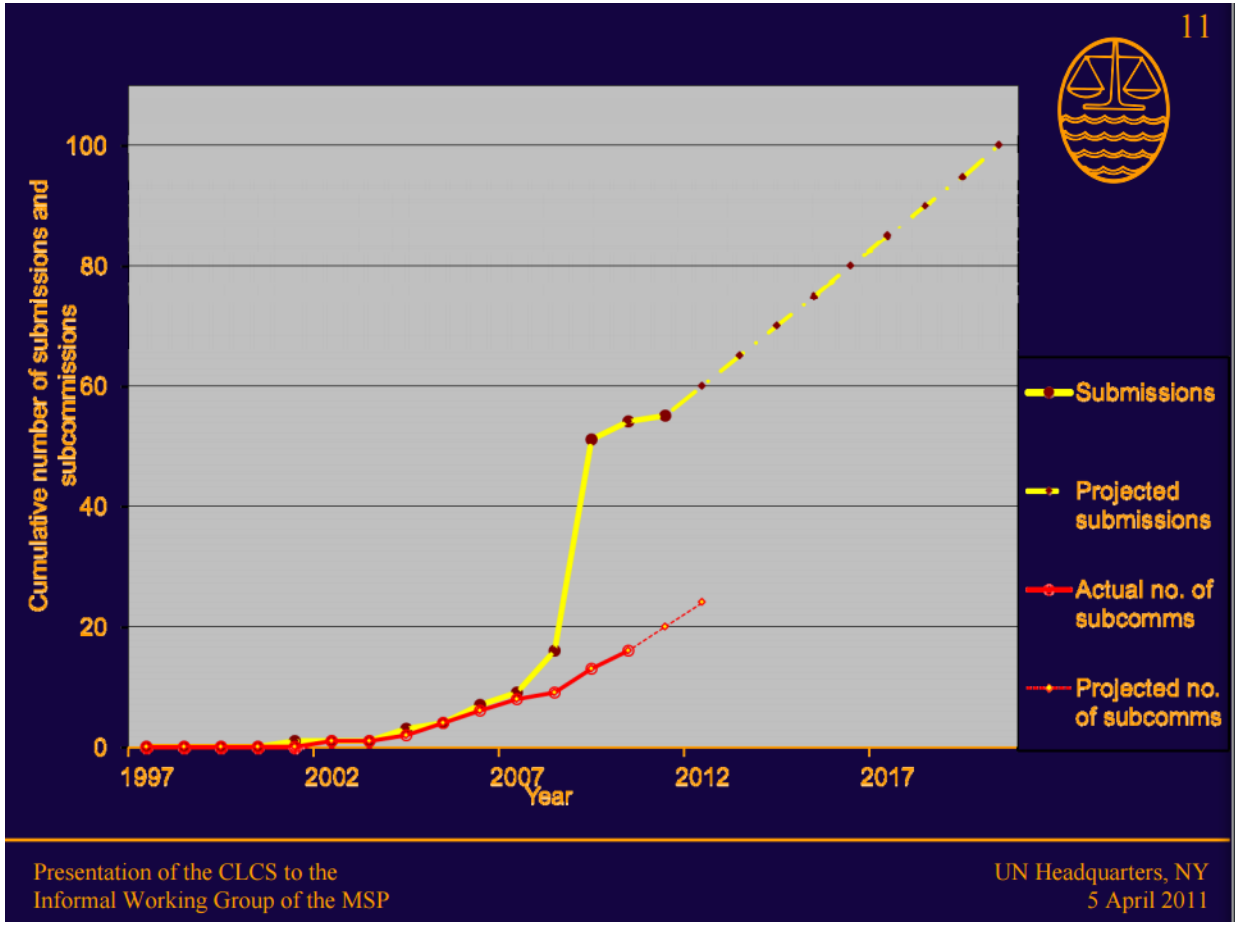
GEBCO Guiding Committee, Portsmouth NH, 7 November 2019

The CLCS submissions hockeystick and Seabed 2030

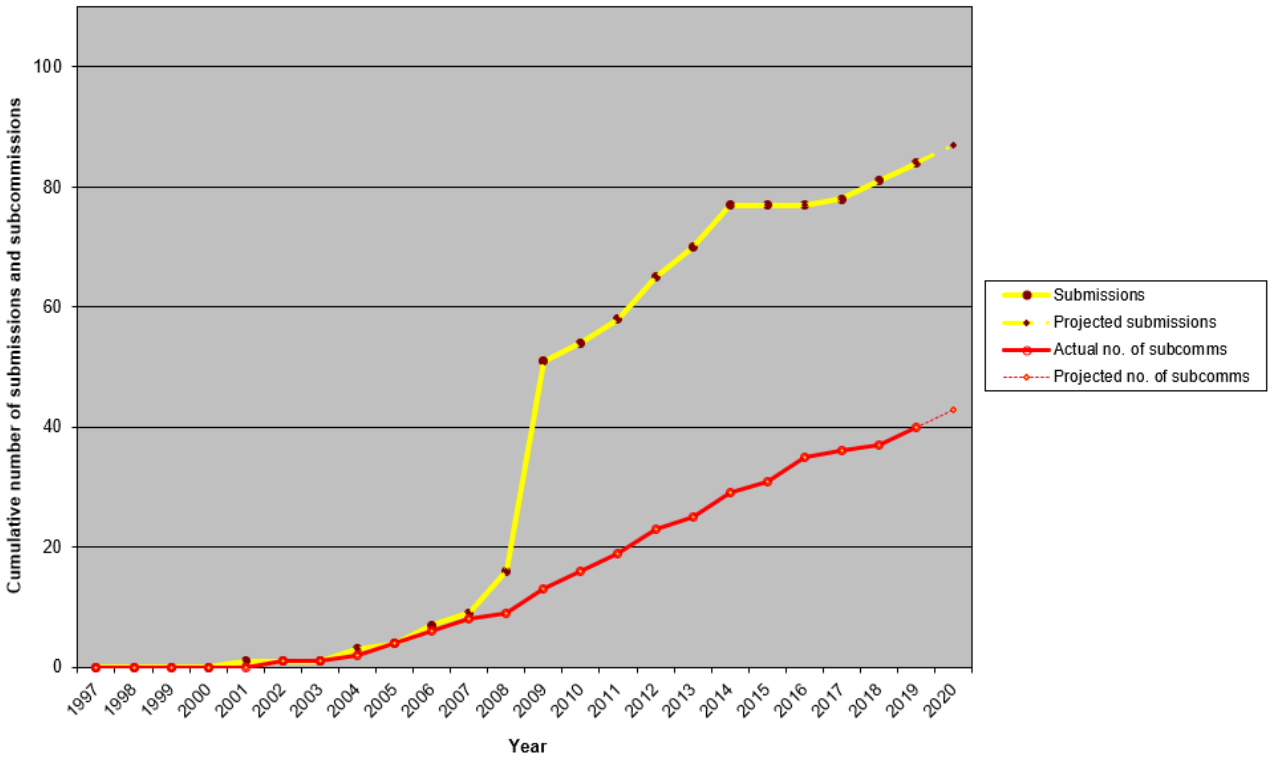
Peter F. Croker

The M Horizon (UK) Limited

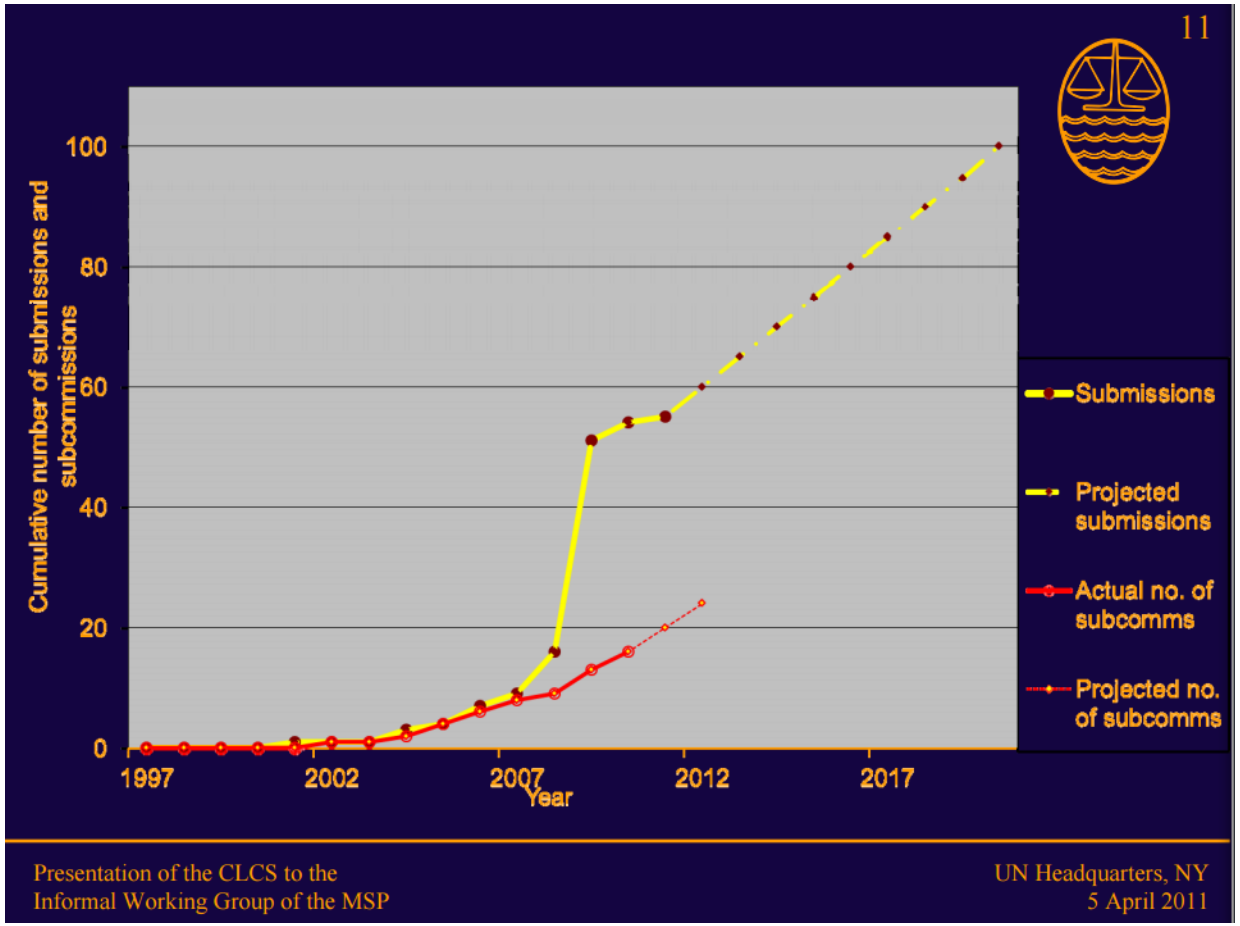
(peter@the-m-horizon.com)



April 2011 – projected to 2020



October 2019 – projected to 2020
Cumulative number of subcommissions = 40
Cumulative number of submissions = 84*
(* excluding revised submissions)



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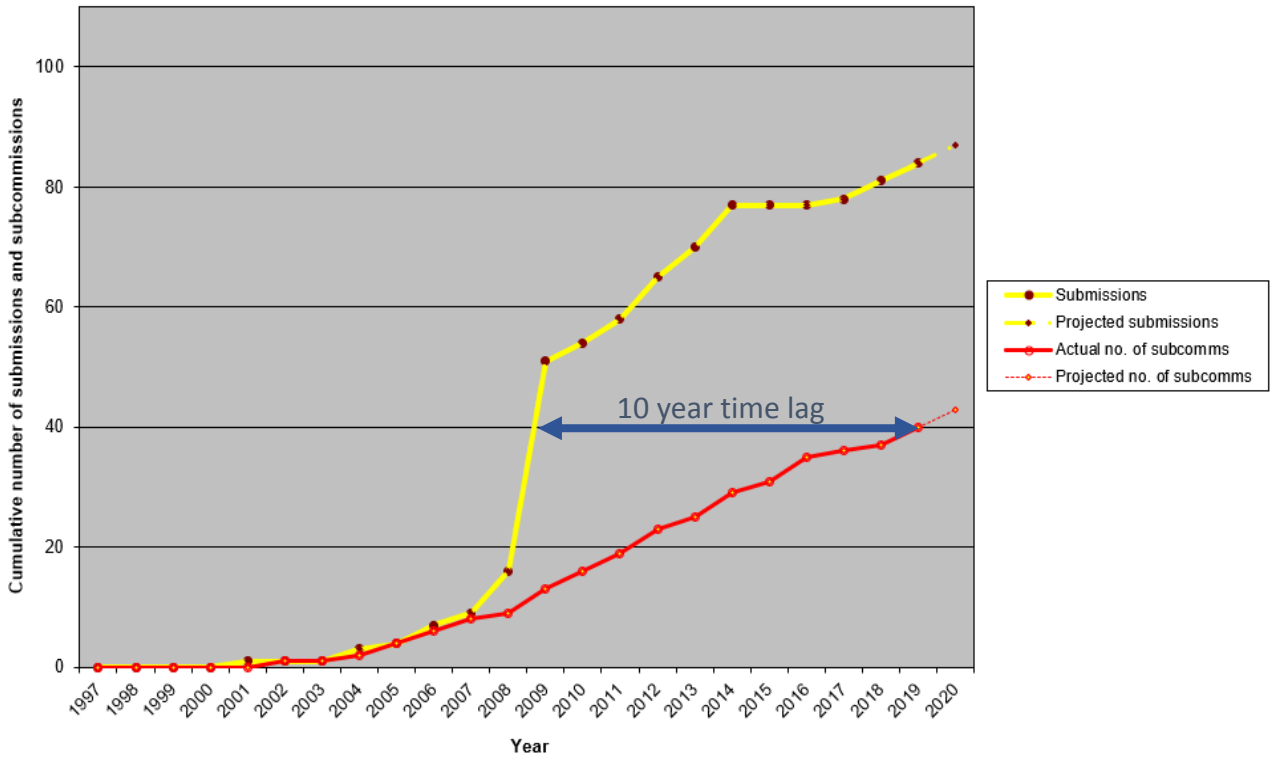

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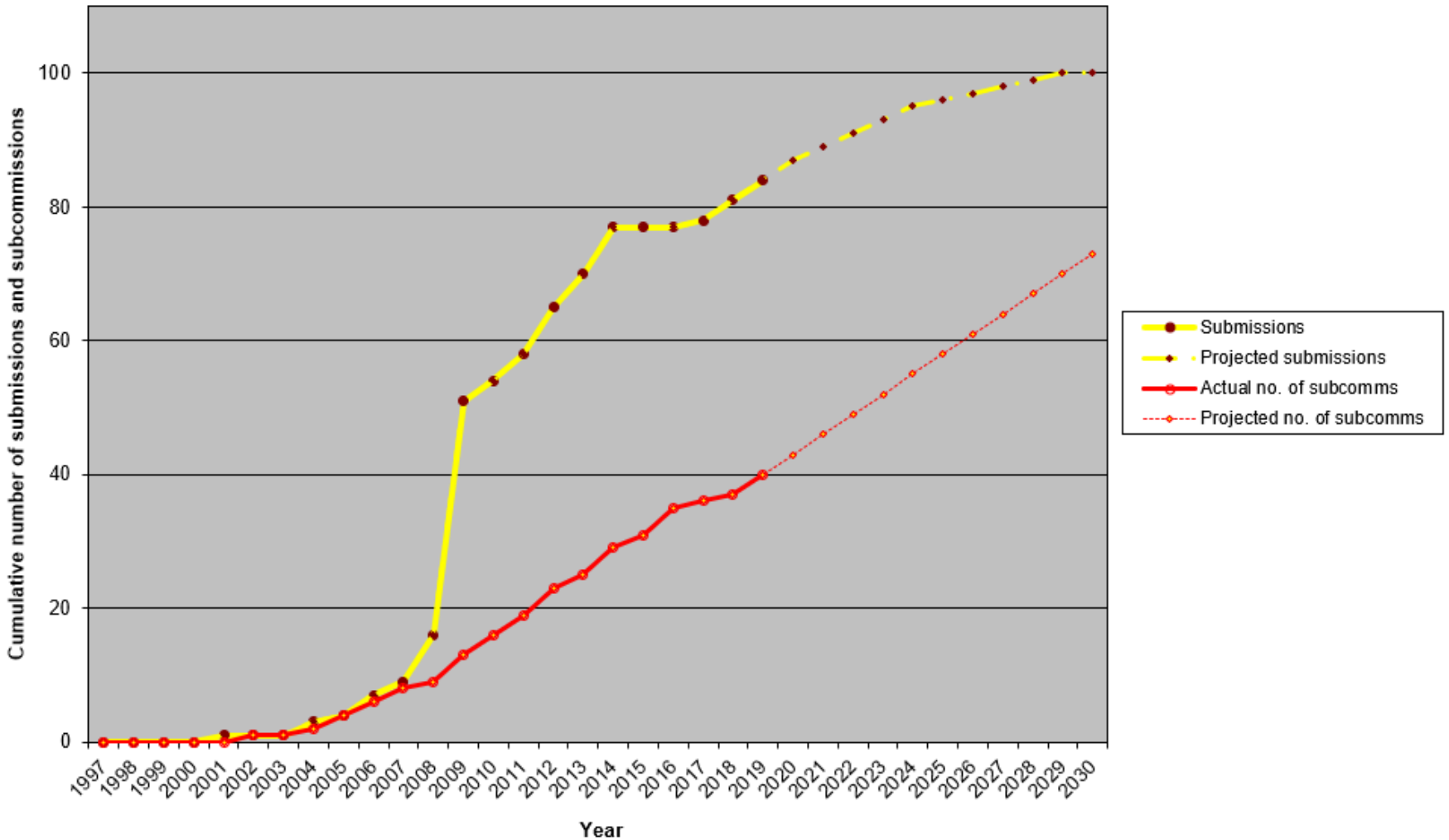

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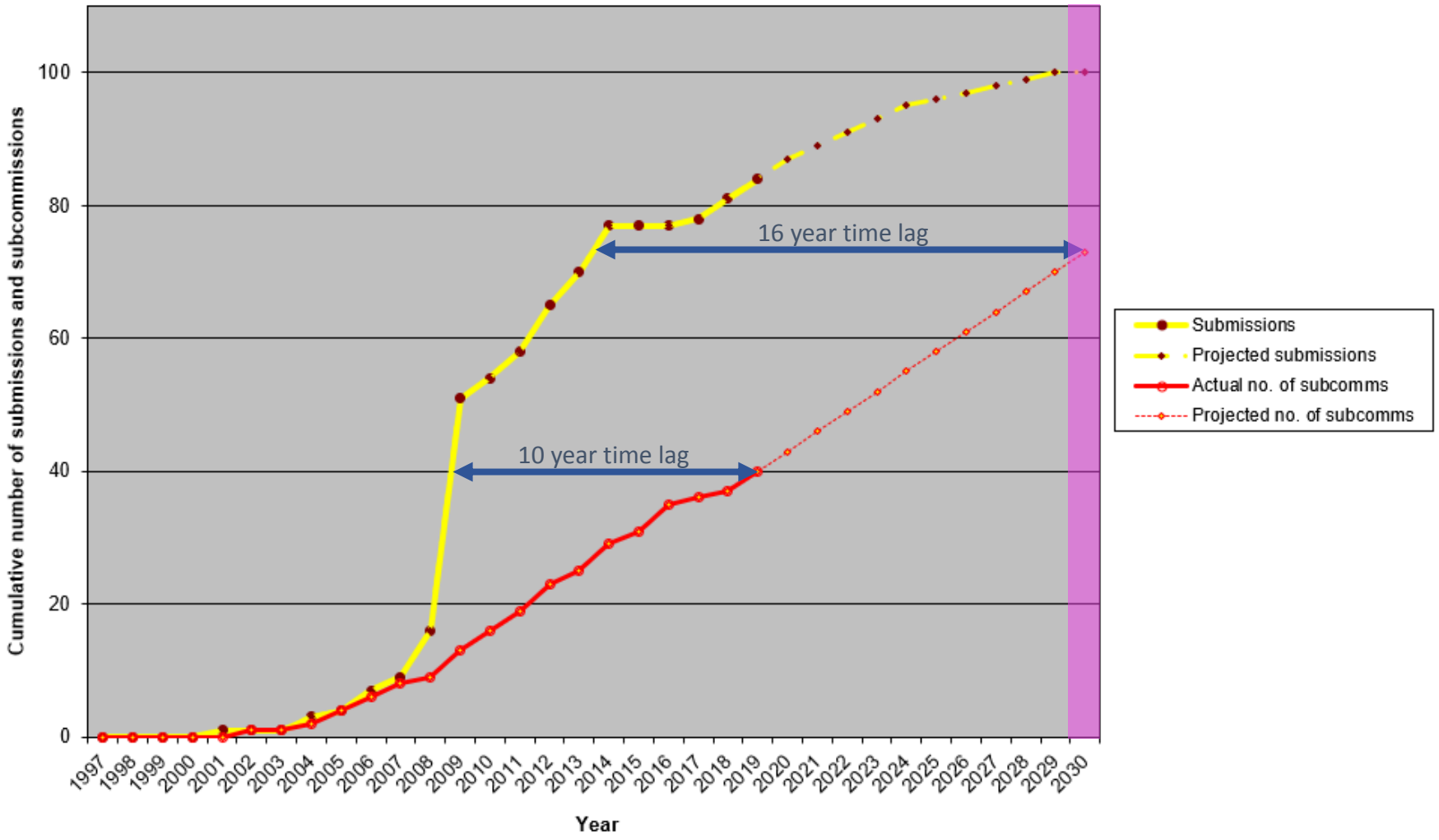

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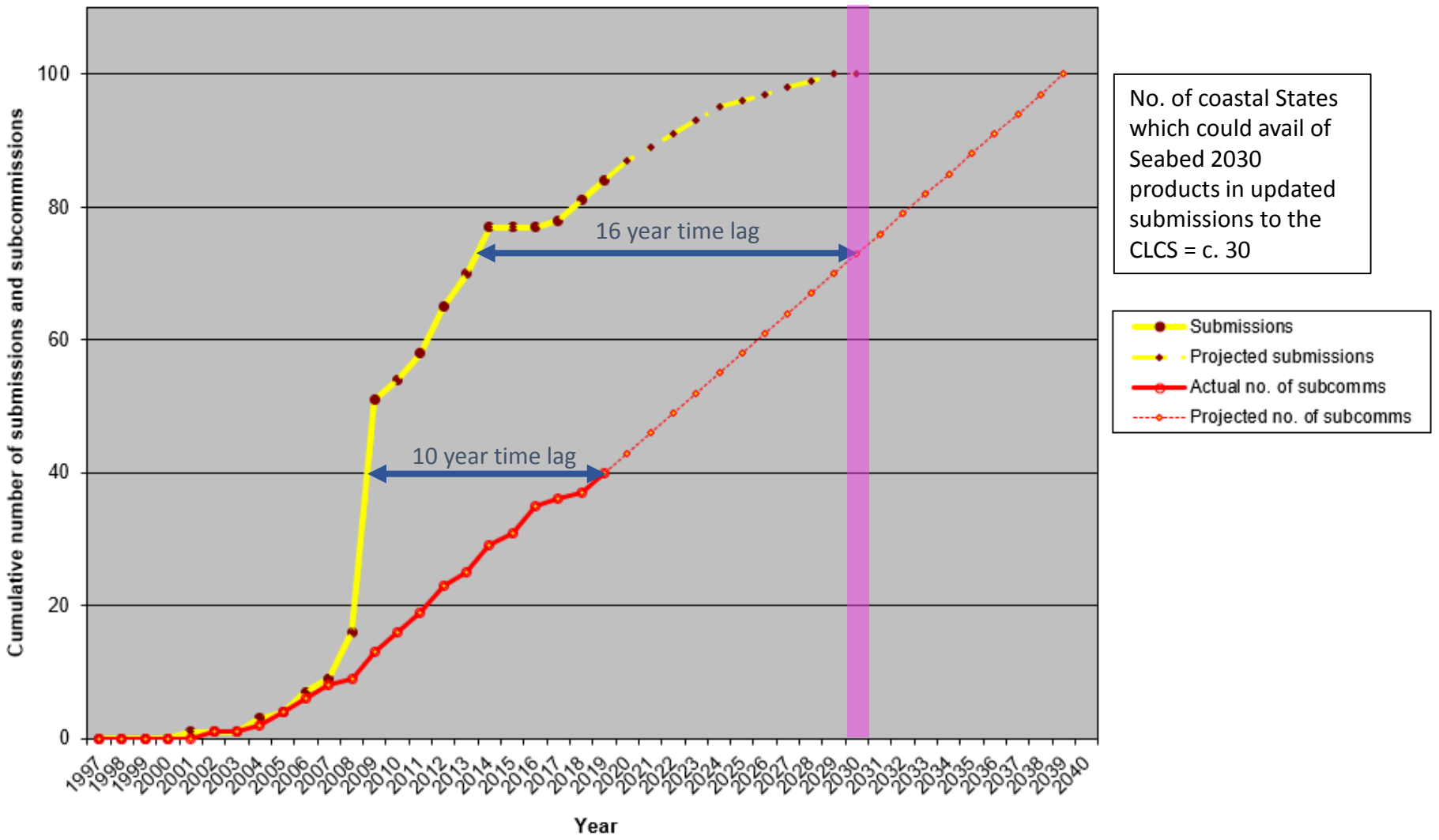
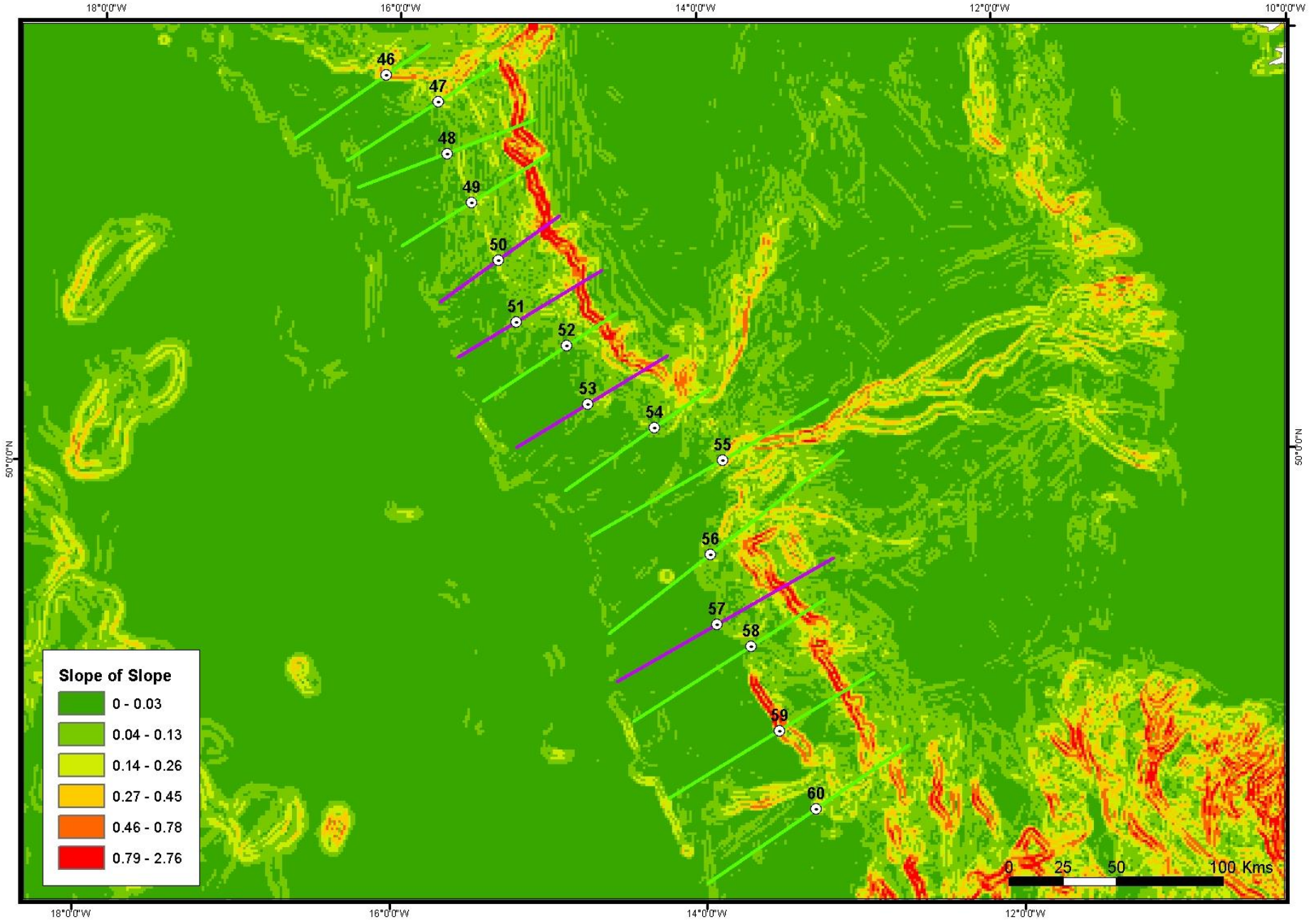
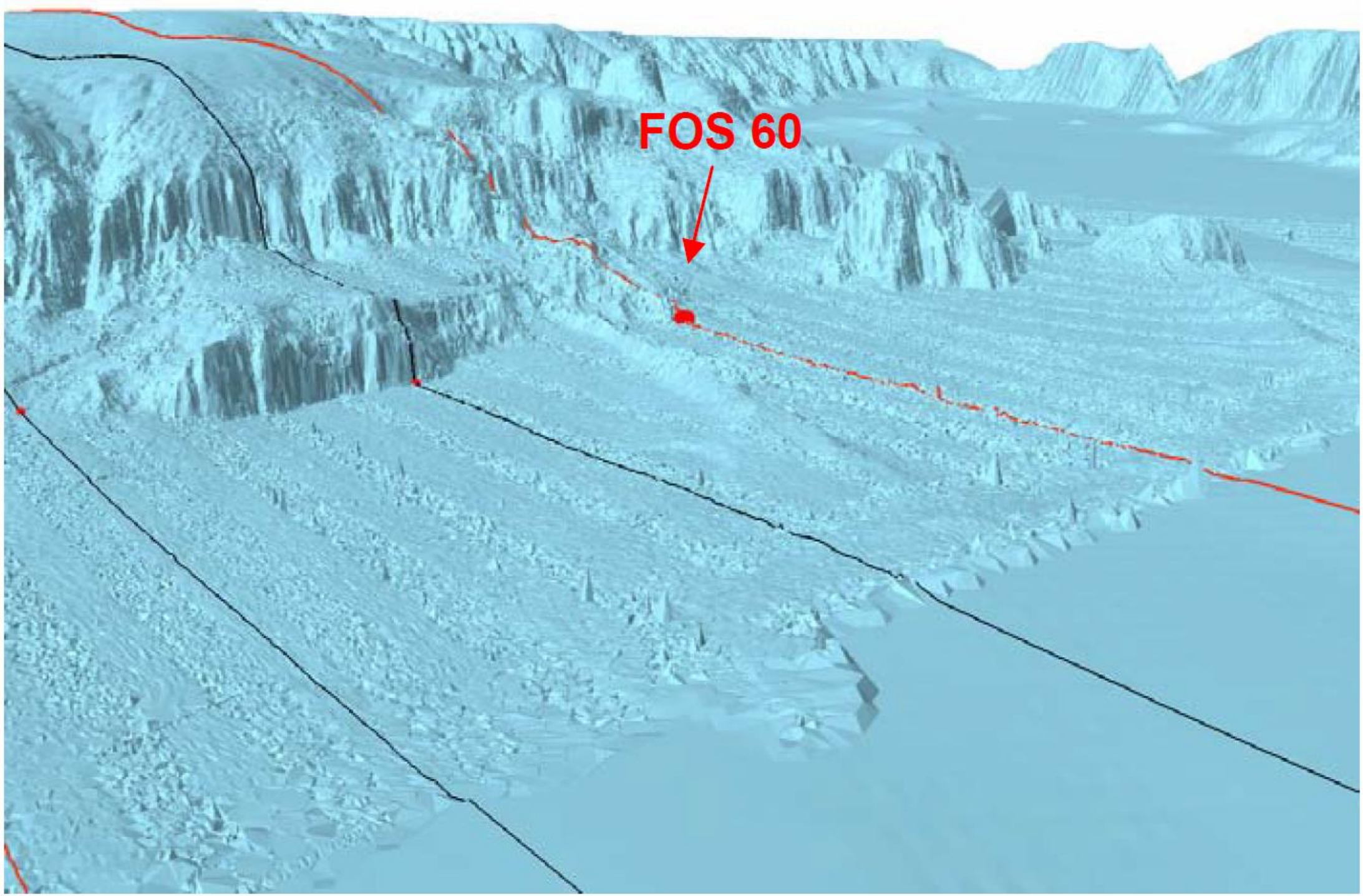


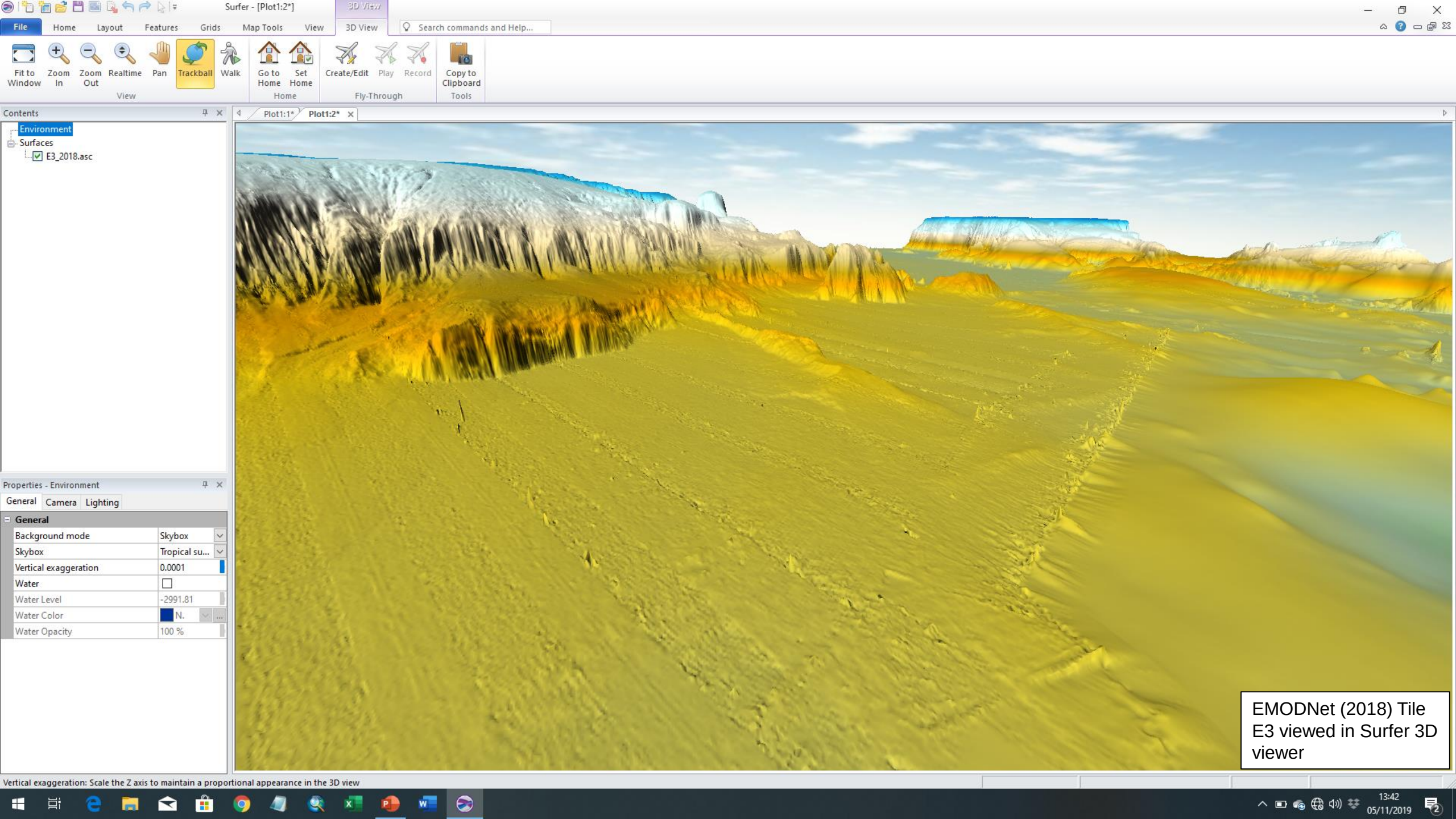
October 2019 – projected to 2040



Ireland
FOS locations,
Porcupine Abyssal Plain



3D (TIN) bathymetric model prepared by the Subcommission from multibeam data submitted by Ireland showing the morphological characteristics of the Goban Spur margin and various FOS locations (from Summary of CLCS Recommendations issued to Ireland for Porcupine Abyssal Plain, April 2007).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Lighting
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EMODNet (2018) Tile E3 viewed in Surfer 3D viewer
Vertical exaggeration: Scale the Z axis to maintain a proportional appearance in the 3D view
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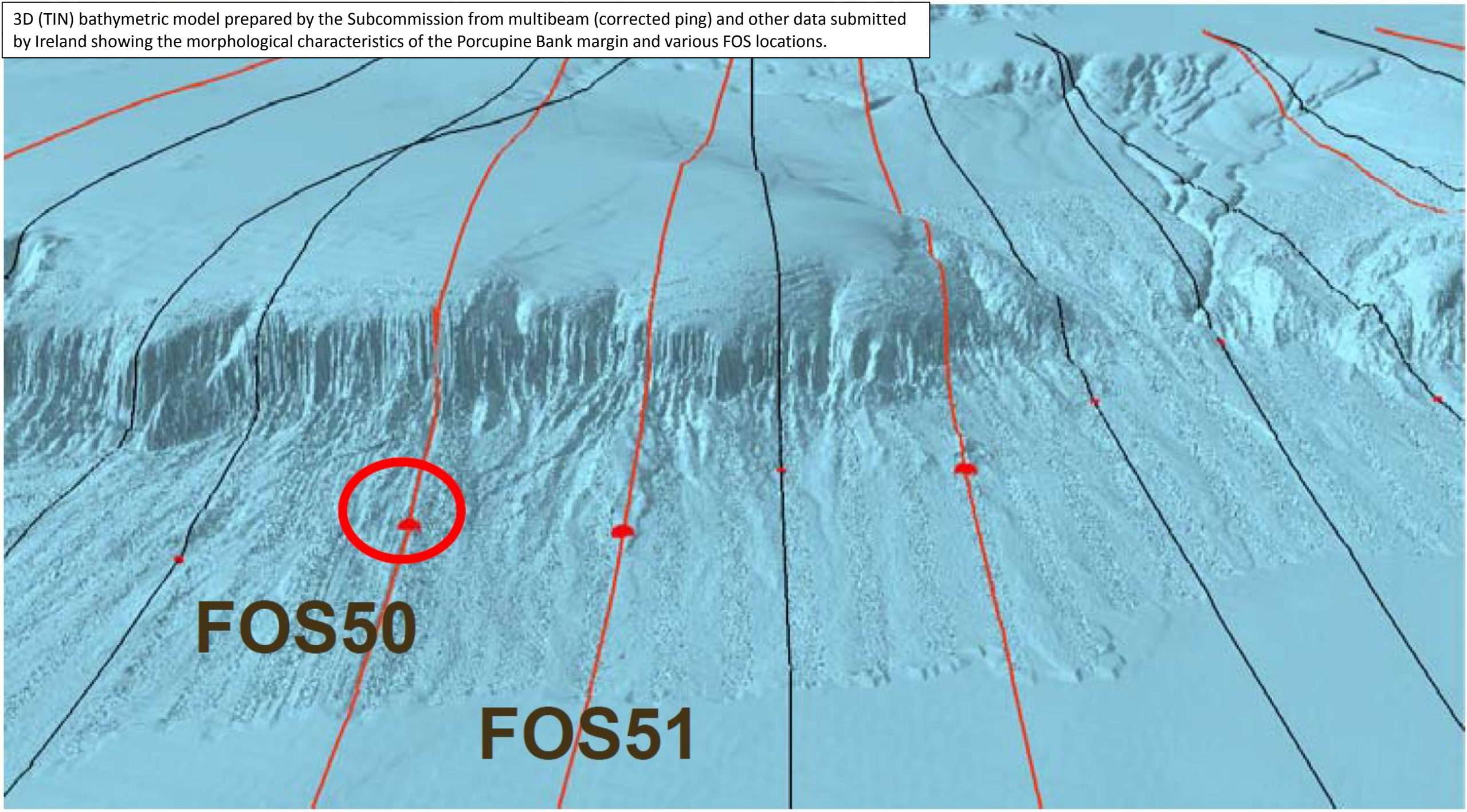
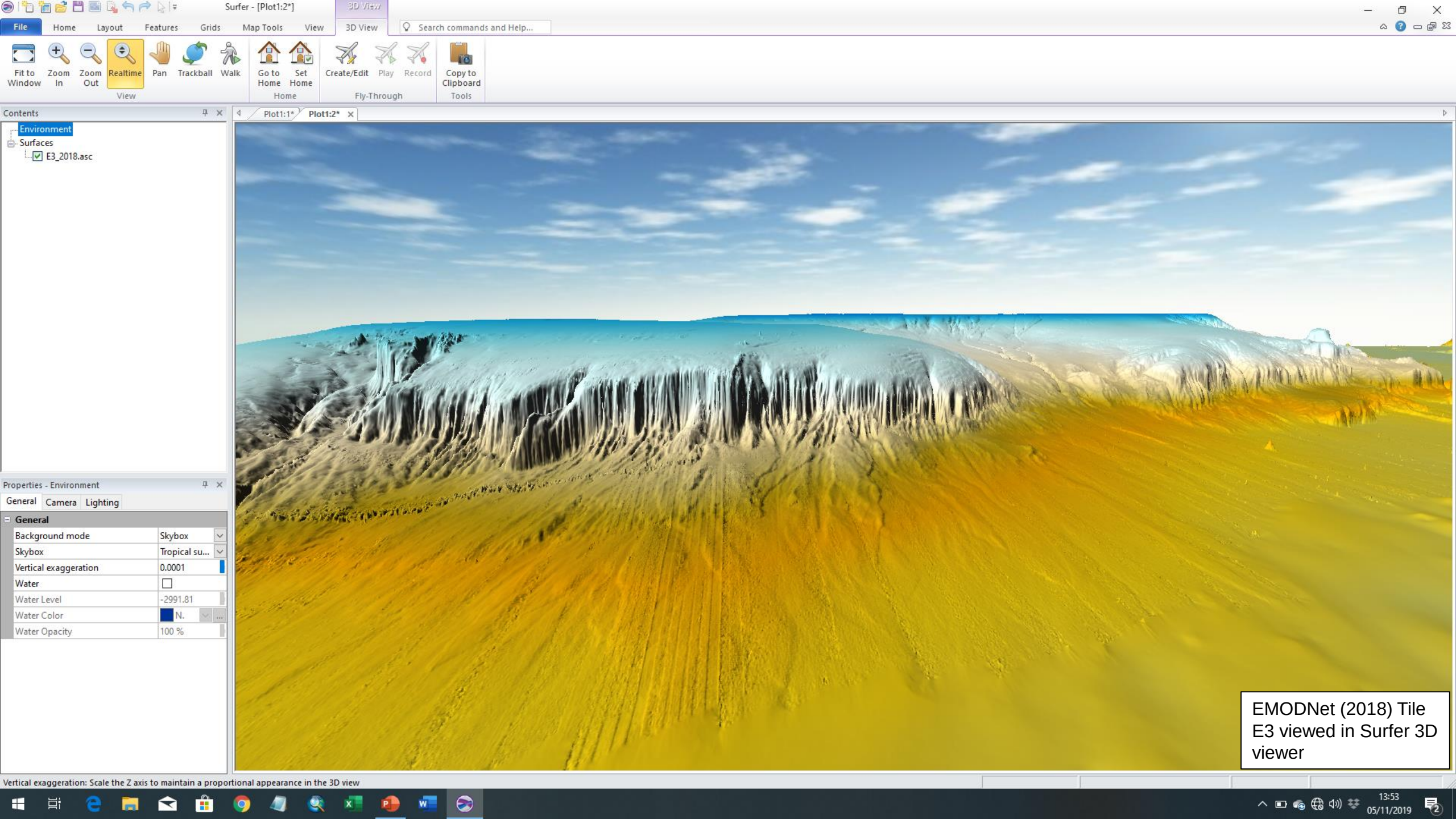
05/11/2019

3D (TIN) bathymetric model prepared by the Subcommission from multibeam (corrected ping) and other data submitted by Ireland showing the morphological characteristics of the Porcupine Bank margin and various FOS locations.

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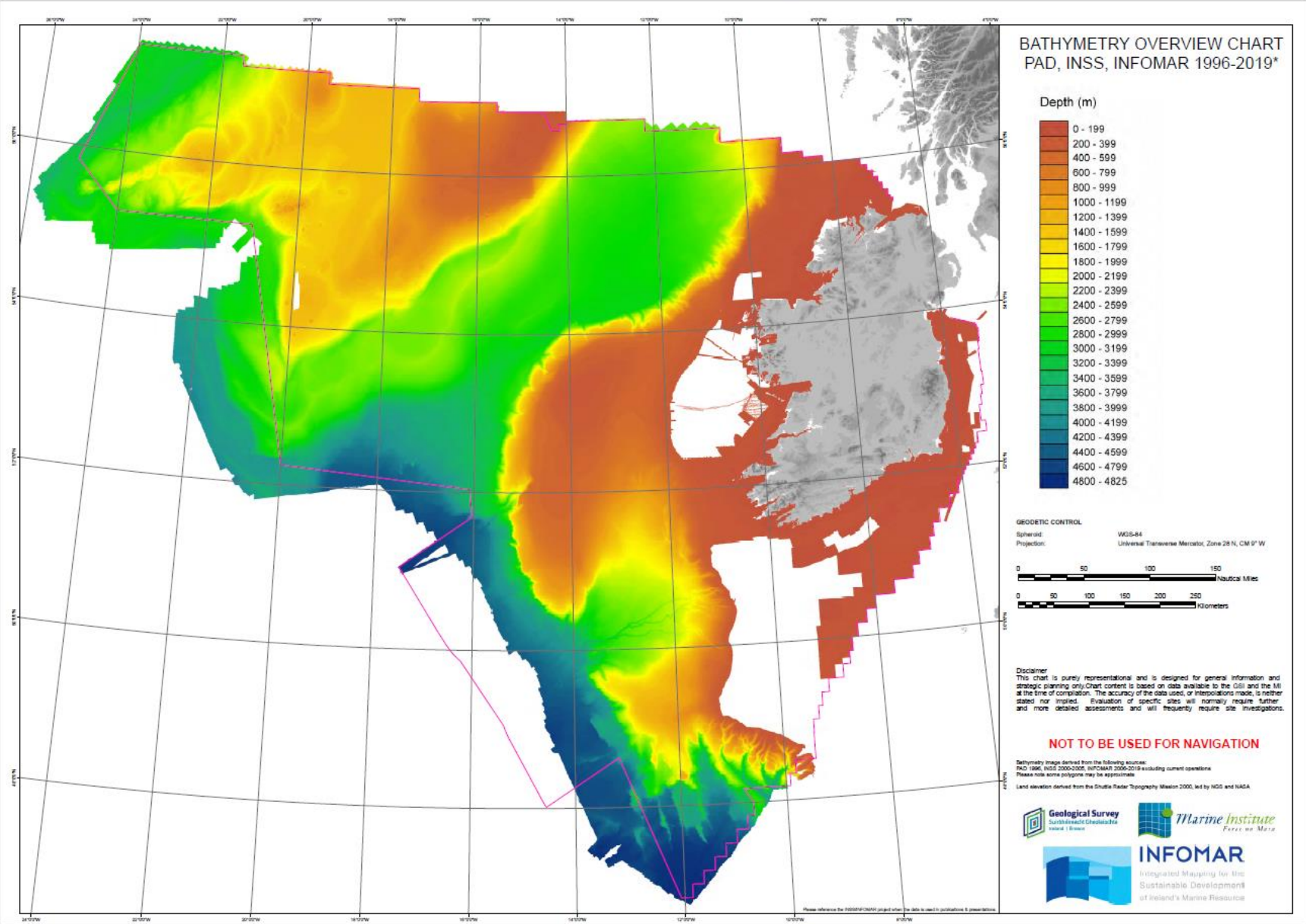
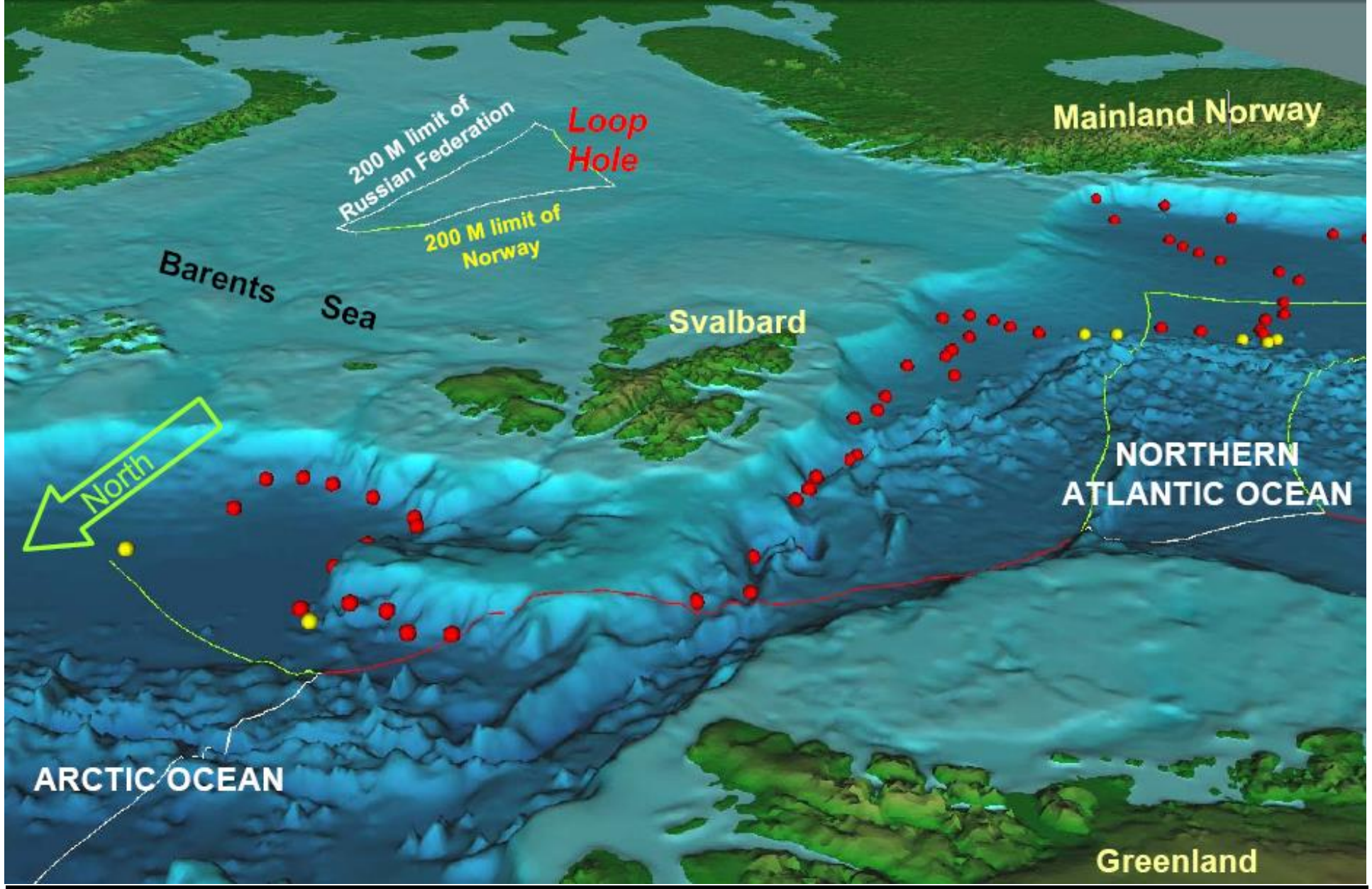
Water Opacity
100 %
Plot1:1*
Plot1:2*
EMODNet (2018) Tile E3 viewed in Surfer 3D viewer
Vertical exaggeration: Scale the Z axis to maintain a proportional appearance in the 3D view
13:53
05/11/2019

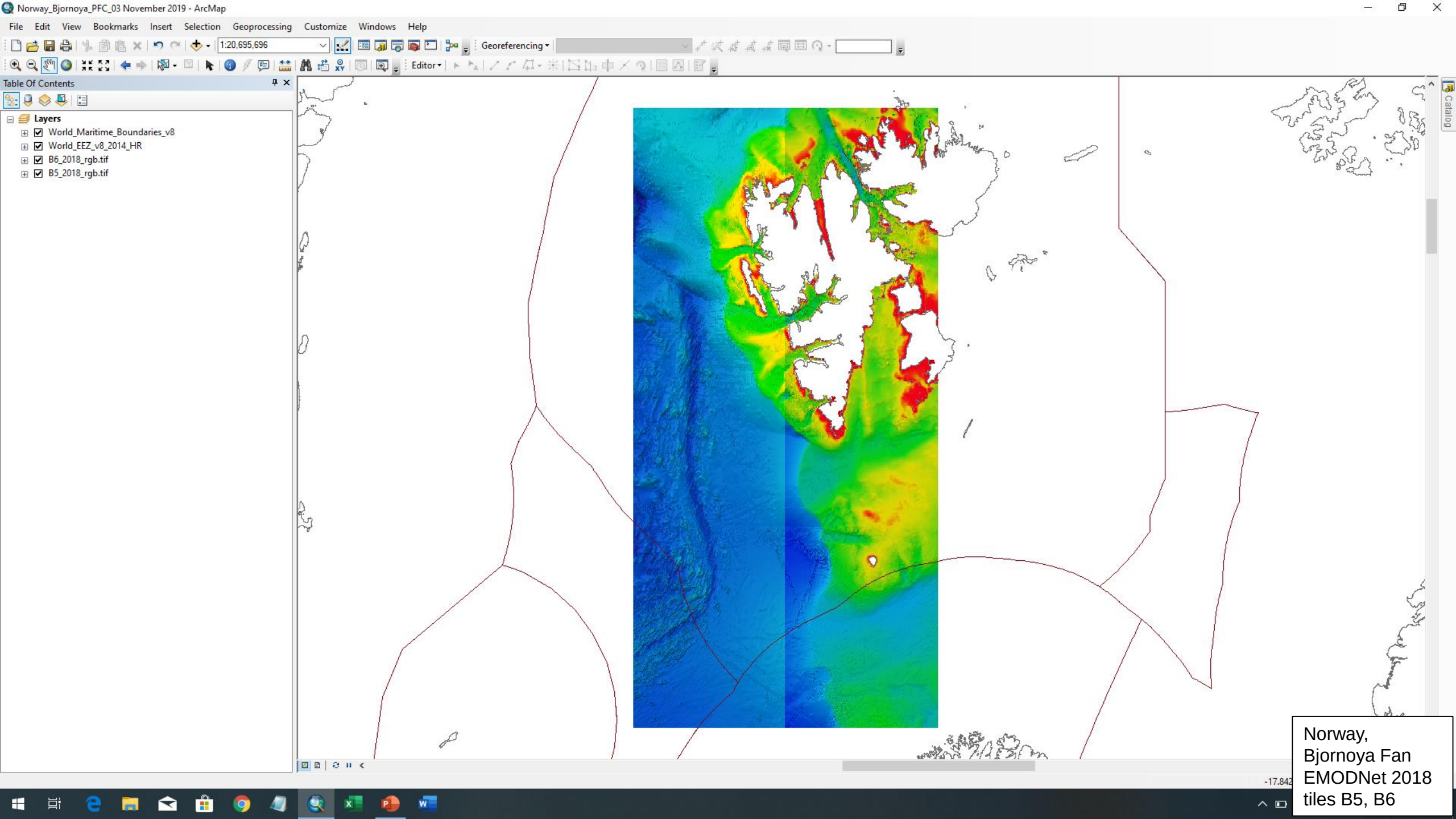


PAD_INSS_INFOMAR
1996 - October 2019
multibeam coverage



3D view of seafloor morphology in the North East Atlantic and Arctic region, viewed from the northwest, showing the envelope of the foot of the continental slope around the continental margin associated with the *Loop Hole* in the Barents Sea (prepared for the Subcommission from information submitted by Norway).
From Summary of CLCS Recommendations for Norway, March 2009

Norway,
Bjornoya Fan


Norway_Bjornoya_PFC_03 November 2019 - ArcMap
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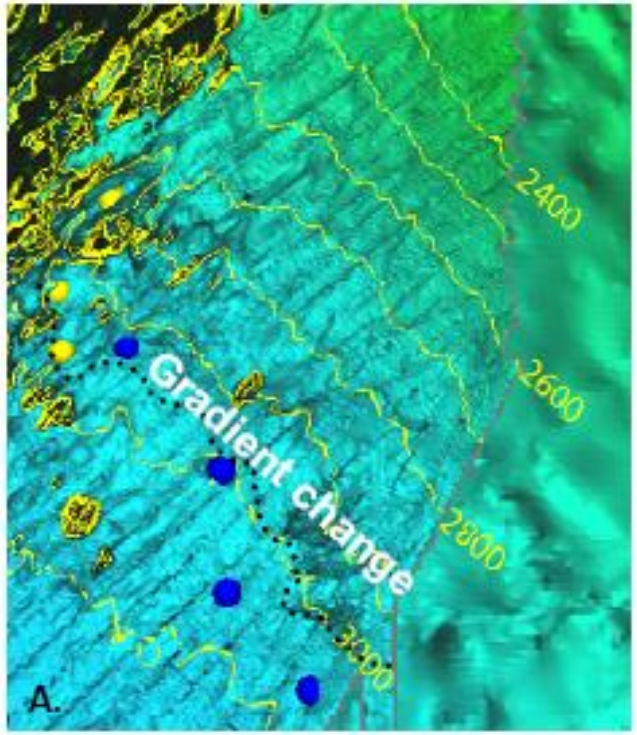
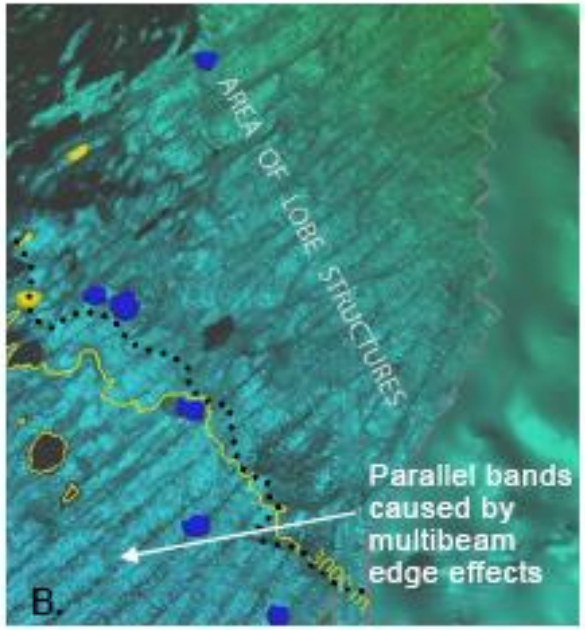
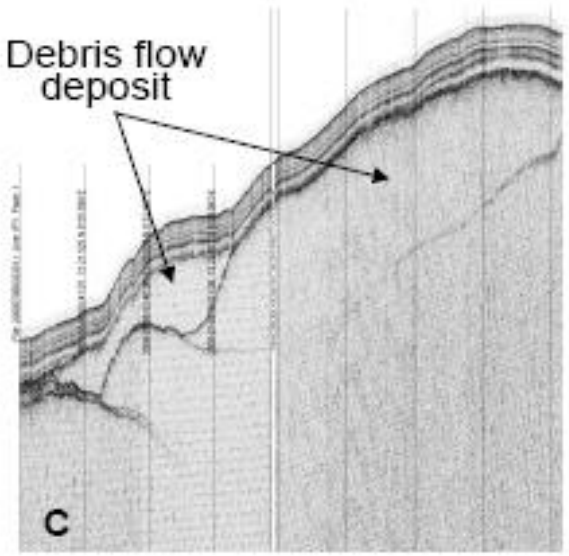
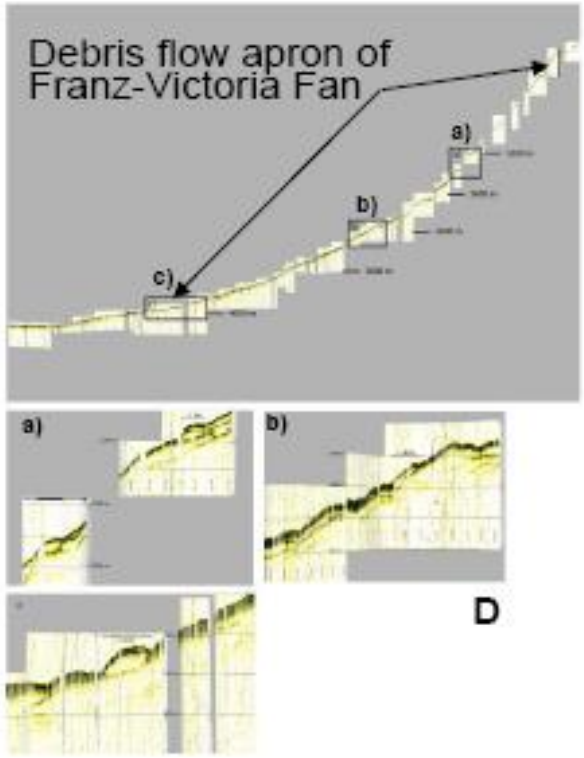
Bjornoya Fan
EMODNet 2018
tiles B5, B6



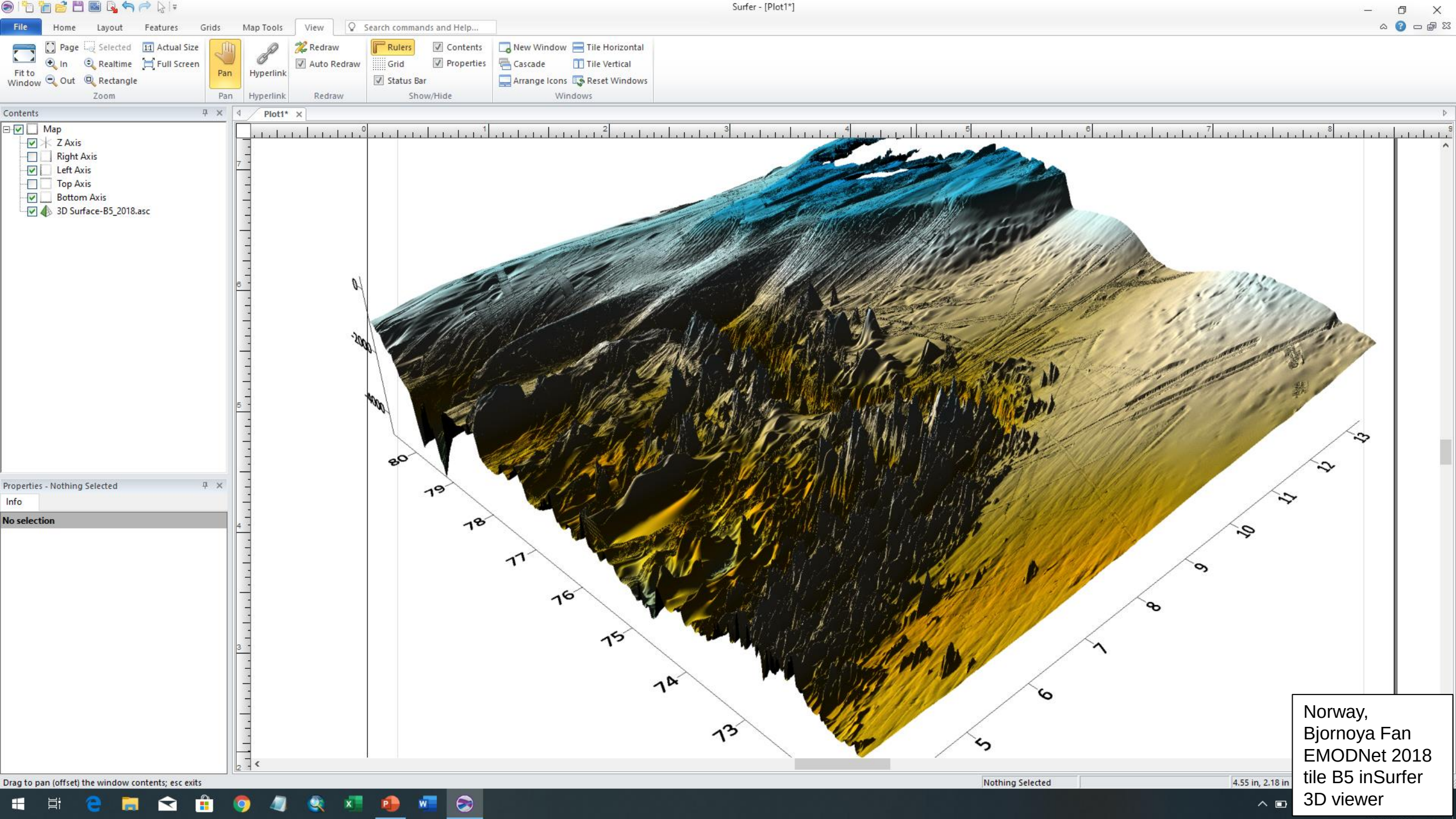






Composite figure showing (A) regional gradient change, (B) lobes at seafloor and (C) TOPAS high resolution sub-bottom profiler data (July 2008 Line 5; NOR-PRE-014-09-09-2008) indicating the distribution and characteristics of the glacigenic debris flows forming and underlying the slope of the Bjørnøya Fan, and similar features (D) imaged on Parasound high-resolution sub-bottom profiler data over the Franz-Victoria Fan of the *Western Nansen Basin*.

From Summary of CLCS Recommendations for Norway, March 2009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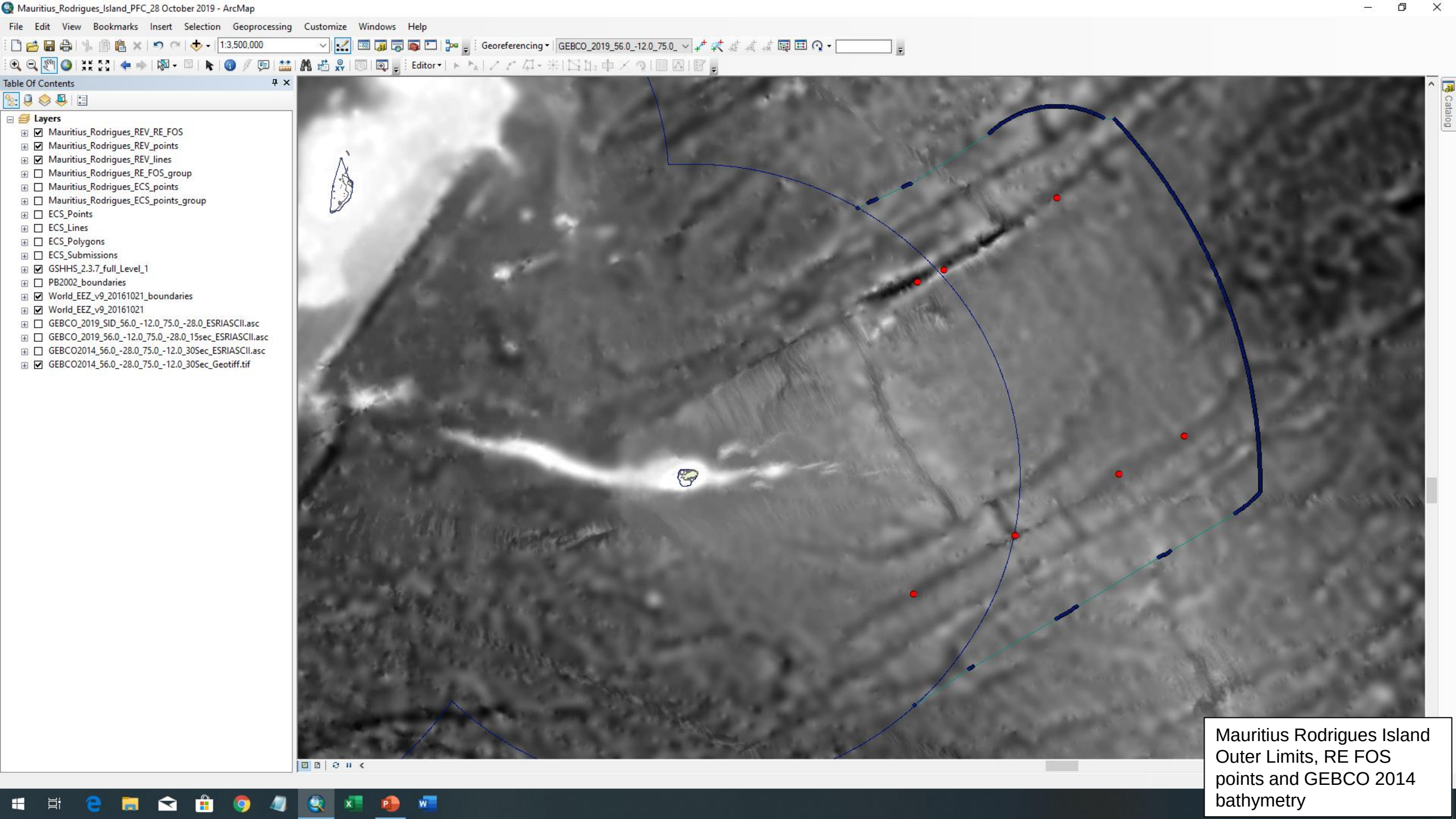
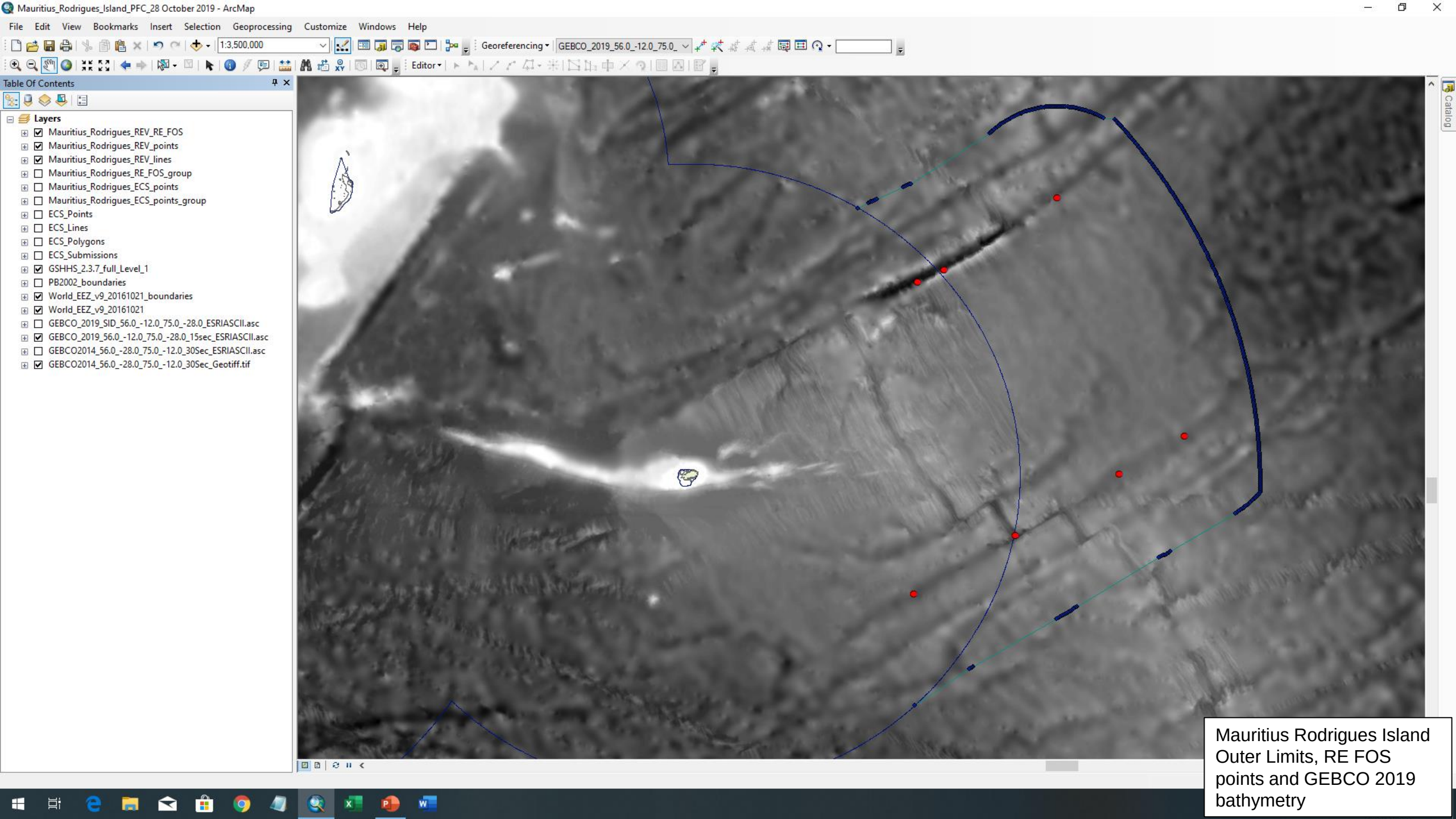
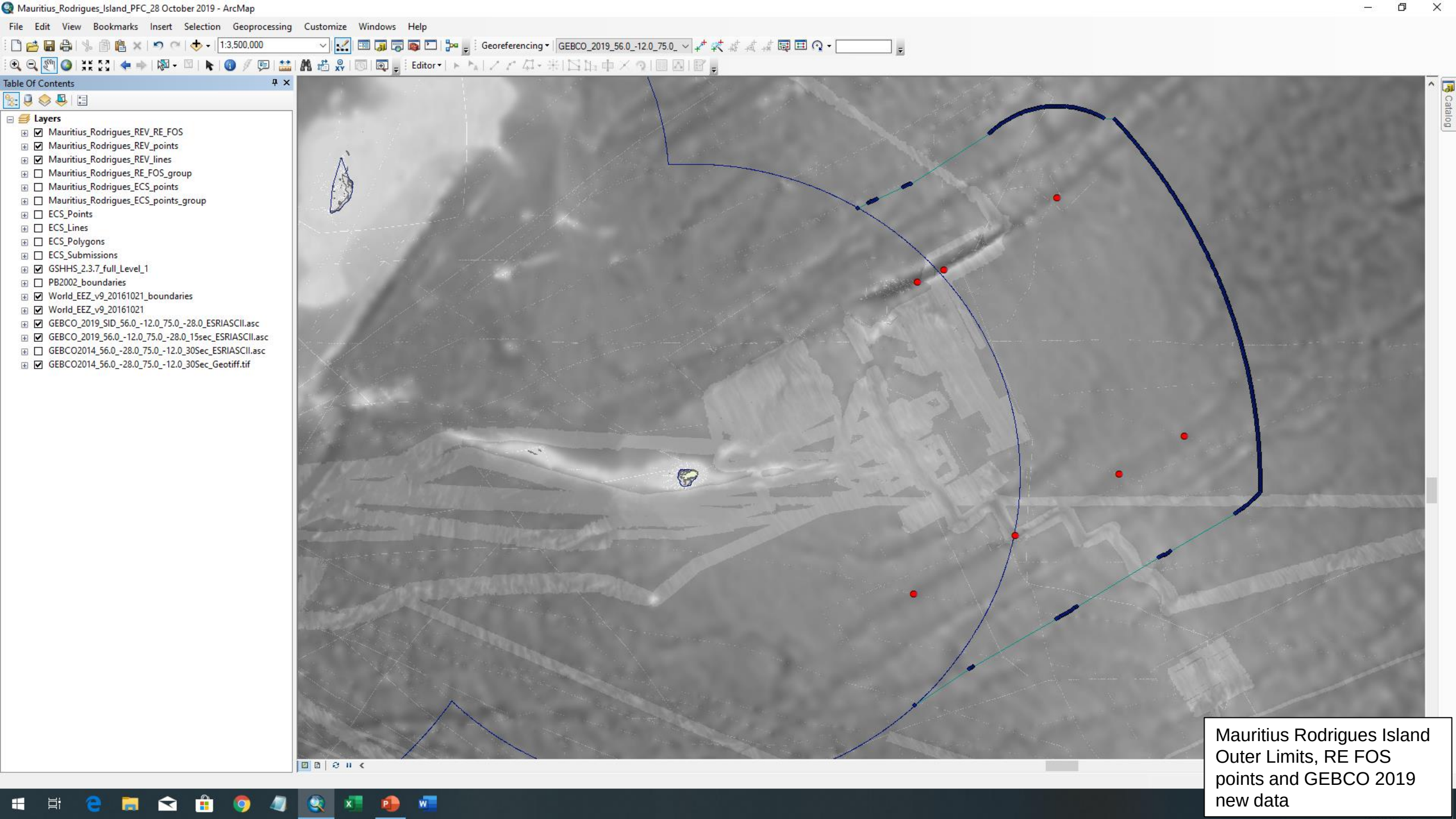
4.55 in, 2.18 in
Norway, Bjornoya Fan EMODNet 2018 tile B5 inSurfer 3D viewer



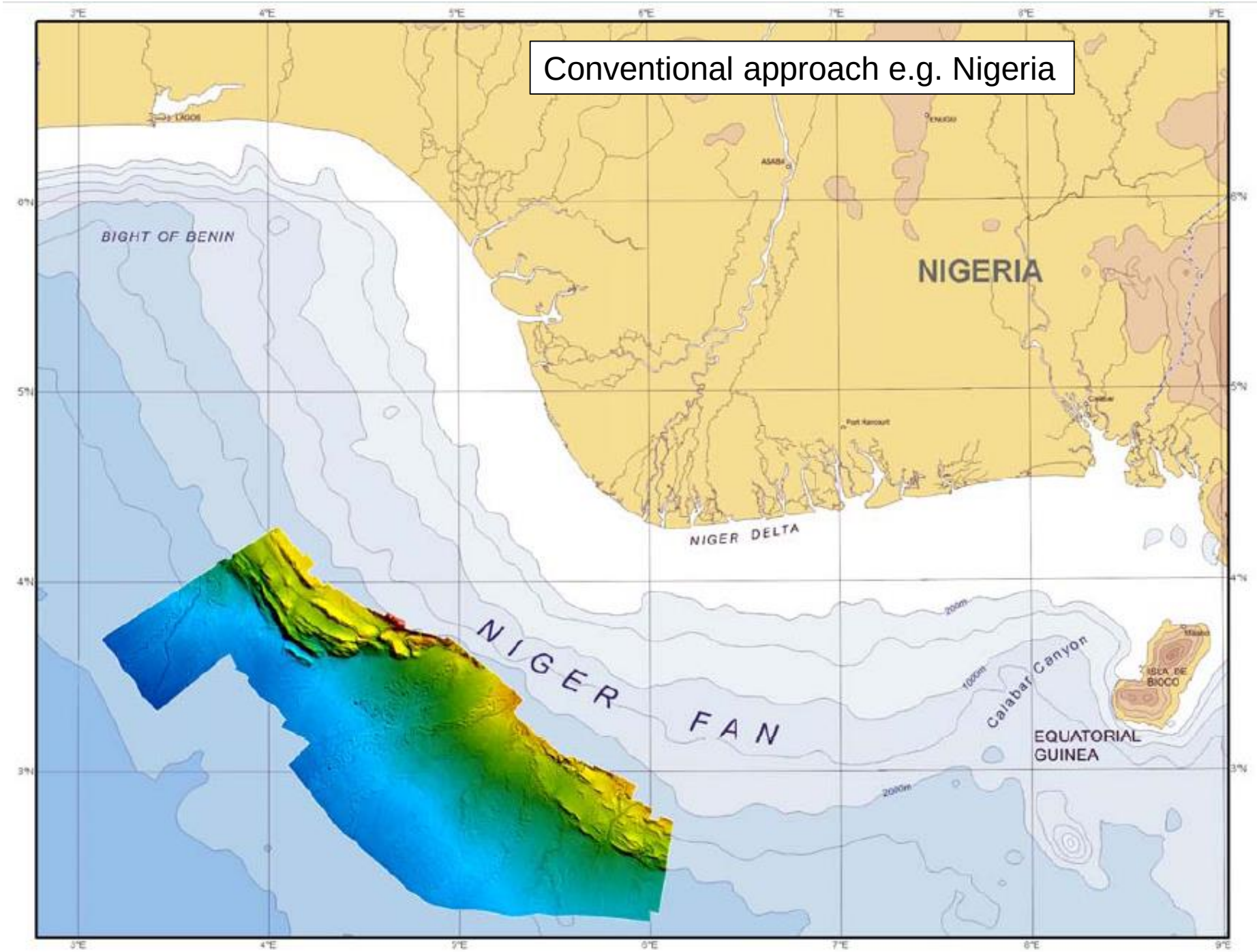
Mauritius Rodrigues Island Outer Limits, RE FOS points and GEBCO 2014 bathymetry



Mauritius Rodrigues Island Outer Limits, RE FOS points and GEBCO 2019 bathymetry



Mauritius Rodrigues Island Outer Limits, RE FOS points and GEBCO 2019 new data


Conventional approach e.g. Nigeria
BIGHT OF BENIN
NIGERIA
NIGER DELTA
NIGER FAN
Calabar Canyon
EQUATORIAL GUINEA
ISLA DE BIOCO
LAGOS
ENUGU
ASABA
Port Harcourt
Calabar
Malabo
200m
1000m
2000m
3°E
4°E
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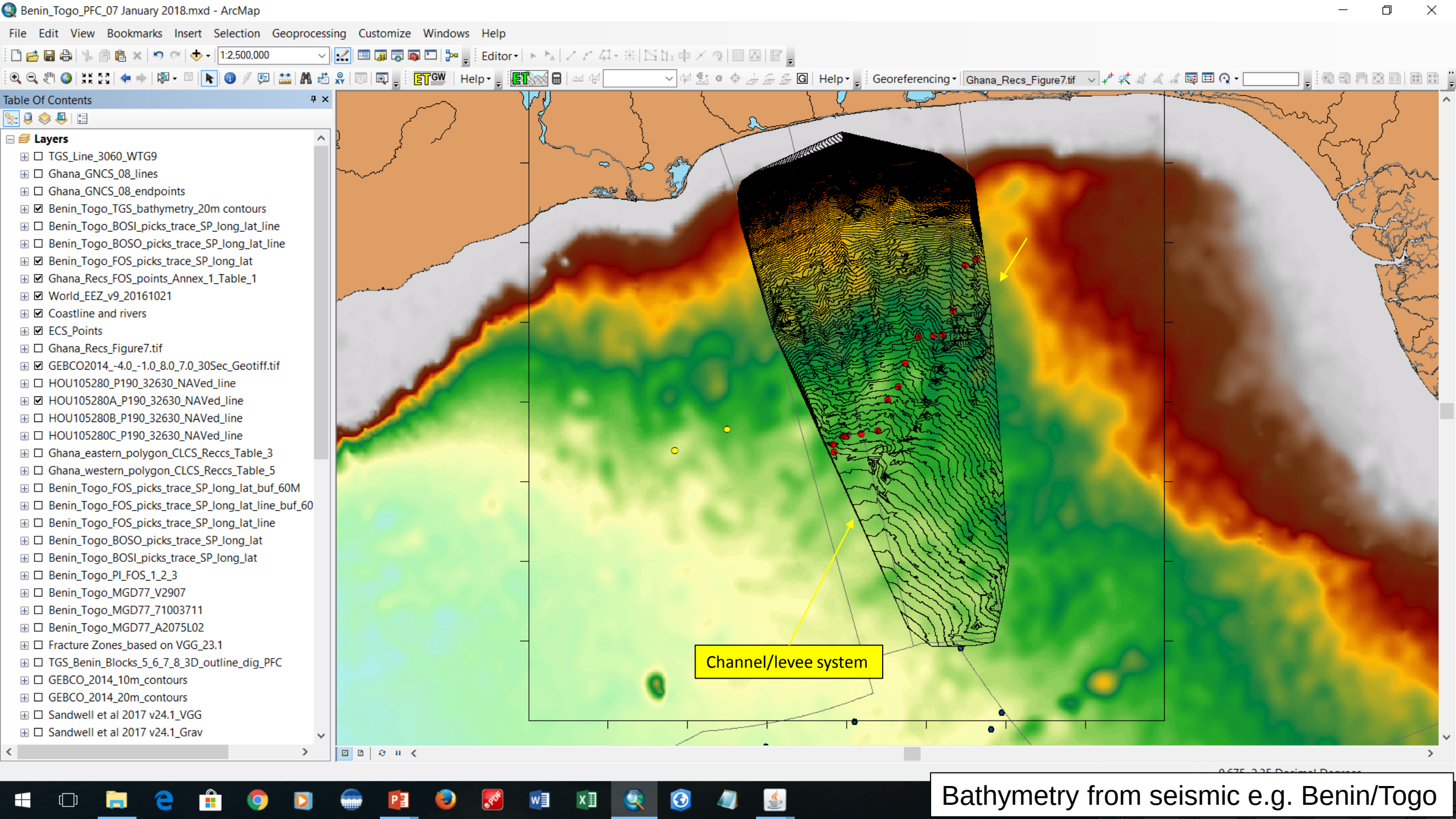
8°E
9°E
6°N
5°N
4°N
3°N


Benin_Togo_PFC_07 January 2018.mxd - ArcMap
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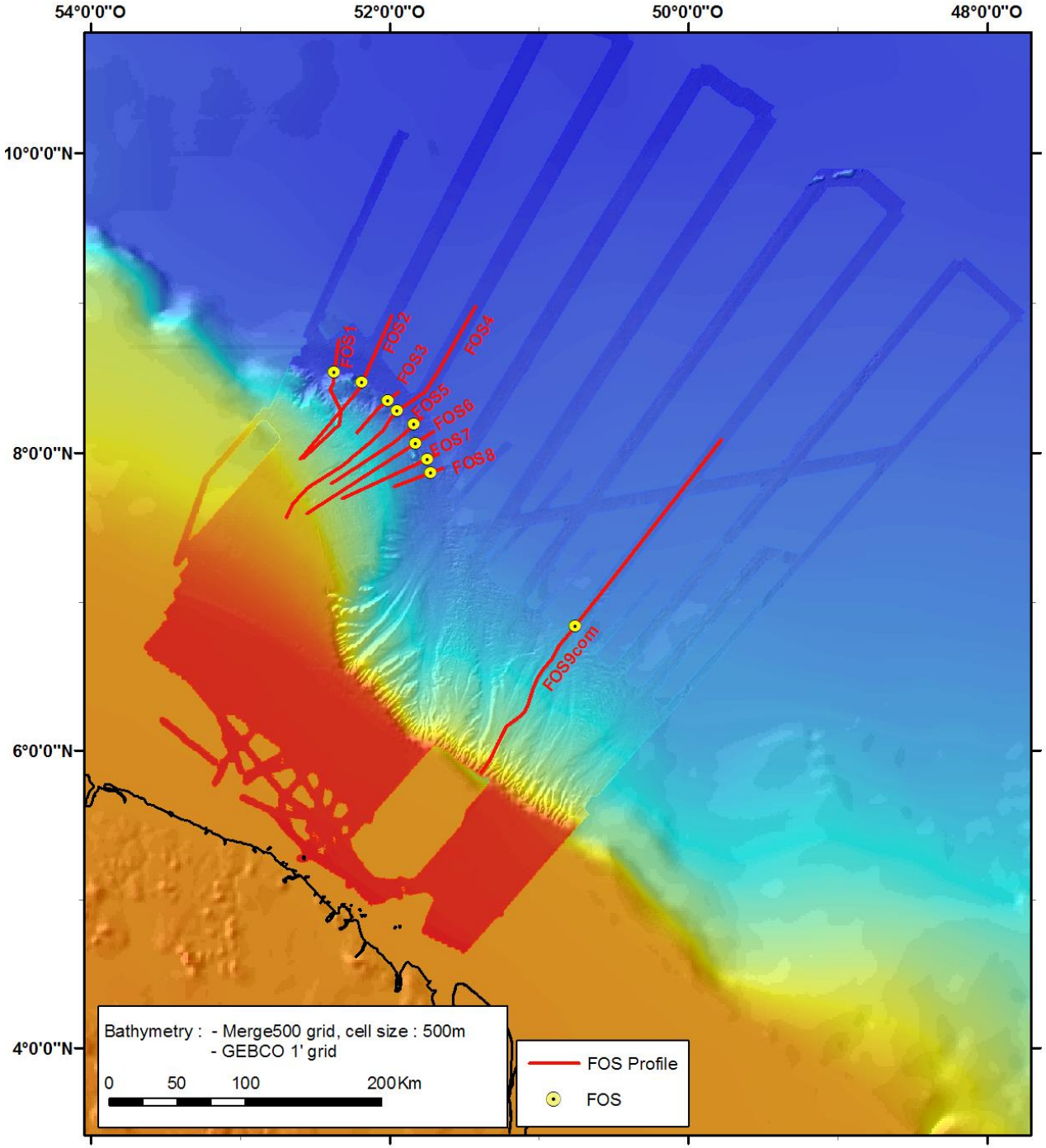
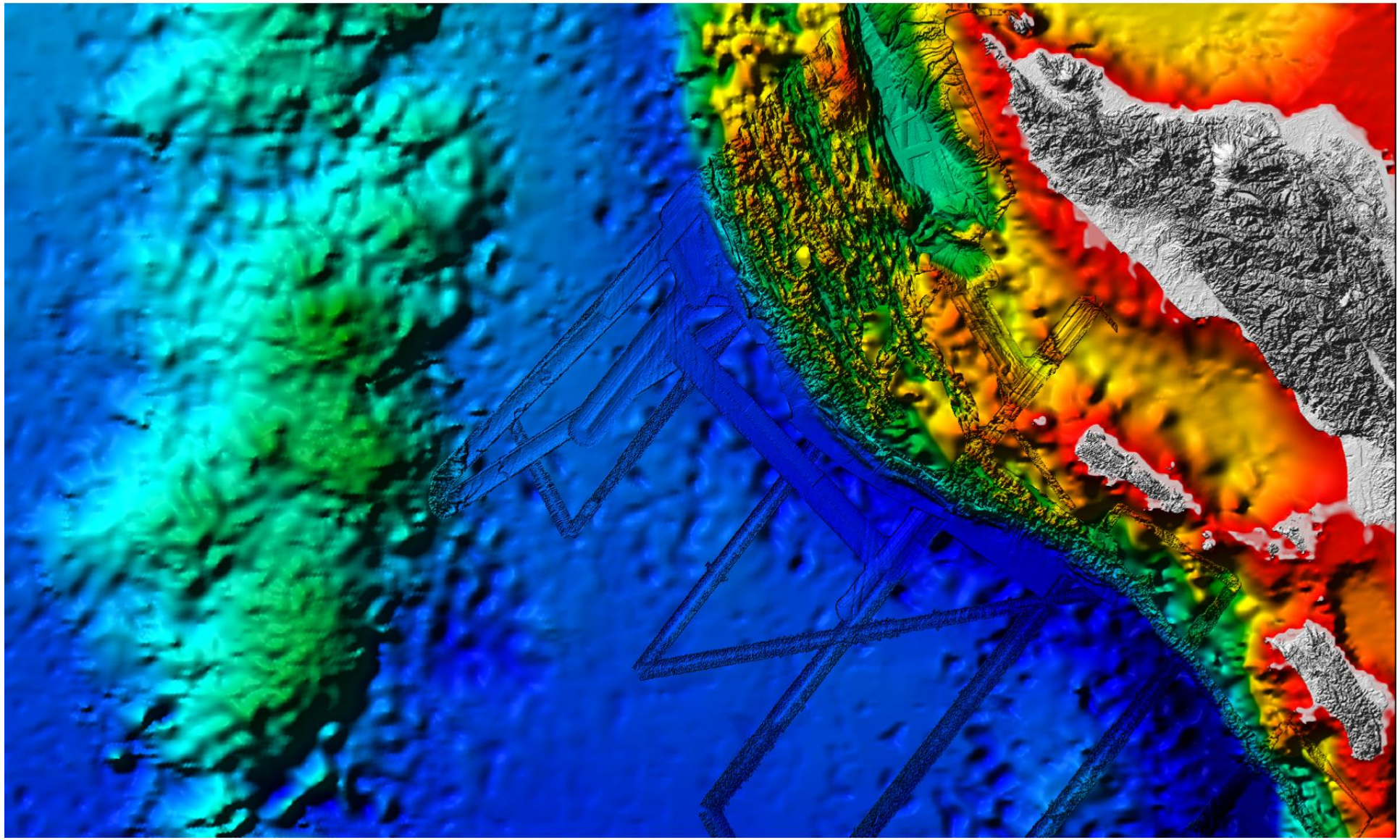
GEBCO_2014_20m_contours
Sandwell et al 2017 v24.1_VGG
Sandwell et al 2017 v24.1_Grav
Channel/levee system
Bathymetry from seismic e.g. Benin/Togo

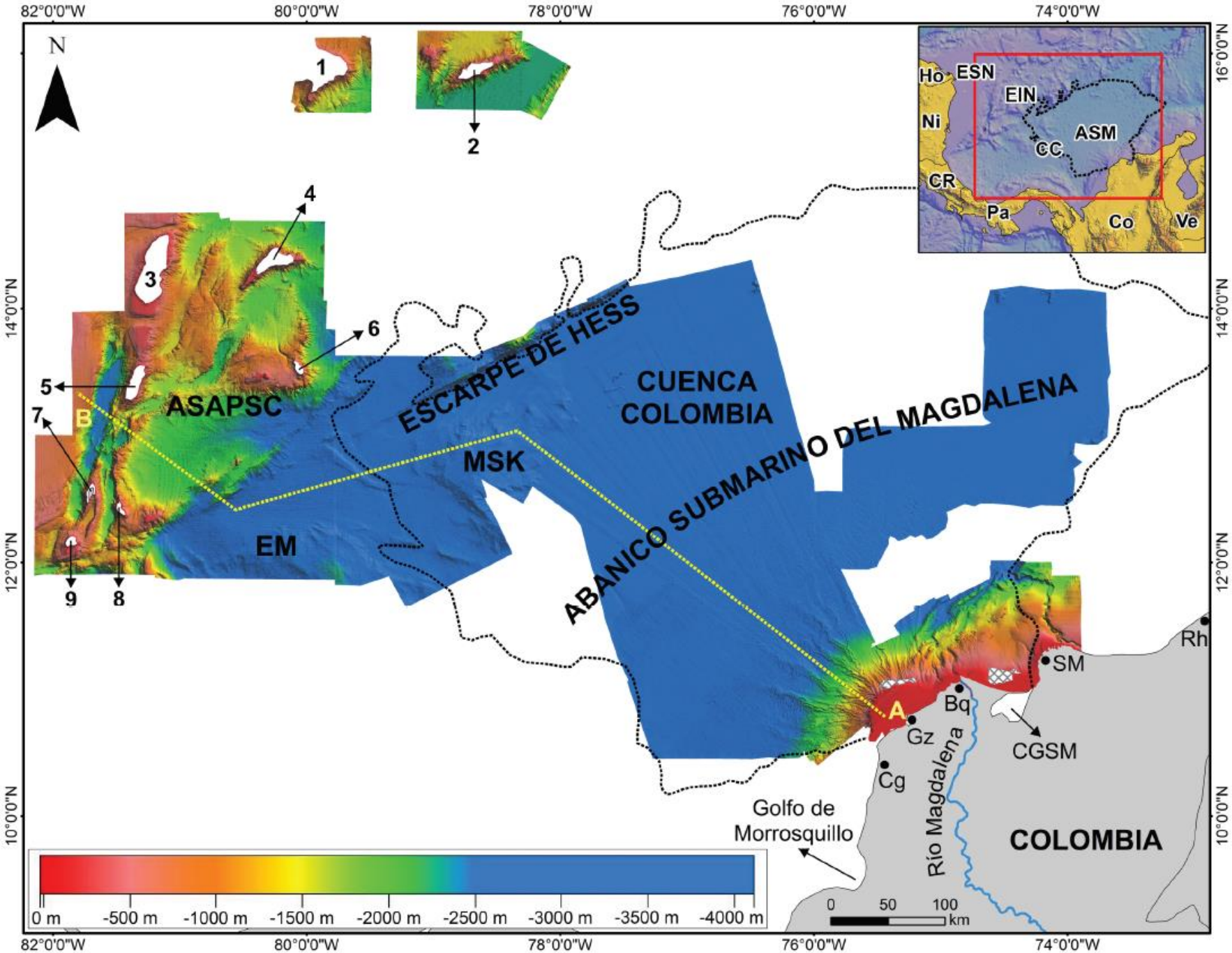


Locations of final foot of slope points

From Summary of CLCS Recommendations for French Guiana, September 2009



Synergistic approach e.g. Indonesia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12°0'0"N
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Ve
ESCARPE DE HESS
CUENCA COLOMBIA
ASAPSC
MSK
EM
ABANICO SUBMARINO DEL MAGDALENA
Rh
SM
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CGSM
Cg
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COLOMBIA
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-500 m
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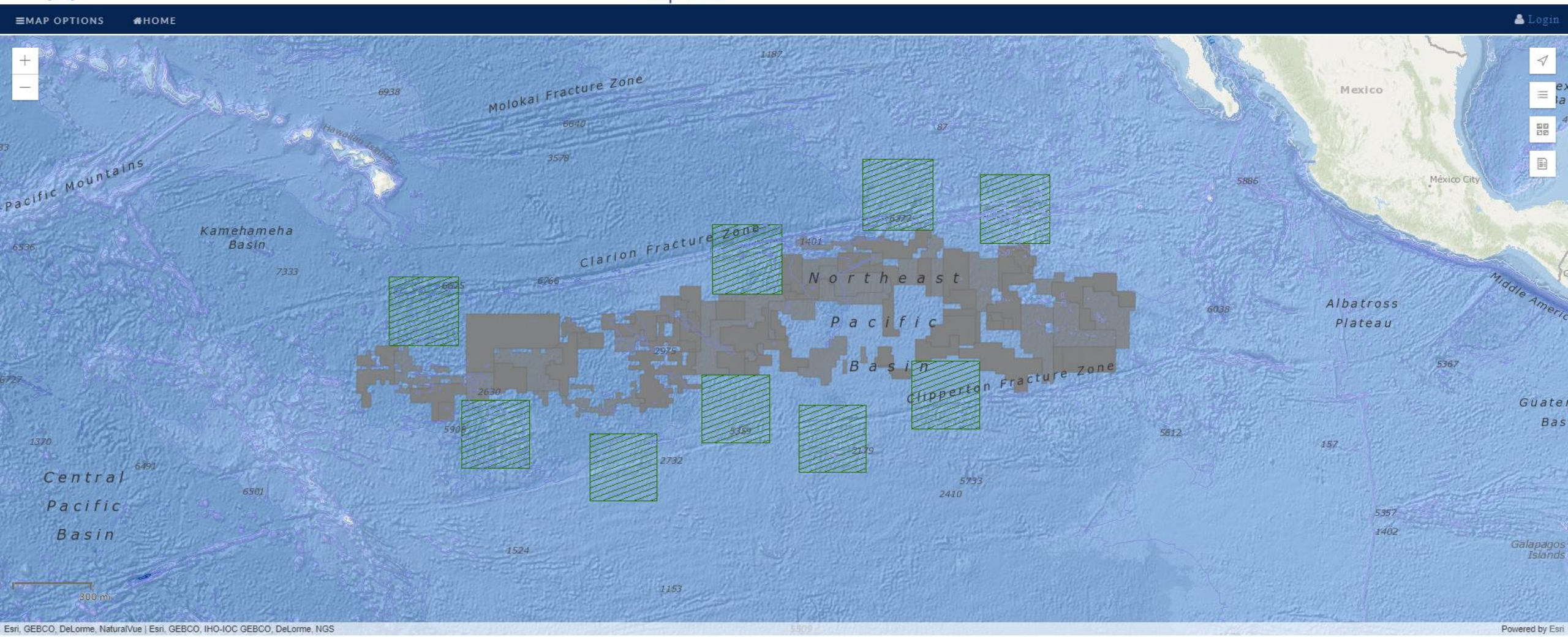
Colombia

International Seabed Authority

DeepData



Bathymetry data from ISA in Clarion-Clipperton Zone