

# CHARACTERIZING AND QUANTIFYING THE EVOLUTION OF AN INTRACRATONIC RIFT AND THE EFFECTS OF ZIRCON SIZE AND RADIATION DAMAGE ON (U-TH)/HE COOLING AGES

Rebecca Hardie

*Earth Science, University of Ottawa, Ottawa, Ontario, Canada*

[rhard006@uottawa.ca](mailto:rhard006@uottawa.ca)

## Abstract

As a significant portion of the world's oil reserves are retrieved from rift systems, a better understanding of the timing of thermal evolution and burial history of these systems will increase the potential for the discovery of hydrocarbon-bearing rifts. The Ottawa Embayment is a reactivated intracratonic rift basin related to the opening of the Iapetus Ocean ca. 620-570 Ma, followed by the formation of a well-developed continental passive margin. Through thermal modeling, preliminary rift flank (U-Th)/He thermochronology ages correspond to post-Grenville cooling with no post Carboniferous burial. This data defines slow and long episodes of syn- to post-rift cooling. Further analysis of samples along the flank and into the synrift sedimentary sequence of the embayment will ultimately constrain, identify and quantify the thermal changes in the basin-orogen system and improve our understanding of the rift related history in the region.

AAPG Search and Discovery Article #90249 © 2016 AAPG Foundation 2015 Grants-in-Aid Projects