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ISA DeepData : Platform for enhancing capacity and knowledge for deep sea environmental management

Jihyun Lee
Director of Office of Environmental Management and Mineral Resources, ISA

ISA International Conference on the Legal, Scientific and Economic Aspects of Deep Seabed Mining, 14-16 Nov 2019 , Kingston


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सागर निधि
SAGAR NIDHI
NIOT

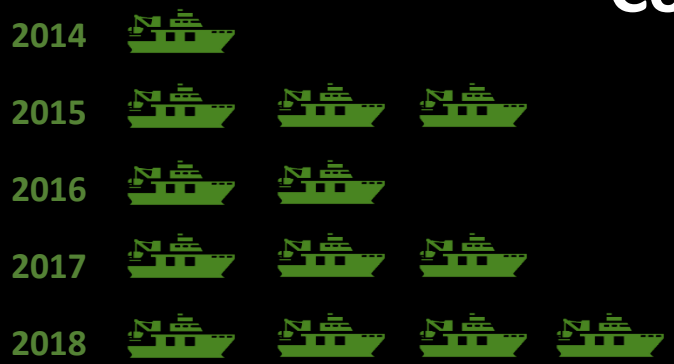
Contracts for Polymetallic Nodules

75 cruises in 18 years

Contracts for Polymetallic Sulphides

26 cruises in 7 years

Contracts for Cobalt-rich Ferromanganese Crusts



13 cruises in 5 years

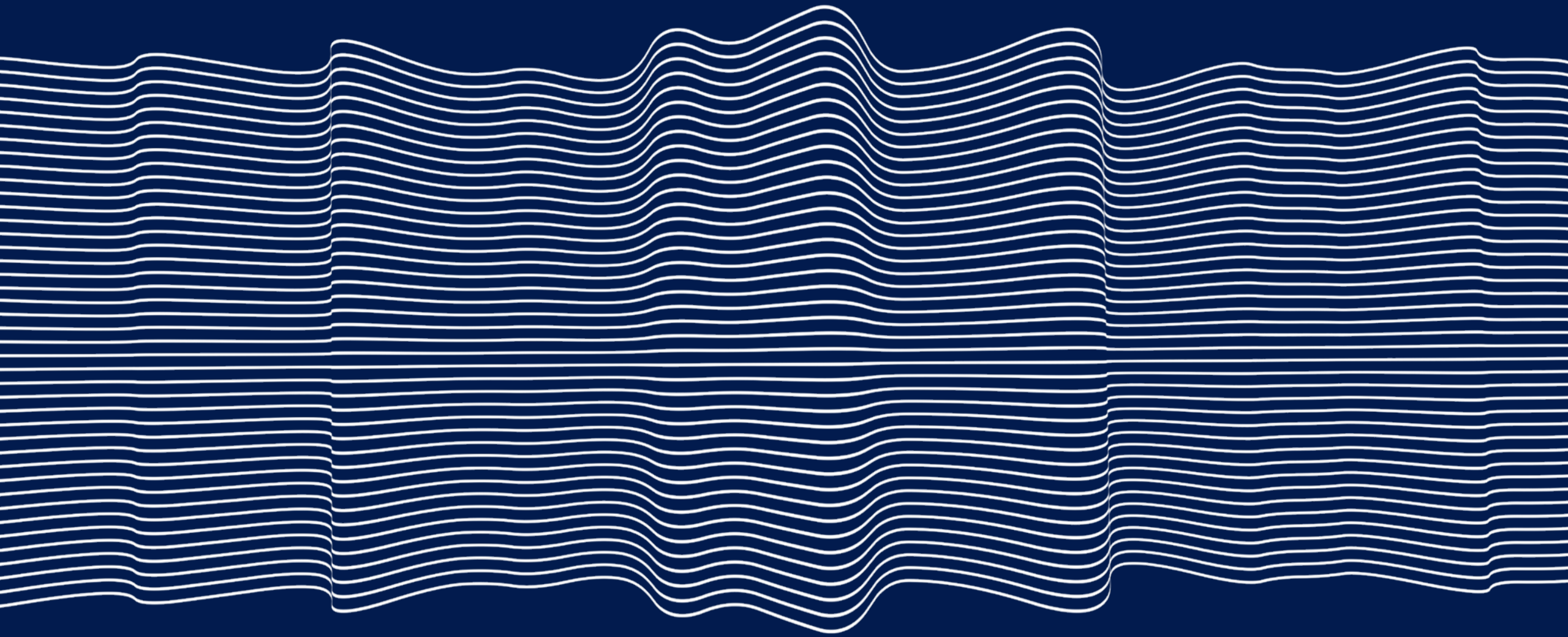

1987
FINAL COORDINATES
FORMAL
18 Dec 87


SONY
MICRO FLOPPYDISK
Double Sided
MFD-2HD
SONY
INDEX
(Revised)
1998


2018
SAMSUNG


2008
CD-R
700MB 80min. 1~52x

Geological & Environmenta
Data



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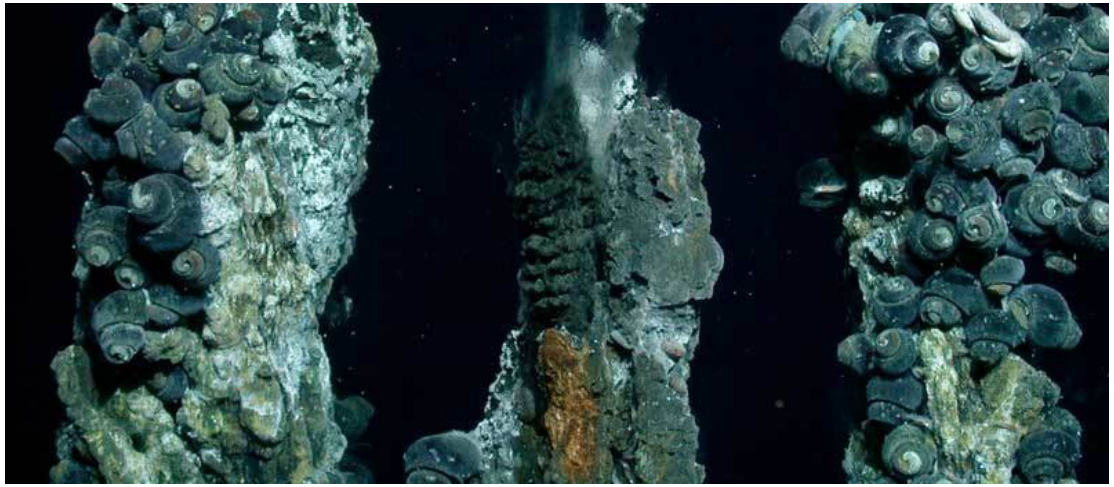
Platform for enhancing capacity and knowledge for environmental management in the Area



Protection of the marine environment

Art.145 of UNCLOS

necessary measures to ensure **effective protection for the marine environment from harmful effects** that may arise from activities associated with deep-sea mining, including the exploration phase ….for the **prevention of damage to the flora and fauna** of the marine environment

ISA responsible for adopting appropriate **rules, regulations & procedures**

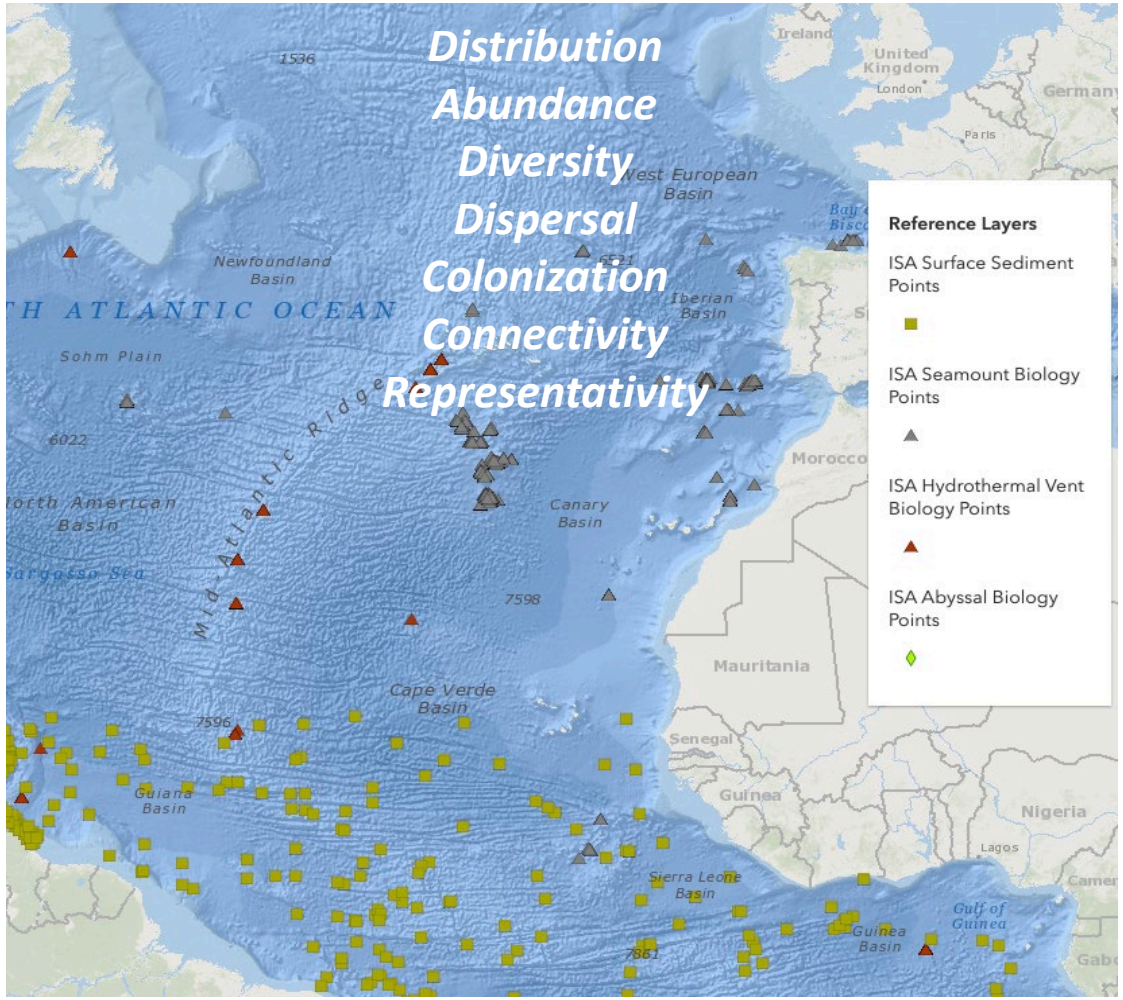
70	COMRAPMS1X_058	NA	NR		58	DY115-30_30	Da Yang Yi	30I-CTD04-1	30I-CTD04-1-201.188	Public	-37.6489	50.44434	12/29/2013 0:00	201.188	Ammonium (NH4-N)	-0.00061147	mg/L	Nutrients
71	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	2	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
72	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	10	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
73	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	30	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
74	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	50	Chlorophyll a	0.04	mg/m3	CTD Sensor Readi
75	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	75	Chlorophyll a	0.07	mg/m3	CTD Sensor Readi
76	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	100	Chlorophyll a	0.29	mg/m3	CTD Sensor Readi
77	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	110	Chlorophyll a	0.07	mg/m3	CTD Sensor Readi
78	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	125	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
79	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	150	Chlorophyll a	0.01	mg/m3	CTD Sensor Readi
80	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	200	Chlorophyll a	0	mg/m3	CTD Sensor Readi
81	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	2	Chlorophyll a	0.04	mg/m3	CTD Sensor Readi
82	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	10	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
83	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	30	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
84	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	50	Chlorophyll a	0.22	mg/m3	CTD Sensor Readi
85	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	75	Chlorophyll a	0.13	mg/m3	CTD Sensor Readi
86	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	100	Chlorophyll a	0.02	mg/m3	CTD Sensor Readi
87	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	110	Chlorophyll a	0.01	mg/m3	CTD Sensor Readi
88	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	125	Chlorophyll a	0	mg/m3	CTD Sensor Readi
89	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	150	Chlorophyll a	0	mg/m3	CTD Sensor Readi
90	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	200	Chlorophyll a	0	mg/m3	CTD Sensor Readi
91	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	2	Chlorophyll a	0.04	mg/m3	CTD Sensor Readi
92	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	10	Chlorophyll a	0.06	mg/m3	CTD Sensor Readi
93	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	30	Chlorophyll a	0.08	mg/m3	CTD Sensor Readi
94	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	50	Chlorophyll a	0.05	mg/m3	CTD Sensor Readi
95	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	75	Chlorophyll a	0.27	mg/m3	CTD Sensor Readi
96	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	90	Chlorophyll a	0.15	mg/m3	CTD Sensor Readi
97	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	100	Chlorophyll a	3.13	mg/m3	CTD Sensor Readi
98	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	110	Chlorophyll a	0.34	mg/m3	CTD Sensor Readi
99	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	125	Chlorophyll a	0.21	mg/m3	CTD Sensor Readi
100	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	150	Chlorophyll a	0.08	mg/m3	CTD Sensor Readi
101	COMRAPMS1_OA	OA	NA	OA		DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	200	Chlorophyll a	0	mg/m3	CTD Sensor Readi
102	COMRAPMS1_OA	OA	NA	OA		DY125-26_26	Da Yang Yi	CTD1	CTD15	Public	-29.0218	61.57031	11/29/2012 0:00	5	Nitrate (NO3-N)	0.008484	mg/L	Nutrients
103	COMRAPMS1_OA	OA	NA	OA		DY125-26_26	Da Yang Yi	CTD1	CTD15	Public	-29.0218	61.57031	11/29/2012 0:00	5	Nitrite (NO2-N)	0.002352	mg/L	Nutrients
104	COMRAPMS1_OA	OA	NA	OA		DY125-26_26	Da Yang Yi	CTD1	CTD15	Public	-29.0218	61.57031	11/29/2012 0:00	5	Silicate (SiO3)	0.030184	mg/L	Nutrients
105	COMRAPMS1_OA	OA	NA	OA		DY125-26_26	Da Yang Yi	CTD1	CTD1100	Public	-29.0218	61.57031	11/29/2012 0:00	100	Phosphate (PO4-P)	0.002759	mg/L	Nutrients
106	COMRAPMS1_OA	OA	NA	OA		DY125-26_26	Da Yang Yi	CTD1	CTD1100	Public	-29.0218	61.57031	11/29/2012 0:00	100	Nitrate (NO3-N)	0.067452	mg/L	Nutrients

From Numbers to Information

DATA PRODUCTS

MULTIPLE USER-GROUPS

ISA Secretariat and LTC
Contractors
State Governments
NGO'S
Scientists
General Public



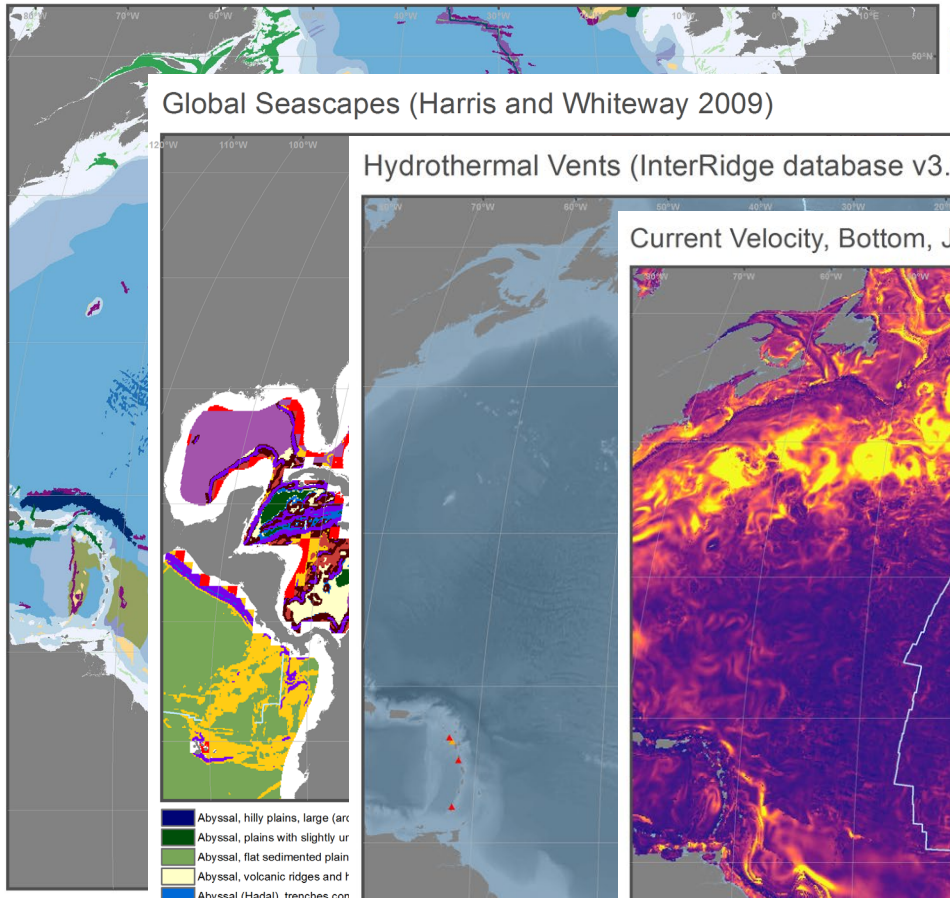
ISA Deep Data portal sampling points

- ✓ Data aggregation and synthesis
- ✓ Modeling and statistical analysis
- ✓ Spatial-temporal comparisons
- ✓ Data visualization and overlays
- ✓ Spatial planning tools

MULTIPLE PURPOSES

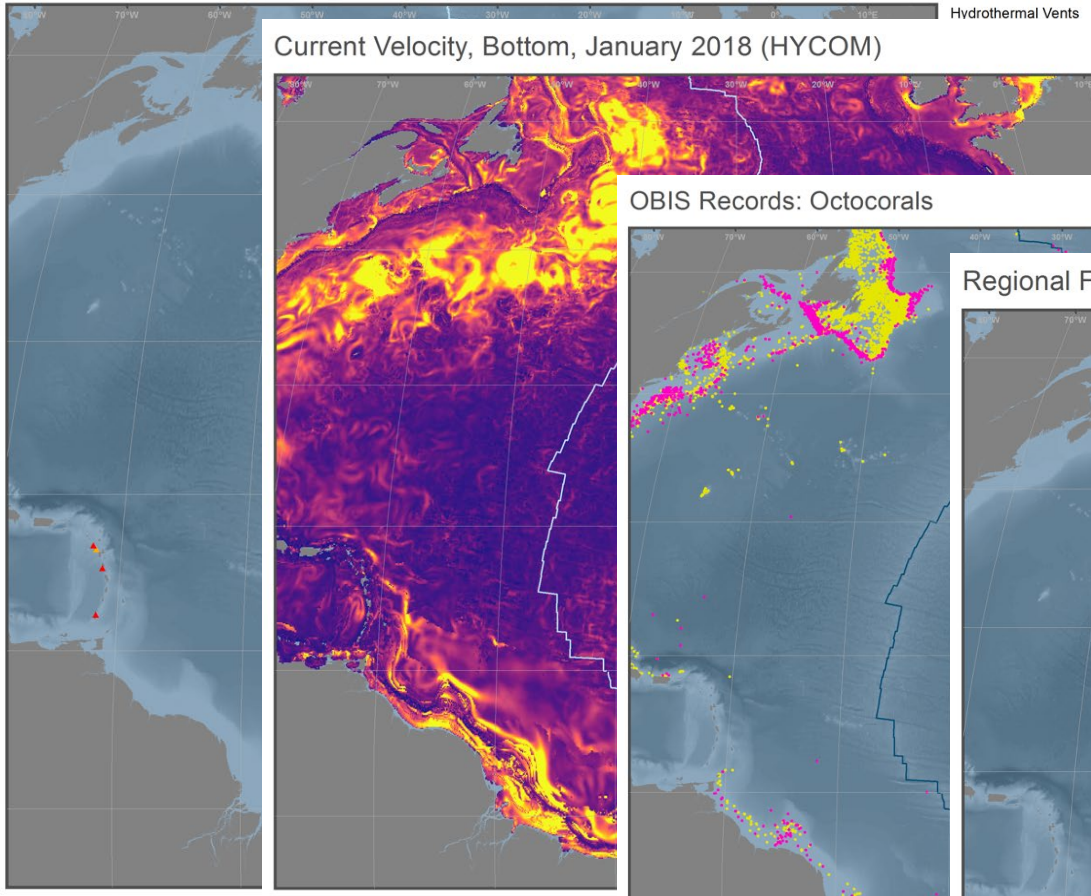
REMP
EIA
OUTREACH

Global Seafloor Geomorphic Features (Harris et al. 2014)



Global Seascapes (Harris and Whiteway 2009)

Hydrothermal Vents (InterRidge database v3.4)



Current Velocity, Bottom, January 2018 (HYCOM)

OBIS Records: Octocorals

Regional Fisheries Management Organizations, Bottom Fishing Areas (FAO)

ISA Strategic Plan (2019-2023)

Strategic Direction 3

Protect the marine environment

(ISBA/24/A/10)

Environmental Impact/Risk Assessment (SD 3.5)

- Inherent ecological and biological vulnerability of deep sea habitats; High level of uncertainty; Limited knowledge
- Loss of substrate and subsequent biodiversity loss
- Direct effects (operational plume and re-sedimentation, light and noise)
- Discharge plume and its effects on pelagic/benthic organisms

Adaptive, practical and technically feasible regulatory framework (SD 3.1)

Environmental monitoring, modelling, data management and information access (SD. 3.3, 3.4)

Regional Environmental Assessment and Management Plan (SD 3.2)

- Ecosystem-based and holistic approach (addressing cumulative impacts)
- Precautionary approach and adaptive management
- Area-based management tools (APEIs, VMEs, etc)
- Participatory & Transparent approach (data/information sharing/communication)
- Strategic approach: Goals/Objectives/Targets/Indicator
- Environmental Baseline and monitoring

Connecting

knowledge of the deep sea environment and its **resources for the benefit of humanity**

ISA DeepData (http://data.isa.org.jm)

International Seabed Authority

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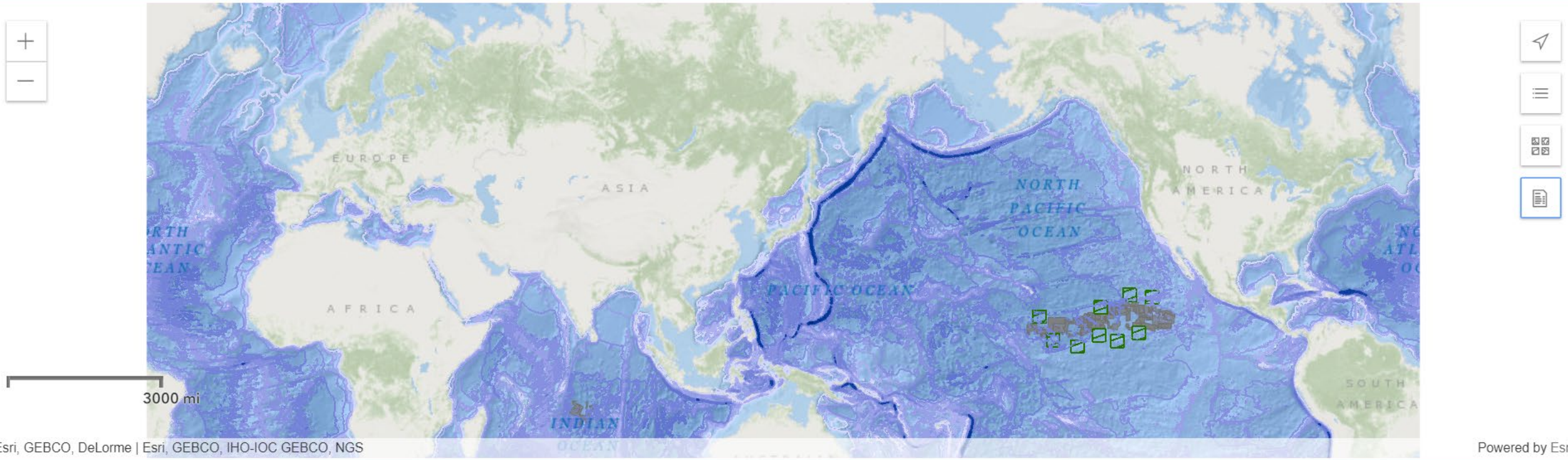

International Seabed Authority

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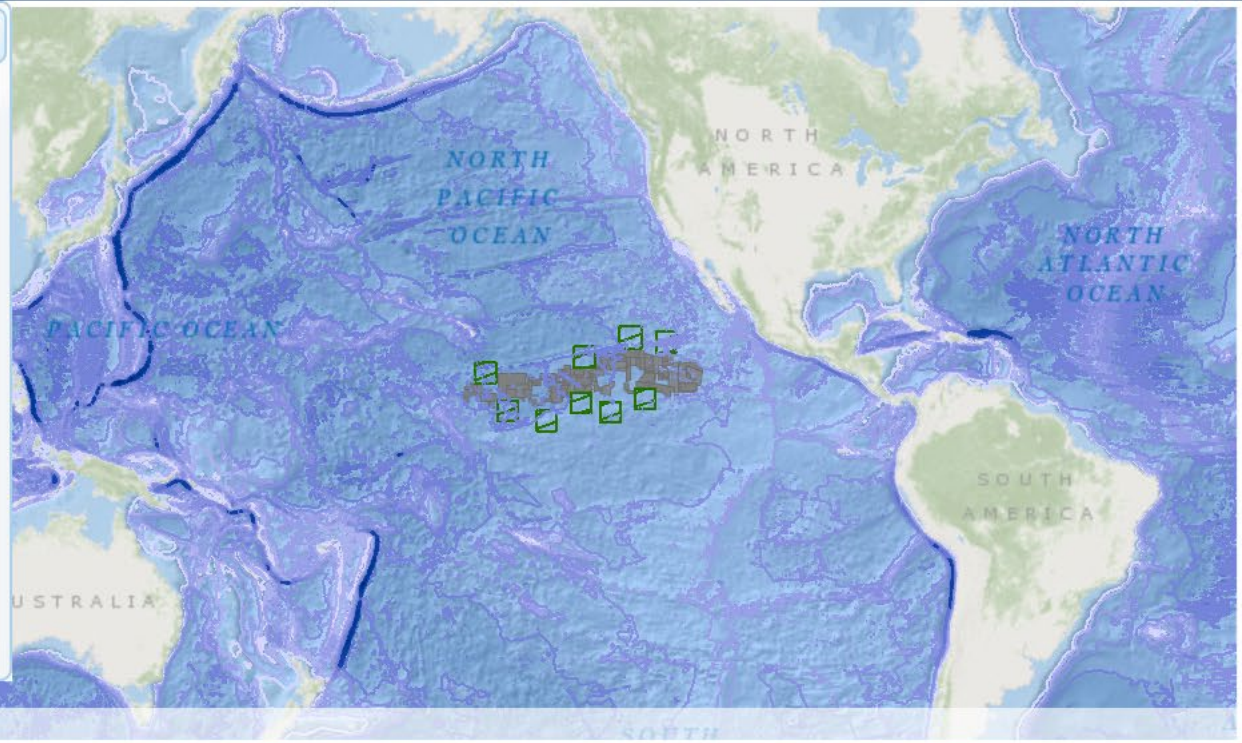
Contractors - Mineral Type

- ALL
- China Minmetals Corporation – PMN
- China Ocean Mineral Resources Research and Development Association – CRFC
- China Ocean Mineral Resources Research and Development Association – PMN
- China Ocean Mineral Resources Research and Development Association – PMS
- Companhia de Pesquisa de Recursos Minerais S.A. – CRFC
- Cook Islands Investment Corporation – PMN
- Deep Ocean Resources Development Co. Ltd. – PMN
- Federal Institute for Geosciences and Natural Resources of Germany – PMN
- Federal Institute for Geosciences and Natural Resources of Germany –



Esri, GEBCO, DeLorme | Esri, GEBCO, IHO-IOC GEBCO, NGS

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Filter by Data Type

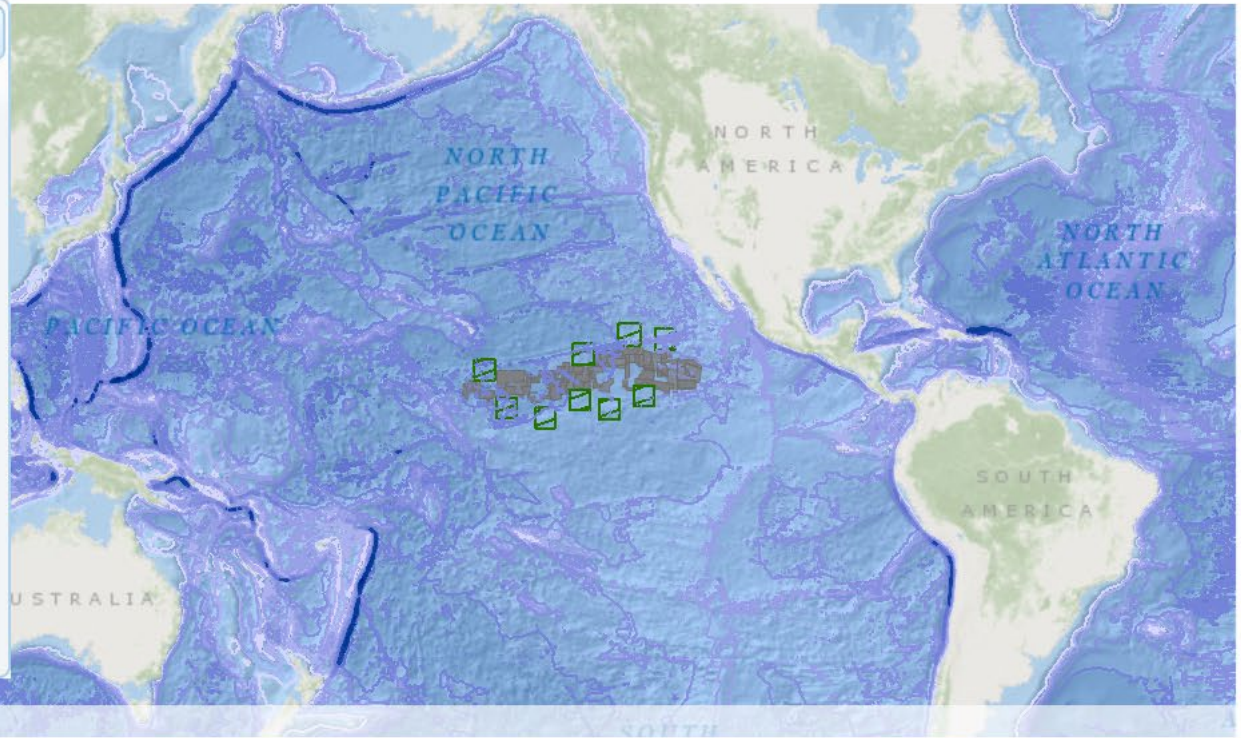
Biological

Sample Type

Point

Organism Details
Taxonomist information
Taxonomy ID
Taxonomy information

Run Query | Export Query



Esri, GEBCO, DeLorme | Esri, GEBCO, IHO-IOC GEBCO, NGS

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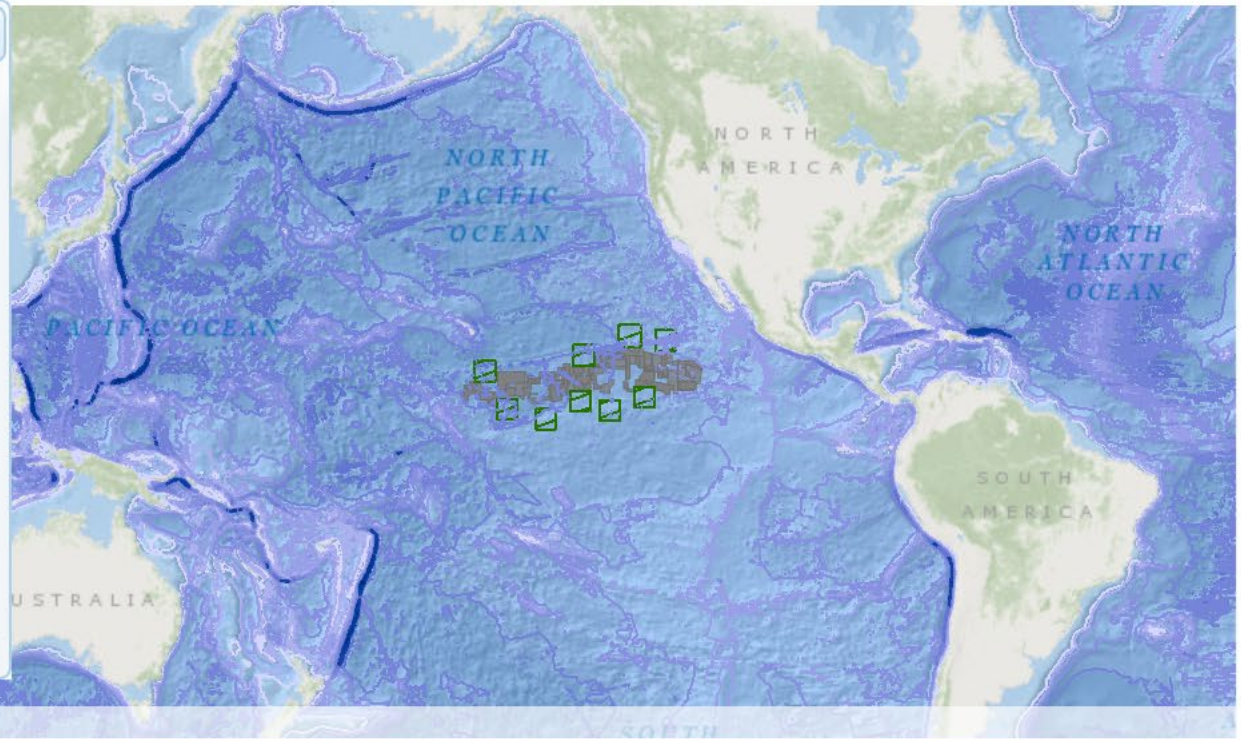
Tools

Biological Data Type Conversion Tool (Excel)

This tool will convert the biological data exports to a cross-tab format.
Instructions for use:

1. Download the Biological_DataType_Convert_yyyymmdd.xlsm file to your local hard drive.
2. Open the Biological_DataType_Convert_yyyymmdd.xlsm file.
3. Click the “Import CSV” button and navigate to the biological export file you wish to convert: biology_lines_data_export.csv or biology_points_data_export.csv.
4. Click the “Cross Tab Format” button.
5. The converted results are included in the ‘Biological_Data_Crosstab’ worksheet.



Esri, GEBCO, DeLorme | Esri, GEBCO, IHO-IOC GEBCO, NGS

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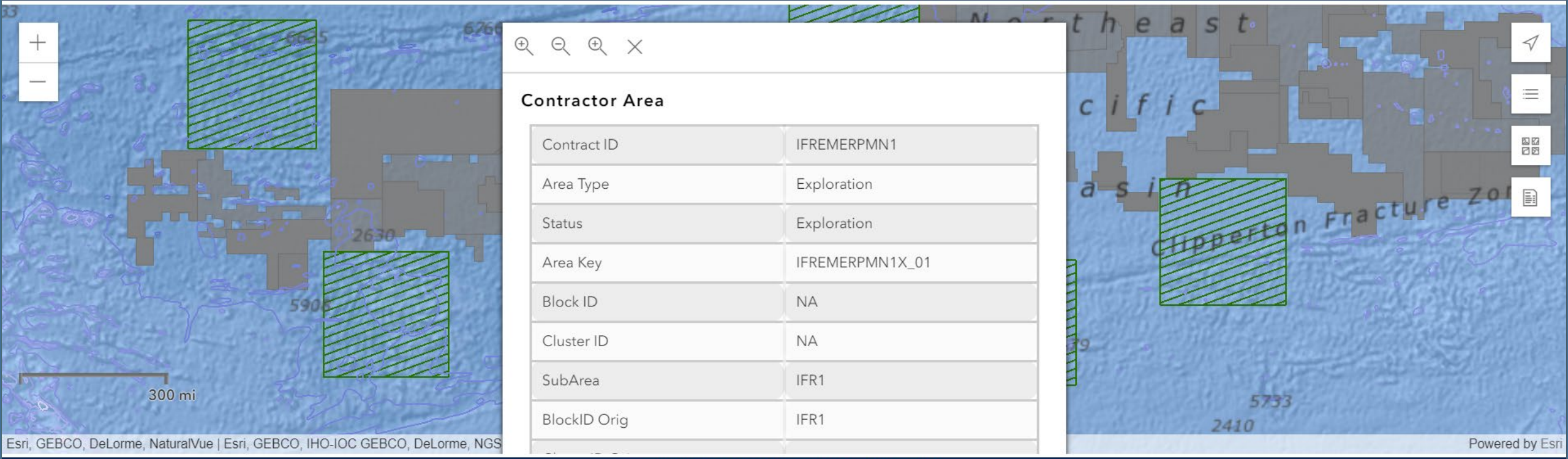

Contractor Area

Contract ID	IFREMERPMN1
Area Type	Exploration
Status	Exploration
Area Key	IFREMERPMN1X_01
Block ID	NA
Cluster ID	NA
SubArea	IFR1
BlockID Orig	IFR1

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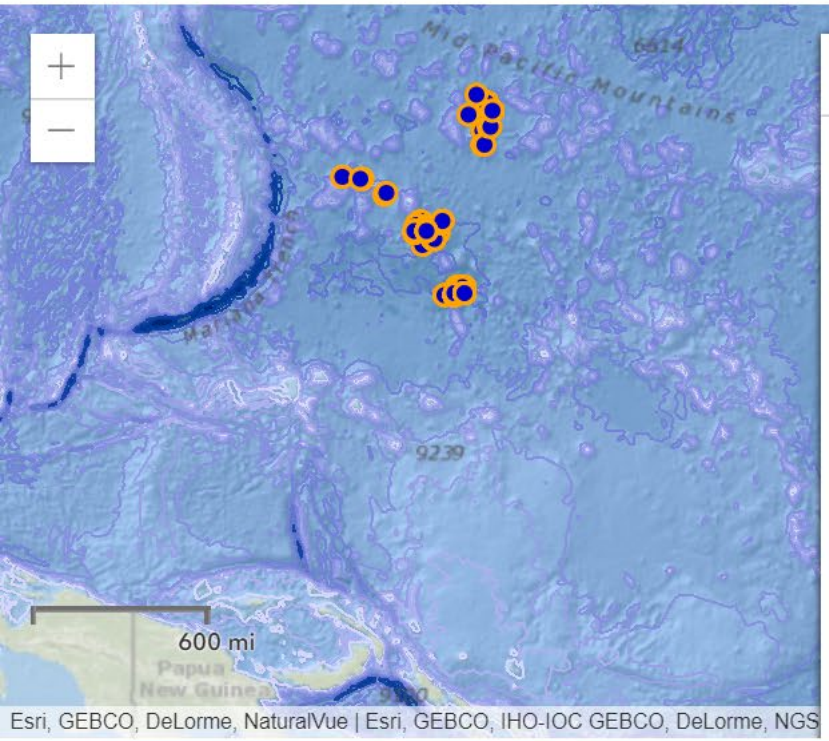
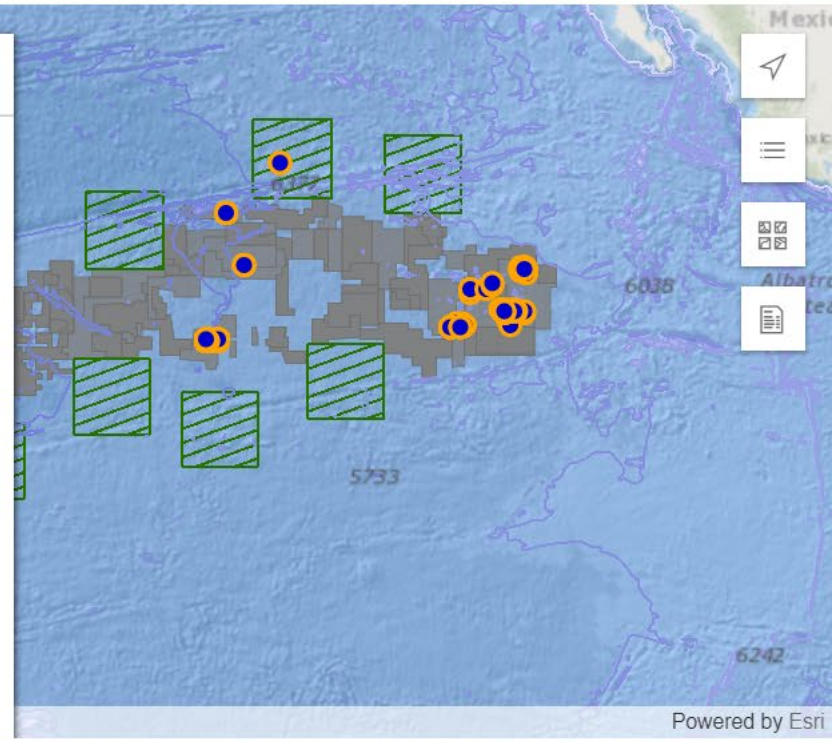


1 of 2

Selected Sample Point

Sample ID	AA
Station ID	WS1104-BNB
Area Key	COMRAPMN1X_COM1a
Cruise_Leg	DY115-23_2
Research Vessel	HAI YANG LIU HAO
Habitat Type	Water column
Matrix Type	Biological Sample
Sampling Device	Net

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Ple

DeepData Team of ISA secretariat