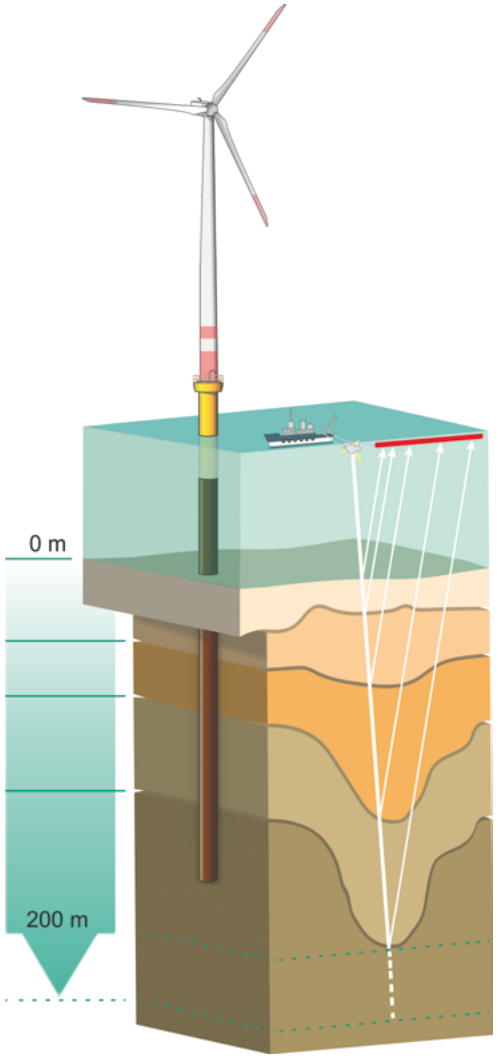
Fraunhofer IWES

Data and facts

Ultra High Resolution Seismic System Fraunhofer IWES Subsurface Investigation

Fraunhofer IWES carries out extensive research and industry projects using ultra high resolution (UHR) and ultra ultra-high resolution (UUHR) seismic imaging as well as geological model building. It operates an advanced 2D/3D UHR/UUHR multichannel seismic system developed for offshore wind farm site surveying to perform an optimal data acquisition campaign, processing, and interpretation as a basis for ground model building. The system comprises a single-hydrophone streamer optimized for UHR seismic measurements, along with sparker signal sources, a high-precision positioning solution, as well as in-house data handling, processing, and interpretation workflows including extensive quality control. Since 2018, more than 15000 km of seismic profiles have been commercially surveyed. Fraunhofer IWES offers fit-for-purpose surveying solutions and continuously works on improving seismic surveying techniques for the benefit of the offshore renewables industry.



Our competences at a glance: UHR Seismic System

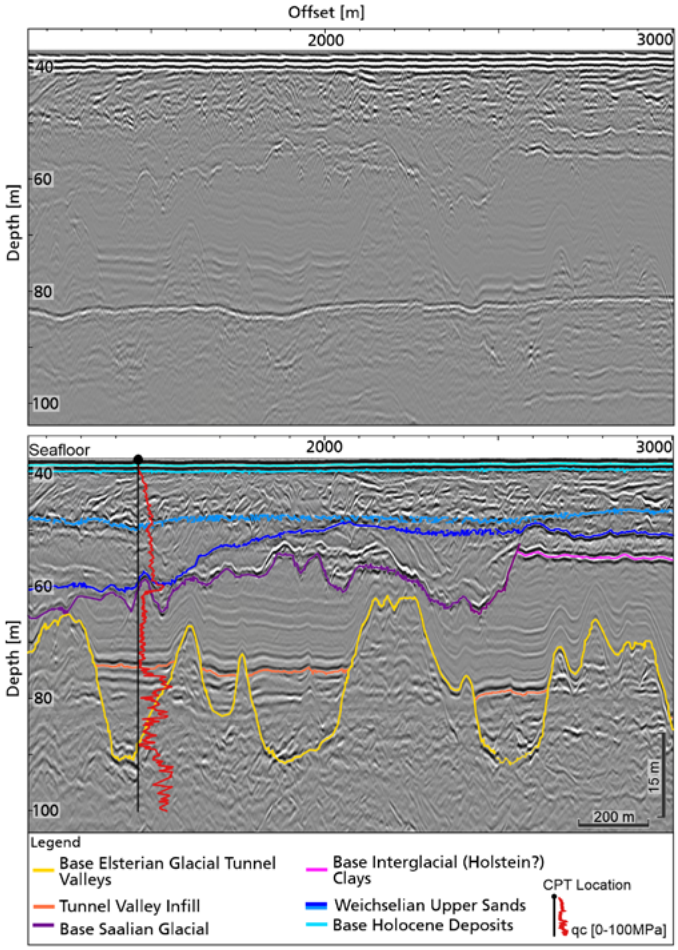
- 2D/3D UHR and UUHR seismic data acquisition, processing and interpretation
- In-house software solutions for geometry setup
- In-house tailored workflows for data processing and integrated seismic interpretation
- Extensive online and offline data QC.
- Vintage data reprocessing and interpretation
- Geohazard assessment
- Tailoring seismic methodologies to meet specific project requirements

Technical specifications

Data recording: Seamap Seamux3 digital solid streamer

- Channels: 96+ (flexible setup)
- Single hydrophone channels with 1 m spacing
- Sampling frequency: 4, 8 kHz
- Double-deck sparker signal source with 300 - 1200 Hz bandwidth
- Custom GNSS front and tail-buoy setup
- Hydrophone type: PVDF
- Depth control: ION DigiBIRD II

Ultimately, our team combines cutting-edge technology and efficient project planning and execution, guaranteeing the timely delivery of high-quality results with a wealth of comprehensive geophysical and geological knowledge with special expertise on the geology of the North and Baltic Sea regions.



Data example from the southern North Sea showing the detailed imaging of glacial geological structures and deposits

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Further information

Fraunhofer IWES secures investments in technological developments through validation, shortens innovation cycles, accelerates certification procedures, and increases planning accuracy by means of innovative measurement methods in the wind energy and hydrogen technology sectors. At present, there are more than 300 scientists and employees as well as more than 100 students employed at the nine sites: Bochum, Bremen, Bremerhaven, Leer, Görlitz, Hamburg, Hannover, Leuna, and Oldenburg.

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