

## **Architectural elements of Mesozoic rift basin sediments - offshore Scotian margin**

Darragh E. O'Connor and Grant D. Wach  
Basin and Reservoir Lab, Department of Earth Sciences, Dalhousie University  
Halifax, Nova Scotia, Canada

The Mesozoic Scotian and Fundy basins reveal the 250 million year evolution of the Atlantic Ocean from a failed rift zone through to the present passive margin. The stratigraphic successions within these basins comprise early rift sediments of siliciclastics and evaporites, carbonate deposits, through to fluvial, deltaic, and deep water depositional systems.

Exceptional 2D and 3D conglomeratic sandstone outcrop exposures of the Triassic Wolfville Formation along the Bay of Fundy provide a reservoir analogue of a braid channel and sheet sand depositional system representing early fill of the basin. New and innovative technologies (aerial and ground-based LiDAR, Digital GPS, Ground Penetrating Radar, high resolution photogrammetry, scintillometer and permeameter measurements) have remarkably enhanced our ability to understand gas and fluid connectivity between architectural elements. Integrating these technologies with well and seismic data, outcrop analysis, and thin section evaluation will allow for a comprehensive examination and delineation of architectural elements leading to one of the largest 2D and 3D geological outcrop-derived reservoir models for history-matching producing fields. These data are also applied to understand the potential of hydrocarbon systems within the Scotian and Fundy basins.