



## **Deep seismic study of the Danish Basin based on the ESTRID-2 seismic profile**

C. Nielsen, L. Nielsen, and A. Sandrin, A. Shulgin, and H. Thybo

Geological Institute, University of Copenhagen (cn@geol.ku.dk)

The processes that initiated and powered the subsidence of the Mesozoic Danish Basin, close to the margin of the Precambrian Baltic Shield, are poorly understood. Extensional regimes and intensive magmatic activity are believed to have occurred in the area during the late Paleozoic. The aim of the project ESTRID (Explosion Seismic Transects around a Rift In Denmark) is to study the origin and evolution of the Danish Basin.

The ESTRID experiment consists of two perpendicular deep seismic surveys with crossing point at the Silkeborg Gravity High, central Denmark. The ESTRID-2 profile was acquired as a 185 km long, combined normal-incidence and refraction/wide-angle reflection profile in.

Modelling of the refraction data, by seismic tomography and ray tracing, shows a high velocity zone (more than 6.8 km/s) below about 11 km depth underneath the Silkeborg Gravity High. It is interpreted as a magmatic intrusion of possible gabbroic composition. Seismic tomography along the profile indicates a layer of very high seismic velocity (more than 6.3 km/s) in the sedimentary succession around the base of the Mesozoic sequence, interpreted as a layer of volcanic rocks related to the mafic crustal intrusion below. In this poster we will show the normal-incidence reflection seismic section down to 15s twt in order to illustrate the structure of the sedimentary sequence with the volcanic layer, the crustal structure around the crustal mafic intrusion and the variation in Moho topography.