

International Seabed Authority (ISA)

2nd Expert Scoping Workshop: Charting Future Horizons – Harnessing Advanced Technologies for the Protection and Sustainable Use of the International Seabed Area:

“Monitoring”

Draft Agenda:

Day 1 - Tuesday, 10 June

Time (JST)	Meeting Activities
9:30 – 10:00 am	<i>Agenda Item 1: Opening of the Workshop</i> Moderator: [TBD] <ul style="list-style-type: none"> Leticia Carvalho, International Seabed Authority (ISA) Yuzo Yamaguchi, Ministry of Economy, Trade and Industry of Japan (METI) Masato Fujiwara, President of Kobe University, Japan Hiroko Sugioka, Kobe Ocean-Bottom Exploration Center (KOBEC) Katsuhiko Suzuki, Japan Agency for Marine-Earth Science and Technology (JAMSTEC)
10:00 – 10:20 am	<i>Group Photo</i>
10:20 – 10:50 am	<i>Agenda Item 2: Meeting Background, Scope and Expected Outputs Addressing Key Technologies, Technological Needs, Research and Development Activities</i> <ul style="list-style-type: none"> Ulrich Schwarz-Schampera (ISA Secretariat), Tomohiko Fukushima (Legal and Technical Commission [LTC])
10:50 – 12:20 pm	<i>Agenda Item 3: Marine Monitoring – Setting the Scene (requirements, examples)</i> Chair: [TBD] <ul style="list-style-type: none"> Pedro Madureira (University of Evora, Portugal): <i>The Draft Regulations for Exploitation and Existing Regulations and Guidelines for Deep-Sea Monitoring</i> Menhyao Zhu (OPRI, Japan): <i>Bridging Science, Policy, and Society through the “Ocean Shot” Initiative: Innovations in Monitoring for Ocean Discoveries</i> Muhammad Zarar (Geo-Tech Consultancy Services, Pakistan): <i>Technological Barriers for Deep-sea Monitoring and How to Over-come them by using Geo-spatial & Geophysical Data Collection Technologies integrating with AI & Gen-AI pathways</i> Musa Animashaun (ST Hudson Engineers, Inc., United States): <i>Hydrography in the Deep Sea: Enabling Transparent, Scalable Monitoring of the International Seabed Area</i> <i>Discussion (20 min.)</i>
12:20 pm – 2:00 pm	<i>Lunch Time & Coffee Break</i>

Time (JST)	Meeting Activities
2:00 – 3:10 pm	<p>Agenda Item 3: Marine Monitoring – Setting the Scene (requirements, examples) (cont'd)</p> <p>Chair: [TBD]</p> <ul style="list-style-type: none"> José Miguel Almeida, Betina Neves, Eduardo Silva (INESCTEC): <i>TRIDENT: Project, Updates and Tech Insights for Long-Term Deep-Sea Monitoring</i> Matthieu Straub (NineNorth, USA, France): <i>The Visualization of Environmental Data and the Possible Outreach Solutions [TBC]</i> Haiyan Yang (BPHTDC, China): <i>Monitoring Program under Low-Disturbance Polymetallic Nodule Collecting Condition</i> <p>Discussion (20 min.)</p>
3:10 – 4:15 pm	<p>Agenda Item 4: Data Handling and Communication</p> <p>Chair: [TBD]</p> <ul style="list-style-type: none"> Susumu Takatsuka (Sony, Japan): <i>High-precision Direct Observation of Particles on the Seafloor Using an Event-based Vision Sensor (EVS)</i> Hina Muranaka (NEC Networks & System Integration Corp., Japan): <i>Seafloor earthquake and tsunami observation system for issuing Earthquake Early Warnings and clarifying earthquake mechanisms</i> Curtis Lee (QYSEA Technology, China): [Title - TBA] <p>Discussion (20 min.)</p>
04:15 – 04:30 pm	Coffee Break
04:30 – 05:00 pm	<p>Agenda Item 5: Compilation of Thematic Discussion for Relevance and Priorities in Marine Monitoring, Data Handling and Communication</p> <ul style="list-style-type: none"> Workshop Co-chairs ISA Secretariat
06:00 – 8:00 pm	Workshop Reception Dinner

Day 2 – Wednesday, 11 June

Time (Kobe)	Meeting Activities
9:30 – 10:00 am	<p>Summary of Day 1</p> <ul style="list-style-type: none"> Junichiro Ishibashi (KOBEC) and Kioshi Mishiro (ISA)
10:00 – 10:20 am	<p>Agenda Item 6: Introduction of KOBEC Research Activities</p> <ul style="list-style-type: none"> Tokihiro Katsui, Kobe Ocean-Bottom Exploration Center (KOBEC)
10:20 – 11:30 am	<p>Agenda Item 7: Technical Requirements (stationary, mobile)</p> <p>Chair: [TBD]</p> <ul style="list-style-type: none"> Thomas Peacock & Souha El Mousadik (MIT, United States): <i>Monitoring and Modeling Deep-Sea Nodule Mining: Lessons from Recent Collector Trials in the CCZ</i> Yasuo Furushima (JAMSTEC, Japan): <i>Estimating Near-Seafloor Turbulence using Acoustic Doppler Velocimeters (ADVs)</i> Scott Loranger (Kongsberg, Norway): <i>Acoustics Technologies for Particles [TBC]</i> <p>Discussion (20 min.)</p>
11:30 – 12:00 pm	Coffee Break

Time (Kobe)	Meeting Activities
12:00 – 01:00 pm	<p>Agenda Item 7: Technical Requirements (stationary, mobile) (cont'd) Chair: [TBD]</p> <ul style="list-style-type: none"> • José Miguel Almeida, Betina Neves, Eduardo Silva (INESCTEC, Portugal): <i>PETRA: Innovative Robotics for Deploy/Recover and Monitoring in the Deep Sea for “Shipless” Operations</i> • Berit Floor (Kongsberg, Norway): <i>Machine Learning for Data Interpretation, Real-Time Interpretation of Hydroacoustic Data Streams, Real-Time or Post Processing [TBC]</i> • Hiroyuki Yamamoto, Tetsuya Miwa (JAMSTEC, Japan): <i>Monitoring System and Technical Story of Edokko Mark-I [TBC]</i> <p>Discussion (20 min.)</p>
1:00 – 2:30 pm	Lunch & Coffee Break
2:30 – 04:00 pm	<p>Agenda Item 8: Monitoring of Activities on Different Marine Minerals (Polymetallic Nodules, Polymetallic Sulphides and Cobalt-rich Ferromanganese Crusts: Surface, Mid-Water and Seabed) Chair: [TBD]</p> <ul style="list-style-type: none"> • Dhugal Lindsay (JAMSTEC, Japan): <i>Leveraging AI for Image-Based Monitoring of Pelagic Communities</i> • Akira Tsune (DORD, Japan): <i>[Title - TBA]</i> • Hiroko Kamoshida (JOGMEC, Japan): <i>Environmental Monitoring and Simulation: Knowledge-Gap and Assignments</i> • Fadhili Malesa (BAS Cambridge, UK): <i>Modelling of Sediment Plumes from Deep Sea Mining: Current Approach and Future Direction [Tentative]</i> • Stefan Wegerer and Matthias Semel (Bauer Maschinen GmbH, Germany) <i>[TBC]</i> <p>Discussion (20 min.)</p>
04:00 – 5:30 pm	Coffee Break
5:30 – 6:00 pm	<p>Agenda Item 9: Compilation of Thematic Discussion for Technical Requirements for the Monitoring of Activities on Different Marine Minerals</p> <ul style="list-style-type: none"> • Workshop Co-Chairs • ISA Secretariat

Day 3 – Thursday, 12 June

Time (Kobe)	Meeting Activities
9:30 – 10:00 am	<p>Summary of Day 2</p> <ul style="list-style-type: none"> • Tomohiko Fukushima (LTC) and Ulrich Schwarz-Schampera (ISA)
10:00 – 11:30 am	<p>Agenda Item 10: Monitoring Schemes & Data Reporting Chair: Tomohiko Fukushima (LTC)</p> <ul style="list-style-type: none"> • Kanae Komaki (Chowa Giken Cooperation, Japan): <i>AI-Supported Structural Review of Deep-Sea Environmental Monitoring Reports: A Conceptual Framework</i> • Matthias Haeckel (GEOMAR, Germany): <i>Mining Impact, DISCOL, Monitoring of the Patania-II Trials, and the Ongoing Threshold Discussions</i>

Time (Kobe)	Meeting Activities
	<ul style="list-style-type: none"> • Timoteo Badalotti (ABS, United States): <i>MRV (Monitoring, Reporting, and Verification) – The Role of Class Society</i> • Jens Laugesen (DNV, Norway): <i>Environmental Monitoring of Seabed Activities – how can this be done correctly and at the same time within acceptable economic constraints?</i> • João Carvalho (Deep Focus, Portugal): <i>Application of Machine Learning for Deep-Sea Mineral Resource Assessment and Habitat Mapping and Monitoring: Challenges and Opportunities</i> <p><i>Discussion (20 min.)</i></p>
11:30 am – 12:00 pm	<i>Coffee Break</i>
12:00 – 12:30 pm	<i>Agenda Item 11: Monitoring Assessment – Workshop Summary</i> <ul style="list-style-type: none"> • Co-Chairs • Ulrich Schwarz-Schampera (ISA)
12:30 – 2:00 pm	<i>Lunch Break</i>
2:00 – 4:00 pm	<i>Agenda Item 12: Monitoring Assessment – Workshop Summary</i> <ul style="list-style-type: none"> • Co-Chairs • Ulrich Schwarz-Schampera (ISA)
4:00 – 5:00 pm	<i>Agenda Item 13: Closure of the Workshop</i>

Day 4 – Friday, 13 June (Voluntary)

Time (Kobe)	Meeting Activities
9:00 – 12:30 pm	<i>Field Trip, Short cruise within Kobe Harbor and visit of Marine/Maritime Museum</i>