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Effect of salt tectonics on potential CO_2 reservoir and caprock in the Norwegian-Danish basin.

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Salt tectonics can provide closure structure for accumulation of oil or gas. Thus, it can also provide proper closure structures for CO_2 storage. In contrast to oil and gas accumulation where the sealing is evident, however, these potential closure structures, including reservoir and caprock, and the associated faults have to be carefully evaluated for CO_2 storage.

In the North Sea, previous screening for CO_2 storage plays identified potential Triassic and Jurassic reservoirs, in particular in the Upper Triassic Gassum Formation. In the Norwegian-Danish basin located in the southern part of the North Sea, Permian salt occurs widely and is at the origin of intense salt tectonics. There, salt plugs and walls deformed and pierced the overburden sediments between Triassic or Jurassic times until the Early Miocene according to previous studies.

In order to evaluate the potential closure structures over salt plugs in the Norwegian-Danish basin for CO_2 storage purpose, we investigate the initiation, movement and duration of the salt tectonics, its effects on the Gassum formation and its overburden caprock through detailed seismic mapping and structural analysis. In this contribution, we will present the preliminary results of this study.