



# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

Presented at the FIG Working Week 2024,  
19-24 May 2024 in Accra, Ghana

## Navigation improvement in postprocessing of deep-towed multibeam echo sounder data used for exploration of hydrothermal venting sites

Tanja DUFEK, Ralf FREITAG, Thomas KUHN, Harald STERNBERG

HafenCity University Hamburg (HCU), Germany

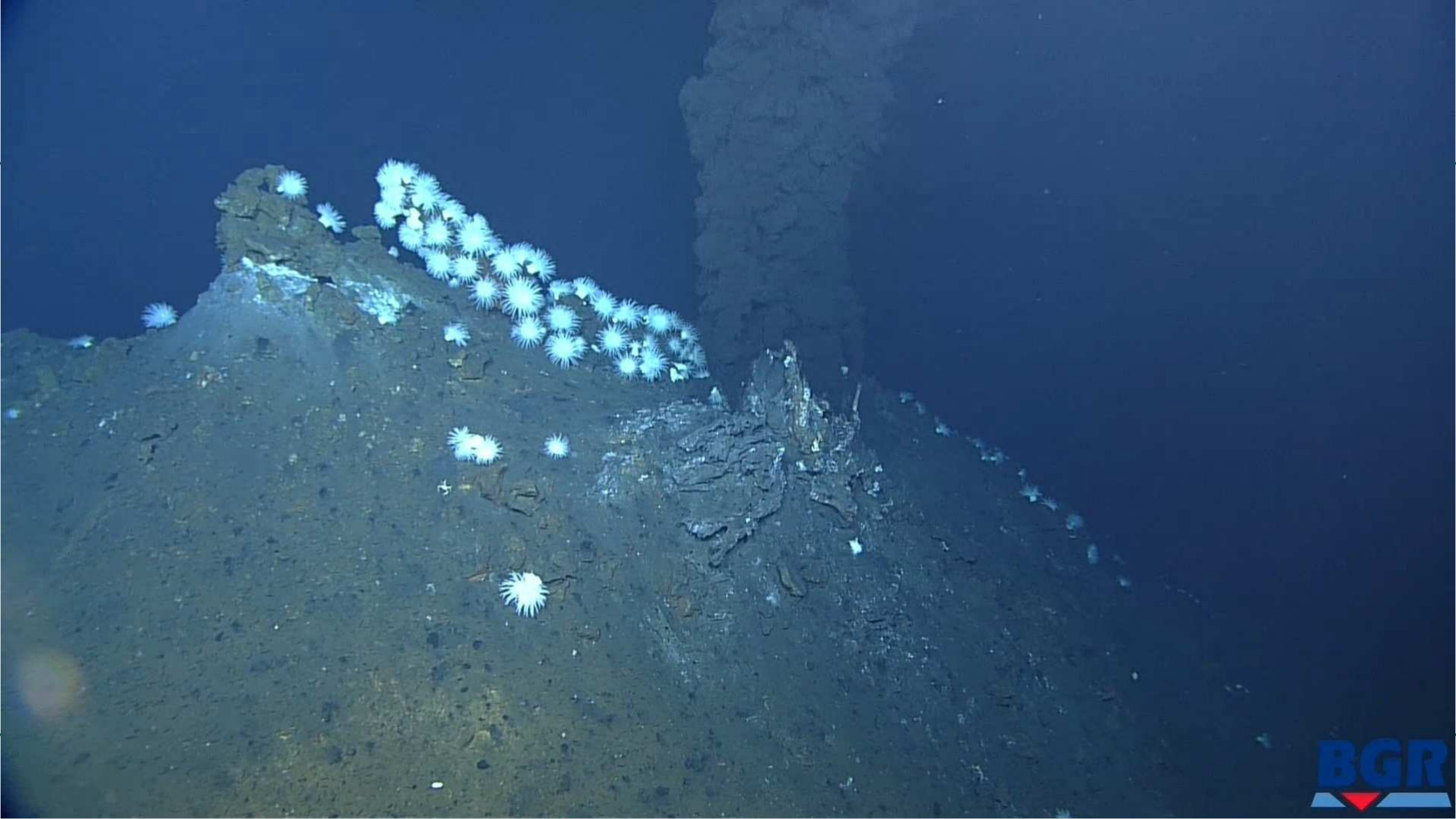
Federal Institute for Geosciences and Natural Resources (BGR), Germany

ORGANISED BY



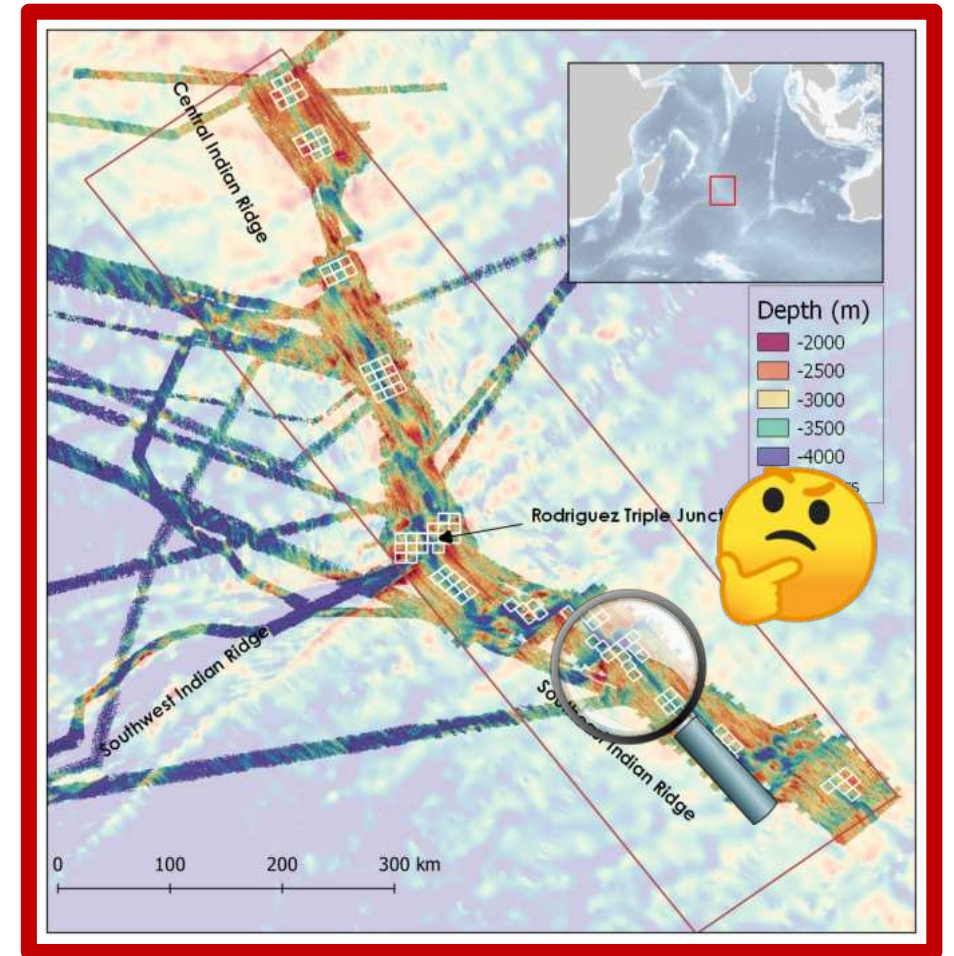
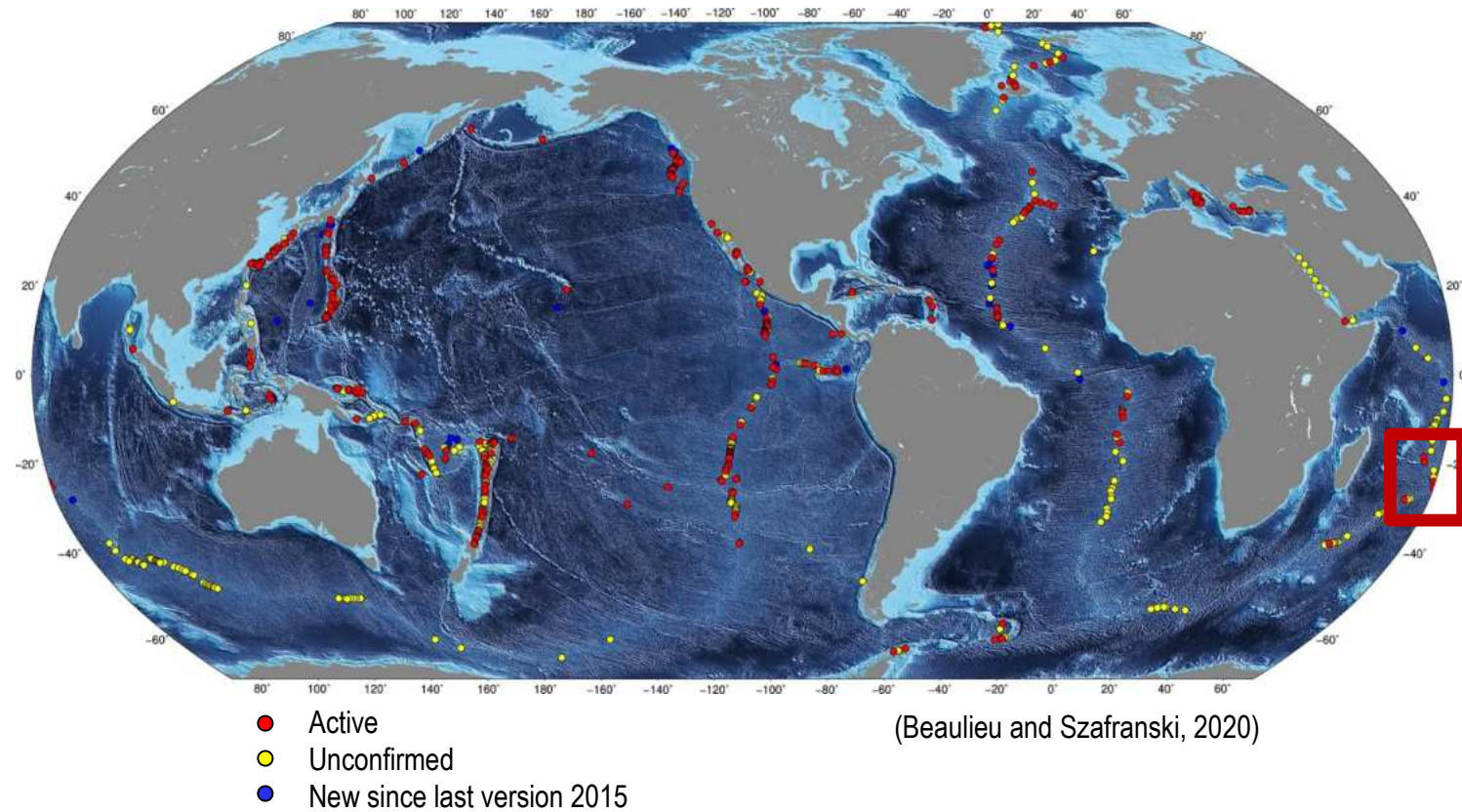
PLATINUM SPONSORS



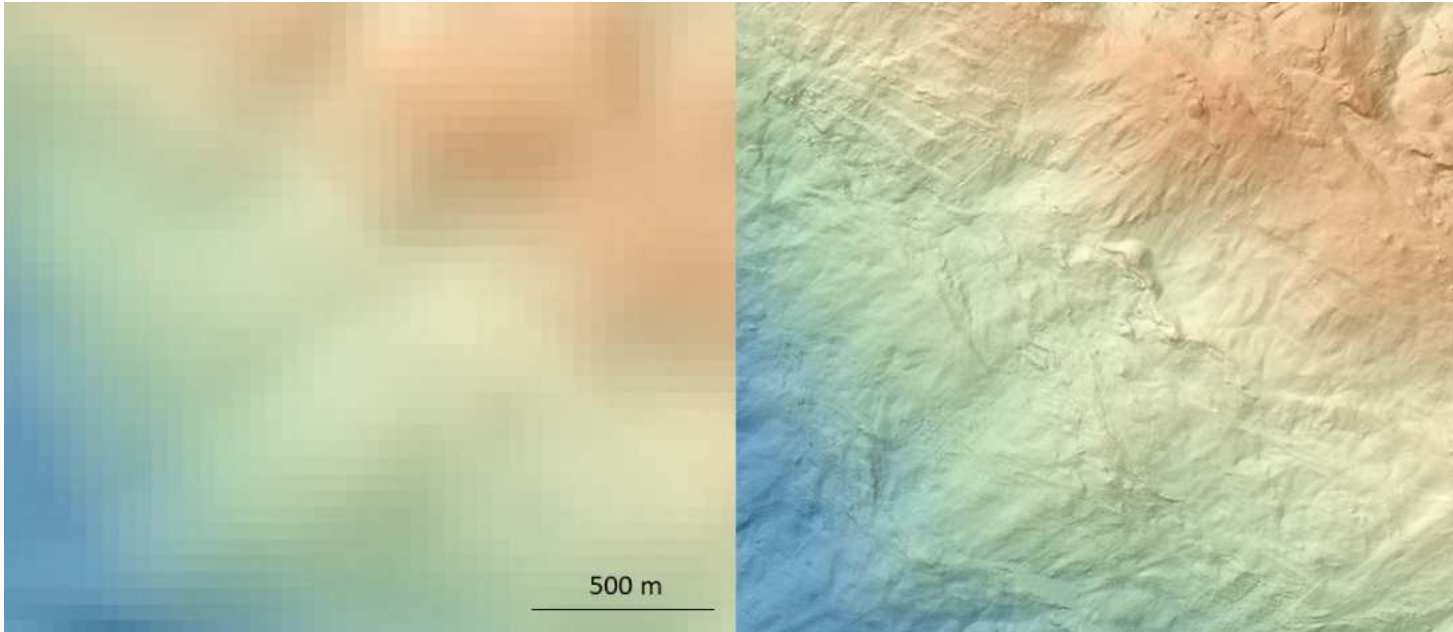


# Vent locations and contract area (Indian Ocean)

InterRidge Global Database of Active Submarine Hydrothermal Vent Fields 3.4 (2020)

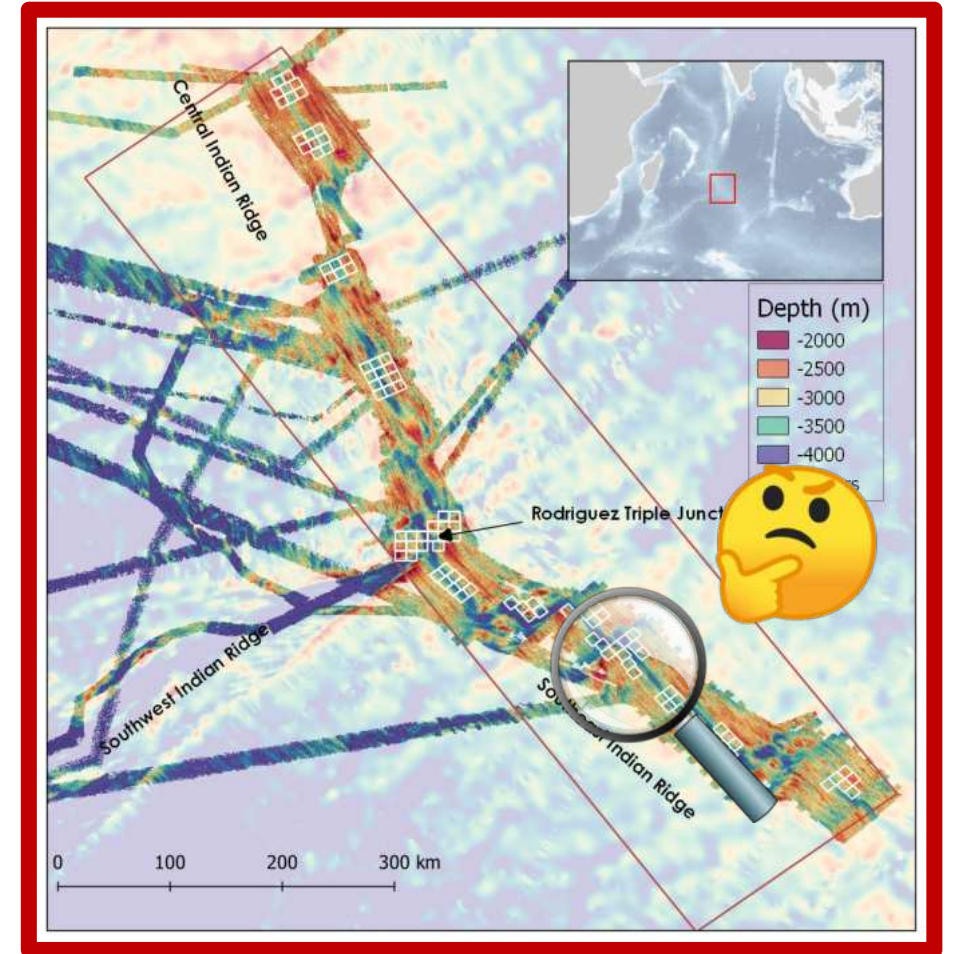


# Vent locations and contract area (Indian Ocean)



Ship-borne bathymetry  
(35 m)

High-resolution bathymetry  
(2 m)



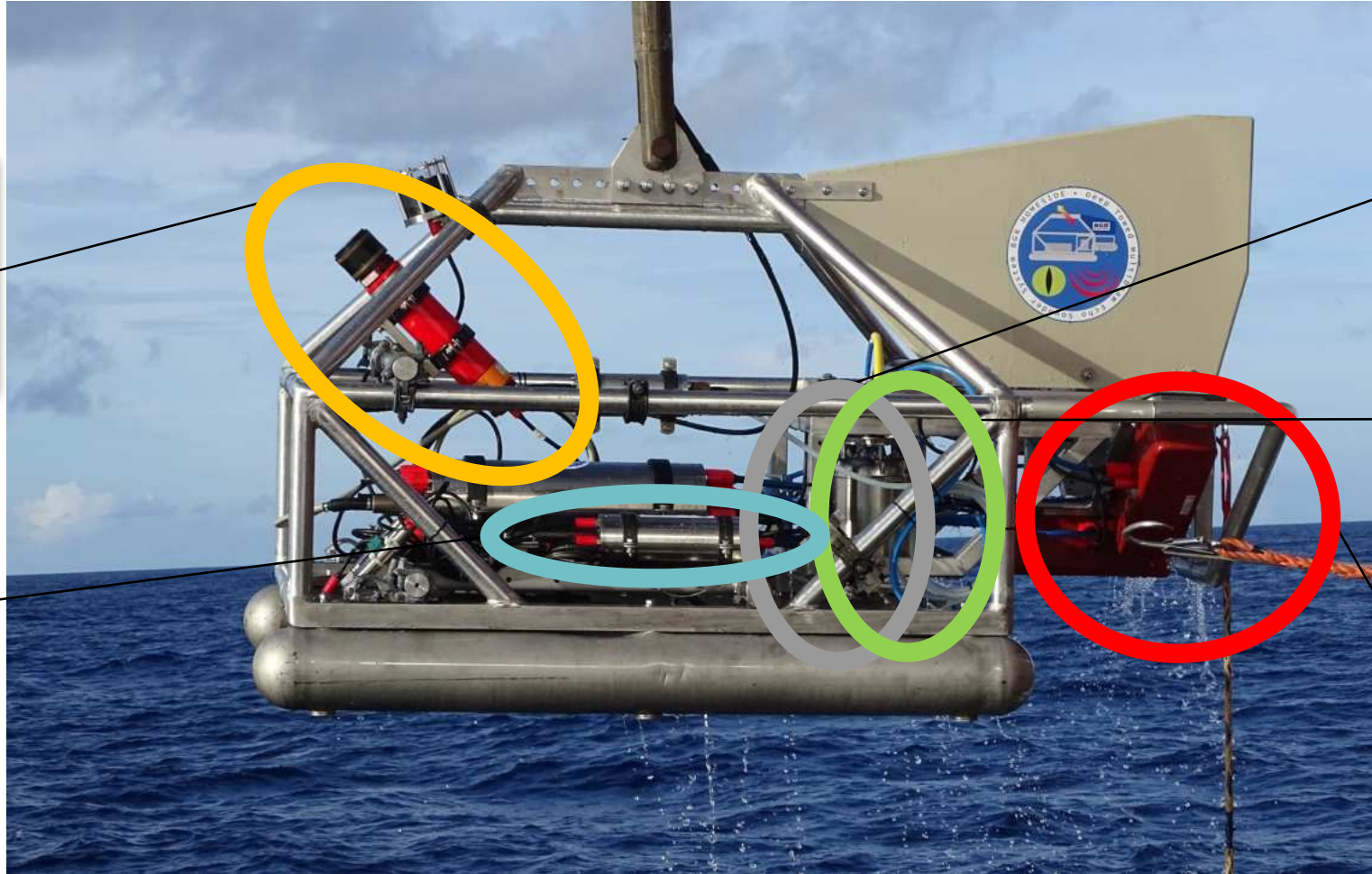
# HOMESIDE

## USBL

Sonardyne Ranger 2  
Kongsberg HiPaP  
Exail Posidonia

## CTD

Teledyne RDI  
Workhorse  
Navigator 600



## DVL

Teledyne RDI  
Workhorse  
Navigator 600

## INS

Exail PHINS 6000

## MBES

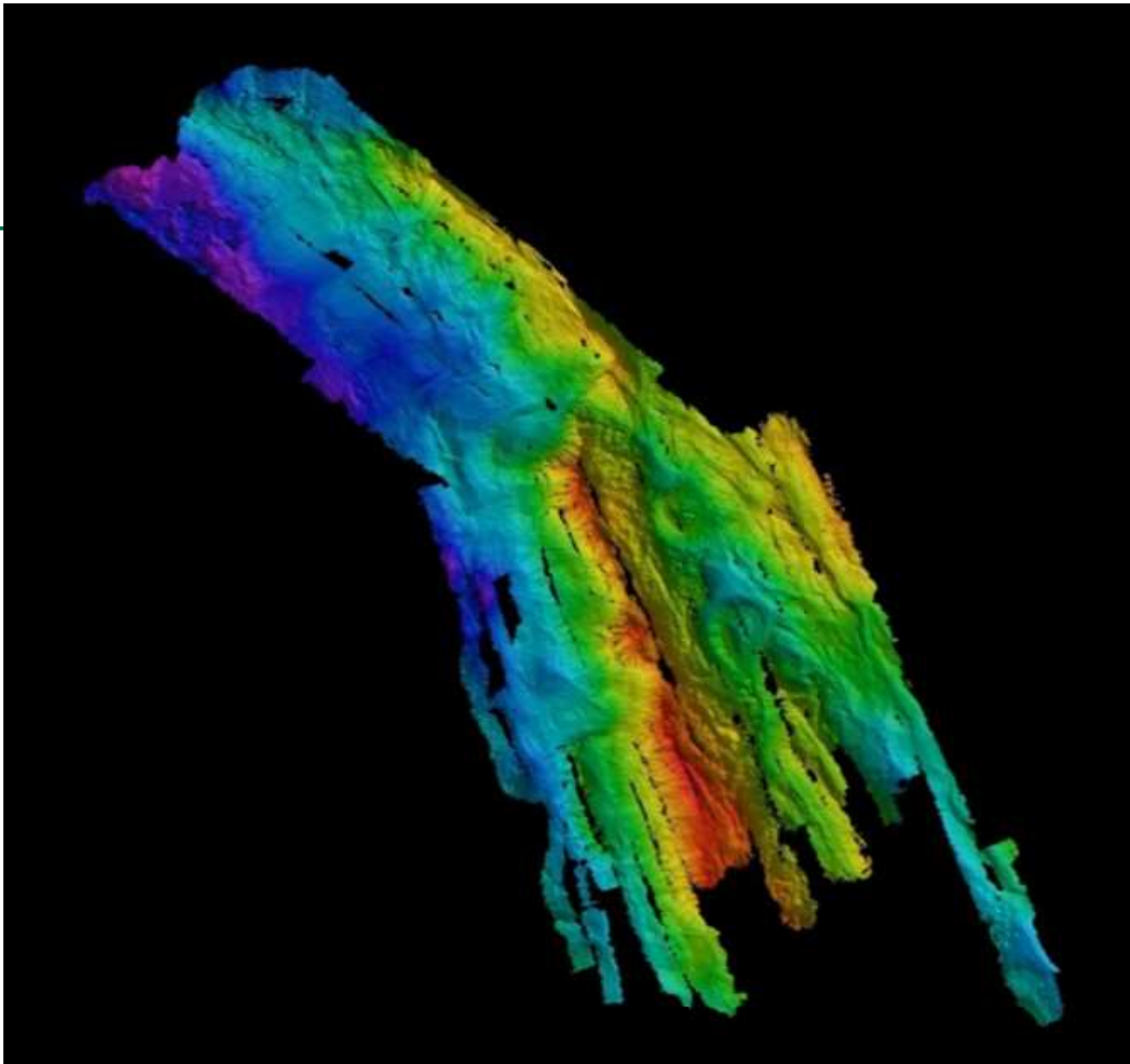
Kongsberg  
EM2040  
Dual RX  
(200 – 400 kHz)

ORGANISED BY



PLATINUM SPONSORS



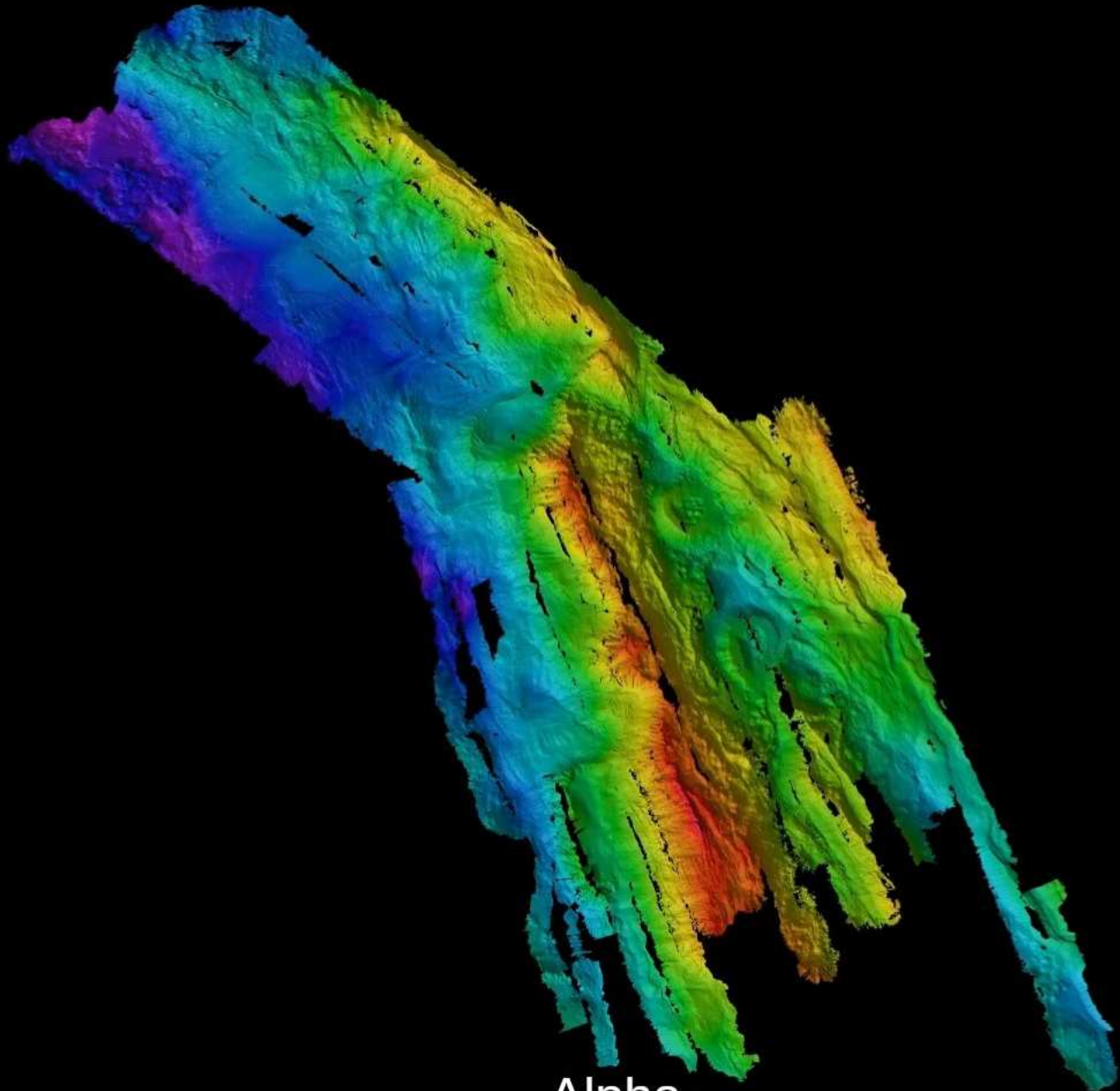


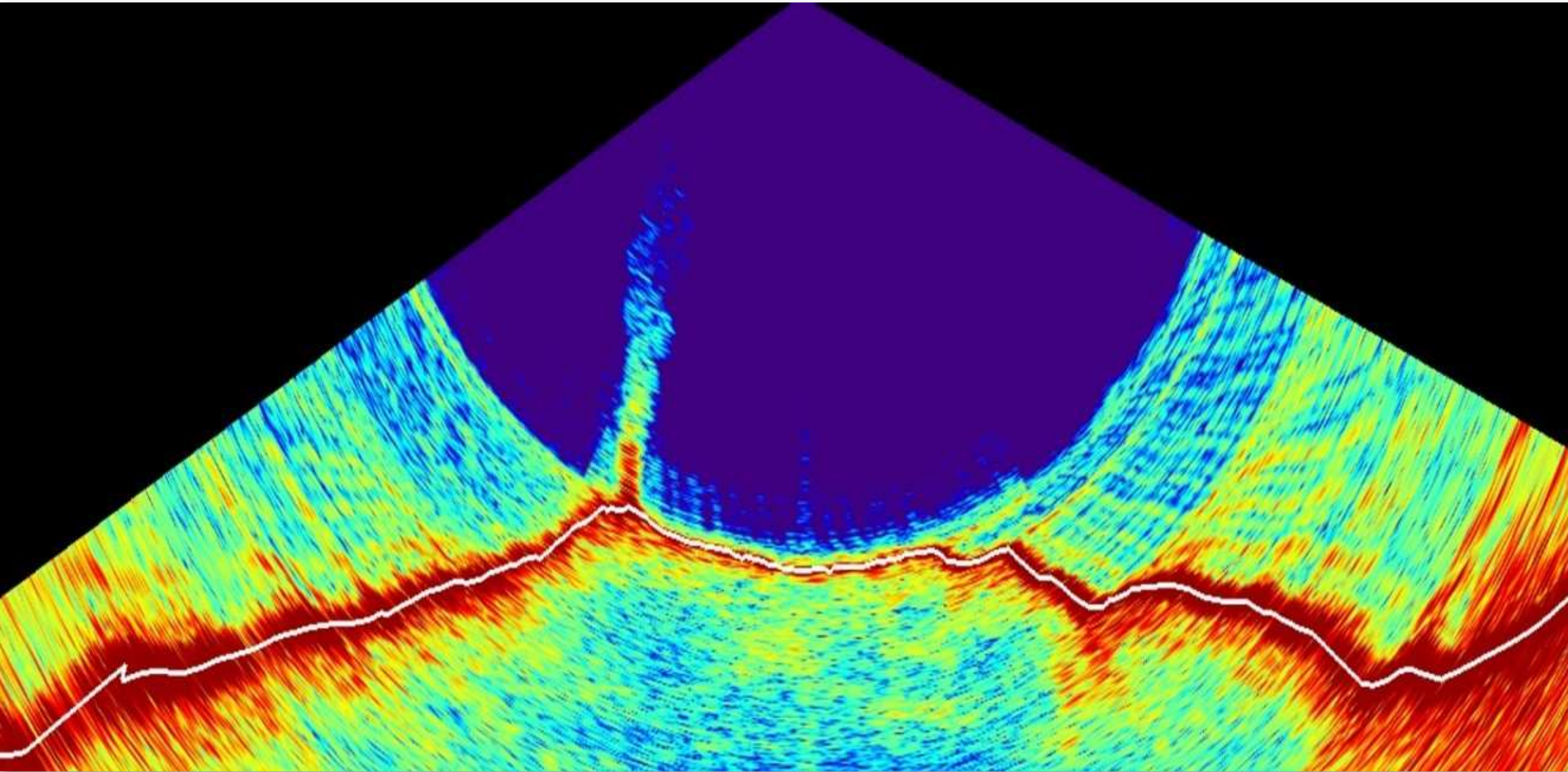
ORGANISED BY



PLATINUM SPONSORS







ORGANISED BY



**hcu** HafenCity  
Universität  
Hamburg



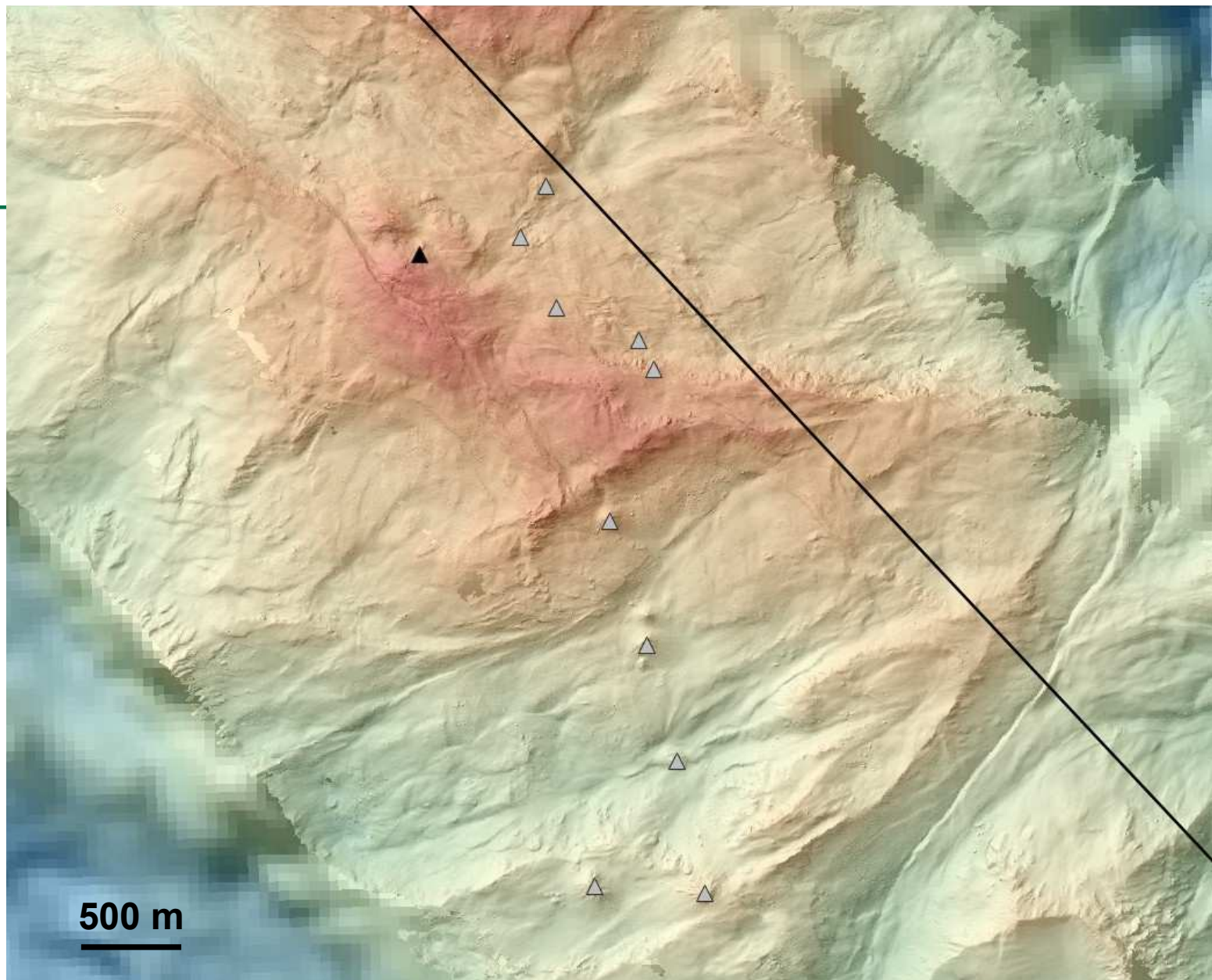
PLATINUM SPONSORS



GEOSA





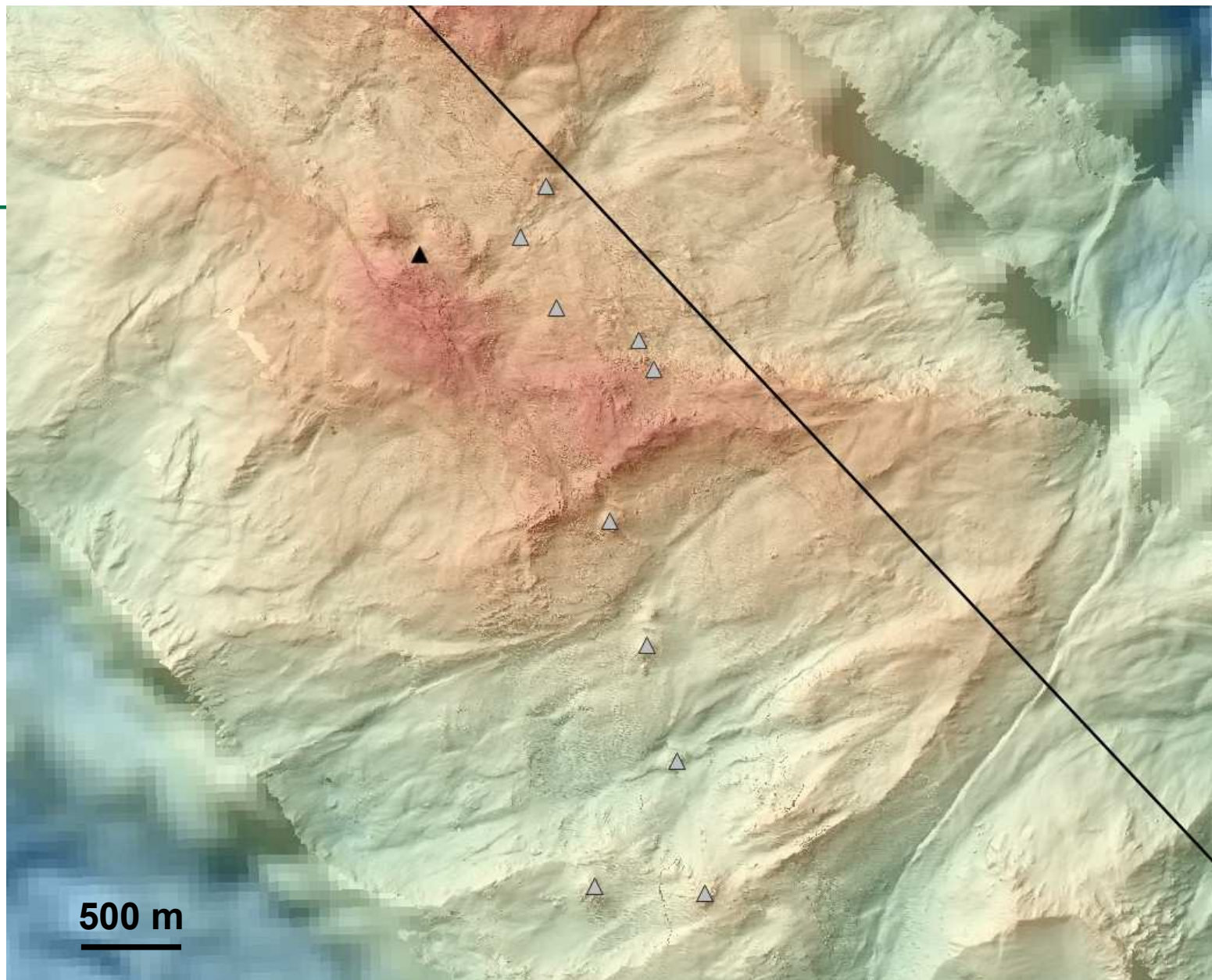


ORGANISED BY



PLATINUM SPONSORS





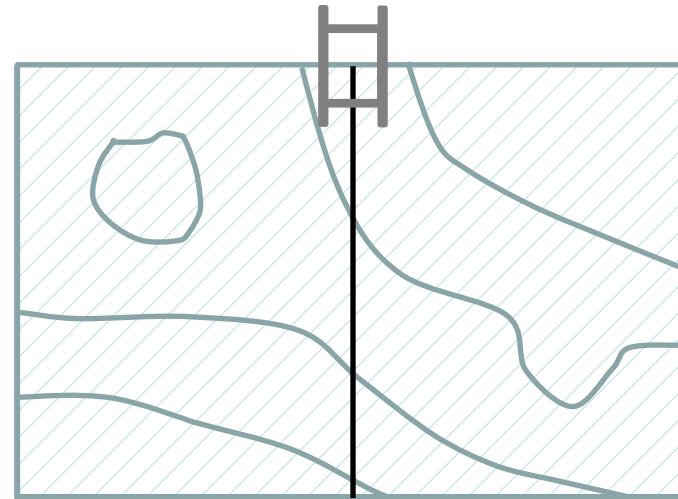
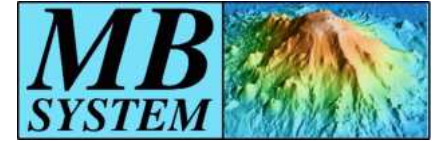
ORGANISED BY



PLATINUM SPONSORS



# Navigation Improvement (MB-System)



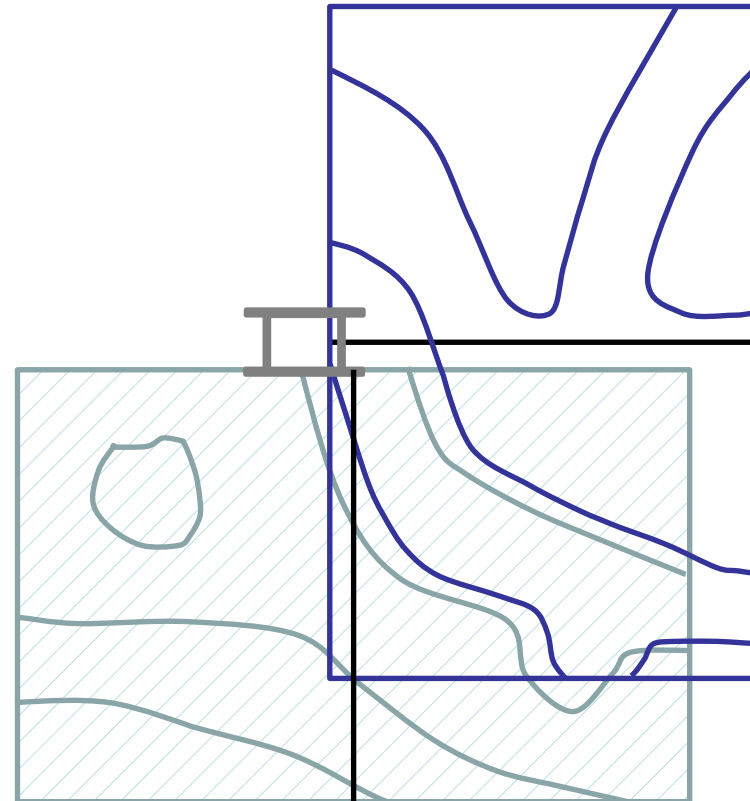
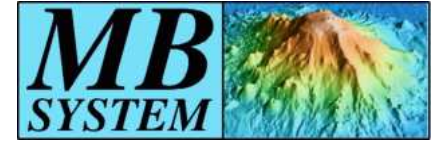
ORGANISED BY



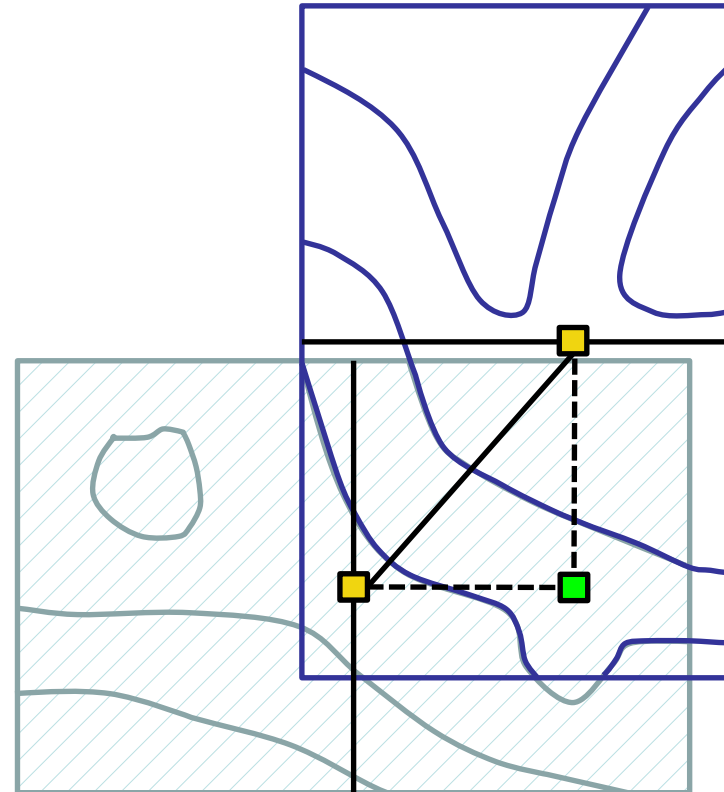
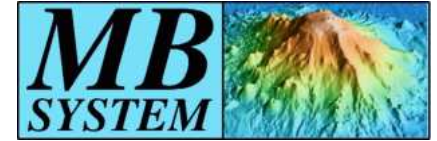
PLATINUM SPONSORS



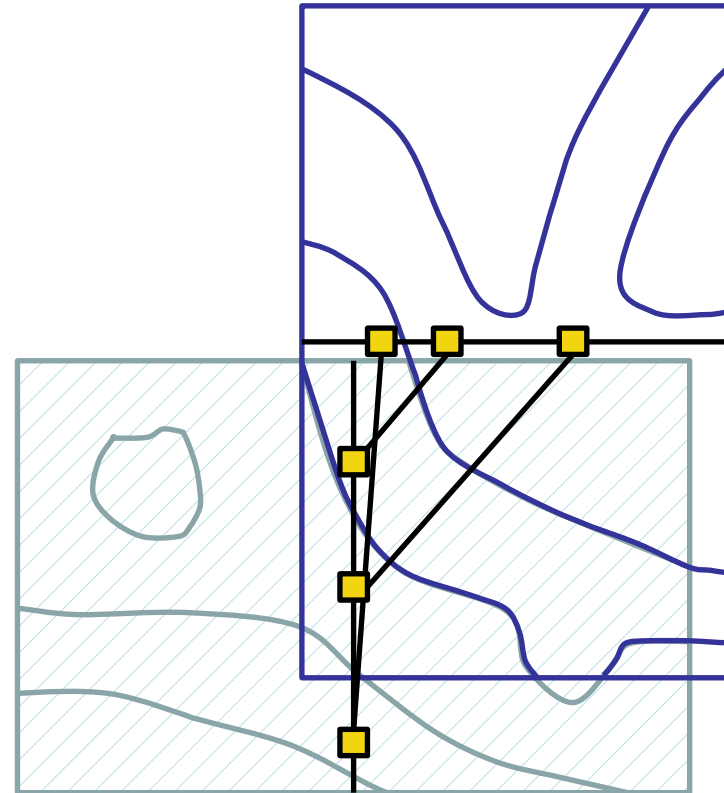
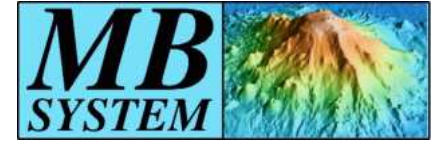
# Navigation Improvement (MB-System)



# Navigation Improvement (MB-System)



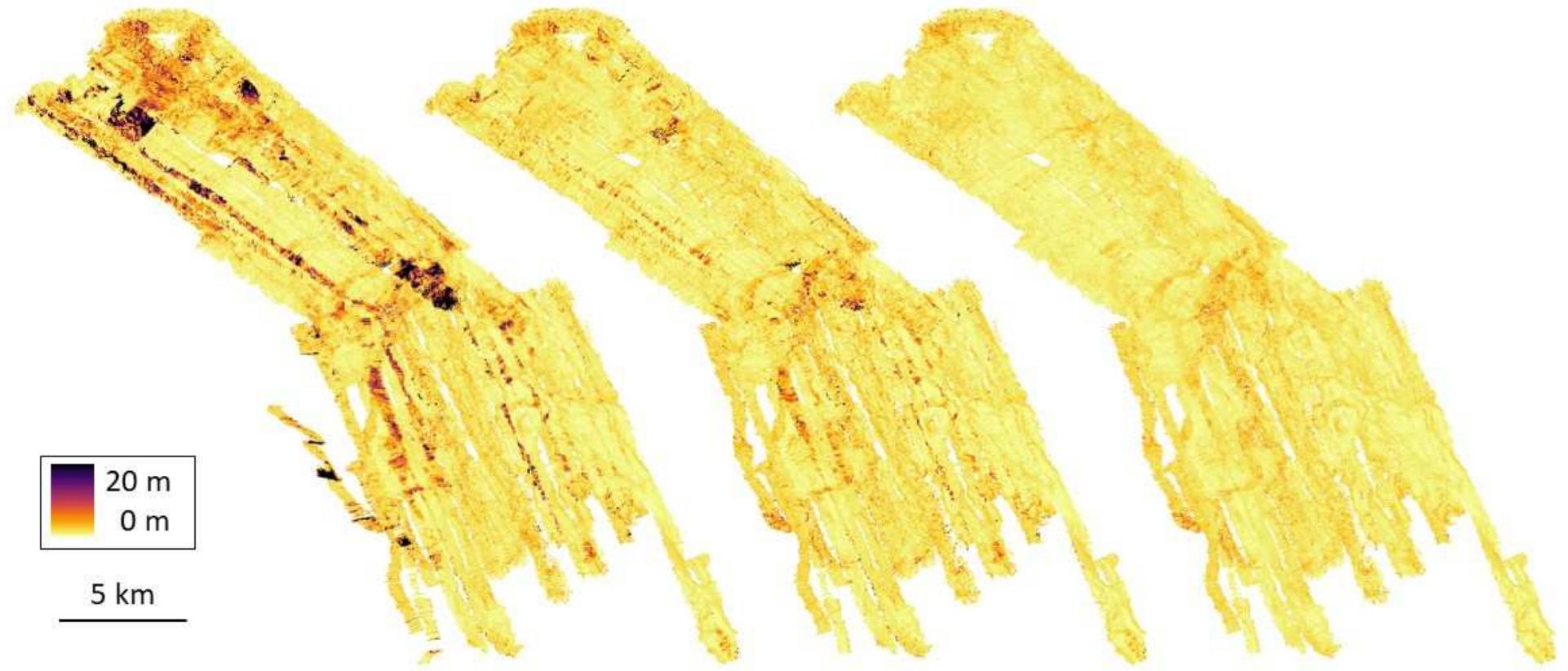
# Navigation Improvement (MB-System)

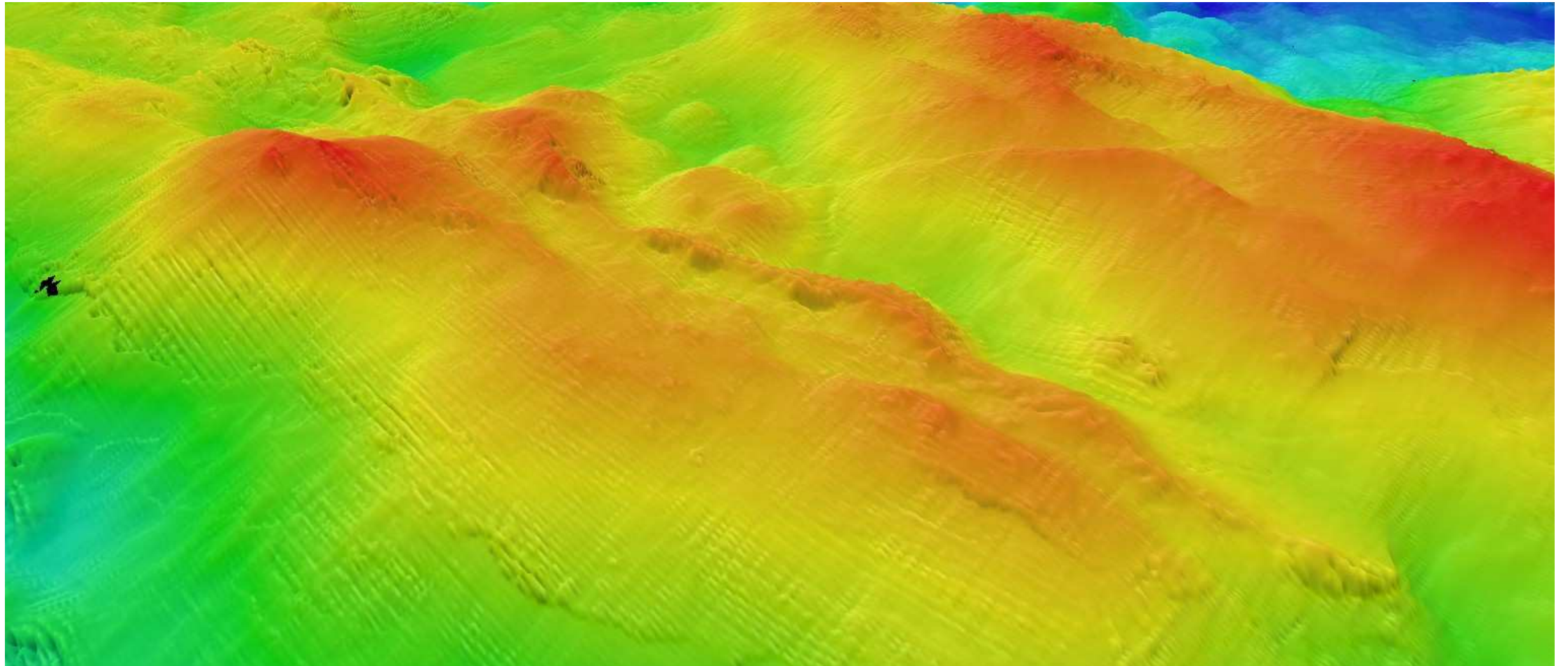


Original navigation  
Partly edited

New navigation  
Partly edited

New navigation  
Final





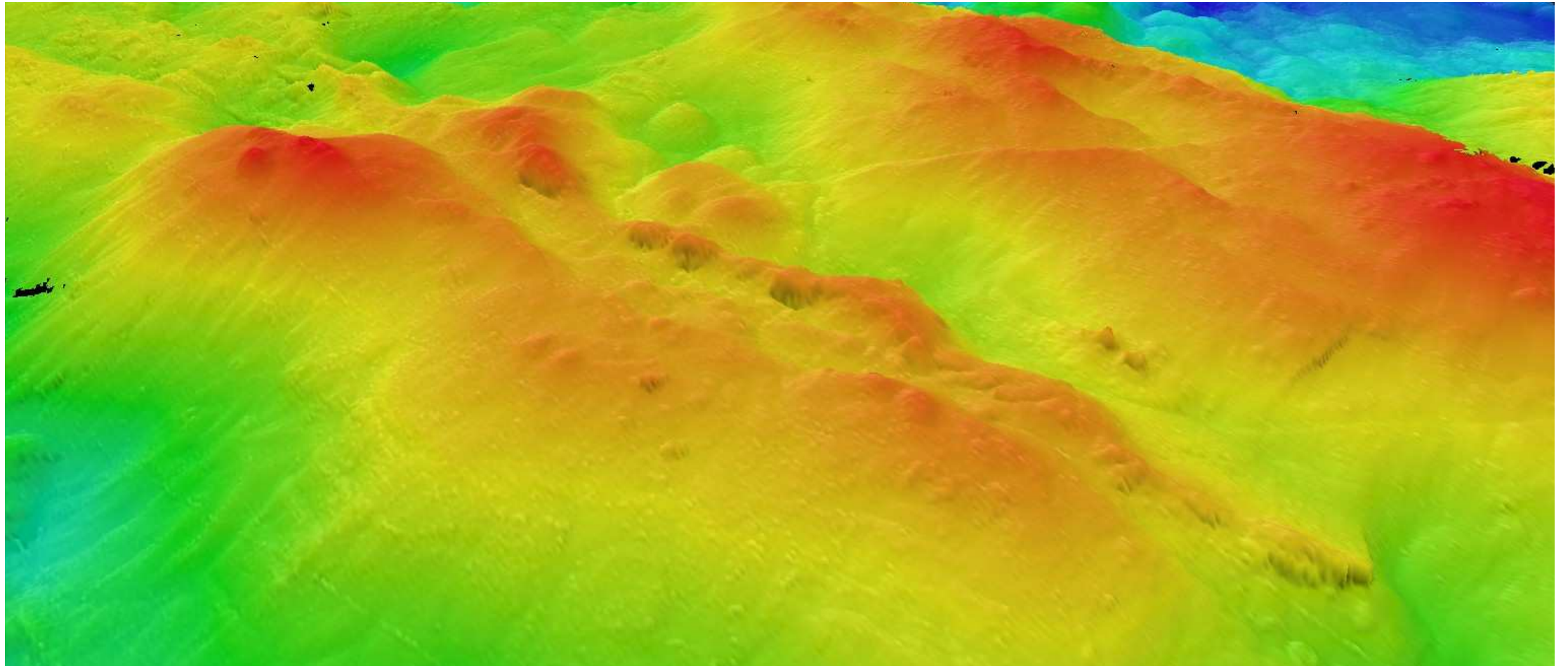
ORGANISED BY



PLATINUM SPONSORS







ORGANISED BY



PLATINUM SPONSORS

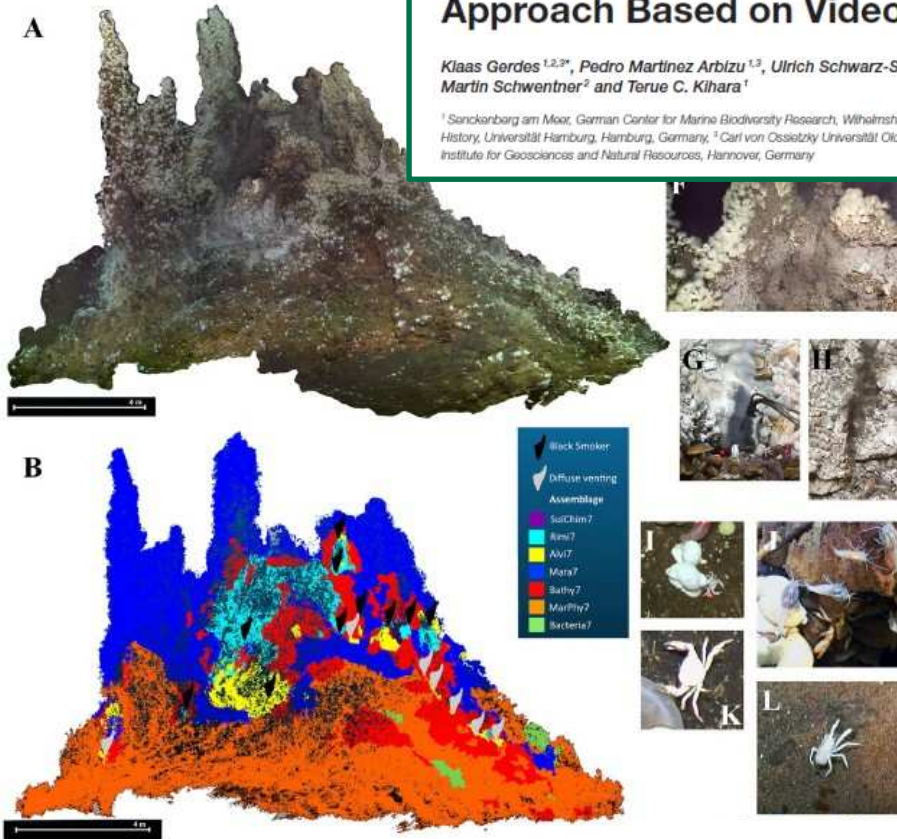


# ... Further Research ...

## Detailed Mapping of Hydrothermal Vent Fauna: A 3D Reconstruction Approach Based on Video Imagery

Klaas Gerdes<sup>1,2,3\*</sup>, Pedro Martínez Arbizu<sup>1,3</sup>, Ulrich Schwarz-Schampera<sup>4</sup>,  
Martin Schwentner<sup>2</sup> and Terue C. Kihara<sup>1</sup>

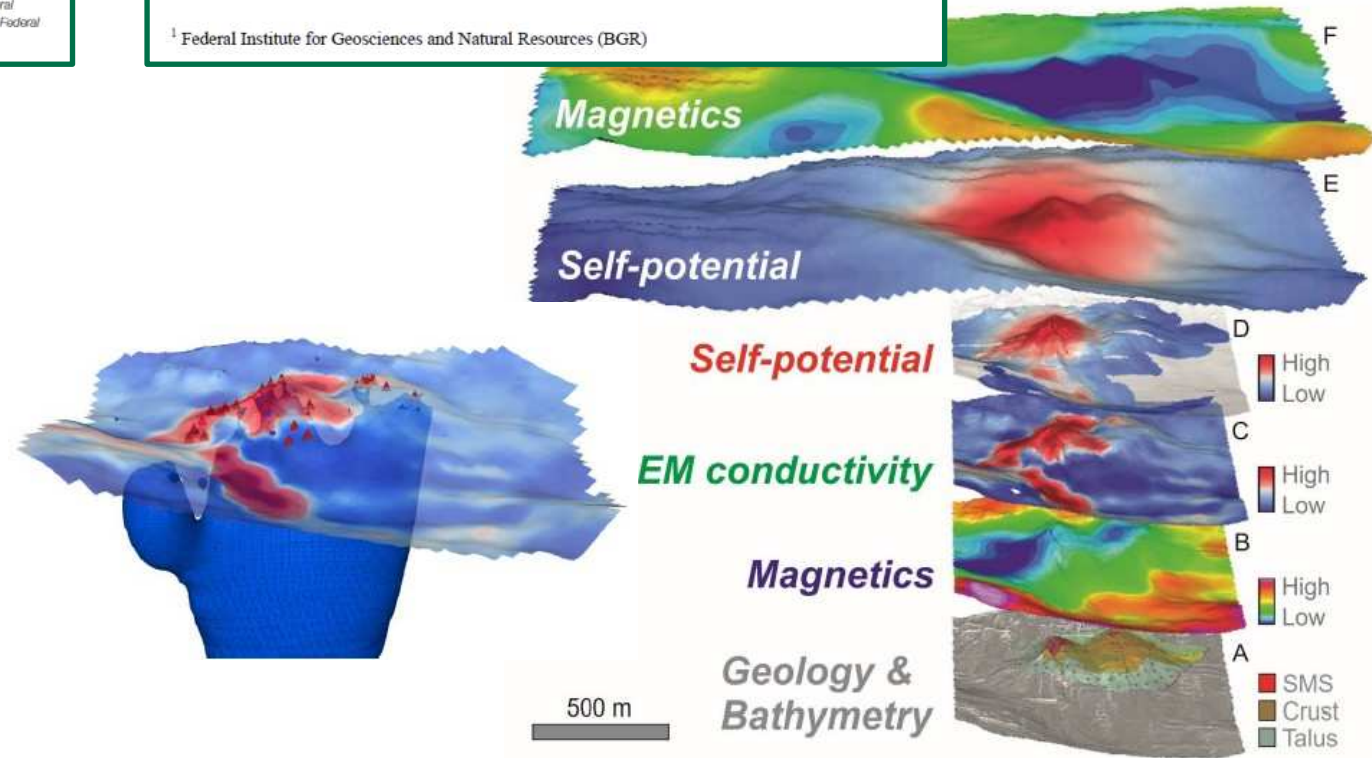
<sup>1</sup>Senckenberg am Meer, German Center for Marine Biodiversity Research, Wilhelmshaven, Germany, <sup>2</sup>Center of Natural History, Universität Hamburg, Hamburg, Germany, <sup>3</sup>Carl von Ossietzky Universität Oldenburg, Oldenburg, Germany, <sup>4</sup>Federal Institute for Geosciences and Natural Resources, Hannover, Germany



## Magnetic and electromagnetic exploration of SMS deposits: perspectives and frontiers

H. Müller<sup>1</sup>, K. Schwalenberg<sup>1</sup>, U. Barckhausen<sup>1</sup>

<sup>1</sup> Federal Institute for Geosciences and Natural Resources (BGR)



# Thank you for your attention!



ORGANISED BY



PLATINUM SPONSORS



GEOSA

