mobility and Transport
- Maritime Knowledge; Knowledge-Based Intelligent Information and Engineering Systems; Knowledge and Innovation; Innovation and Technology Transfer
- Ships Dynamic Positioning (DP); DP Intelligent Control System; DP Technology; Position Reference Systems; Georeferencing; SIMOPS (Simultaneous Operations)
- Autonomous Vehicles: Modelling, Control Design, and Simulation; Autonomous Navigation Technology; Maritime Autonomous Surface Ships, MASS Operations
- Acoustic Remote Sensing; Hydroacoustics; Sonars; Multibeam Echo Sounders (MBES); Acoustic Doppler Current Profiler (ADCP); Sea-Floor Mapping
- Underwater Acoustic Measurements: Technologies, Methods and Systems; Sound Transmission in Water; Underwater Acoustics Communication (UWAC)
- Maritime Sensors, Technology and Infrastructure in Waterside Security; Waterborne Transportation Infrastructure; Vessel Anchoring, Berthing and Mooring
- Modelling and Numeric Methods in Maritime Industry; Marine Engineering Mathematics; Operational Research (Management Science, Decision Science)

- Marine Applications in Systemics, Cybernetics, Informatics, Electronics, Robotics, Automation and Mechatronics; Autonomous Marine Operations and Systems
- Transport Statistics; Mathematical Methods of Statistics; Probability; Bayesian Statistics, Markov Processes; Stochastic Modelling; Weibull Distribution
- Severity, Probability and Risk of Accidents during Maritime Transport; Maritime Accident Statistics; Marine Accidents, Casualties, Mishaps, Disasters
- Mathematical Model Applications in the Operation of Vessel and Port Machinery; Applied Science in Engineering; Theoretical Physics; MATLAB and Simulink
- Mathematical Fundamentals of Safety and Dependability, Maintainability of Maritime Objects; Safety and Security of Complex Systems; Probabilistic Approach
- Quality, Reliability, Risk, Maintenance and Safety Engineering; Maintenance Scheduling of Distribution System with Optimal Economy and Reliability
- System Availability, Software and Structural Reliability; Improving Safety Critical Systems with a Reliability Validation; Critical Infrastructure Protection
- Maritime Safety, Security and Risk Management; Risk and Safety Analysis, Assessment and Prediction; Quantitative Risk Assessment (QRA); Risk Factors
- Crisis, Emergency, Natural Hazard and Disaster Management; Disaster and Emergency Planning for Preparedness, Response & Recovery; Marine First Aid Kit
- International Safety Management Code (ISM Code); International Ship and Port Facility Security Code (ISPS Code), IMO Instrument Implementation (III Code)
- Reliability and Safety Methods: HAZOP, HAZID, HRA, FMEA, FTA, ETA; Formal Safety Assessment (FSA); Marine Risk Assessment; Hazard Identification
- Quality Management; Quality Assurance; Quality Control; Quality Maritime Training; Quality Maritime Service; Standards Implementation in Maritime Sector
- Transport Systems: Operation, Management, Control and Maintenance; Shipping Management; Transport and Maritime Management; Strategic Management
- Main Maritime Shipping Routes; Transportation Planning and Management; Economic, Legal and Social Aspects; Transport Policy; e-Government
- Management Information System; Fleet Management System; Maritime Fleet Management Information System; Modern Ship Management; Shipping Companies
- Marine Ship Economy; Marine Finance and Insurance; Management and Business Strategy; Customs Duties, Taxes, Freights, Insurance Rates; Blue Economy
- Maritime and International Trade; International Commercial Terms (Incoterms); Foreign Trade; Trade Routes; Entrepreneurship; e-Commerce; e-Marketing
- Impact of Economic Recession on Maritime Transport; Financial Planning; Shipping Financial Management; Financial Modelling; Economic Risk; e-Business
- Sea Freight and Forwarding; Modes of Shipment; Chartering; Charter Party; Bill of Loading; Cargo Claims and Recoveries; Measuring and Weighting Units
- Transportation and Modes of Transport; Intermodal, Multimodal and Combined Transport; Water, Air, Rail and Road Transport; Sustainable Transportation;
- Maritime Transport and Logistics Systems; Maritime Economics and Logistics (MEL); Logistics and Supply Chain Management; Integrated Logistics
- Geography of Transport Systems; Modelling of Transport Systems; Design of Intermodal Transport Networks; Traffic Management and Traffic Flow Theory
- Smart City and Port; Technological, Ecological and Social Challenges; Geo-localities and Cultural Effects; Waterfront Infrastructure; Coastal & Marine Tourism
- Multi-Agent System (MAS); Multi-Agent Control for Maritime Transport Networks; Autonomous Marine Multi-Agent Systems; Modelling and Design of MAS
- Ship Classification Societies; Application and Evaluation Studies; Technological Standards, Certification, Analysis and Control; Marine Technical Innovations

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Nationalities involved in the Conference TransNav 2023



(79)

Nationalities of Scientific Committee members



(76)

Nationalities of authors of submitted papers, moderators, chairmen and presenters



(45)

TransNav 2023 Chair List

Slot 0		
Time	Plenary Session	Name
Wednesday 21st June 2023 0900 - 1000	A0	Adam Weinrit
		André L. LeGoubin

Slot 1		
Time	Plenary Session	Name
Wednesday 21st June 2023 1000 - 1100	A1	Ryszard Wawruch
		Tor Einar Berg

Slot 2		
Time	Specialist Sessions	Name
Wednesday 21st June 2023 1130 - 1300	G1	Inland Shipping
		Teresa Abramowicz-Gerigk
		José Carlos Bernardino
	G2	Gas Emission
		Magdalena Bogalecka
		Paolo Alfredini
	G3	New Trends in Global Shipping
		Jan Pawelski
		Angelica Baylon
	G4	Maritime Transport
		Marek Szymoński
		André L. LeGoubin

Slot 3		
Time	Specialist Sessions	Name
Wednesday 21st June 2023 1445 - 1615	B4	Ship Maneuvering
		Lucjan Gućma
		Michael Baldauf
	C4	Miscellaneous, Part 1
		Jerzy Herdzik
		Mohan Anantharaman
	D4	Maritime Education and Training (MET) – Part 1
		Sambor Guze
		Vladimir Torskiy
	E4	Safety at Sea – Part 1
		Henryk Śniegocki
		Salman Nazir
Time	Expert Panel Session (Meeting in Polish)	Name
Wednesday 21st June 2023 1445 - 1615	M4	Annual General Meeting of the Polish Navigation Forum (PNF)
		Janusz Urłasz
		Adam Weinrit

Slot 4		
Time	Specialist Sessions	Name
Wednesday 21st June 2023 1630 - 1730	B2	Electronic Chart Display and Information System (ECDIS)
		Krzysztof Naus
		Sheng-Long Kao
	C2	Maritime Research
		Andrzej Borys
		Mariana Panaitescu
	D2	Route Planning
		Włodzimierz Filipowicz
		Takahiro Takemoto
	E2	Renewable Energy
		Joanna Soszynska-Budny
		Zvonimir Lušić

Slot 5		
Time	Plenary Session	Name
Thursday 22nd June 2023 0900 - 1030	A2	Maritime Autonomous Surface Ships (MASS)
		Adam Weinrit
		André L. LeGoubin

Slot 6		
Time	Specialist Sessions	Name
Thursday 22nd June 2023 1045 - 1145	B3	Global Navigation Satellite System (GNSS)
		Cezary Specht
		Peter J.G. Teunissen
	C3	Collision Avoidance
		Józef Lisowski
		Dimitrios Dalakidis
	D3	Marine Accidents
		Piotr Kopacz
		Carl Hult
	E3	Student Session
		Grzegorz Rutkowski
		German de Melo
	F3	Land Navigation
		Tomasz Praczyk
		Arnaud Serry

Slot 7		
Time	Specialist Sessions	
Thursday 22nd June 2023 1200 - 1330	B4	Safety at Sea Paweł Zalewski Srdan Žužkin
	C4	Maritime Education and Training (MET) 2 Karol Korez Ulla Tapaninen
	D4	Miscellaneous, Part 2 Aleksandra Wilczyńska Gisela Müller-Plath
	E4	Bilateral Discussions
Time	Expert Panel Session (Meeting in Polish)	
Thursday 22nd June 2023 1200 - 1330	M2	Meeting of the Waterborne Transport Section of the Committee of Transport, Polish Academy of Sciences (STW KT PAN) Adam Weintrit Wojciech Wawrzyński
Time	Poster Sessions	
Thursday 22nd June 2023 1200 - 1330	P1	Miscellaneous Problems of Navigation Przemysław Wilczyński Elena Valionienė

Slot 8		
Time	Specialist Sessions	
Thursday 22nd June 2023 1445 - 1615	B5	Marine Simulator Maciej Guema Michele Martelli
	C5	Operational Problems of Ports and Harbours Andrzej Grzelakowski Stefano Ricci
	D5	Marine Environment Marzena Popok Mate Baric
	E5	Case Studies Jan Kelner Pentti Kujala
Time	Expert Panel Session (Meeting in Polish/English)	
Thursday 22nd June 2023 1445 - 1615	M3	Annual General Meeting of the Poland Branch of the Nautical Institute Adam Weintrit André L. LeGoubin

Slot 9		
Time	Specialist Sessions	
Thursday 22nd June 2023 1630 - 1730	B6	Artificial Intelligence (AI) Dariusz Barbucha Seojeong Lee
	C6	Critical Elements of Maritime Transport Tomasz Neumann Nenad Sikirica
	D6	Life Saving Krzysztof Czaplewski Anatoli Alop
	E6	Drons Andrzej Lebkowski Špiro Ivošević
	F6	Container Transport Przemysław Dziula Thomas Pawlik

Slot 10		
Time	Plenary Session	
Friday 23rd June 2023 1000 - 1200	A4	Advances in Marine Navigation and Safety of Sea Transportation Zbigniew Burciu Dorota Pyć

Slot 11		
Time	Technical and Sightseeing Tour by Bus to Malbork and Gniez	
Friday 23rd June 2023 0900 - 1900		
1600 - 1630	K1	Closing Ceremony Adam Weintrit Tomasz Neumann