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**Large-scale Geodynamic Processes Impact on Petroleum System Evolution, Outer Vøring Basin, Norway**

The southwestern Outer Vøring basin is characterized by a transition between two volcanic margin segments in a transform context near the Jan Mayen fracture zone. The sediments have endorsed a multiphase thermal history. The margin experienced several rifting phases before breakup. At break-up, intrusive volcanic bodies were widespread. A specificity is the drifting, along the fracture zone, of the Aegir Oceanic Ridge, which has brought its spreading axis very close to the Vøring basin 54-50 my ago.

The margin thermo-mechanical evolution is addressed: on a 1050 km long cross-section, running NNW-SSE, from Norwegian coastline to deep ocean basin towards the Kolbeinsey Ridge axis, and on a 300 km long cross section running SW-NE, from the oceanic crust to the middle of the Vøring basin. Large-scale deformations linked to lithospheric stretching and thinning, and small-scale deformation within the basin are accounted for. The thermal stress endorsed by the sediments is inferred from the detailed geological scenario used. Regional calibration data (bathymetry, gravity and heat flow) along with exploration wells data (temperature and maturity) are used to validate the thermal scenario. A sensitivity study of timing and magnitude of sediments maturation is addressed with regard to the impact of the individual geological processes and associated uncertainties.

Evaluations, on the potential Jurassic and Cretaceous source-rocks, indicate maturation-generation timing very similar to that of Haltenbanken area. However, it is highly likely that the specific thermal history has significantly raised the dry gas risk in the area.