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Structure and Prospectivity of the European Atlantic Margin West of the Rockall Trough

The Hatton area, which forms the most westerly part of the UK designated area, remains relatively unexplored. New seismic, potential field and core data provide insights into the structure and petroleum potential of the region.

Interpretation of seismic data across the Hatton Basin has been hindered by the presence of lavas sourced from several volcanoes along the basin margins. One way to gain insight into the structure of the Hatton Basin is to study the structure of Hatton Bank. Differences between the refraction Moho and the Moho predicted from regional 3-D potential field modelling support a zone of underplating.

Interpretation of seismic across Hatton Bank shows a series of "windows" where Paleogene lavas are absent, and the pre-lava structure may be seen. In 1999, BGS drilled two shallow boreholes that penetrated the pre-volcanic sequence. Apatite fission track data from sandstones indicate significant uplift.

A near end Eocene event (C30) marks a major onlap surface, with younger sediments onlapping folded Paleogene lavas and sediments. The northern part of Hatton Bank is a major fold created at this time. A second angular unconformity occurs in the early Pliocene (C10) and is associated with uplift and erosion of northern Britain and Ireland and Hatton Bank.

Regional seismic data clearly demonstrates a major phase of folding associated with latest Eocene, but there is some evidence for a pre-Paleogene phase of deformation.