

Volcanogenic impact on phytogeography and sediment dispersal patterns in the NE Atlantic

D. W. JOLLEY,¹ A. MORTON^{2,3} and I. PRINCE⁴

¹ *Department of Animal and Plant Sciences, University of Sheffield, Denny Building, Western Bank, Sheffield S10 2TN, UK, (e-mail: d.jolley@sheffield.ac.uk)*

² *HM Research Associates Ltd, 100 Main Street, Woodhouse Eaves, Leics LE12 8RZ, UK*

³ *Department of Geology and Petroleum Geology, University of Aberdeen, Kings College, Aberdeen AB24 3UE, UK*

⁴ *Statoil Co, Ltek-Pe, Postboks N4035, Stavanger, Norway*

Abstract: The Paleocene sedimentary sequences of the Faroe Shetland Basin, northeast Atlantic, contain abundant palynomorphs (algae, pollen and spores). While one component of the palynoflora, the dinoflagellate cysts, has been used as the basis for biostratigraphical subdivisions of the succession, the terrigenous palynoflora is the more abundant. This terrigenous component was derived from two primary sources. The first, and most common source has an angiosperm palynoflora dominated by hickory types (*Momipites* species), which occur in association with plane types (various *Tricolpites* species) and *Ginkgo*. This palynoflora occurs commonly in most Faroe Shetland Basin wells throughout the early and mid Paleocene succession. A second flora, which is restricted to early and mid Paleocene successions in the west of the basin, has an angiosperm component dominated by *Cupuliferoipollenites* and *Cupuliferoidaepollenites* species (broadly, ash and chestnut types). This Greenland Flora is confined to four main stratigraphical pulses in the early and mid Paleocene, occurring more commonly in proximity to major transfer zones, and west of the Corona Ridge. This distribution pattern provides evidence of argillaceous sediment transportation from the west into the Faroe Shetland Basin via major transfer zones. Comparison to palaeoclimatic interpretations dispute a relationship between climate change and westerly sediment input into the Faroe Shetland Basin. Instead, a comparison is invited between pulses of igneous activity in the North Atlantic Igneous Province and sediment transfer from the uplifted eastern zone of the proto North Atlantic rift.

Keywords: NE Atlantic, Paleocene, sedimentary provenance, phytogeography, palynology, heavy minerals