

## Contents

List of reviewers .....	7
Information, Communication and Environment. Introduction <i>A. Weinrit &amp; T. Neumann</i> .....	9
<b>Chapter 1. Maritime Communications</b> .....	11
1.1. Hidden Communication in the Terrestrial and Satellite Radiotelephone Channels of Maritime Mobile Services <i>O. Shyshkin &amp; V. Koshevyi</i> .....	13
1.2. Introduction to Inmarsat GEO Space and Ground Segments <i>D.S. Ilcev</i> .....	21
1.3. Integration of Radio and Satellite Automatic Identification System for Maritime Applications <i>D.S. Ilcev</i> .....	33
1.4. Satellite Antenna Infrastructure Onboard Inmarsat Spacecraft for Maritime and Other Mobile Applications <i>D.S. Ilcev</i> .....	45
1.5. Synthesis of Composite Biphasic Signals for Continuous Wave Radar <i>V.M. Koshevyi, I.V. Koshevyi &amp; D.O. Dolzhenko</i> .....	55
1.6. Zero Levels Formation of Radiation Pattern Linear Antennas Array with Minimum Quantity of Controlling Coefficients Weights <i>V.M. Koshevyi &amp; A.A. Shershova</i> .....	61
1.7. Radio Refractivity and Rain-Rate Estimations over Northwest Aegean Archipelagos for Electromagnetic Wave Attenuation Modelling <i>E.A. Karagianni, A.P. Mitropoulos, N.G. Drollas, A.D. Sarantopoulos &amp; A.A. Charantonis</i> .....	67
1.8. Concepts of the GMDSS Modernization <i>K. Korcz</i> .....	75
<b>Chapter 2. Decision Support System</b> .....	83
2.1. Supporting Situation Awareness on the Bridge: Testing Route Exchange in a Practical e-Navigation Study <i>T. Porathe, A. Brodje, R. Weber, D. Camre &amp; O. Borup</i> .....	85
2.2. PARK Model and Decision Support System based on Ship Operator's Consciousness <i>S.W. Park, Y.S. Park, J.S. Park &amp; N.X. Thanh</i> .....	93
2.3. Multi-objective Route Optimization for Onboard Decision Support System <i>R. Vettor &amp; C. Guedes Soares</i> .....	99
2.4. Simulation-Augmented Methods for Manoeuvring Support – On-Board Ships and from the Shore <i>K. Benedict, M. Kirchhoff, M. Gluch, S. Fischer, M. Schaub &amp; M. Baldauf</i> .....	107
2.5. 3D Navigator Decision Support System Using the Smartglasses Technology <i>A. Lebkowski</i> .....	117
2.6. Neuroevolutionary Ship Maneuvering Prediction System <i>M. Łęcki</i> .....	123
<b>Chapter 3. Geoinformation Systems and Maritime Spatial Planning</b> .....	129
3.1. Information and Communication Technologies in the Area with a Complex Spatial Structure <i>A. Kutnitska-Fijałkowska &amp; Z. Łukasik</i> .....	131
3.2. Establishing a Framework for Maritime Spatial Planning in Europe <i>A. Kutnitska-Fijałkowska &amp; Z. Łukasik</i> .....	135
3.3. Application of Intelligent Geoinformation Systems for Integrated Safety Assessment of Marine Activities <i>V.V. Popovich, O.V. Smirnova, M.V. Tsvetkov &amp; R.P. Sorokin</i> .....	139
<b>Chapter 4. Hydrometeorological Aspects</b> .....	145
4.1. Design Tide and Wave for Santos Offshore Port (Brazil) Considering Extreme Events in a Climate Changing Scenario <i>P. Alfredini, E. Arasaki &amp; A.S. Moreira</i> .....	147
4.2. Mathematical Modeling of Wave Situation for Creation of Protective Hydrotechnical Constructions in Port Kulevi <i>A. Gegenava, I. Sharabidze &amp; A. Kakhidze</i> .....	153
4.3. The Northerly Summer Wind off the West Coast of the Iberian Peninsula <i>N. Rijo, A. Semedo, D.C.A. Lima, P. Miranda, R.M. Cardoso &amp; P.M.M. Soares</i> .....	157
<b>Chapter 5. Inland Shipping</b> .....	163
5.1. Emergency Group Decision-Making with Multidivisional Cooperation for Inland Maritime Accident <i>B. Wu, X.P. Yan, Y. Wang &amp; J.F. Zhang</i> .....	165

5.2. The Concept of Emergency Notification System for Inland Navigation .....	173
<i>T. Perzyński, A. Lewicki &amp; Z. Lukaszik</i>	
5.3. Ship Design Optimization Applied for Urban Regular Transport on Guadalquivir River (GuadaMAR) .....	179
<i>A. Queral, R. Jiménez-Castañeda &amp; F. Finiella</i>	
5.4. Ship Emission Study Under Traffic Control in Inland Waterway Network Based on Traffic Simulation Data .....	185
<i>X. Chen, J. Mou, L. Chen &amp; X. Yue</i>	
5.5. The Using of Risk to Determination of Safety Navigation in Inland Waters .....	195
<i>W. Galor</i>	
5.6. Inland Water Transport and its Impact on Seaports and Seaport Cities Development .....	201
<i>A.S. Grzelakowski</i>	
<b>Chapter 6. Maritime Pollution and Environment Protection</b> .....	209
6.1. Determination of Marine Pollution Caused by Ship Operations Using the DEMATEL Method .....	211
<i>Ü. Özdemir, H. Yılmaz &amp; E. Bayar</i>	
6.2. Joint-Task Force Management in Cross-Border Emergency Response, Managerial Roles and Structuring Mechanisms in High Complexity-High Volatility Environments .....	217
<i>O.J. Borch &amp; N. Andreassen</i>	
6.3. Environmental Risk Assessment for the Aegean Sea .....	225
<i>I. Koromila, Z. Nivoliatiou, S. Perantonis, T. Giannakopoulos, E. Charou, S. Gyftakis &amp; K. Spyrou</i>	
6.4. Probabilistic Meta-models Evaluating Accidental Oil Spill Size from Tankers .....	231
<i>J. Montewka, F. Goerlandt &amp; X. Zheng</i>	
6.5. Negative Impact of Cruise Tourism Development on Local Community and the Environment .....	243
<i>J. Kizielewicz &amp; T. Luković</i>	
<b>Chapter 7. Vessel Traffic Service (VTS)</b> .....	251
7.1. Improving Safety of Navigation by Implementing VTS/VTMIS: Experiences from Montenegro .....	253
<i>S. Bank &amp; N. Kapidani</i>	
7.2. Evolutionary Methods in the Management of Vessel Traffic .....	259
<i>A. Lebkowski</i>	
7.3. Supporting Voice Communication Between Navigator and VTS by Visual Solutions – Exploring the Use of the "Route Suggestion" Functionality within VTS .....	267
<i>A. Brodjs, R. Weber, D. Camre, O. Borup &amp; T. Porathe</i>	
7.4. 4M Overturned Pyramid (MOP) Model: Case Studies on Indonesian and Japanese Maritime Traffic Systems (MTS) .....	275
<i>W. Mutmainah &amp; M. Furusho</i>	