

SEDIMENT ROUTING TO THE CANADIAN NORTH ATLANTIC MARGIN: DELINEATING THE BOUNDARIES OF CRETACEOUS-PALEOCENE NORTH AMERICAN DRAINAGE REORGANIZATION

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ABSTRACT

The organization of North American fluvial systems has changed significantly through the Mesozoic and Cenozoic in response to tectonic and geodynamic controls. Early-mid-Cretaceous continental-scale paleodrainage and sediment routing to the Western Canada sedimentary basin, and late Cretaceous to Paleocene reorganization towards the Gulf of Mexico are becoming well established. However, the Canadian and US Atlantic margin represent a significant gap in understanding of drainage organization and sediment routing for this time period.

The proposed research will examine paleodrainage and sediment routing for the Mesozoic and Cenozoic Canadian Atlantic, using detrital zircon U-Pb geochronology and provenance, log correlations, seismic interpretations, and observations from core previously collected. The study will focus on the Jeanne d'Arc basin, which has Jurassic source rocks and a proven petroleum system, and is presently of great interest in the hydrocarbon industry. This study will focus on the Cretaceous Ben Nevis and Avalon Formations, and Paleocene Banquereau Formation. These data will be used to test existing Cretaceous-Paleocene paleodrainage reconstructions, establish the spatial patterns of sediment routing to the Canadian Atlantic margin, and predict the scale and volumes of basin-floor fans in deepwater basins.

AAPG Search and Discovery Article #90298 © 2017 AAPG Foundation 2016 Grants-in-Aid Projects