

SEDIMENTARY RESPONSES TO EARLY PALEOGENE TECTONICS AND CLIMATIC CHANGE IN THE NORTH SEA BASIN

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The North Atlantic region experienced tectonic uplift at several times during the Paleocene and early Eocene, reflecting crustal developments associated with the rise of the proto-Iceland mantle plume and the onset of sea-floor spreading between Greenland and Scotland. These phases of uplift are reflected in the sedimentary record by erosion of marginal successions and displacement of shelf sands into deep-water environments. The presence of common to abundant distal tephra layers in these low-stand successions testifies to an association between uplift and phases of substantial explosive volcanism. Because of the strong tectonic control on sedimentation during the early Paleogene, it is difficult to detect any climatic influence on facies evolution. However, the record of detrital clay mineral composition shows significant variation, which is believed to be of climatic origin. In particular, influxes of kaolinite in the late Paleocene / early Eocene and again later in the early Eocene are believed to reflect increased chemical weathering during periods of warmer and more humid climatic conditions.