MULTIBEAM ECHOSOUNDER

Image courtesy: Ifremer, France

KONGSBERG SUBSEA MAPPING SYSTEMS

Backscatter Calibration Service

Kongsberg Maritime offers a solution to improve the Backscatter data of our EM Multibeams. The Multibeam models produces compensated backscatter data. The data samples are adjusted for mode dependent system parameters, like:

- Transmitter source level
- Receiver sensitivity
- Transmitter and receiver beam pattern
- Receiver gain
- Transmit pulse length and bandwidth
- Spherical spreading and frequency dependent absorption
- Incidence angle
- Vessel attitude

The measured backscatter level is also influenced by the actual transducer installation on the vessel. Other factors that can change the backscatter level are for example marine growth. To get optimum backscatter levels, a calibration at sea should be performed.

Kongsberg Maritime offers a service that can make calibration table files based on survey lines recorded by the actual multibeam echo sounder. This service is available for EM 122, EM 124, EM 302, EM 304, EM 710, EM 710 MKII and EM 2040 series.

Once a calibration survey is completed and the files processed, a software package is made available to reprocess survey data. This is done by correcting the backscatter levels, making new *.all or *kmall files. The software package will be compiled by KM Customer Services for the specific Echo Sounder calibrated and will contain the calibration file that can be downloaded to the system for real time backscatter output from the system.

OPTIMIZE YOUR BACKSCATTER

- Normalize your backscatter levels and get clean data
- Remove artefacts from dataset
- Reprocess old data
- Get repeatable results with multiple systems

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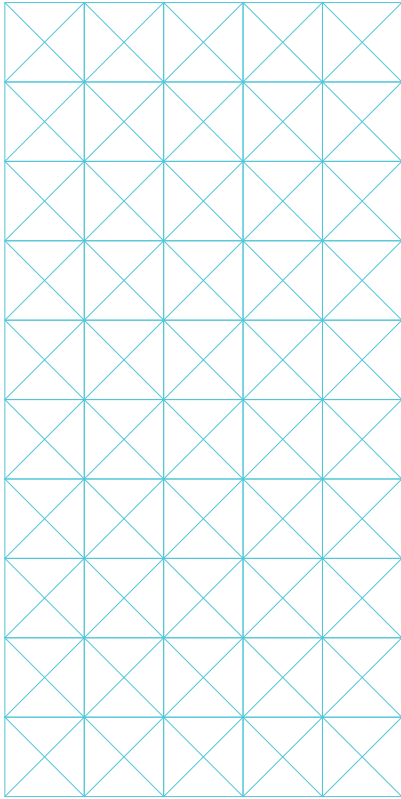
The calibration file can be installed on the Echo Sounder and used in real time. At current time the EM 2040 series does not support use of calibration files in real time. When the new datagram format becomes available, use of calibration data in real time will be in place also for the EM 2040 series.
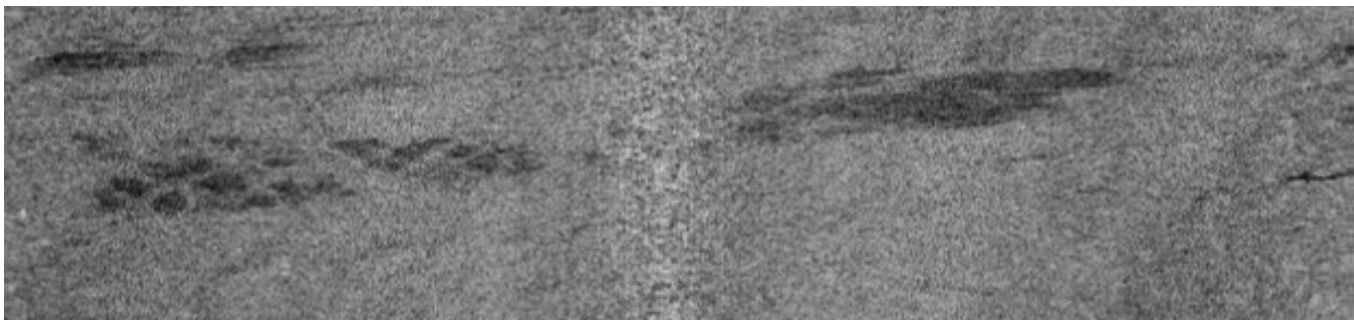
The procedure is as follows:
- The customer log the survey lines needed. A procedure for this is available.
- The survey lines are transferred to KM Customer Services (CS).
- CS analyzes the data and makes a calibration file.
- The calibration file is sent to the customer and installed on the Echo Sounder.
- The calibration file is then used in real time to adjust the backscatter data. The calibration file is logged together with the data (in the *.kmall file)

Normally the bottom backscatter level (BS) at the test area is unknown. The average BS level of the logged lines is then used as the reference level BSref. If the test area BS is known, this value can be defined as BSref. By using a common test area for several multibeams, a common reference can then be used, assuring comparable results.

Data example
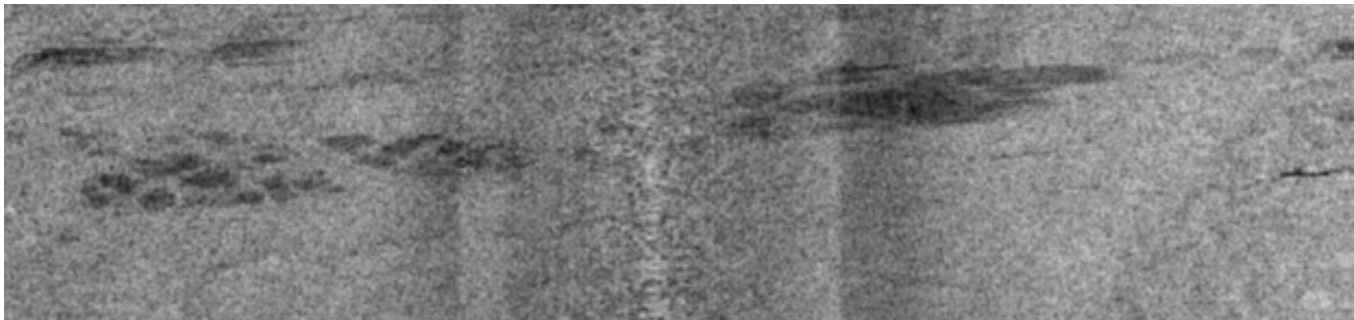
EM 710 Seabed image with artifacts

Corrected seabed image