



A revised history of the Late Palaeozoic and Mesozoic Faroe-Shetland Basin, offshore UK

Kateřina Schöpfer (1) and Ralph Hinsch (2)

(1) University of Vienna, Geodynamics and Sedimentology, Vienna, Austria (katerina.schoepfer@univie.ac.at), (2) OMV Exploration and Production, Vienna, Austria

The Faroe-Shetland Basin (FSB) belongs to the sedimentary basins that encompass outer parts of the NE Atlantic continental margin. The FSB contains several kilometres thick Cenozoic and Upper Cretaceous strata which overlie poorly understood pre-Cretaceous strata. Regional 3D seismic reflection data used in this study covers the eastern half of the basin, mostly devoid of thick basaltic succession. The Devonian-Carboniferous, Triassic and Jurassic successions are preserved as erosional remnants of originally more extensive deposits throughout the FSB and provide information on depositional environment and/or structural setting, e.g. during Mid- to Late Jurassic times, a fault-controlled deep marine, possibly graben-shaped, basin existed in the central FSB. During Aptian-Albian and Cenomanian times, several marine half-grabens were active in the southern FSB and on the Corona High whereas only local fault activity is recorded in the Foula Sub-basin. The subsequent Campanian - Maastrichtian extensional phase mainly affected the Flett Sub-Basin, bounded on its western margin by large-scale normal faults along the Westray and Corona high. The fault-controlled Cretaceous deposition in the FSB is a distinct feature that is rarely recorded in other large basins along the NE Atlantic margin, e.g. in the Rockall Basin which lacks obvious Cretaceous fault control. In addition, Late Cretaceous extension frequently led to the reactivation of earlier structures, suggesting that a structural inheritance played an important role in basin development. In the Foula Sub-basin, the existence of Permo-Triassic evaporites is postulated to explain geometrical distortions of Jurassic and Lower Cretaceous strata. Finally, given the relatively low stretching factors, a crustal thickness exceeding 10 km and the velocity models published for the FSB, a partial mantle serpentinisation is not likely in either Late Jurassic-Early Cretaceous or Late Cretaceous-Early Palaeocene times.