

The Belspo SPSPDII project Marebasse was set-up in response to management and policy questions on a sustainable exploitation of marine resources. A significant increase of knowledge was generated of the sedimentary environment of the Belgian Continental Shelf, using state-of-the-art mapping and measuring techniques.

Supported by: Belgian Science Policy
[Http://www.belspo.be](http://www.belspo.be)



Coordinator: Renard Centre of Marine Geology (RCMG), Ghent University
[Http://www.rcmg.ugent.be](http://www.rcmg.ugent.be)



Partners: Management Unit of the North Sea Mathematica & Models
[Http://www.mumm.ac.be](http://www.mumm.ac.be)



Hydraulics Laboratory, Katholieke Universiteit Leuven
[Http://www.kuleuven.be/hydr/index.html](http://www.kuleuven.be/hydr/index.html)



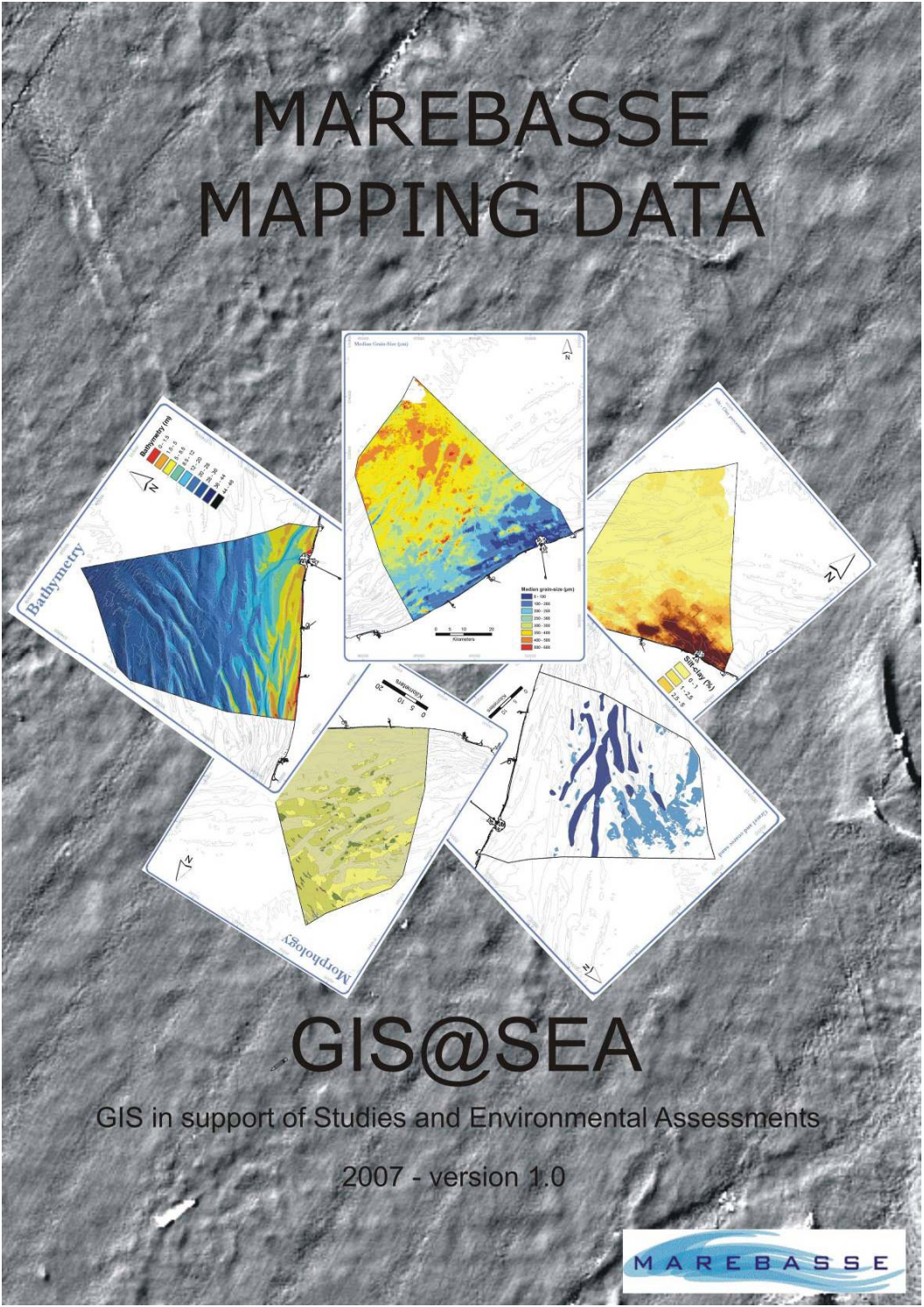
Subcontractors: Marine Geological Assistance (MAGELAS)
[Http://www.magelas.be](http://www.magelas.be)



Marine Biology Section, Ghent University
[Http://www.marinebiology.ugent.be](http://www.marinebiology.ugent.be)



Data has been validated and refined in the context of the Interreg IIIb project MESH (Mapping European Seabed Habitats).
www.searchmesh.net



Introduction

The Belspo SPSPDII project Marebasse was meant essentially to set-up an integrated assessment framework for marine aggregates and allows anticipating on management/policy questions regarding a sustainable exploitation of marine resources. This implies that an increase of knowledge was necessary on the level of the sediments themselves, their distribution and their dynamical environment using state-of-the art measuring techniques.

Keywords: marine aggregates; environmental (impact) assessment; sediment transport modelling; geo-acoustical techniques; seafloor classification.

This DVD contains a range of products:

- Geographic Information System (GIS) products that allow users to view the data layers used in the Marebasse project;
- Technical Reports;
- Fact sheets on the thematic maps;
- Extended metadatasheets;
- Printer friendly maps (in different formats).

The GIS@SEA product contributes to the MESH project (Mapping European Seabed Habitats, <http://www.searchmesh.net>) that received European Regional Development Funding through the INTERREG III B Community Initiative (<http://www.nweurope.org>).



Reference:

Van Lancker, V., Verfaillie, E., Schelfaut, K., Du Four, I., VandenEynde, D. (2007). *GIS@SEA DVD. Marebasse Mapping data*. Belgian Science Policy, SPSPDII project MAREBASSE (Management, research and budgeting of aggregates in shelf seas related to end-users).

The Marebasse related scientific results are obtained by the following partnership:



Ghent University, Renard Centre of Marine Geology (RCMG) (coordination);



Management Unit of the North Sea Mathematical Models (MUMM)



Catholic University of Leuven, Hydraulics Laboratory



Marine Geological Assistance (Magelas)

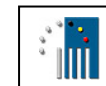


Ghent University, Marine Biology Section

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Information on the Marebasse project:
<http://allserv.ugent.be/~vvanlancke/Marebasse>

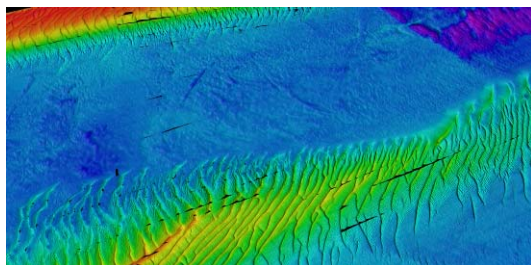


Marebasse is a Belspo SPSDII project

<http://www.belspo.be/belspo//fedra/proj.asp?l=nl&COD=EV/18>

Marebasse - General Information

2 Management, research and budgeting of aggregates in shelf seas related to end-users (Marebasse)



- On a large scale, research is conducted that is relevant for the entire Belgian exclusive economic zone (EEZ); on a small scale 5 study areas were investigated;
- Results are presented that are relevant towards the impact of dredging and dumping operations and the effects of marine aggregate extraction on the marine environment;
- A series of new maps have been compiled that can support various initiatives:
 - New sedimentological map¹;
 - Silt-clay map²;
 - Gravel map;
 - Bedform map;
 - Hydrodynamic and sediment transport modelling results for the whole Belgian part of the North Sea³; and
 - Thematic maps of different study areas

¹ Based on the sedisurf@database, Ghent University, RCMG

² Based on the sedisurf@database, Ghent University, RCMG

³ MUMM, Management Unit of the North Sea Mathematical Models

Marebasse Reports

Van Lancker, V., Deleu, S., Le Bot, S., Van Nieuwenhove, B., Fettweis, M., Francken, F., Pison, V., Van den Eynde, D., Monballiu, J., Lanckneus, J., Moerkerke, G. & Degraer, S. (2003). MANAGEMENT, RESEARCH AND BUDGETING OF AGGREGATES IN SHELF SEAS RELATED TO END-USERS (MAREBASSE). Scientific Report Year 1. Belgian Science Policy, 39pp.

Van Lancker, V., Deleu, S., Bellec, V., Le Bot, S., Verfaillie, E., Fettweis, M., Van den Eynde, D., and F. Francken, Pison, V., Wartel, S., Monballiu, J., Portilla, J., Lanckneus, J., Moerkerke, G. & Degraer, S. (2004). MANAGEMENT, RESEARCH AND BUDGETING OF AGGREGATES IN SHELF SEAS RELATED TO END-USERS (MAREBASSE). Scientific Report Year 2. Belgian Science Policy, 144pp.

Van Lancker, V., Deleu, S., Bellec, V., Du Four, I., Verfaillie, E., Fettweis, M., Van den Eynde, D., Francken, F., Monballiu, J., Giardino, A., Portilla, J., Lanckneus, J., Moerkerke, G., Degraer, S. (2005). MANAGEMENT, RESEARCH AND BUDGETING OF AGGREGATES IN SHELF SEAS RELATED TO END-USERS (MAREBASSE). Scientific Report Year 3. Belgian Science Policy, 103pp.

Van Lancker, V., Du Four, I., Verfaillie, E., Deleu, S., Schelfaut, K., Fettweis, M., Van den Eynde, D., Francken, F., Monballiu, J., Giardino, A., Portilla, J., Lanckneus, J., Moerkerke, G. and Degraer, S. (2007). MANAGEMENT, RESEARCH AND BUDGETING OF AGGREGATES IN SHELF SEAS RELATED TO END-USERS (MAREBASSE). Final Scientific Report. Belgian Science Policy, 125pp.

Additional publications:

Van Lancker, V., Du Four, I., Papili, S., Verfaillie, E., Schelfaut, K., M. Rabaut and Degraer, S. (2007). *Habitat Signature Catalogue, Belgian part of the North Sea*. Belgian Science Policy, SPSDII project MANAGEMENT, RESEARCH AND BUDGETING OF AGGREGATES IN SHELF SEAS RELATED TO END-USERS (MAREBASSE), 27pp.

Van Lancker, V., Verfaillie, E., Schelfaut, K., Du Four, I., VandenEynde, D. (2007). *GIS@SEA DVD. Marebasse Mapping data*. Belgian Science Policy, SPSDII project MANAGEMENT, RESEARCH AND BUDGETING OF AGGREGATES IN SHELF SEAS RELATED TO END-USERS (MAREBASSE).

Marebasse - Fact Sheets

Thematic maps - Median grain-size

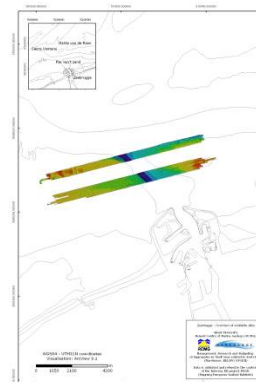
DATASET GENERAL INFORMATION	
Dataset title	Median grain-size
Dataset authors	Els Verbeke
Dataset acquisition	Renard Centre of Marine Geology
Dataset processing	GIS processing: Renard Centre of Marine Geology (RCMG)
Description search words/abstract	<p>Multivariate geostatistics have been used to obtain a detailed and high-quality map of the median grain-size distribution of the sand fraction at the Belgian Continental Shelf. Sandbanks and swales are the dominant geomorphological features and impose high-spatial seafloor variability. Interpolation over complex seafloors is difficult and as such various models were investigated. In this paper, linear regression and ordinary kriging (OK) were used and compared with kriging with an external drift (KED) that makes use of secondary information to assist in the interpolation. KED proved to be the best technique since a linear correlation was found between the median grain-size and the bathymetry. The resulting map is more realistic and separates clearly the sediment distribution over the sandbanks from the swales. Both techniques were also compared with a simple linear regression of the median grain-size against the bathymetry. An independent validation showed that the linear regression yielded the largest average prediction error (almost twice as large as with KED). Unlike most static sedimentological maps, our approach allows for defining grain-size classes that can be adapted according to the needs of various applications. These relate mainly to the mapping of soft substrata habitats and of the most suitable aggregates for extraction. This information is highly valuable in a marine spatial planning context.</p> <p>Multivariate geostatistics; Median grain-size; Bathymetry; Habitat mapping; Resource maps; Belgian continental shelf</p>
Dataset DATE	Based on the sedisurf@dataset (1976 – 2006)
DATASET DETAILS	
Dataset processing	ArcGIS - Arcview 9.1
Dataset format	ESRI grid
Dataset resolution	250m*250m
Geographic extent	Belgian continental shelf - full coverage dataset
Coordinate system description	ESRI grid: UTM 31N-WGS84 coordinates
Dataset maintenance and update frequency	As required
ACCESS	
Access/Usage constraints	Data use only after permission from the owner and according to owner's conditions
CONTACT	
Address	Ghent University Renard Centre of Marine Geology

- Available for all study areas;
- Provide key information about spatial reference system, survey dates and much more.

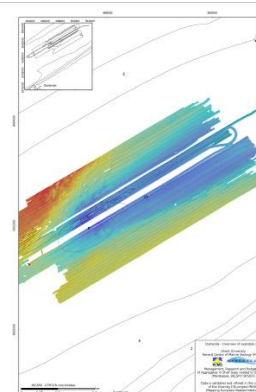
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Marebasse – Small scale study areas

The five smaller scale study areas of the Marebasse project are: Zeebrugge, Oostende, Kwinte Bank, Sierra Ventana and Hinder Banks. The areas have been sampled sedimentologically and biologically. The data, including species lists, are provided to the Belgian Marine Data Centre.

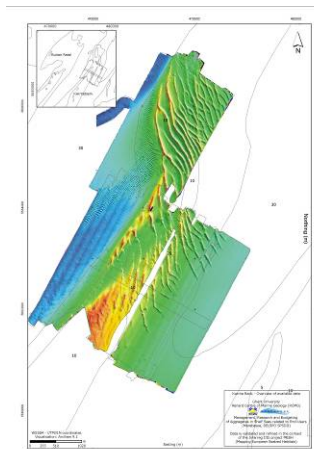


Zeebrugge

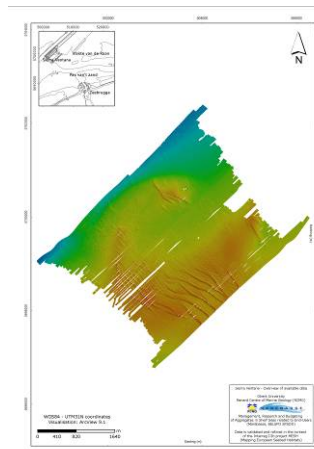


Oostende

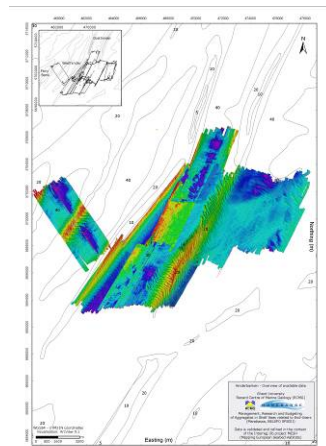
4 Management, research and budgeting of aggregates in shelf seas related to end-users (Marebasse)



Kwinte Bank



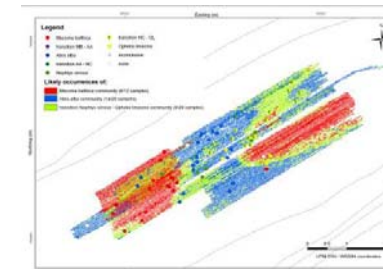
Sierra Ventana



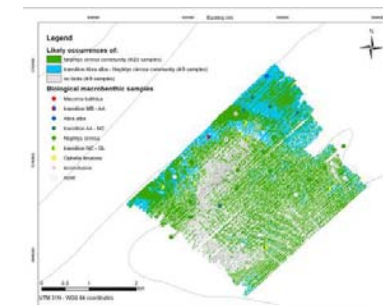
Hinder Banks

Marebasse – Habitat maps

For the areas of Oostende, Sierra Ventana and Hinder Banks, habitat maps of macrobenthic communities were created, based on acoustical seabed classification.



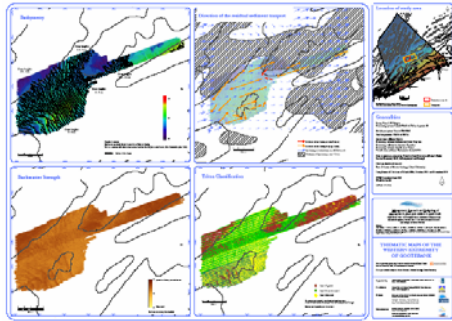
Oostende



Sierra Ventana



Hinder Banks



Thematic maps of the Gootebank

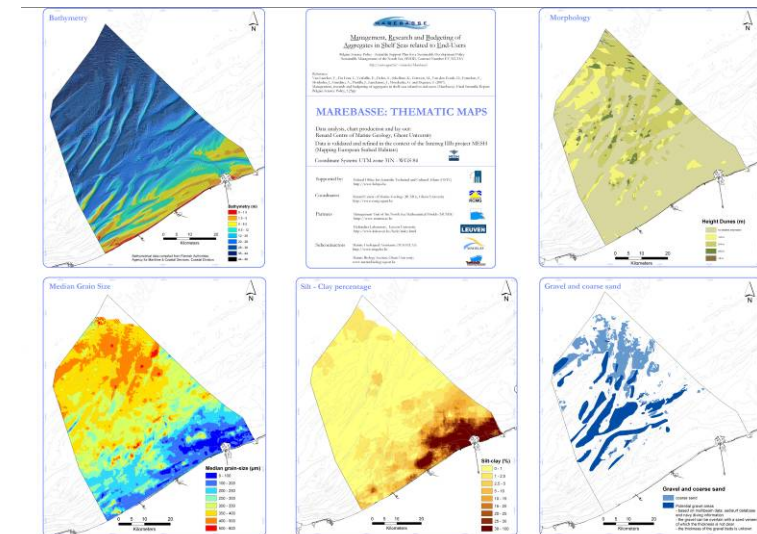
based on multibeam data of Degrendele K., Roche M., Schotte P & Vandenreyken H.

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Marebasse – Thematic maps

On a large scale, thematic maps have been produced from the entire Belgian part of the North Sea: bathymetry, median grain size, silt-clay percentage, morphology, gravel and coarse sand, bottom stress, current velocity, erosion-deposition, residual water transport, residual current vectors and residual sediment transport.

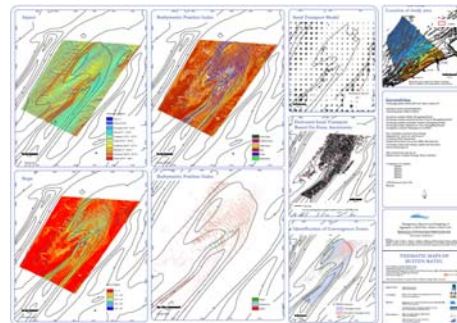


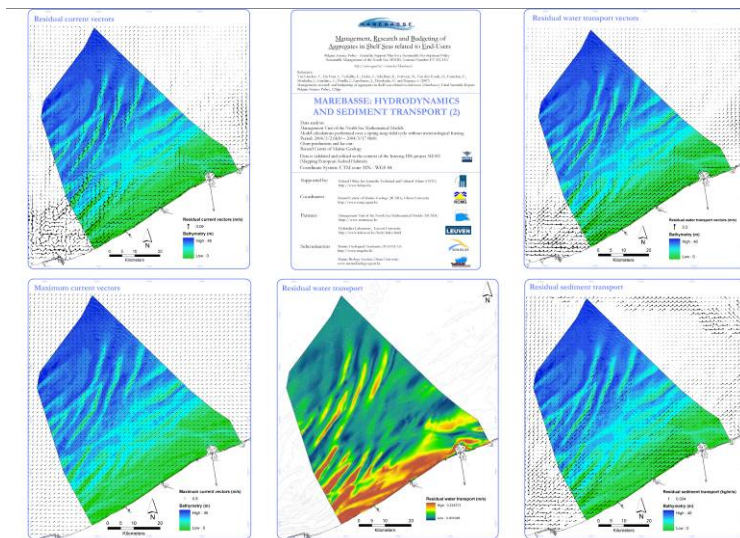
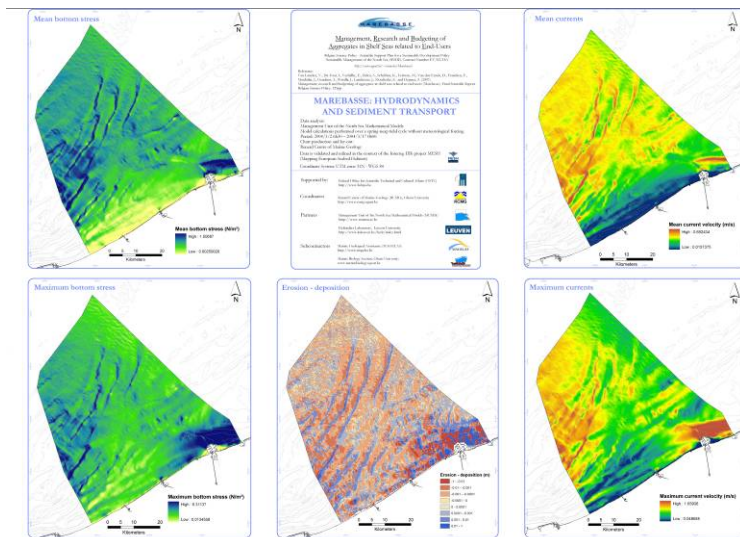
Thematic maps of the Buiten Ratel

based on multibeam data of Degrendele K., Roche M. & Schotte P.

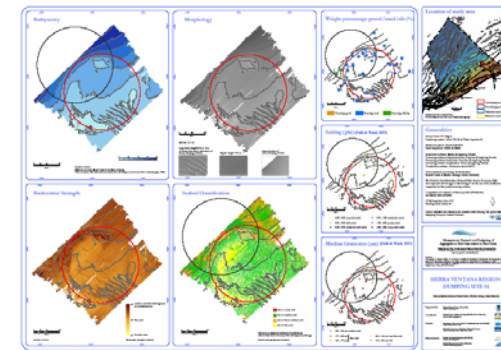
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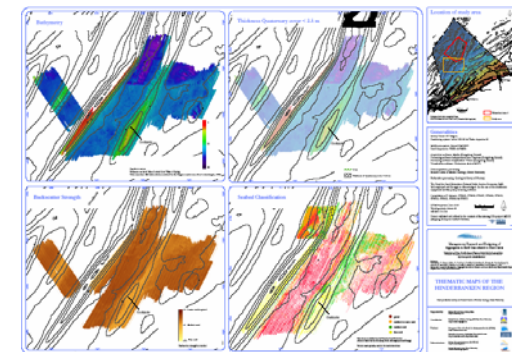




Thematic maps have been produced also for smaller study areas: Sierra Ventana, Hinder Banks, Buiten Ratel en Gootebank.



Sierra Ventana



Hinder Banks