

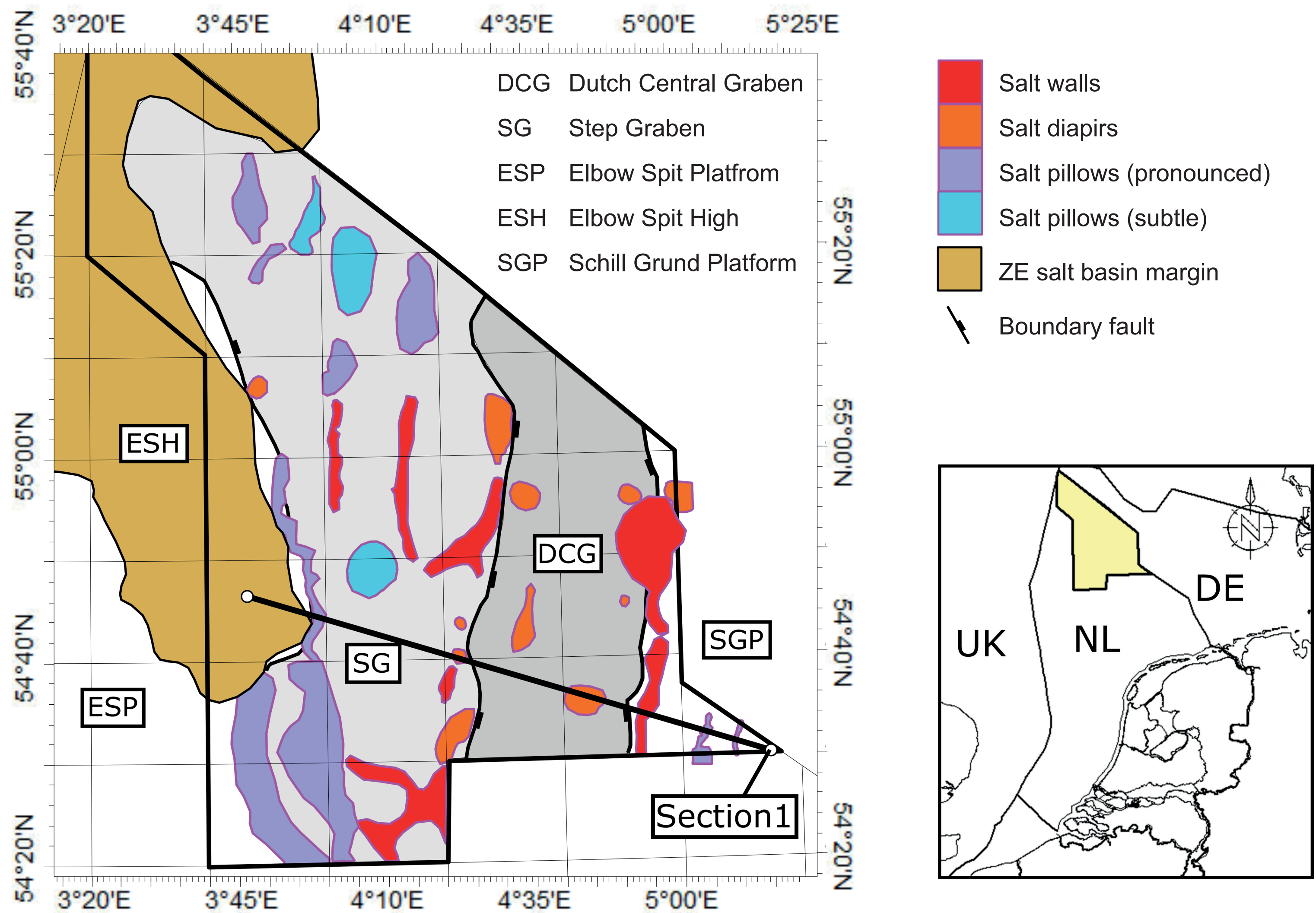
Salt tectonics in the northern Dutch offshore

Classification of 30 salt structures

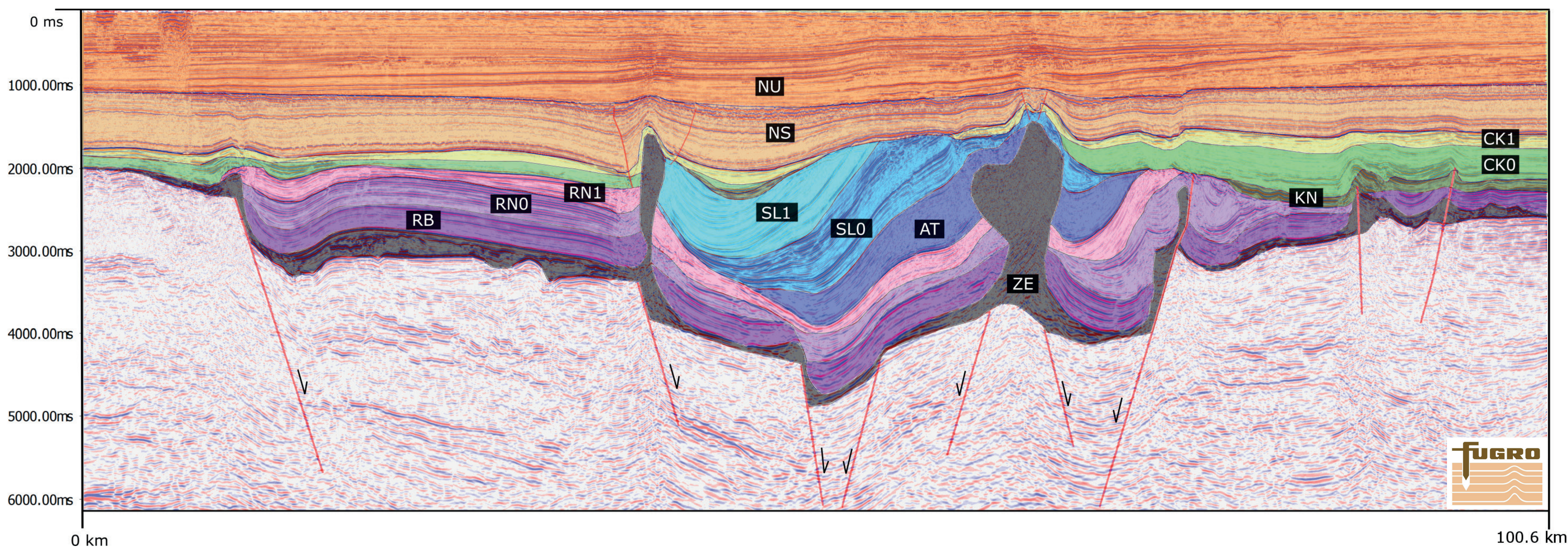
A dedicated study into Zechstein salt movement was performed using recent 3D seismic data, which allows re-evaluation of play concepts. Salt movement plays a pivotal role in the post-Permian petroleum plays, affecting reservoirs, traps and charge. A good understanding of the salt tectonics is crucial for succesful exploration in the northern Dutch offshore.

Salt structure inventory

- 30 Salt structures were identified and characterized
- Assessment of salt structure geometries, main phases of salt movement and fault-salt interplay
- This inventory serves as a *quick guide* to salt tectonics in the northern Dutch offshore



Salt tectonics in an active rift basin



Structural Restoration

- 2D seismic interpretation of post-Permian intervals in the Dutch Central Graben (DCG) and Step Graben (SG)
- Restoration of tectonics, deposition and salt movement using MOVE© software (Midland Valley Exploration)

Section 1. Permian: ZE, Triassic: RB, RNO, RN1, Jurassic: AT, SL0, SL1, Cretaceous: KN, CK0, CK1, Tertiary: NS, NU

Late Triassic

- Early Kimmerian rifting induces pillowing
- Salt migrates away from fault-associated depocenters, accumulates in elongated pillows.

Middle Jurassic

- Thermal doming causes erosion of Jurassic and Triassic strata from platforms and marginal areas.
- In basinal areas, salt structures pierce the overburden and depocenters focus where salt withdraws.

Late Cretaceous (1)

- Due to Sub-hercynian inversion, a high forms above the Dutch Central Graben. This causes thinning of Chalk and, shortly after, erosion of Lower Chalk and Jurassic sediments.

Late Cretaceous (2)

- Deposition of Upper Chalk Group sediments
- Renewed inversion erodes most Chalk sediments above the DCG.

Present

- 12 Stratigraphic intervals are defined based on the seismic interpretation shown in Section 1.

