



## **Seismic tomography of 3D streamer data: an example from the British North Sea**

Michael Schnabel, Bernd Schreckenberger, Axel Ehrhardt, and Volkmar Damm

Federal Institute for Geosciences and Natural Resources (BGR), Hannover, Germany (michael.schnabel@bgr.de)

Within this presentation, we evaluate the possibility to image the subsurface by applying seismic tomography to 3D streamer data. We use data from a 3D marine seismic experiment in the British North Sea. This data was acquired with the research vessel METEOR in 2012. Two streamers were towed (separated by 150 m, 900 m active length) and an area 10 times 0.75 km was covered. The whole data set consisted of more than 300000 single traces. Due to the shallow water depth and the high seismic velocities within the subsurface, refracted waves are visible as first arrivals on the shot records at offsets as small as 250 m. Therefore, more than 80 % of the data set shows refracted phases as first arrivals.

The travel time tomography was performed using the inversion program ATOM-3D. The results of this inversion show how the refracted phases deliver information on the 3D structure of the subsurface. Despite the small survey area, the seismic velocities in a depth of only a few hundred meters below sea floor vary between 2.5 und 5.0 km/s. Further on, we demonstrate how this information can be used to improve the image of the reflected phases.