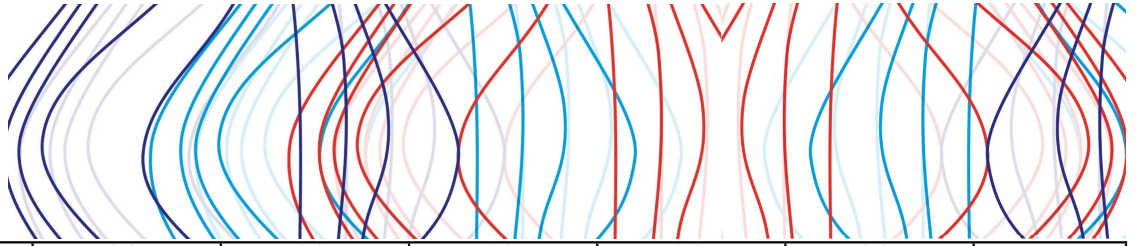


**2019** 30.09.-07.10.  
**BREAKING THE SURFACE**  
 BIOGRAD NA MORU, CROATIA  
 11<sup>th</sup> INTERNATIONAL INTERDISCIPLINARY FIELD WORKSHOP OF MARINE ROBOTICS AND APPLICATIONS



	29/09/2019 SUNDAY	30/09/2019 MONDAY	01/10/2019 TUESDAY	02/10/2019 WEDNESDAY	03/10/2019 THURSDAY	04/10/2019 FRIDAY	05/10/2019 SATURDAY
07:00 - 09:00		BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST
09:00 - 09:15		Openin session UNIZG FER	MAROB Technological perspectives and new robotics applications in deep-sea ocean sciences Jan Opderbecke	MAROB Improving the accessibility of underwater cultural heritage through digital technologies Fabio Bruno	MAROB Development and deployment of an unmanned iceberg observation system for off-shore industry and iceberg modelling Ralf Bachmayer	MAROB Localisation in Marine Robotics Francesco Maurelli	FIELD TRIP
09:15 - 09:30			MAROB Exploring dynamic features of the ocean with coordinated multi-domain robots? Yes, we can!!! Joao Sousa	MAROCLEAN Multiple Autonomous Vehicles Applied to Detect, Track and Survey a River Plume Renato Mendes	MAROBIO TBA Massimo Caccia	MAROBIO Long-term fluctuations of Cystoseira forests along the west Istrian Coast (northern Adriatic, Croatia) Lilijana Iveša	
09:30 - 09:45		COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	COFFEE BREAK	
09:45 - 10:00		MAROCLEAN An Orange Submarine Underneath the Doomsday Glacier: Lessons Learned and Main Results Anna Wahlin	MAROB Robots for karstic exploration : an underneath robotic journey Lionel Lapierre	MARCH 1 Recording Shipwrecks at the Speed of Light Michael Murray	MAROB Autonomous docking and inspection capabilities Gerard Dooly	MAROB Flow Sensors for Underwater Robots and Oceanography Maarja Kruusmaa	
10:00 - 10:15		MAROB Autonomous underwater manipulation from a floating I-AUV Patrik Cieslak	MAROBIO The Dawn of a New Algae-Based Marine Industry in Sweden Fredrik Gröndahl	MAROB Simulation Tools for Underwater Sensor Networks Marwa Salayma	MAROB Explainable AI Planning for Robotics Daniele Magazzeni	MARCH The Lusitania Project 17. Peter McCamley	
10:15 - 10:30		MAROB The entropy based approach to modeling and evaluating autonomy in unmanned systems systems Kimon Valavanis	MAROB A brief introduction to deep learning for generative modeling Jakob Verbeek	MARCH Deep Sea Archaeological Survey in the Black Sea – Robotic Documentation of 2,500 Years of Human Seafaring Rodrigo Pacheco-Ruiz	MAROB TBA Martin Ludvigsen	MAROB Underwater Cable Inspection and Dual-arm Intervention Xianbo Xiang	
10:30 - 10:45		LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	
10:45 - 11:00		T1 intro: Autonomous underwater manipulation from a floating I-AUV: Simulation and control strategies University of Girona	COMPANY PRESENTATION Sonardyne	COMPANY PRESENTATION BluePrint	COMPANY PRESENTATION Planet Ocean Limited / ecoSUB Robotics Limited	COMPANY PRESENTATION BlueEye	
11:00 - 11:15		T2 intro: LSTS Toolchain: Bridging interoperability challenges University of Porto	T4 intro: ROS/Neptus Integration Tutorial KTH, NEPTUS/SMaRC	T5 intro: AUVLib – Sonar data processing for machine learning KTH	T6 intro: JANUS: The first digital underwater communications standard NATO CMRE	T8 intro: Software Defined USBL-Modem (SDM-USBL) EvoLogics	
11:15 - 11:30		T1 hands-on Group 1	DEMO University of Porto Group 1	DEMO BluePrint Group 1	T6 hands-on Group 1	DEMO NATO CMRE Group 1	
11:30 - 11:45		T2 hands-on Group 2	T4 hands-on Group 2	T5 hands-on Group 2	DEMO EvoLogics Group 2	T8 hands-on Group 2	
11:45 - 12:00		T3 Kimon Valavanis: Control and navigation of unmanned robotic systems hands-on Group 2	DEMO Sonardyne Group 3	DEMO Michael Murray Group 3	DEMO Plane Ocean / ecoSUB Group 3	DEMO BlueEye Group 3	
12:00 - 12:15		T1 hands-on Group 2	DEMO University of Porto Group 2	T4 hands-on Group 3	DEMO Michael Murray Group 1	DEMO NATO CMRE Group 2	
12:15 - 12:30		T2 hands-on Group 3	T4 hands-on Group 3	DEMO Sonardyne Group 1	T5 hands-on Group 3	T8 hands-on Group 3	
12:30 - 12:45		T3 Kimon Valavanis: Control and navigation of unmanned robotic systems hands-on Group 1	DEMO University of Porto Group 3	DEMO Sonardyne Group 2	DEMO Michael Murray Group 2	DEMO BlueEye Group 1	
12:45 - 13:00		T1 hands-on Group 3	T4 hands-on Group 1	DEMO BluePrint Group 3	T5 hands-on Group 1	DEMO NATO CMRE Group 3	
13:00 - 14:30							
14:30 - 14:45							
14:45 - 15:00							
15:00 - 15:15							
15:15 - 15:30							
15:30 - 15:45							
15:45 - 16:00							
16:00 - 16:15							
16:15 - 16:30							
16:30 - 16:45							
16:45 - 17:00							
17:00 - 17:15	REGISTRATION						
17:15 - 17:30							
17:30 - 17:45							
17:45 - 18:00							
18:00 - 18:15							
18:15 - 18:30							
18:30 - 18:45							
18:45 - 19:00							
19:00 - 19:15							
19:15 - 19:30							
19:30 - 19:45							
19:45 - 20:00							
20:00 - 20:15	DINNER	DINNER	DINNER	DINNER	DINNER		
20:15 - 20:30							
20:30 - 20:45							
20:45 - 21:00							
From 21:00			INTERNATIONAL NIGHT: PRESENTATION OF ALL PARTICIPANTS' COUNTRIES	GIN&TONIC POOL PARTY: IEEE OES UNIZG FER PRESENTATION	ERASMUS+ IMPACT MULTIPLIER EVENT	BTS KARAOKE PARTY	