

## **Influence of Margin Segmentation upon the Breakup of the Hatton Bank Rifted Margin, NE Atlantic**

Elliott, Gavin <sup>1</sup> (1) Department of Earth Science & Engineering, Imperial College London, London, United Kingdom.

The Hatton Bank margin, flanking the Iceland Basin NE Atlantic, is an example of a volcanic rifted margin and has been studied to examine along margin tectono-magmatic variability. Integration of 5660 km of seismic reflection profiles with 60,000 km<sup>2</sup> of multibeam bathymetry has allowed the margin to be divided into three segments, each of which are flanked by oceanic crust. The southernmost segment is characterised by a series of inner and outer seaward dipping reflector (SDR) packages, which are separated by an "Outer High" feature. The outer SDRs are truncated by Endymion Spur, a chain of steep sided, volcanic cones connected by narrow septa or necks. The central segment has no Inner SDR package and is characterised by the presence of a continental block, the Hatton Bank Block (HBB). The northern segment is adjacent to Lousy Bank, and has a wider region of SDRs recognised than to the south with many volcanic cones recognised at the seabed.

The variations in the distribution of the SDRs along the margin, the presence of the HBB and Endymion Spur all suggest that the break-up process was not a uniform smooth process along-strike. Structural segmentation controlled the variations along the margin with break-up initiated in the south, producing the SDR packages. The HBB prompted the focus of break-up to relocate outboard of the block. The northern segment was closest to the Iceland "hot-spot", and regular seafloor spreading did not become established until Chron 21. Shortly after break-up, the eruption of Endymion Spur occurred and may have been triggered by the passage of a pulse of hot asthenospheric material along the margin.

The margin segmentation pattern we describe controlled the location of the enhanced volcanism along the Endymion Spur to the southern sector. In addition the segmentation has influenced the break-up style (presence or absence of SDR) and also the location and nature of post break-up volcanism.