



## **Vertical seismic profiling (VSP) in seismic oceanography - a proof of concept**

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As part of the European funded GO Project the concept of vertical seismic profiling was tested for being a tool to image water mass boundaries in 3D. Water bodies with different temperature have different acoustic velocity (and density). Seismic methods designed for imaging the subsurface can thus map out the boundaries between water masses and map mixing processes at meso-scale with unprecedented horizontal resolution. In addition to conventional surface streamer geometry, a new approach of vertical seismic profiling (VSP) has been developed. Following standard VSP techniques (walkaway- and offset-VSP) a first approach using 2 ships has been tested to collect 3D-seismic data of different water masses. Seismic migration produces a pseudo 3D image of the water structure which, when combined with 2D seismic profiles and oceanographic data, give detailed information on the lateral extent of boundaries involved in the mixing process. Data examples and traditional 2D seismic imaging and inversion strategies are discussed.