



# UNDERWATER MINERALS CONFERENCE

Order	Time	First Author	Affiliation	Country	Title
<b>Sunday, Sept 27, 2020 - WELCOME RECEPTION</b>					
	19:00 21:00	begin end			INTRODUCTION -by Mark Luther - Welcome; Introduce Key Staffers, volunteers and about virtual conference
<b>Monday, Sept 28, 2020 - TECHNICAL SESSIONS I and II</b>					
	9:00				START: Call to Order by Technical Chair Wiltshire; Introduce Host, Dr. Mark Luther
	9:10				About: IMMS, the University of South Florida and UMC
	9:20				INTRODUCTION to Presentations of <b>Technical Session I - Equipment Technology &amp; Innovations</b>
1	9:30	Wiebe Boomsma	Royal IHC	Netherlands	Vertical Transport System: Ready to Launch
2	9:55	Frank Lim	2H Offshore	UK	A Free-Standing Deep Sea Mining Vertical Transport System
3	10:20	Jianyu Xiao	IDSSE	China	Model Test of Skip Lifting System for Deep-sea Mining
	10:45				<b>Coffee Break - 30 minutes</b>
4	11:15	Gopkumar Kuttikrishnan	National Institute of Ocean Technology	India	Deep Sea Mining - Exploring Options to the Deep Water Riser System
5	11:40	Marcio Yamamoto	National Maritime Research Institute	Japan	A Review of the R&D on Riser System for the Manganese Nodules Exploitation
6	12:05	Benjamin Pietro Filardo	Pliant Energy Systems	USA	Environmentally Benign Nodule Extraction Method Using Autonomous Swarm Robotics
	12:30				<b>LUNCH Break- 1.5 hours</b>
	14:00				INTRODUCTION to Presentations of <b>Technical Session II - Innovations on Minerology</b>
7	14:05	Thomas Kuhn	Fed. Inst. for Geosciences and Nat. Resources	Germany	Processing of Mn nodules with a combined pyro-hydrometallurgical "zero-waste" approach
8	14:30	Steinar Ellefmo	Norwegian University of Science and Technology	Norway	Exploration Systems for Seafloor Massive Sulfides - A Conceptual Design
9	14:55	Fredrik Soreide	Norwegian University of Science and Technology	Norway	A new approach to 3D SMS mineralization assessments
	15:20				<b>Coffee Break - 30 minutes</b>
10	15:50	Arnt Helge Olsen	Kongsberg Maritime	USA	Mapping seafloor minerals with AUV
11	16:15	Blake Holton	Coda Octopus Products Inc	USA	Real-Time Agile Volumetric Sonar Solution for Mapping, Identification, Monitoring and Mapping
12	16:40	Tetsuo Yamazaki	Osaka Prefecture Univ., Sakai, Japan	Japan	Preliminary economic feasibility analysis of mound type methane hydrate mining
	17:05				<b>Closing Remarks</b>
	17:15				
	17:45				<b>End of the day</b>



# UMC UNDERWATER MINERALS CONFERENCE

Tuesday, Sept 29, 2020 - TECHNICAL SESSIONS III and IV					
	9:00				<b>INVITATION TO UMC 2021 - FLORIDA - St. Petersburg</b>
	9:05				<b>INTRODUCTION to Presentations of <u>Technical Session III - Plume Related Research</u></b>
13	9:10	Laurens de Jonge	IHC Mining B.V.	Netherlands	Polymetallic Nodule Mining: Plume reduction at the source
14	9:35	Rudy Helmons	Delft University of Technology	Netherlands	Sediment discharges from mining vehicles, experiments to find the optimal release conditions
15	10:00	Steven Rizea	Deep Reach Technology	USA	Status of US DOE Project to Develop a Subsea Mining System that Mitigates the Environmental Impact of Sediment Plumes
	10:25				<b>Coffee Break - 30 minutes</b>
16	10:55	Thomas Peacock	Massachusetts Institute of Technology (MIT)	USA	Deep-Sea Mining Sediment Plumes: Recent Progress and Next Steps
17	11:20	Samantha Smith	GSR	Belgium	GSR Update: Technological Advances and Environmental Responsibility
18	11:45	James Hein	USGS	USA	Cobalt, a Uniquely Deep-Ocean Critical Metal Resource
	12:10				<b>LUNCH Break- 1.5 hours</b>
	13:40				<b>INTRODUCTION to Presentations of <u>Technical Session IV - Resource Assessment</u></b>
19	13:50	Mariana Benites	USP - Universidade de São Paulo	Brazil	Resource considerations of phosphate-rich ferromanganese crust and phosphorite deposits from the summit of Rio Grande Rise
20	14:15	Harald Brekke	Norwegian Petroleum Directorate	Norway	Deep Sea Mineral Resources on the Norwegian Continental Shelf
21	14:40	Annemiek Vink	BGR	Germany	Status of Exploration in the German License Area for Polymetallic Nodules
	15:05				<b>Coffee Break - 30 minutes</b>
22	15:35	Iason-Zois Gazis	GEOMAR Helmholtz Centre for Ocean Research	Germany	Multiscale geomorphological seafloor analysis and spatial distribution of polymetallic nodules in three different study sites
23	16:00	Virginie C. Tilot	Université Catholique de Louvain (Belgium)	Belgium	Traditional dimensions of seabed resource management in the Pacific
24	16:25	Campbell McKenzie	RSC Mining and Mineral Exploration Limited (RSC)	New Zealand	Application of Artificial Intelligence technologies and workflows to support marine mineral resource estimation
	16:50				<b>Closing Remarks</b>
	17:00				
	17:30				<b>End of the day</b>



# UNDERWATER MINERALS CONFERENCE

Wednesday, Sept 30, 2020 - TECHNICAL SESSION V and VI					
	9:00				INTRODUCTION to Presentations of <b>Technical Session V - Environmental related projects</b>
25	9:10	Dr. Sebastian Volkmann	Independent Consultant	Netherlands	Blue Solutions for a Green Energy Future
26	9:35	Dr. Mark Luther	USF College of Marine Science	USA	Observations of Benthic Boundary Layer Processes for Marine Mineral Extraction
27	10:00	Jens Laugesen	DNV GL	Norway	Ideas and suggestions for environmental baseline studies related to future mineral extraction on the Norwegian cont. shelf
	10:25				<b>Coffee Break - 30 minutes</b>
28	10:55	Rick Cole	RDSEA International	USA	Water-Column Physics, Seafloor Massive Sulphides, and Polymetallic Nodules
29	11:20	Hans Smit	OML - Ocean Minerals	USA	Ocean Minerals Program to Address the Critical Metals Supply Chain
30	11:45	Bryan O'Malley	USF College of Marine Science	USA	<b>POSTER:</b> Benthic foraminifera are useful indicators of ecological quality status for marine mining environmental impact assessm.
	12:00				<b>LUNCH Break- 1.5 hours</b>
	13:30				INTRODUCTION to Presentations of <b>Technical Session VI - Mineralogy &amp; Geochemistry</b>
31	13:40	João Carvalho	ISQ	Portugal	Prospectivity mapping of seabed minerals using satellite remote sensing data: the SAGRESsmart project
32	14:05	Francisco Javier Gonzalez	Geological Survey of Spain (IGME)	Spain	An integrative metallogenetic study of seabed mineral deposits in the pan-European seas: GeoERA-MINDeSEA
33	14:30	Dr. Lixin Xu	China Merchants Deepsea Research Institute (Sanya)	China	Study of Field Development Plan for Subsea Cobalt Rich Crust Recovering
34	14:55	Akira Usui	Kochi University	Japan	Regional and fine-scale variability in chemical and mineralogical composition of the hydrogenetic ferromanganese crusts.
	15:20				<b>Coffee Break - 30 minutes</b>
35	15:50	Kira Mizell	USGS	USA	Geographic and Oceanographic factors that impact the composition of FeMn crusts
36	16:15	Egidio Marino	Geological Survey of Spain (IGME)	Spain	Cobalt-rich Ferromanganese Crusts from the Canary Islands Seamounts: Mineralogy and Geochemistry
37	16:40	Georgy Cherkashov	VNIIOkeangeologia, St Petersburg State Univ.	Russia	Reconstruction of hydrothermal ore-forming system evolution during 100 kyr based on massive sulfides
38	17:05	S. Rajendran	Kerala University of Fisheries & Ocean Studies	India	Prospects and Challenges in mining of the onshore and offshore mineral deposits of Kerala...
	17:30				<b>Closing Remarks</b>
	17:40				
	18:00				<b>End of the day</b>



# UNDERWATER MINERALS CONFERENCE

Thursday, October 1, 2020 - TECHNICAL SESSION VII & Workshop					
	9:00			INTRODUCTION to Presentations of <b>Technical Session VII - Regulatory considerations</b>	
39	9:10	Ilsa Harper Luther	Tulane University Law School	USA	Ship Happens: Contingency Planning for Deep-Sea Mining in Light of Exxon Valdez
40	9:35	Andreas Kaede	Kanzlei Kaede	Germany	IP Licencing for Deep Seabed Mining (DSM): Leave the Regulatory Gap or Fill it?
	10:00				<b>Coffee Break - 20 minutes</b>
	10:20				INTRODUCTION to <b>BOEM Workshop</b> - Regulations & Responsibilities
	10:30	Alden Denny	BOEM	USA	Kickoff discussion of roles and responsibilities (USGS, BOEM, NOAA)
	11:00	Alden Denny	BOEM	USA	Baseline discussion of regulations and jurisdiction (BOEM)
	11:30	Alden Denny	BOEM	USA	Description of resources in OCS & EEZ (USGS)
	12:00				<b>Lunch Break - 1.5 hours</b>
	13:30	Alden Denny	BOEM	USA	Mineral Resource Discussion Session: Stakeholder input on Resource Types
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	15:00				<b>Coffee Break - 15 minutes</b>
	15:15	Alden Denny	BOEM	USA	Regulatory Framework Discussion Session: Stakeholder perspective on Regulations
	15:45	Alden Denny	BOEM	USA	Regulatory Framework Discussion Session: Stakeholder perspective on Jurisdiction
	16:15				<b>Coffee Break - 15 minutes</b>
	16:30	Alden Denny	BOEM	USA	Review of resource interest and AOI
	16:50	Alden Denny	BOEM	USA	Review of regulatory and jurisdictional input
	17:20	Alden Denny	BOEM	USA	TBD environmental related discussion topic