



The Onset of the Icehouse World

David Bell (1), Simon Jung (1), Dick Kroon (1), David Hodell (2), and Lucas Lourens (3)

(1) School of Geosciences, University of Edinburgh, Edinburgh, UK, (2) Department of Earth Sciences, University of Cambridge, Cambridge, UK, (3) Faculty of Geosciences, Utrecht University, Utrecht, Netherlands

The closure of the Central American Seaway (CAS) is believed to be a key prerequisite in setting the stage for the modern icehouse world. One of the main implications is that this closure would have resulted in enhanced formation of North Atlantic Deep Water (NADW) and a better ventilated deep Atlantic. Evidence for this increase in ventilation, however, is limited, particularly in the South Atlantic. Here, we present a $\delta^{13}\text{C}$ profile from South Atlantic ODP Site 1264 taken at 2,507m water depth on the crest of Walvis Ridge. This site is currently bathed in upper NADW. The new $\delta^{13}\text{C}$ -isotope record fails to show the predicted trend of enhanced ventilation across the final stages of the closure of the CAS. Comparison with other records from the North and South Atlantic suggests that there are other controls than enhanced NADW formation to explain the $\delta^{13}\text{C}$ -isotope differences through time. Potential factors may include variations in preformed $\delta^{13}\text{C}$ -values at sites of deepwater formation or locally changing water mass distribution patterns. This study aims to establish a similar record for deep water Site 1267, retrieved from the deep Angola basin (4,356m). This will enable a more in depth assessment of the long-term trends of deepwater ventilation affecting the South Atlantic and their global significance.