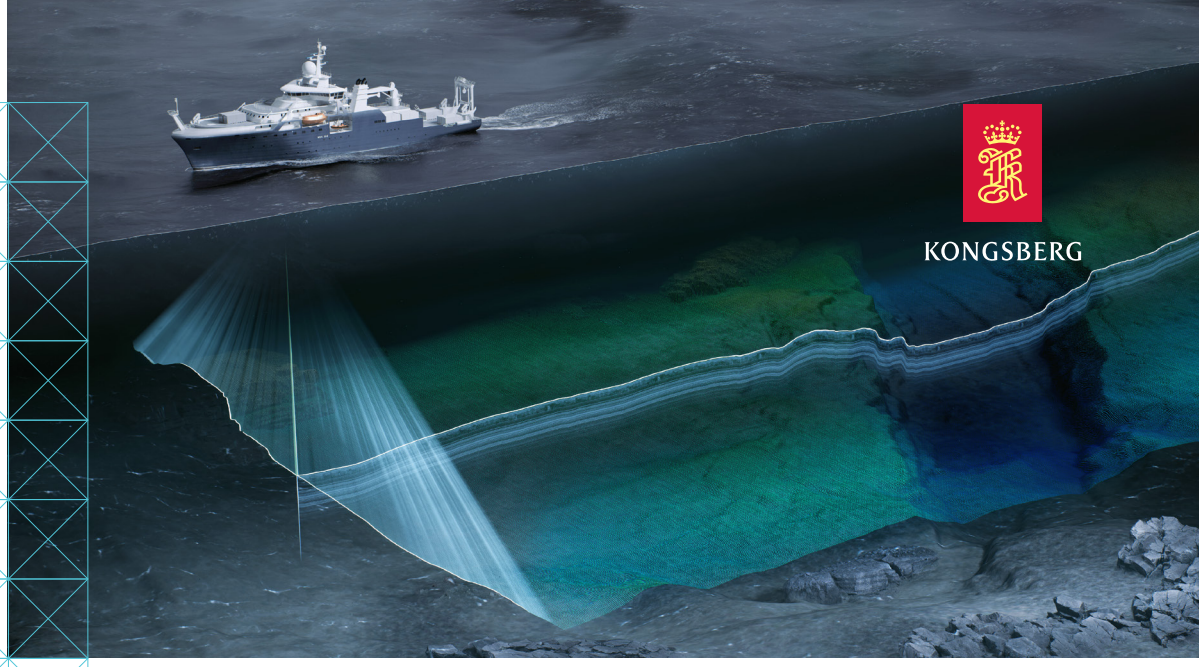
EM®SBP



KONGSBERG

ADD SUB-BOTTOM IMAGING TO YOUR EM® 304 OR EM® 124 MULTIBEAM SURVEY

Sub-bottom with EM®304/124

EM®SBP gives you as a user of EM® 304 or EM® 124 multibeam echo sounders the unique opportunity to add sub-bottom data to your survey, without needing to buy or install sub-bottom specific transducers or electronics.

At a user selectable interval, the EM® 304/124 system can be instructed to issue sub-bottom specific signals that converts into parametric low frequency chirp pulses in the water column. The EM® receiver unit picks up the returned echoes from the sub-bottom transmissions, and forward these observations to the EM®SBP software for sub-bottom specific processing and imaging.

The EM®SBP sub-bottom application runs on a dedicated operator station and accommodates beam forming and match filtering, echogram enhancement and display, as well as data management and necessary communication with the EM® Processing Unit. Its integration with the EM® multibeam system ensures access to the external sensor data, such as attitude and position, without additional physical connections.

EM®SBP supports data logging and export to SEGY. Raw data can be replayed.

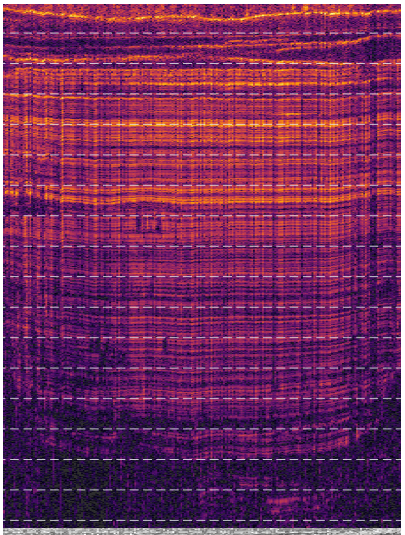
The state-of-the-art web-based user interface provides a flexible, modern and pleasant user experience. If you are unfamiliar with sub-bottom data acquisition, or if you want to leave it as unattended as possible, the application provides automated settings to help ensure optimal sub-bottom profiler settings.

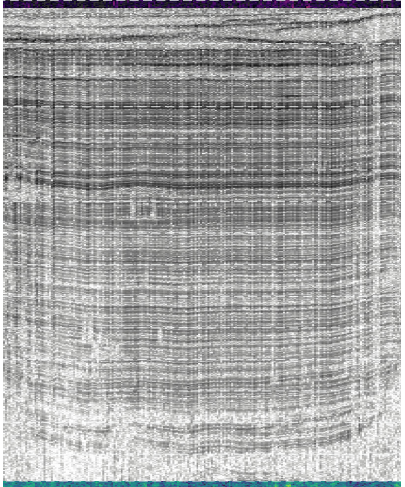
KEY FEATURES

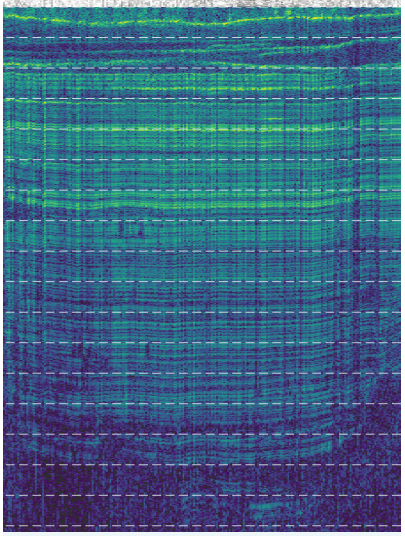
- Full sub-bottom functionality with your EM® 304 MKII or EM® 124 hardware
- Sub-bottom or multibeam pinging at user selectable sequence
- Simultaneous sub-bottom imaging from primary and parametric signals
- Performance given by the EM® 304/124 configuration
- Attitude compensation
- Automated transmit and receive settings
- Data storage and export to SEGY
- Replay
- Licensed feature

Simultaneous primary and parametric sub-bottom profiling

Depending on sediment types and conditions, water depths and external noise levels, the primary and parametric signals may come out with different properties and advantages. The source level of the high frequency primary signals is significantly higher than that of the generated parametric signals, whereas the low frequency parametric signal is less attenuated in the sediments. Which one gives the best sediment imaging depends on the conditions. EM®SBP gives you the benefit of both signal types, and you can see for yourself which methodology gives the best solution for your specific conditions.







SOFTWARE FEATURES

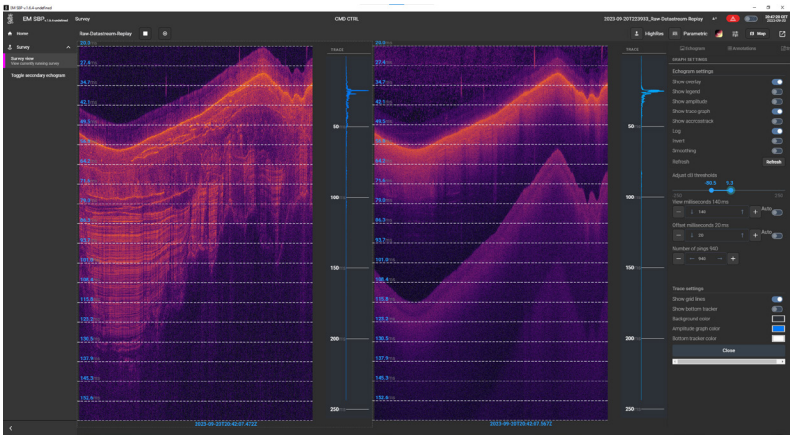
- Several simultaneously updated echograms
- Echogram colour selection
- Dynamic gain adjustments
- Logarithmic or linear view
- Trace view
- Offline available map view
- Annotation

Performance

The performance capabilities of a sub-bottom profiler system is primarily determined by its source level, transmit beam width and frequency band. For EM®SBP these parameters are given by the applied EM® multibeam echo sounder system. For a 1 by 1 degree EM® 124 and EM® 304 configurations, the EM®SBP performance is given as follows:

	EM® 304 MKII (1x1°) [2]	EM® 124 (1x1°) [2]
Primary frequency range (B)	20-32 kHz	10.5-13.5 kHz
Primary source level [dB re 1 µPa ref 1m]	Up to 237 dB	Up to 240 dB
Parametric frequency range	1-10 kHz	0.5-3 kHz
Parametric source level @4 kHz [dB re 1 µPa ref 1m] [1]	201 dB	N/A
Vertical resolution (1/B)	0.10 ms	0.33 ms
Beam width along	1°	1°
Beam width across	6.5°	3°

[1] Equivalent source level @4kHz in the far field estimated based on expected parametric signal conversion.
[2] Several other configurations are available



High-performance state-of-the-art software architecture

The EM®SBP software provides real-time high-resolution display of the echograms and traces. The echograms can be enhanced by your colour preferences, dynamic gain, and envelope display. The software supports full resolution zooming of the echogram. Windows can be torn-off, and you can create as many instances of the echogram as you need. You can tag features of interest, and EM®SBP will store the annotated positions with your description in a separate XML file. A map view is also available which you may find useful for visualizing your survey track. The map is provided by Gebco, and is available for offline use. The map must not be used for navigation.
EM®SBP is by its web-based designed well suited for remote operation, and the user application runs well on other devices, e.g., tablets or mobile telephones.

License service for sub-bottom functionality

The EM®SBP functionality is a licensed feature.

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