



Preliminary seismic characterization of parts of the island of Gotland in preparation for a potential CO₂ storage test site

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Geological storage of CO₂ is one of the available options to reduce CO₂-emissions from large point sources. Previous work in the Baltic Sea Basin has inferred a large storage potential in several stratigraphic units. The most promising of these is the Faludden sandstone, exhibiting favorable reservoir properties and forming a regional stratigraphic trap. A potential location for a pilot CO₂ injection site, to explore the suitability of the Faludden reservoir is onshore Gotland, Sweden. In this study onshore and offshore data have been digitized and interpreted, along with well data, to provide a detailed characterization of the Faludden reservoir below parts of Gotland. Maps and regional seismic profiles describing the extent and top structure of the Faludden sandstone are presented.

The study area covers large parts of the island of Gotland, and extends about 50-70km offshore. The seismic data presented is part of a larger dataset acquired by Oljeprospektering AB (OPAB) between 1970 and 1990. The dataset is to this date largely unpublished, therefore re-processing and interpretation of these data provide improved insight into the subsurface of the study area. Two longer seismic profiles crossing Gotland ENE-WSW have been interpreted to give a large scale, regional control of the Faludden sandstone. A relatively tight grid of land seismic following the extent of the Faludden sandstone along the eastern coast to the southernmost point has been interpreted to better understand the actual distribution and geometry of the Faludden sandstone beneath Gotland. The maps from this study help to identify the most suitable area for a potential test injection site for CO₂-storage, and to further the geological understanding of the area in general.