



## **New observations and interpretations of the Rån Ridge at the mid-Norwegian rifted margin**

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The mid-Norwegian rifted margin system formed through successive but distinct extensional episodes from Devonian time up to the breakup in Early Eocene. The central Vøring segment consists of a combination of specific structural domains including the proximal domain (Trøndelag Platform), the necking domain (terraces and associated fault complexes), the distal domain (deep sag-type Vøring Basin), and the outer domain with the so-called 'outer ridges complex' and marginal high.

The outer Vøring domain is characterized by a specific structural pattern with a series of structural highs and lows and complex sedimentary geometries. This distal rift system is supposed to have been formed by a distinct local Late Cretaceous extensional phase. The highs (Rån, south Gjallar, north Gjallar, Nyk, Utgård) are usually interpreted to have been generated by local post-Cenomanian uplifts. The numerous volcanic features observed in the area (e.g. intrusions, SDRs, lava flows/deltas, interpreted underplating) are, together with the uplifts and erosion, typically attributed to the impact of the Icelandic plume and/or to the breakup processes.

Based on regional 2D long-offset seismic reflection profiles and on a 3D cube, we report unpublished observations and propose a new interpretation of this complex distal architecture. A system comprising large-magnitude detachment faults as well as steeper fault arrays has been mapped together with key sedimentary markers to provide better constraints on the structural history of the Rån system, from the edge of the terrace to the south Gjallar Ridge. Additionally, detailed mapping of the 'T reflector' permitted to revise its nature, origin and tectonic/magmatic significance.