

# **Stratigraphic evolution of sand provenance during Paleocene deposition in the northern North Sea area**

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## **ABSTRACT**

A garnet geochemical study of Paleocene sandstones in the northern North Sea has enabled the definition of six mineralogical units. The boundaries between these units are consistent with biostratigraphic events, indicating that they can be correlated on a regional basis. The units reflect marked changes in sediment provenance resulting from variations in the interplay between three source areas, all of which lay on the East Shetland Platform: the northern part of the Platform provided first-cycle metamorphic detritus, whereas the central and southern parts provided two different suites derived from Paleozoic or Mesozoic sandstones. Both local tectonism and relative changes in sea level controlled the changes in provenance and generated the markedly different regional geometries shown by the six units.