Olex global sounding database:

a phenomenal resource for regional bathymetric mapping projects

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Examples from the IBCAO region
Background

1. Olex is mapping and visualization software widely used within the fishing industry.

2. The concept builds on that the sounding data collected by fishing vessels from all oceans of the world are sent back to Olex to continuously update their database, which then is redistributed to the users.

3. Olex processes and quality controls all data before it incorporated into their mapping and visualization software.
Olex data has been used in several sea floor morphological studies

One example from Journal of Maps 2009:

A geomorphological overview of glacial landforms on the Icelandic continental shelf

MATTEO SPAGNOLO and CHRIS D. CLARK
The Olex database covers about 80% of the Icelandic shelf. Spagnolo and Clark made use of this data to produce a geomorphological map of the glacial landforms.

From Spagnolo and Clark, 2009
A lateral moraine complex (yellow arrows) is visible. The iceflow direction inferred by the authors based on the Olex data is marked by a green arrow.

From Spagnolo and Clark, 2009
What can we do with the Olex data on a broader scale?

We received a global snapshot of the Olex database at a resolution of 400x400 m grid cells.

This Olex gridded data is here compared with the International Bathymetric Chart of the Arctic Ocean (IBCAO)
Bear Island Trough

IBCAO Ver 2.25 1 km grid cells
Bear Island Trough

Olex 400 m grid cells
Not only to throw in the data and grid!

Bear Island Trough

Artefacts from contours

IBCAO updated with Olex, 1 km grid cells
Norwegian Continental Shelf

IBCAO Ver 2.25 1 km grid cells
Norwegian Continental Shelf

Olex 400 m grid cells
Norwegian Continental Shelf

- Lateral morains
- Mega scale glacial lineations

Olex 400 m grid cells
Iceland (view from North)

IBCAO Ver 2.25 1km grid cells
More Iceland with Fledermaus!
Questions

What are the depths in the Olex database referred to, MSL, MLLW, MLW ??

Is there any information available on sound velocity correction?
Comparing Olex with Oden EM122 data off Svalbard

Olex 400 m grid cells
Comparing Olex with Oden
EM122 data off Svalbard

Olex 400 m grid cells versus Oden 20 m grid cells
Comparing Olex with Oden EM122 data off Svalbard

570 m water depth (3.5 % difference)

But since the data are of such large difference in resolution, the comparison must be taken with caution

Olex 400 m grid cells versus Oden 20 m grid cells
6% of the IBCAO area is mapped with multibeam
Data processing (sound velocity correction, outlier removal etc.)

Error correction (data flagging)

Visualization and inspection

Processed data

Database

Data mining (cross track analyzes, contour splicing etc.)

Gridding (Continuous curvature splines in tension algorithm, GMT algorithm: Smith & Wessel, 1990)

Block median filtering

Raw data

Olex
Thanks for listening!