UT23 Final Program 2023.03.05

		Program							1	1		023.0	3.03				
Monday 6 March	13:00 - 15:30				UT23 Pre-Event Workshop on Career Path Benefits of AUV/ROV Competitions Lecture												
	15:40- 17:00				UT23 Pre-Event Workshop on Career Path Benefits of AUV/ROV Competitions Demo												
Tuesday 7 March	8:40- 8:55				UT23 Opening Ceremony												
Tuesday 7 March	9:00- 10:20	Marine Robotics 1 Chairs: Toshihiro Maki, IIS, University	9:00- 9:20	1.1	Anomaly Detection of Underwater Gliders Verified by Deployment Data Ruochu Yang¹, Chad Lembke², Fumin Zhang¹, Mengxue Hou³, Catherine Edwards⁴ ¹Georgia Institute of Technology Atlanta, ²University of South Florida St.Petersburg, ³Purdue University, ⁴University of Georgia Savannah			Environmental Monitoring 1 Chairs: Adrian Bodenmann,	9:00- 9:20	2.1	Arctic ice underwater noise Nicholas P Chotiros The University of Texas at Austin	2114	REMO				
		of Tokyo and Nuno A. Cruz, University of Porto	9:20- 9:40	1.2	Estimation of Sediments in Underwater Wall Corners using a Mechanical Scanning Sonar Carlos F. Gonçalves ¹ , Nuno A. Cruz ^{1,2} , Bruno M. Ferreira ¹ ¹ INESC TEC, ² FEUP			The University of 9 Southampton and Burton Neuner III, 10 Naval 9 Information Warfare Center Pacific 10	9:20- 9:40	2.2	Multi-band, calibrated backscatter from high frequency multibeam systems as an efficient tool for seabed monitoring Aleksandra Kruss ¹ , Artur Grzadziel ² , Pawel Pocwiardowski ³ , Maria Rucinska ⁴ , Mariusz Waz ⁵ ¹ Scientific Survey NORBIT, ² Polish Naval Academy, ³ NORBIT Poland, ⁴ University of Gdansk ⁵ Polish Naval Academy Gdynia						
			9:40:10: 00	1.3	Imitating dolphins: Nature-inspired boundary modulation to reduce frictional drag Silvia Matt ¹ , Xiaobo Tan ² , Weilin Hou ³ , Hongyang Shi ² , Austin Thombs ¹ ¹ US Naval Research Laboratory, ² Michigan State University, ³ Asia Pacific Office of Naval Research Global	RE			9:40:10: 00	2.3	Practice of marine environmental impact assessment and monitoring using ISO standards Hiroyuki Yamamoto ¹ , Masanobu Kawachi ² , Koichi Iijima ¹ , Shinsuke Kawagucci ¹ , Tetsuya Miwa ¹ , Kentaro Inomata ³ , Masanori Kyo ¹ , Hiroshi Koshikawa ² , Kosuke Tsutsumi ³ , Koichi Yoshida ⁴ ¹ Japan Agency for Marine-Earth Science and Technology, ² National Institute for						
			10:00- 10:20	1.4	Robust Control of A Novel Small AUV With Titlting Tunnel Thrusters Milind Fernandes, Soumya Ranjan Sahoo, Mangal Kothari Indian Institute of Technology Kanpur	RE	MO		10:00- 10:20	2.4	Environmental Studies, ³ IDEA Consulting Inc., ⁴ Yokohama National University Digital Adaptive Optical Imaging for Oceanic Turbulence Mitigation Burton Neuner III, Skylar D. Lilledahl, Benjamin Laxton, and Kyle R. Drexler Naval Information Warfare Center Pacific San Diego	2035					
Tuesday 7 March	10:40- 12:00	Marine Robotics 2 Chairs: Takumi Matsuda,Meiji University and Lian Lian, Shanghai Jiao Tong University	Robotics 2 Chairs: Takumi Matsuda,Meiji University and	Robotics 2 Chairs: Takumi Matsuda,Meiji University and	10:40- 11:00	3.1	An Experimental Study on the Stability of a Catamaran Boat Equipped with an Underwater Camera Qiao Li, Jinxin Zhou, Yoichi Mizukami Guanglei Xu, Shuchuang Dong, Daisuke Kitazawa The University of Tokyo	RE		Observatory and Disaster Mitigation 1 Chairs: Yuto Nakamura, Japan Coast	10:40- 11:00	4.1	Ocean Bottom Detector: frontier of technology for understanding the mantle by geoneutrinos Hiroko Watanabe ¹ , Eiichiro Araki ² , Kunio Inoue ¹ , Masanori Kyo ² , Taichi Sakai ¹ , Kenta Ueki ² , Natsue Abe ² , Takuto Araki ¹ , Takafumi Kasaya ² , William F. McDonough ^{1,2,3} , Noriaki Sakurai ² , Hiroshi Yoshida ² ¹Tohoku University, ²Japan Agency for Marine–Earth Science and Technology, ³University of Maryland				
			11:00- 11:20 11:20- 3.3 11:40	3.2	A Twin LS-SVM-based maneuvering predictor for marine crafts Tianqi Pei, Caoyang Yu, Lian Lian Shanghai Jiao Tong University			Guard and Shuang Zhao, Chinese Academy of Surveying &	11:00- 11:20	4.2	Investigation on GNSS-A precise point positioning based on adaptively robust filter considering the horizontal heterogeneity of sound speed structure Shuang Zhao ¹ , Yusuke Yokota ² , Zhenjie Wang ³ , Shuqiang Xue ¹ ¹ Chinese Academy of Surveying & Mapping, ² University of Tokyo, ³ China University of Petroleum						
				3.3	oth control of remotely operated vehicles based on sliding mode controller with novel ver rate reaching law un Huang, Qi Yang anghai Jiao Tong University	5 REMO		Mapping	11:20- 11:40	4.3	Subseafloor tectonic phenomena along the Japan Trench and the Nankai Trough revealed from recent GNSS-A observation at Japan Coast Guard's SGO-A sites Yuto Nakamura ¹ , Tadashi Ishikawa ¹ , Shun-ichi Watanabe ¹ , Koya Nagae ¹ ,Yusuke Yokota ² ¹ Japan Coast Guard, ² University of Tokyo						
									11:40- 12:00	4.4	Construction of the borehole observatory using the deep-sea Boring Machine System Takashi Yokobiki ¹ , Shuhei Nishida ¹ , Shuhei Tsuji ¹ , Takashi Murashima ¹ , Koji Takase ² , Keisuke Takahashi ³ , Eiichiro Araki ¹ ¹ Japan Agency for Marine-Earth Science and Technology, ² Japan Petroleum Exploration Co., Ltd., ³ Mitsubishi UBE Cement Corporation		REMO				
	12:00- 13:15				Sponsor's Luncheon												
	13:15-				OCEANWINGS CORPORATION Poster Session 1												
Tuesday 7 March	14:30 14:30- 16:10	Acoustics and Communicatio ns 1 Chairs: Takao Sawa, JAMSTEC and Jenhwa Guo, National Taiwan University	Communicatio ns 1 Chairs: Takao Sawa, JAMSTEC and Jenhwa Guo,	Communicatio	Communicatio	Communicatio	14:30- 14:50	5.1	Self-Noise Suppression for AUV without Clean Data: a Noise2Noise Approach Weiyang Zhou, Jianlong Li Zhejiang University	RE		Special Session: Data-Driven Underwater	14:30- 14:40	6.0	Introduction of Special Session on Data-Driven Underwater Navigation	2018	
				14:50- 15:10	5.2	Effective sampling in tomographic current mapping using two moving vehicles Kuan-Yu Chen ¹ , Chen-Fen Huang ² , Jenhwa Guo ² ¹ National Defense University Taoyuan, ² National Taiwan University			Navigation Chair: Itzik Klein, University of Haifa	14:40- 15:00	6.1	Data-Driven Underwater Navigation workshop: AUV Close-Range Localization and Guidance Employing an Electro-Magnetic Beacon Yevgeni Gutnik, Nadav Cohen, Itzik Klein, Morel Groper University of Haifa	2016				
			15:10- 15:30	5.3	Research and development for practical use of underwater optical wireless communication Takao Sawa JAMSTEC 2052			-	15:00- 15:20	6.2	Set-Transformer BeamsNet for AUV Velocity Forecasting in Complete DVL Outage Scenarios Nadav Cohen, Zeev Yampolsky, Itzik Klein University of Haifa						
			15:30- 5.4 15:50	Inaba Shog National M	Similar Object Identification in Sonar Images by Machine Learning Inaba Shogo, Sasano Masahiko National Maritime Research Institute				15:20- 15:40	6.3	On the Enhancement of an Ocean Glider Navigation System Ariel Weizman, Morel Groper, Itzik Klein University of Haifa	2013					
			15:50- 16:10	5.5	Experiments for long-range high-rate underwater acoustic MIMO communication using adaptive passive time reversal Yukihiro Kida, Mitsuyasu Deguchi, Yoshitaka Watanabe, and Takuya Shimura Japan Agency for Marine Earth Science and Technology				15:40- 16:00	6.4	ProNet: Adaptive Process Noise Estimation for INS/DVL Fusion Barak Or, Member, IEEE, and Itzik Klein, Senior Member, IEEE						
	16:30- 17:30	Keynote 1			The UN Decade of Ocean Science Prof. Yutaka Michida, University of Tokyo Dr. Vladimir Ryabinin, IOC-UNESCO Prof. Dato'Dr Noraieni Haji Mokhtar, Universiti Malaysia Terengganu												

Wednesd ay 8	8:30- 10:30	Observatory and Disaster	8:30- 8:50	7.1	Introduction to Indonesian Cable-based Subsea Tsunameter Michael Andreas Purwoadi, Wahyu Widodo Pandoe, Andi Eka Sakya, Yudi Anantasena, Joko	REMO	Marine Robotics 3	8:30- 8:50	8.1	A Position Correction Model for AUV Navigation with Sequential Learning-Assisted State Estimation	2024	
March		Mitigation 2 Chairs: Masanao			Widodo National Research and Innovation Agency		Chairs: Yu-Cheng Chou, National			Xin Zhang ^{1,2} , Yiping Qiu ² , Akihisa Ohya ² , Ayanori Yorozu ² and Bo He ¹ ¹Ocean University of China, ²University of Tsukuba		
		Shinohara, ERI, University of Tokyo and Narumi	8:50- 9:10	7.2	Precise bathymetry with an underwater vehicle for seafloor crustal movement observation Shuhei Nishida, Yuya Machida, Hiroyuki Matsumoto and Eiichiro Araki, Shojiro Ishibashi JAMSTEC		Sun Yat-sen University and Akihiro Okamoto,	8:50- 9:10	8.2	Mechanical Imaging Sonar-based AUV Wall Following in a Water Tank Yu-Cheng Chou, Hsin-Hung Chen, ,Jia-Chi Jiang, Chau-Chang Wang National Sun Yat-sen University	2044	
		Takahashi, National Research Institute for Earth Science	9:10- 9:30	7.3	Simultaneous seafloor seismic observation by distributed acoustic sensing and accelerometer using off-Sanriku optical cable observation system Masanao Shinohara ¹ , Hiroki Takano ^{2,} Tomoaki Yamada ¹ , Takeshi Akuhara ¹ , Kimihiro Mochizuki ^{1,} Shin'ichi Sakai ¹ ¹The University of Tokyo, ²INPEX Corporation		National Institute of Maritime, Port and Aviation Technology	9:10- 9:30	8.3	Group Formation of Autonomous Underwater Vehicles that Optimizes Energetic Efficiency in Cruising Gen Li ¹ , Lei Duan ² , Ramiro Godoy-Diana, Benjamin Thiria ³ ¹ Japan Agency for Marine-Earth Science and Technology, Shanghai Jiao Tong University, Sorbonne Université, Université de Paris	2046	
		and Disaster Resilience	9:30- 9:50	7.4	Real-time tsunami damage prediction using DONET and the implementation Narumi Takahashi ¹ , Naotaka Chikasada ¹ , Kentaro Imai ² ¹ National Research Institute for Earth Science and Disaster Resilience, ² Japan Agency for Marine-Earth Science and Technology			9:30- 9:50	8.4	Development of a Basic Formation Control System for Heterogeneous Autonomous Marine Vehicles and its Sea Trials in Suruga Bay Akihiro Okamoto ¹ , Kangsoo Kim ¹ , Masahiko Sasano ¹ , Takumi Sato ¹ , Shogo Inaba ¹ , Satoshi Kondo ² , Hiroshi Matsumoto ² , Takashi Murashima ² , Takuya Shimura ² , Toshifumi Fujiwara ¹ , and Hiroyuki Osawa ² ¹ National Institute of Maritime, Port and Aviation Technology, ² Japan Agency for Marine-Earth Science and Technology	2081	
			9:50- 10:10		Consideration of meteotsunami real-time forecasting method using high quality atmospheric and ocean bottom pressure records Naotaka Yamamoto Chikasada National Research Institute for Earth Science and Disaster Resilience (NIED)	REMO		9:50- 10:10	8.5	Towards an Open-Source Benchmark for Underwater Object Detection and Pose Estimation, Ivar Bjørgo Saksvik, Alex Alcocer, Håkon Weydahl, Håkon Teigland, Vahid Hassani Oslo Metropolitan University		
			10:10- 10:30	7.6	Development and Construction of Nankai Trough Seafloor Observation Network for Earth Science and Disaster Resilience (NIED) Development and Construction of Nankai Trough Seafloor Observation Network for Earthquakes and Tsunamis: N-net Shin Aoi, Tetsuya Takeda, Takashi Kunugi, Masanao Shinohara, Takayuki Miyoshi, Kenji Uehira, Masashi Mochizuki, and Narumi Takahashi National Research Institute for Earth Science and Disaster Resilience (NIED)					Oslo Metropolitan University		
	10:45- 12:00				Poster Session 2							
	12:00- 13:15				Sponsor's Luncheon Nortek Japan							
	13:15- 14:55	Special Session: Underwater Optical Technology Chair: Yang Weng, IIS, University of Tokyo	13:15- 13:35	9.1	SquidJam: A Video Annotation Ecosystem Mehul Sangekar ¹ , Ariell Friedman ² , Mitsuko Hidaka ¹ , Takashi Hosono ¹ , Dhugal Lindsay ¹ ¹ Japan Agency for Marine-Earth Science and Technology, ² Greybits Engineering		Sensors Chairs: Tatsuhiro Fukuba,	13:15- 13:35	10.1	Seabed Object's Height Estimation Method Utilizing Tilt Angle Changes of Imaging Sonar Minsung Sung, Young-woon Song, and Son-Cheol Yu Pohang University of Science and Technology	2021	
			13:35- 13:55	9.2	Advanced Submersible Imaging Technique of Digital Holography: In-situ Measurement of Marine Particles and Data Processing Zonghua Liu ^{1,2} ,*, Sarah Giering ² , Tomoko Takahashi ³ , Thangavel Thevar ⁴ , Marika Takeuchi ³ , Nick Burns5, Blair Thornton ^{2,6} , John Watson ⁴ , and Dhugal Linsday ³ ¹ National Oceanography Centre, ² University of Tokyo, ³ JAMSTEC ⁴ University of Aberdeen, ⁵ Hi-Z 3D LTD, ⁶ University of Southampton	REMO	JAMSTEC and Miquel Massot Campos, University of Southampton		10.2	Towards sensor agnostic artificial intelligence for underwater imagery Miquel Massot-Campos ¹ , Takaki Yamada ¹ , Blair Thornton ^{1,2} ¹ University of Southampton, ² The University of Tokyo	2090	
			13:55- 14:15	9.3	RamaCam: autonomous in-situ monitoring system of marine particles by combining holography and Raman spectroscopy Tomoko Takahashi ^{1,2} , Zonghua Liu ^{2,3} , Thangavel Thevar ⁴ , Nicholas Burns ⁴ , Mehul Sangekar ¹ , Dhugal Lindsay ¹ , John Watson ⁴ , and Blair Thornton ⁵ ¹ Japan Agency for Marine-Earth Science and Technology, ² The University of Tokyo, ³ National Oceanography Centre Southampton, ⁴ University of Abrdeen, ⁵ University of Southampto	REMO		13:55- 14:15	10.3	Application of Ambient Pressure-Driven Pumping Technology towards Tatsuhiro Fukuba ^{1,} Akira Fujiwara ² , Katsuhiko Nishiguchi ² , Massami Bergaud ³ , Simon Grall ³ , Shuo Li ³ , Soo-Hyeon Kim ³ , Nicolas Clément ³ ¹ JAMSTEC, ² NTT Corporation, ³ The University of Tokyo	2063	
			14:15- 14:35		Improving the Quality of Underwater Wireless Optical Communications in Uncertain Ocean Environments Yang Weng ¹ , Takumi Matsuda ² , Toshihiro Maki ¹ ¹ The University of Tokyo, ² Meiji University			14:15- 14:35	10.4	Modelling our way out of a featureless correspondence problem for automatic calibration of laser stripe mapping systems David Stanley ¹ , Adrian Bodenmann ¹ , Miquel Massot-Campos ¹ , Blair Thornton ^{1, 2} ¹ University of Southampton, UK ² The University of Tokyo, Japan	2122	
										14:35- 14:55	10.5	GPS-Based Hydrophone Drifter for Underwater Locator Beacon Search Chau-Chang Wang ^{1,2} , Wei-Cheng Yu ¹ , Hsin-Hung Chen ¹ , Po-Chi Chen ² ¹ National Sun Yat-sen University, ² Taiwan Ocean Research Institute National Applied Research Lab
	15:15- 16:15	Keynote 2			Technology for the Deep Ocean Exploration Dr. G. A. Ramadass, National Institute of Ocean Technology							
	16:20- 17:20	Keynote 3			Ocean Observations Using Autonomous Vehicles in Challenging Environments Prof. Karen Heywood, University of East Anglia							
Thursday 9 March	8:30- 10:10	Marine Construction 1 Chairs: Tadashi	8:30- 8:50	11.1	Towards Reconstruction of 3D Geometry of Underwater Rubble Mounds via Structure from Motion Shunsuke Takao, Tsukasa Kita, Taketsugu Hirabayashi Port and Airport Research Institute	REMO	Environmental Monitoring 2 Chairs: Katsunori	8:30- 8:50	12.1	A Search Strategy and Vessel Detection in Maritime Environment Using Fixed-Wing UAVs Marijana Peti, Ana Milas, Natko Kraševac, Marko Križmančic, Ivan Lončar, Nikola Miškovic, Stjepan Bogdan University of Zagreb	2047	
		Ebihara, University of Tsukuba and Tsukasa Kita, Port and Airport Research Institute	8:50- 9:10	11.2	Prototyping of Automatic Navigation of Underwater Robot for Underwater Visual Inspection Tsuaksa Kita, Toshinari Tanaka Port and Airport Research Institute		Mizuno, University of Tokyo and Tom Akamatsu, Ocean Policy Research Institute, The Sasakawa Peace	8:50- 9:10	12.2	High-resolution visual seafloor mapping and classification using long range capable AUV for ship-free benthic surveys Adrian Bodenmann ¹ , José Cappelletto ¹ , Miquel Massot-Campos ¹ , Darryl Newborough ² , Ed Chaney ³ , Rachel Marlow ³ , Robert Templeton ³ , Alexander B. Phillips ³ , Brian J. Bett ³ , Catherine Wardell ³ ,Blair Thornton ^{1,4} ¹ Centre for In situ and Remote Intelligent Sensing, FEPS ² Sonardyne International Ltd. ³ University of Southampton ⁴ The University of Tokyo		

		1	9:10-	11 2	FOTOANI: A Noval Deepwater Anchoring Contain	2004	Foundation	0.10	12.2	Development of edge computing underwater could record to the control of	2004	
			9:30	11.3	FOTOAN: A Novel Deepwater Anchoring System Keerthi Raaj S, Nilanjan Saha, Sundaravadivelu R Indian Institute of Technology, Madras	2004	Foundation	9:10- 9:30	12.3	Development of edge computing underwater sound recorder to monitor deep sea soundscape Masaya Katagiri ¹ , Hiromi Kayama Watanabe ² , Shinsuke Kawagucci ² , Kotaro Tanaka ³ , Tomonari Akamatsu ³ ¹ Nippon Marine Enterprises, Ltd., ² Japan Agency for Marine-Earth Science and Technology, ³ Ocean Policy Research Institute The Sasakawa Peace Foundation		
			9:30- 9:50	11.4	Experimental Study of kW-class Wireless Charging System for Autonomous Underwater Vehicle with Magnetic Resonance Ryosuke Hasaba ¹ , Shuichiro Yamaguchi ² , Tatsuo Yagi ² , Kazuhiro Eguchi ³ , Hiroshi Satoh ² , Yoshio Koyanagi ² , Tamaki Ura ⁴ ,	2098		9:30- 9:50	12.4	Shallow Water Seagrass Survey at Studland Bay with the AUV Smarty200 Miquel Massot-Campos ¹ , Takaki Yamada ¹ , Bronwyn Walker-Rouse ¹ , Ken Collins ¹ , Julian Leyland ¹ , Hachem Kassem ¹ , Blair Thornton ^{1, 2} ¹ University of Southampton, UK, ² The University of Tokyo, Japan	2089	
					¹ Panasonic Industry Co., Ltd., ² Panasonic System Networks R&D Lab. Co., ³ Panasonic Connect Co., Ltd., ⁴ Deep-ocean Ridge Technology Co., Ltd.							
			9:50- 10:10	11.5	Trial Experiment of Positioning of Underwater Backhoe Using Time-of-flight of Acoustic Signal Group and Database Matching for Realization of Unmanned and Remote Underwater Construction Tohru Yoshihara ¹ , Tadashi Ebihara ² , Koichi Mizutani ² ¹ Aomi Construction Co., Ltd., ² University of Tsukuba	2056		9:50- 10:10	12.5	Sea Pollution: Analysis and Monitoring using Unmanned Vehicles Teresa Lourenço Antunes ¹ , Ricardo Pinto Moura ² , Nuno Pessanha Santos ¹ , Victor Lobo ^{1,3} ¹ Portuguese Naval Academy, ² NOVA School of Science and Technology, ³ Universidade Nova de Lisboa	2124	REMO
Thursday 9 March	10:30- 11:50	Acoustics and Communicatio ns 2 Chairs:	10:30- 10:50	13.1	Experimental demonstration of equalization with phase lock loops against Doppler shifts of multipath signals on underwater acoustic communications Mitsuyasu Deguchi, Yukihiro Kida, Takuya Shimura Japan Agency for Marine-Earth Science and Technology	2070	Marine Robotics 4 Chairs: Masanao	10:30- 10:50	14.1	Evaluation of Optical-Flow-Based Feature Matching for Underwater Vehicle's Displacement Estimation Hsin-Hung Chen, Chao-Wei Tsai National Sun Yat-sen University	2050	
		Mitsuyasu Deguchi, JAMSTEC and Linus Chiu, National Sun Yat-sen University	10:50- 11:10	13.2		2083	Sumiyoshi, Japan Coast Guard and Hsin-Hung Chen, National Sun Yat-sen University	10:50- 11:10	14.2	Developments of standardization and quality control for AUV bathymetric data through sea trials of "AUV-NEXT" Masanao Sumiyoshi ¹ , Tadahiro Hyakudome ² , Yusuke Yokota ³ , Ryosuke Nagasawa ¹ , Takeshi Nakatani ² , Kenji Nagahashi ² , Tatsuya Aso ² ¹ Japan Coast Guard, ² Japan Agency for Marine-Earth Science and Technology, ³ The University of Tokyo Tokyo, Japan		
			11:10- 11:30	13.3	Correlation of dynamic internal waves with foraging activity of marine mammals in the South China Sea Linus Chiu ¹ , Yiing Jang Yang ² , Ke-Hsien Fu ³ ¹ National Sun Yat-sen University, ² National Taiwan University, ³ National Academy of Marine Research			11:10- 11:30	14.3	Geometric Registration of Benthic Imagery for Learning Appearance-Based Place Recognition over Multiple Sessions Martin Kvisvik Larsen ¹ , Oscar Pizarro ^{1,2} , Martin Ludvigsen ¹ ¹ Norwegian University of Science and Technology Trondheim ² University of Sydney	2036	
			11:30- 11:50	13.4	Utilization of Several types of Bio-mimic Pulse Train for Acoustic Localization in Coastal Areas Hanako Ogasawara, Eri Sato, Shota Urakawa, Takanobu Kuroyama, Kazuyoshi Mori National Defense Academy of Japan	2111						
	11:55- 12:25				Awards Ceremony							
	12:25- 13:40				Sponsor's Luncheon Shoshin Corporation							
Thursday 9 March	13:40- 15:00	Marine Mineral Resources Chairs: Umesh	13:40- 14:00	15.1	Economic Feasibility Analyses for Seafloor Massive Sulfide Mining in Okinawa Trough Area, Japan Tetsuo Yamazaki, Naoki Nakatani, Rei Arai Osaka Metropolitan University	2026	Environmental Monitoring 3 Chairs: Anja Babic,	13:40- 14:00	16.1	DHC sensorics of bubble methane in situ Victor Dyomin, Igor Polovtsev, Alexey Olshukov, Alexandra Davydova Tomsk State University	2053	
		Neettiyath, University of Tokyo and Tetsuo Yamazaki, Osaka Metropolitan	14:00- 14:20	15.2	An Economic Feasibility Analysis for Combined Mining of Cobalt-rich Crusts and Phosphorous Ores in North-west Pacific Tetsuo Yamazaki Osaka Metropolitan University	2027	University of Zagreb and Daisuke Kitazawa, IIS, University of Tokyo	14:00- 14:20	16.2	Heterogeneous marine robotic system for environmental monitoring missions Fausto Ferreira ¹ , Anja Babic ¹ , Martin Orec ¹ , Nikola Miškovic ¹ , Corrado Motta ² , Roberta Ferretti ² , Angelo Odetti ² , Simona Aracri ² , Gabriele Bruzzone ² , Massimo Caccia ² , Federica Braga ³ , Giorgia Manfè ³ , Giuliano Lorenzetti ³ , Gianmarco Scarpa ³ , Francesca De Pascalis ³ ¹ Laboratory for Underwater Systems and Technologies (LABUST), ² National Research Council of Italy (CNR) Institute of Marine Engineering (INM), ³ National Research Council of Italy (CNR) Institute of Marine Science (ISMAR)	a	
		University	14:20- 14:40	15.3	Underwater sound observation using the Edokko Mark I as a platform of acoustic environment assessment for marine mineral resource development Yosuke Onishi ¹ , Hajime Naganuma ¹ , Yuya Yamamoto ¹ , Kyohei Takami ¹ , Mitsuru Shimazu ¹ , Masayuki Nagao, ² Naoki Saito ² , Atsushi Suzuki ² , Tomonari Akamatsu ³ ¹ KANSO Technos CO., LTD., ² National Institute of Advanced Industrial Science and Technology (AIST), ³ Institute of Bioacoustic Technologies	2077		14:20- 14:40	16.3	A Network of Underwater Flow Sensors for Long- term Estimation of Fish Feeding Activity Dominic Solpico ¹ , Yuya Nishida ¹ , Kota Mishima ¹ , Kazuo Ishii ¹ Tokuo Suetsugu ² , Yoshinori Yatsunami ² ¹ Kyushu Institute of Technology, ² Belltechne Co., Ltd. Fukuoka, Japan	2041	
			14:40- 15:00	15.4	Enhancing the Coverage of Underwater Robot Based Mn-crust Survey Area by Using a Multibeam Sonar Umesh Neettiyath ¹ , Mehul Sangekar ^{2,1} , Kazunori Nagano ¹ , Tetsu Koike ¹ , Blair Thornton ^{3,1} , Harumi Sugimatsu ¹ , Hikari Hino ⁴ , Akiko Suzuki ⁴ ¹ The University of Tokyo, ² Japan Agency for Marine-Earth Science and Technology, ³ University of Southampton, ⁴ Japan Organization for Metals and Energy Security	2072		14:40- 15:00	16.4	Numerical Analysis of the Motion of an Automated Fish Guiding System for Set Net Fishery, Daigo Furuichi, Qiao Li, Yoichi Mizukami, Shuchuang Dong Jinxin Zhou, Daisuke Kitazawa The University of Tokyo	2126	
Thursday 9 March	15:20- 16:40	Marine Robotics 5 Chairs: Hayato Kondo, Tokyo University of Marine Science	15:20- 15:40	17.1	Development of Moon Jellyfish Removal ROV System and Its Sea Trial Jonghyun Ahn Hiroshima Institute of Technology	2049	Marine Construction 2 Chairs: Keisuke Takahashi, Mitsubishi UBE Cement	15:20- 15:40	18.1	Utilization of cement-based materials for deep sea infrastructure Keisuke Takahashi ¹ , Mari Kobayashi ¹ , Takafumi Kasaya ² , Yuichiro Kawabata ³ , Mitsuyasu Iwanami ⁴ , Toshiro Yamanaka ⁵ , Shun Nomura ⁵ , Hiroko Makita ¹ Mitsubishi UBE Cement Corporation, ² Japan Agency for Marine-Earth Science and Technology, ³ National Institute of Maritime, Port and Aviation Technology Port and Airport Research Institute, ⁴ Tokyo Institute of Technology, ⁵ Tokyo University of Marine Science and Technology		

	and technology and Eiichiro Araki, JAMSTEC	and Eiichiro	and Eiichiro	16:00				Development of the Autonomous Core Sampling System for AUV Shogo Inoue¹, Sotaro Takashima¹, Kazunori Nagano¹ Kotohiro Masuda¹, Satoru Taoka¹, Blair Thornton², Harumi Sugimatsu², Yuya Nishida³, Isao Koike¹, Tamaki Ura⁴ ¹IDEA Consultants, Inc., ²TheUniversity of Tokyo, ³Kyushu Institute of Technology, ⁴Deepocean Ridge Technology Co., Ltd Corporation and Muneo Yoshie, National Institute of MarinePort	18.2	Essential resource management in dredging hydrographic surveying using USV and SV Pawel Pocwiardowski NORBIT US LTD
		16:00- 16:20	17.3	Development of a Hybrid Underwater Vehicle for Visual Inspection of Bridge Piers Hayato Kondo ¹ , Shukichi Kobayashi ¹ , Takatsugu Tashiro ¹ , Noriaki Saigo ² , Toshifumi Hiraike ² , Kai Tokyo University of Marine Science and Technology, ² Trans-Tokyo Bay Highway Corporation	Noriaki Saigo ² , Toshifumi Hiraike ² , Kuroki ² Technology (PARI)	16:00- 16:20	18.3	Efficient real-time dredging monitoring Pawel Pocwiardowski NORBIT US LTD		
							16:20- 16:40	18.4	Forecasting Underwater Positioning Base and Station for Coastal Construction and Inspection Muneo Yoshie, Tomoo Sato Port and Airport Research Institute National Institute of Maritime, Port and Aviation Technology	
16:45- 17:00				Closing Ceremony						