Considerations for developing a REMP from geological/resources perspectives

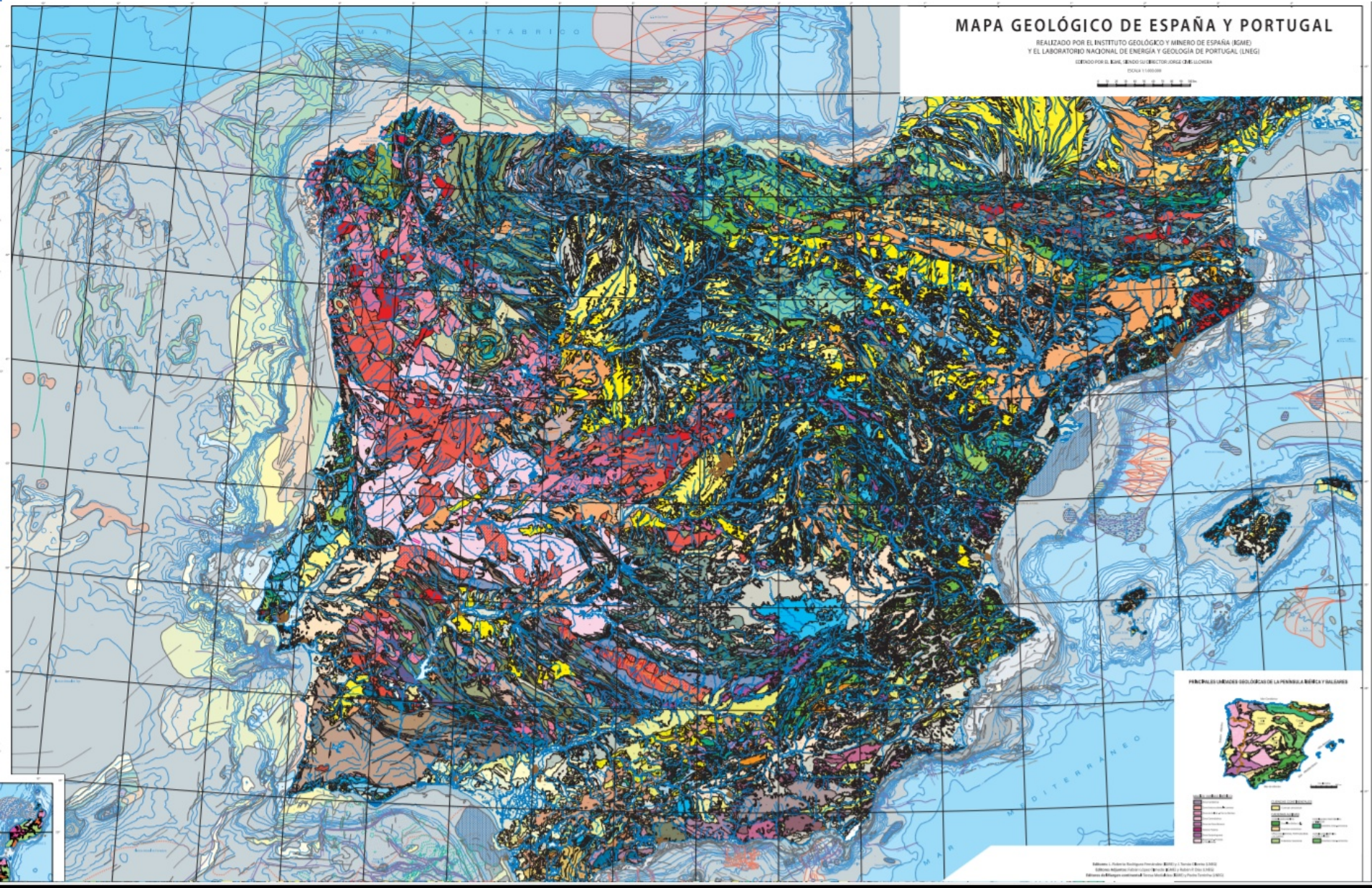
University of Évora, 25 November 2019

Pedro Madureira

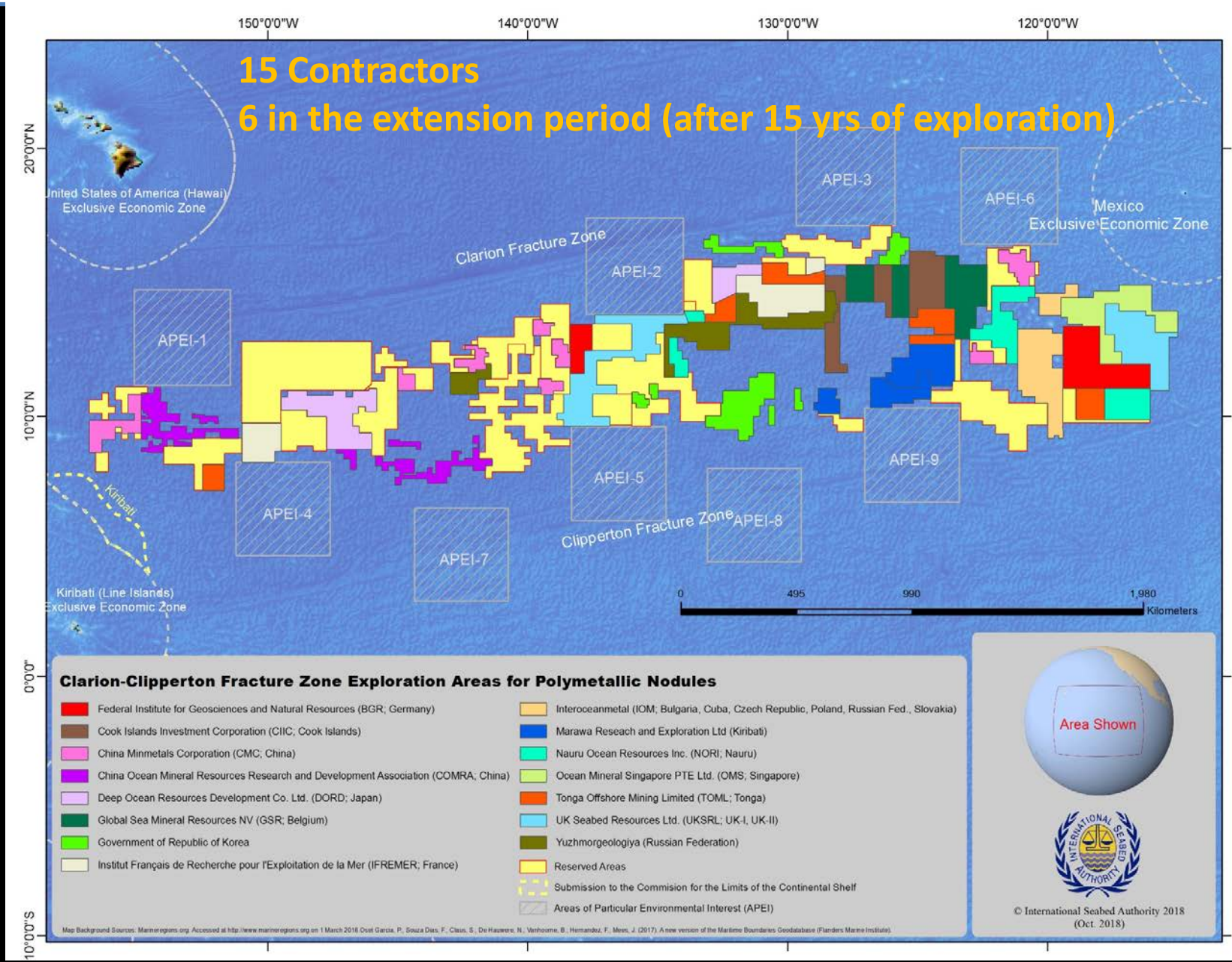
Legal & Technical Commission of the ISA

Department of Geosciences/Institute of Earth Sciences – Évora University

Task Group for the Extension of the Continental Shelf



Fonte: Laboratório Nacional de Energia e Geologia (LNEG)


15 Contractors
6 in the extension period (after 15 yrs of exploration)
150°0'0"W
140°0'0"W
130°0'0"W
120°0'0"W
20°0'0"N
10°0'0"N
0°0'0"
10°0'0"S
United States of America (Hawai)
Exclusive Economic Zone
Mexico
Exclusive Economic Zone
Clarion Fracture Zone
Clipperton Fracture Zone
APEI-1
APEI-2
APEI-3
APEI-4
APEI-5
APEI-6
APEI-7
APEI-8
APEI-9
Kiribati
Kiribati (Line Islands)
Exclusive Economic Zone
0
495
990
1,980
Kilometers
Clarion-Clipperton Fracture Zone Exploration Areas for Polymetallic Nodules
Federal Institute for Geosciences and Natural Resources (BGR; Germany)
Cook Islands Investment Corporation (CIIC; Cook Islands)
China Minmetals Corporation (CMC; China)
China Ocean Mineral Resources Research and Development Association (COMRA; China)
Deep Ocean Resources Development Co. Ltd. (DORD; Japan)
Global Sea Mineral Resources NV (GSR; Belgium)
Government of Republic of Korea
Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER; France)
Interoceanmetal (IOM; Bulgaria, Cuba, Czech Republic, Poland, Russian Fed., Slovakia)
Marawa Reseach and Exploration Ltd (Kiribati)
Nauru Ocean Resources Inc. (NORI; Nauru)
Ocean Mineral Singapore PTE Ltd. (OMS; Singapore)
Tonga Offshore Mining Limited (TOML; Tonga)
UK Seabed Resources Ltd. (UKSRL; UK-I, UK-II)
Yuzhmorgeologiya (Russian Federation)
Reserved Areas
Submission to the Commision for the Limits of the Continental Shelf
Areas of Particular Environmental Interest (APEI)
Area Shown
© International Seabed Authority 2018
(Oct. 2018)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2D
to
3D

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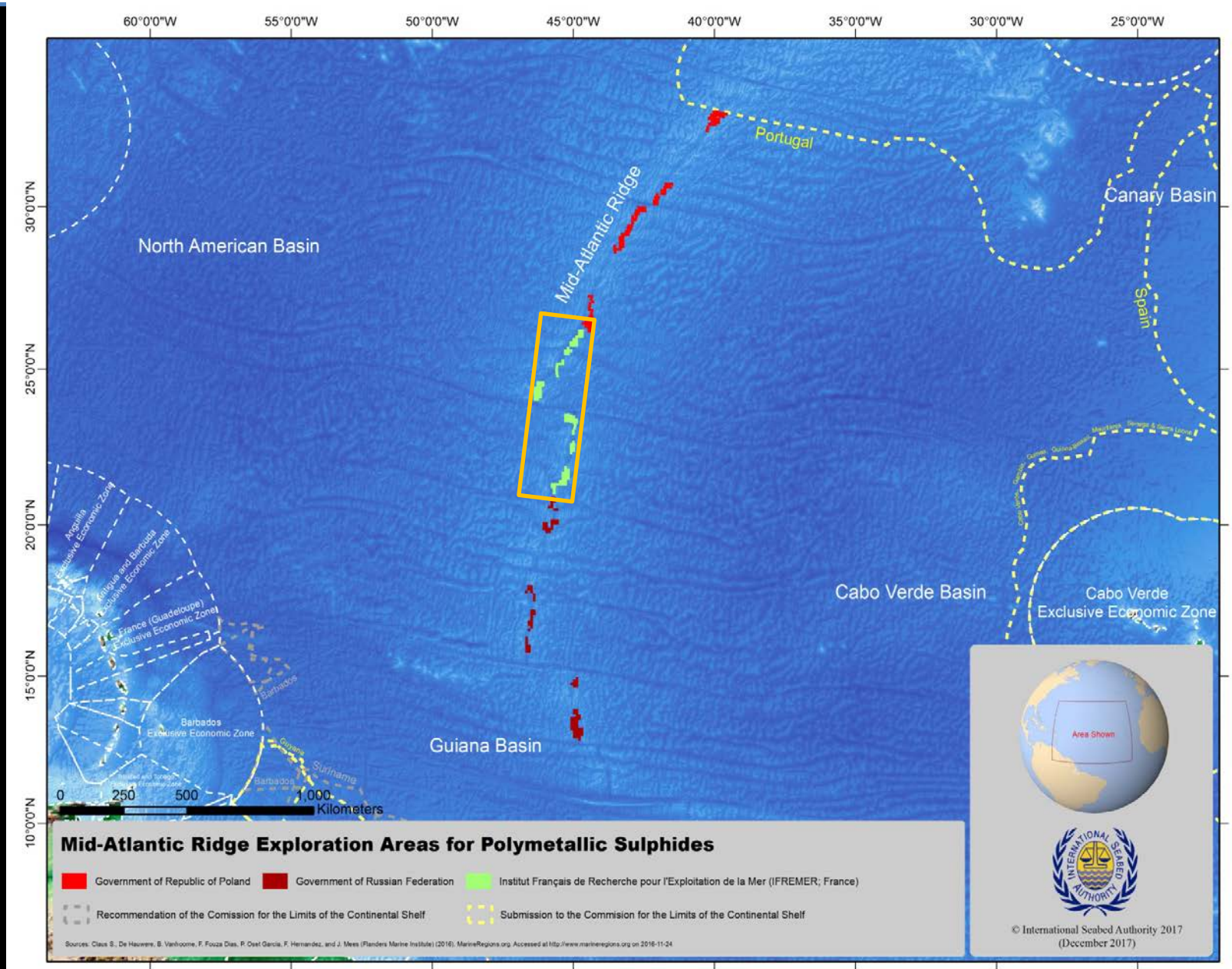
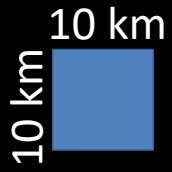


Transit (12 knots): 3.8 x 2 + 4.7 x 2 = 17 days

Contract area

(Regulation 12)

Block of PMS



< 1 week

Source: NOAA

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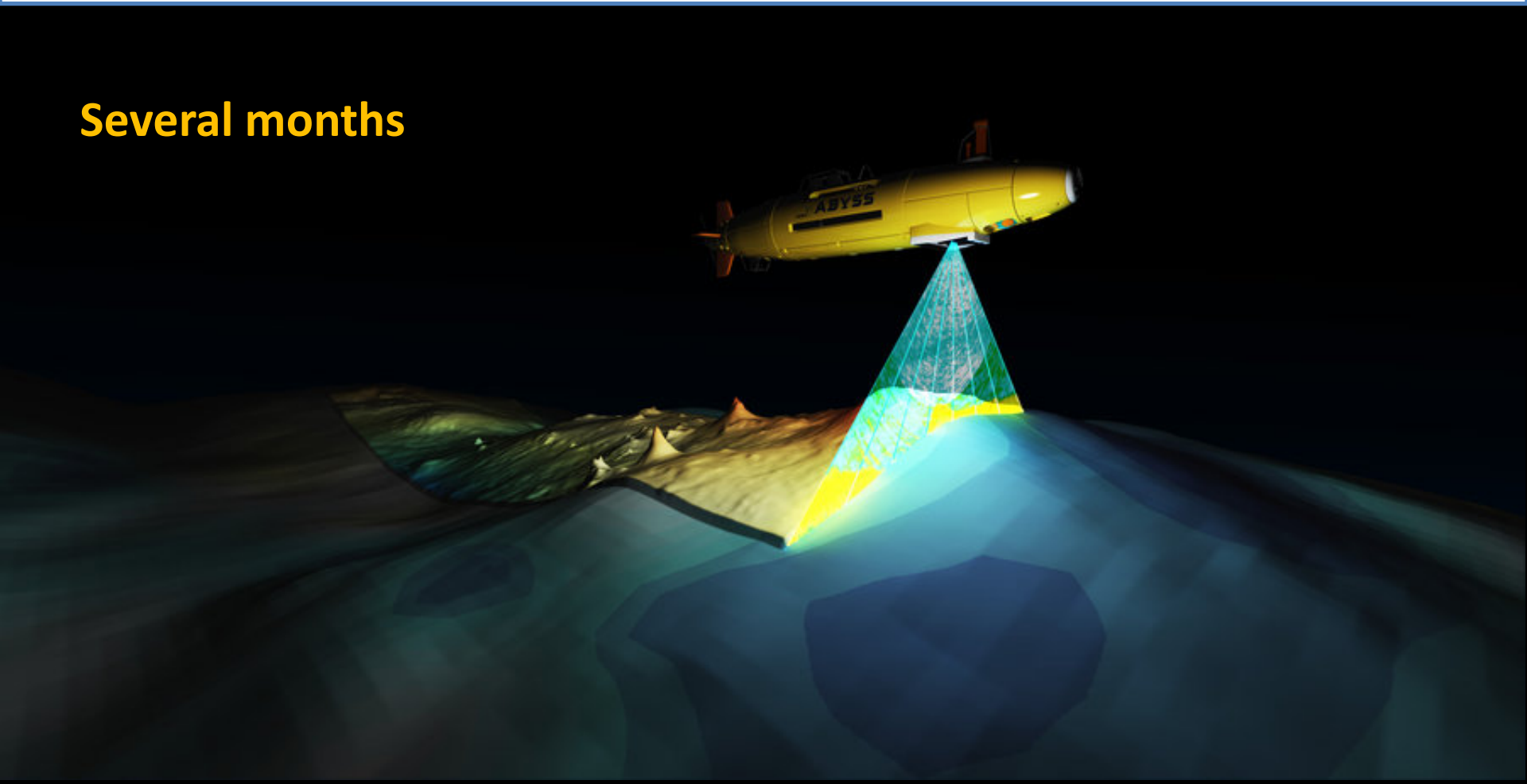
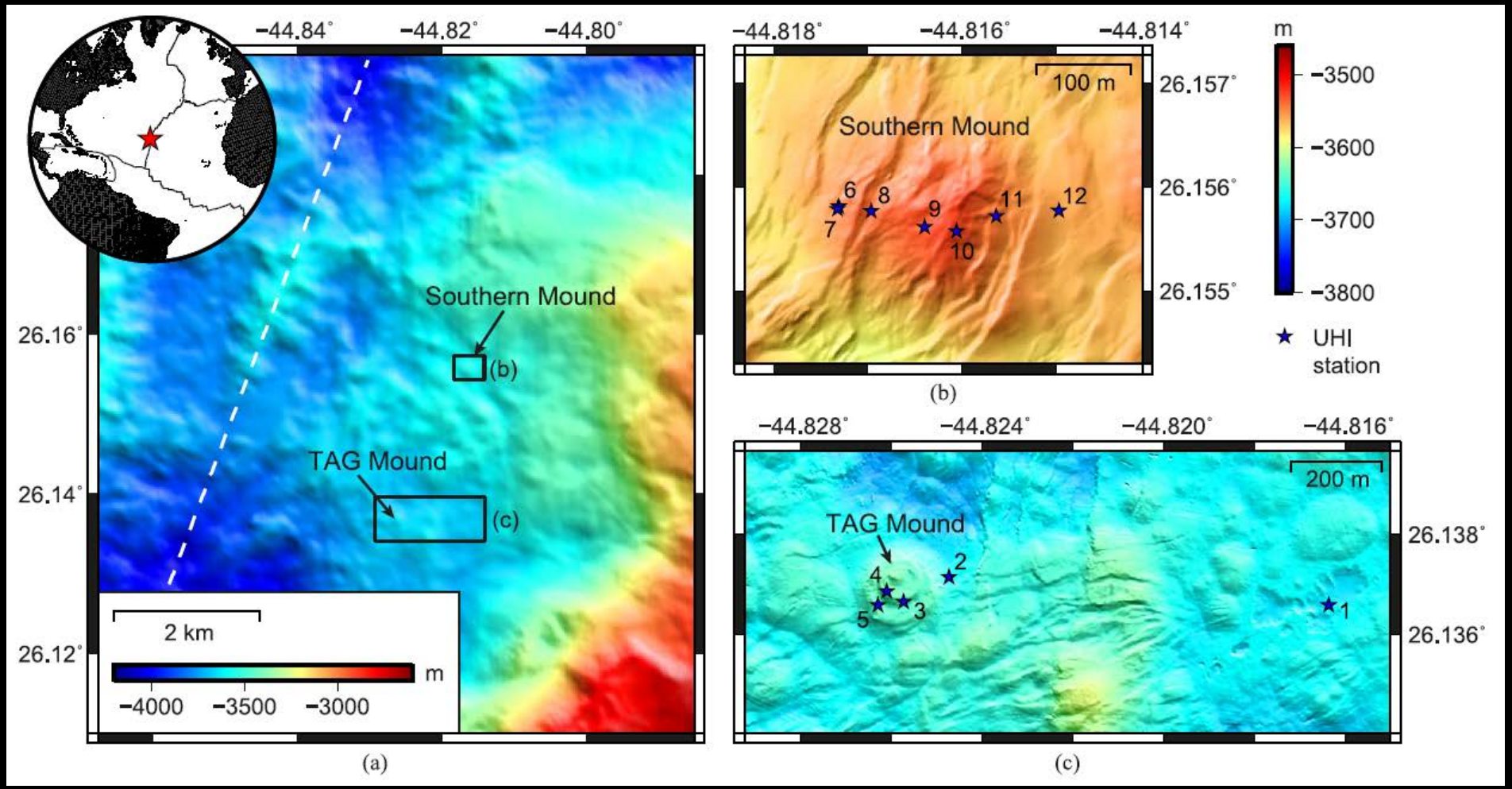
Several months

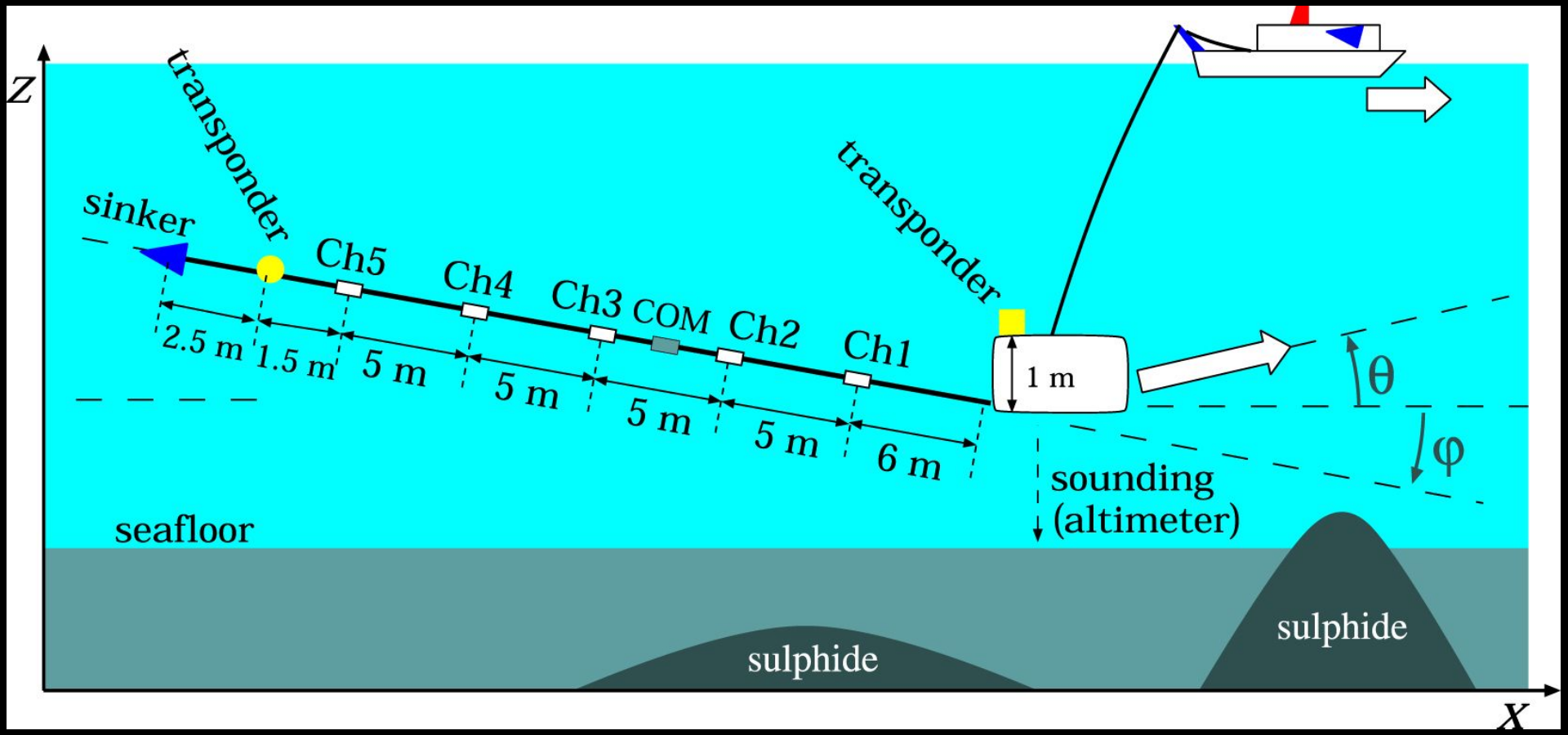


Source: Geomar (© T. Kwasnitschka, N. Augustin, M. Klischies)



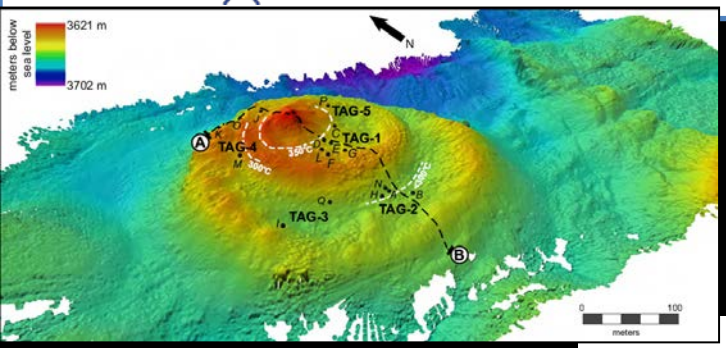
(a) Ship-based bathymetry (30 m resolution); (b) and (c) AUV high-resolution bathymetry (0.5-2m)

Dumke et al. (2019)

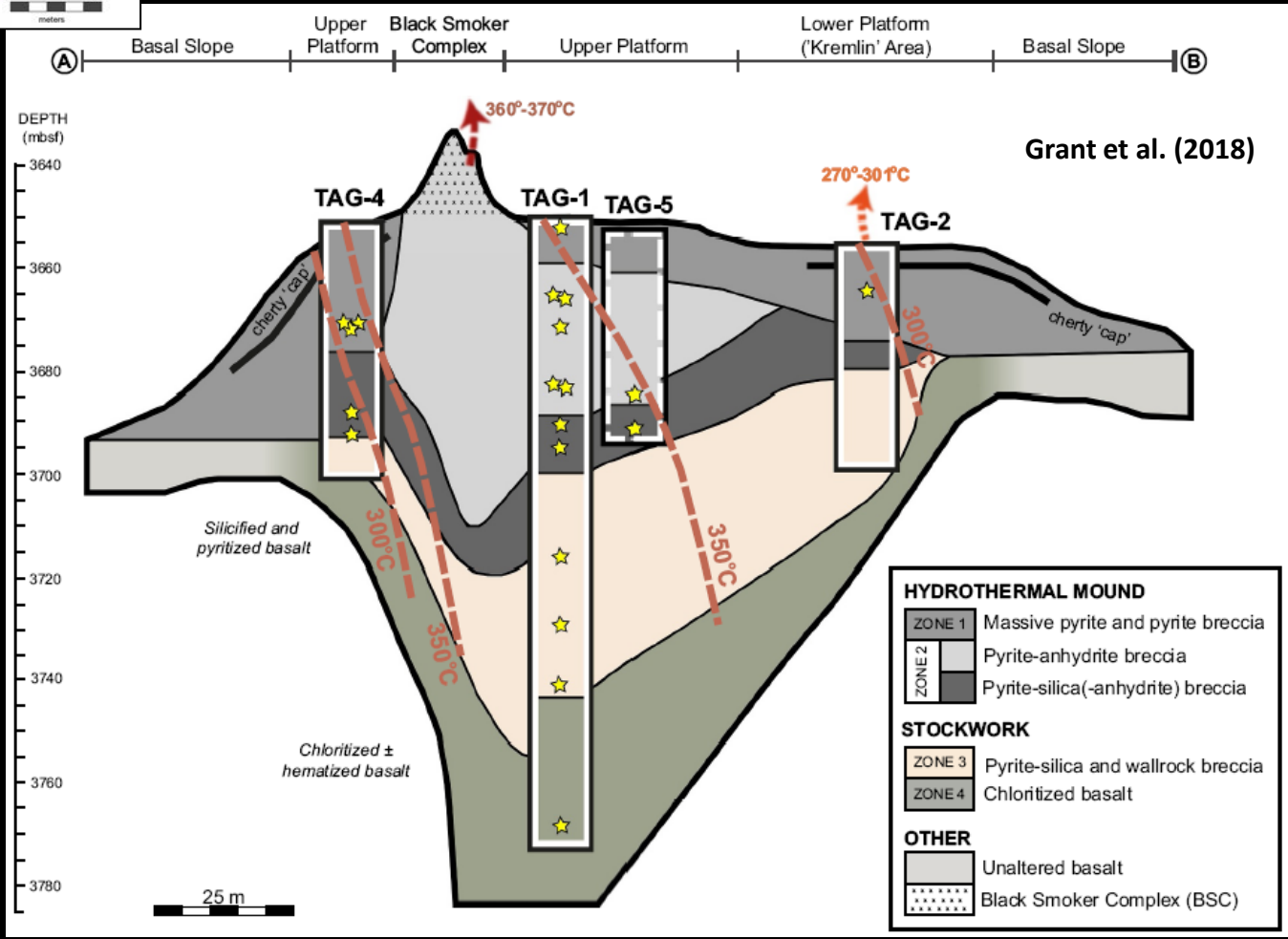


Schematic configuration of the self-potential measurement in the marine environment.

Kawada & Kasaya (2017



Grant et al. (2018)



Grant et al. (2018)

End of 8th year

(Regulation 27)

50%
relinquishment

0 100 200 km

End of 10th year

(Regulation 27)

75%
relinquishment

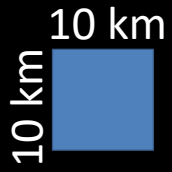
50% + 25%

0 100 200 km

Contract area

(Regulation 12)

Block of PMS



End of 8th year

(Regulation 27)

50%
relinquishment

0 100 200 km

End of 8th year

(Regulation 27)

75%
relinquishment

50% + 25%

0 100 200 km

Regulation 27
Size of area and relinquishment

1. The contractor shall relinquish the area allocated to it in accordance with paragraph 2 of this regulation. Areas to be relinquished need not be contiguous and shall be defined by the contractor in the form of sub-blocks comprising one or more cells of a grid as provided by the Authority.

2. The total area allocated to the contractor under the contract shall not exceed 10,000 square kilometres. The contractor shall relinquish parts of the area allocated to it in accordance with the following schedule:

(a) By the end of the eighth year from the date of the contract, the contractor shall have relinquished at least 50 per cent of the original area allocated to it;

(b) By the end of the tenth year from the date of the contract, the contractor shall have relinquished at least 75 per cent of the original area allocated to it; or

Legal and Technical Commission

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Original: English

Twenty-fifth session
Legal and Technical Commission session, part II
Kingston, 1–12 July 2019
Agenda item 8
Relinquishment of areas under contract for exploration for polymetallic sulphides and cobalt-rich crusts

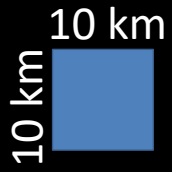
Recommendations for the guidance of contractors on the relinquishment of areas under exploration contracts for polymetallic sulphides or cobalt-rich ferromanganese crusts

Issued by the Legal and Technical Commission

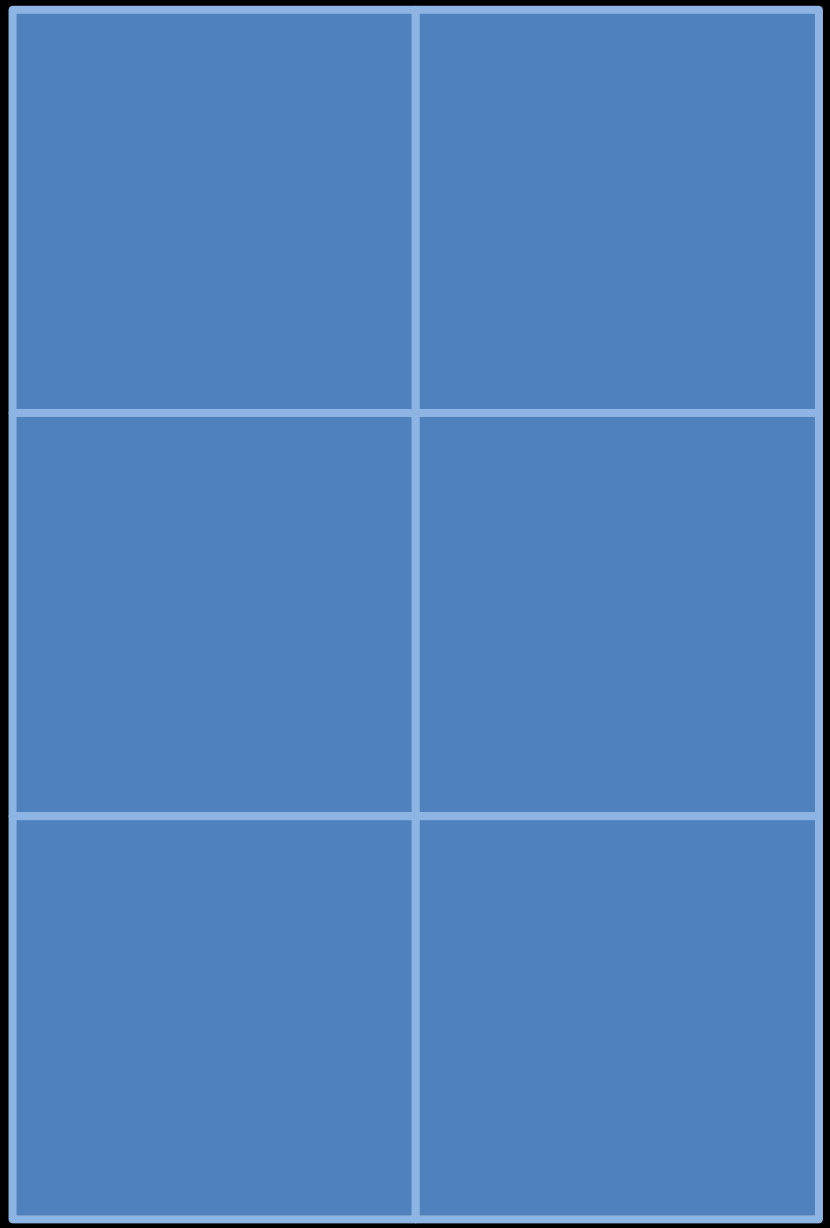
Contract area

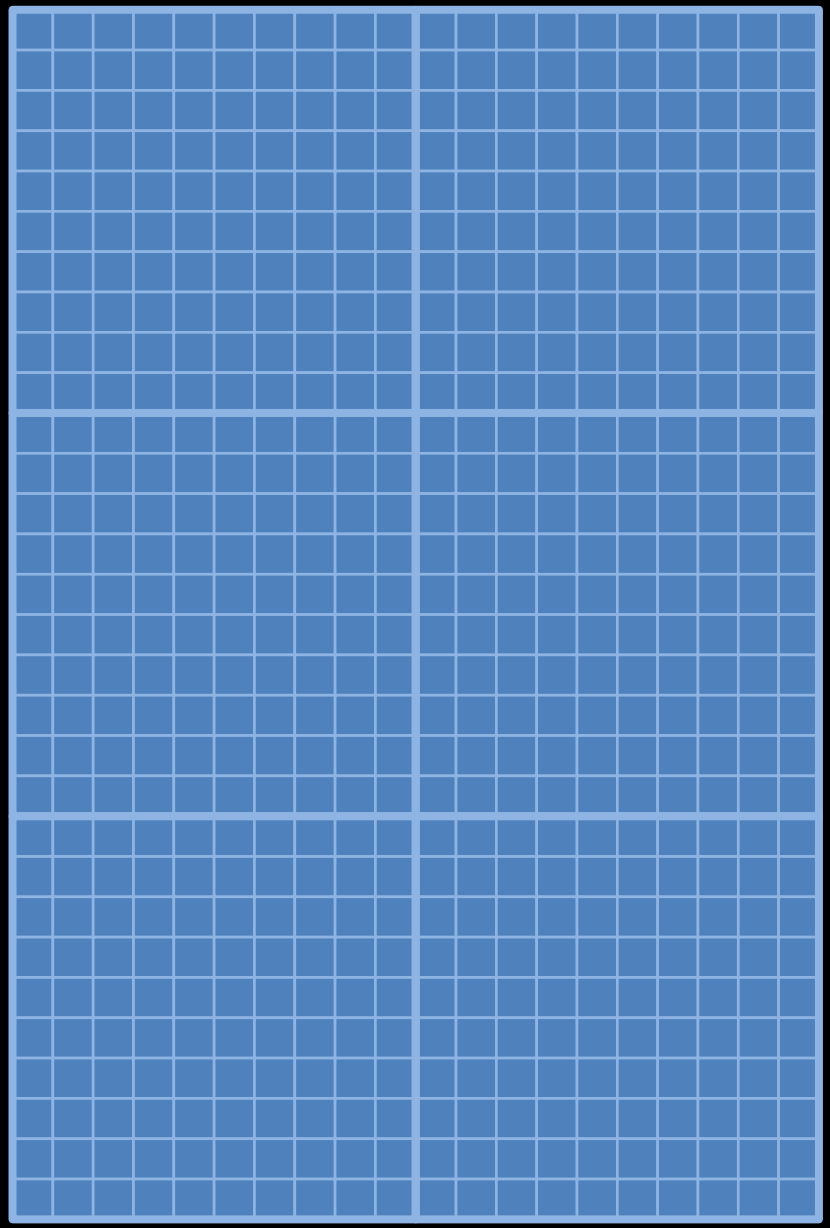
(Regulation 12)

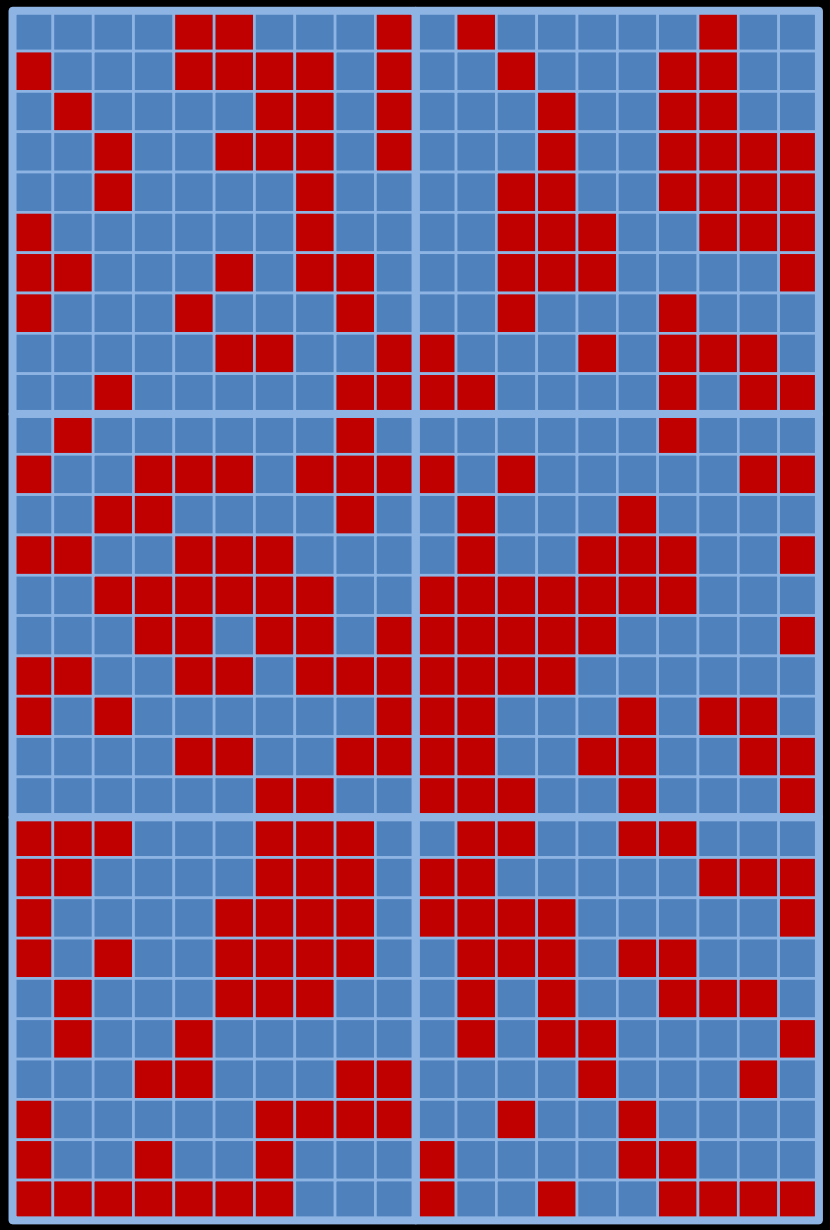
Block of PMS



0 100 200 km







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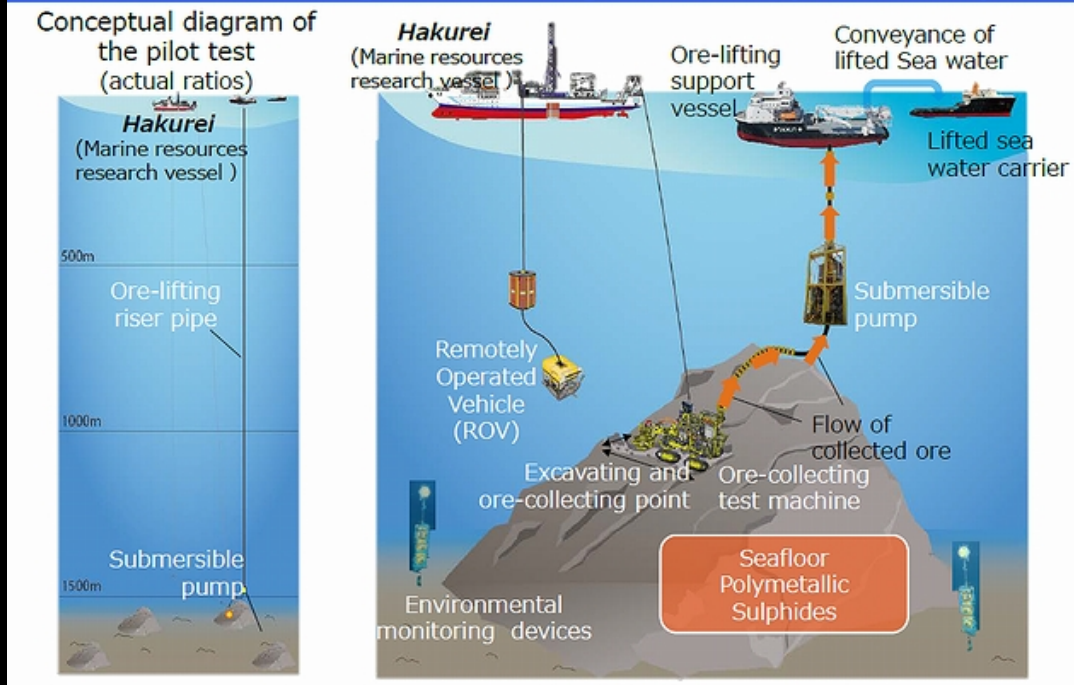
World's First Success in Continuous Ore Lifting test for Seafloor Polymetallic Sulphides

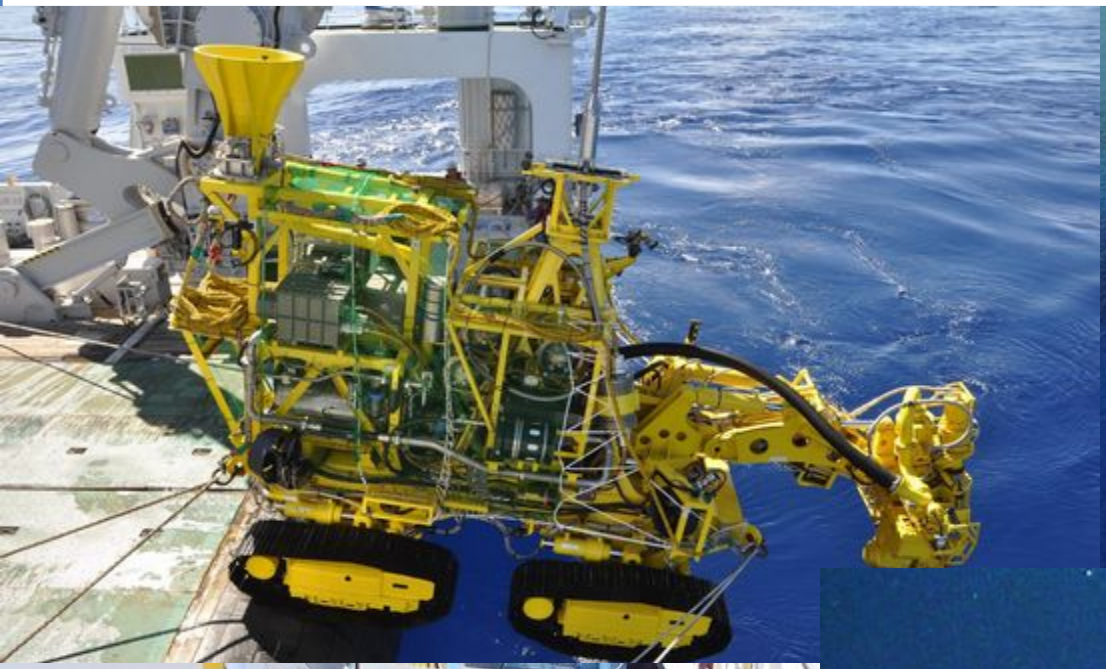
Pilot test of excavating and ore lifting conducted for seafloor polymetallic sulphides under the sea area near Okinawa Prefecture

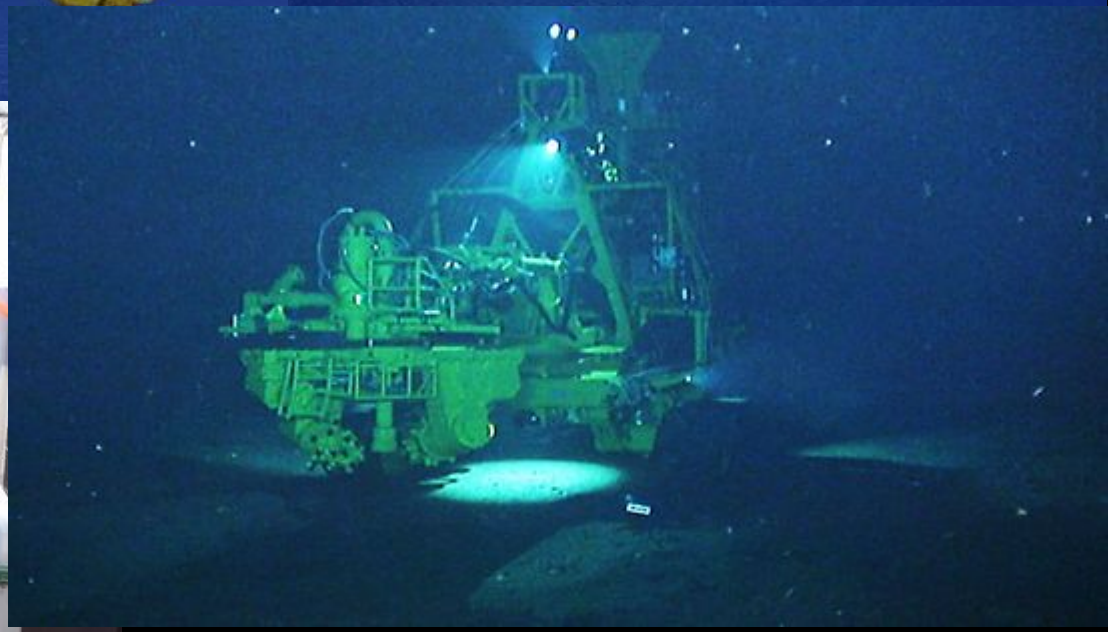
The Ministry of Economy, Trade and Industry (METI) and the Japan Oil, Gas and Metals National Corporation (JOGMEC) conducted and succeeded in the world's first pilot test of excavating and ore lifting for seafloor polymetallic sulphides under the sea area near Okinawa Prefecture. In this test, using excavating/ore-collecting test machines, METI and JOGMEC succeeded in excavating the seafloor polymetallic sulphides lying approximately 1,600m below sea level, continuously collecting and lifting them together with seawater by a submersible pump up onto the ore-lifting support vessel. The success of the test marked a large step toward the establishment of technologies required for the development of ocean mineral resources. METI and JOGMEC will make an economic evaluation in FY2018 based on the results of the test, as well as a variety of results of related research, e.g., estimation of resource amounts and environmental research.

Pilot test of excavating and ore-lifting Seafloor Polymetallic Sulphides



Source: METI – Ministry of Economy, Trade and Industry of Japan





Source: METI – Ministry of Economy, Trade and Industry of Japan

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Thank you!