

## **A Tectonostratigraphic History of Orphan Basin, Offshore Newfoundland, Canada**

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### **Abstract**

Recent drilling along the eastern margin of Orphan Basin (Fig. 1) and in the Flemish Pass, offshore Newfoundland, has spurred renewed interest in the economic potential of the region. Formation of Orphan Basin is linked to rifting and development of the North Atlantic Ocean, which began offshore Newfoundland as early as the Triassic and ended in the Early Cretaceous. The basin is positioned near a change in the spreading direction of the North Atlantic, with the onset of opening younging to the north. Plate reconstructions show a complicated interaction of small continental fragments in this region. An understanding of the evolution of the structurally and stratigraphically complex Orphan Basin has been primarily based on seismic data (e.g., Enachescu et al., 2005). Building on these detailed seismic studies, our approach incorporates well logs, core, cuttings, biostratigraphy, seismic data and subsidence history to understand tectonic drivers behind basin formation and the associated stratigraphic responses. Here we describe 7 significant tectonostratigraphic events that define the formation and infilling of Orphan Basin.