

Seismic and sequence stratigraphy of the eastern Porcupine Basin

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Project Outline

A series of pulsed progradational deposits, in shallow to deep water, characterise the Lower Cretaceous to Lower Tertiary successions of the eastern Porcupine Basin, offshore Ireland. These strata represent the deposits of the interplay of thermal subsidence, minor renewed localised rifting, regional epeirogenic movements and eustatic sealevel changes. While their regional setting is reasonably well constrained, their internal sequence stratigraphic architecture is poorly understood. The project will involve detailed seismic and sequence stratigraphic analysis of an extensive suite of seismic data, coupled with some well control. The aim of the project is to develop a better understanding of likely reservoir fairways within the clinoform and fan systems in the Early Tertiary and Early Cretaceous successions, and to evaluate the likely stratigraphic trapping components of the systems.

Project Terms: The MSc research project, funded by Petrel Resources plc, is for up to two years and is available from January 2012.

Provenance of Early Tertiary sandstones in the Porcupine Basin

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Project Outline

The Porcupine Basin is one of the largest of the Irish offshore sedimentary basin. Following a major phase of Jurassic rifting, the Cretaceous to Tertiary successions were deposited in a predominantly thermal subsidence setting, interrupted by minor periodic rifting, and regional epeirogenic movements and overprinted by eustatic sealevel changes. Well data in the northern part of the basin confirm the deposition of Late Paleocene and Eocene sandy deltaic strata. Seismic data suggest that these prograded across the shelf-slope break and deposited basin floor fan clastics further south in the basin. The aim of this project is to use well samples to develop an improved understanding of the nature and provenance of the Early Tertiary sandstones in the eastern and southeastern part of the basin. The project will involve wireline log analysis to assess the reservoir characteristics and palaeocurrent directions; petrographic analysis to determine compositional variations through the succession; the Pb isotopic composition of K-feldspar grains to determine the provenance of first cycle material in the detrital components of the succession.

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