

***Water mass change in the Western Interior Seaway through OAE2: Evidence from geochemical and foraminiferal records***

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**INTRODUCTION**

Oceanic Anoxic Event 2 (OAE2) occurred during the latest Cenomanian (~94.3 Ma) and is defined by a globally observed, positive carbon isotope excursion that represents a perturbation to the carbon cycle, and is associated with increased carbon burial (black shales). Through this interval, the Western Interior Seaway (WIS) occupied a foreland basin in the western US and supported a low diversity community of planktic and benthic foraminifera.

In the WIS, OAE2 is well defined by multiple ‘bio-events’ observed at sites across the seaway. For example, the onset of OAE2 is marked by the ‘Benthonic Zone,’ a rapid increase in diversity and abundance of benthic foraminifera, especially the infaunal, calcareous benthic foraminifera *Neobulimina albertensis* [1]. The ‘Benthonic Zone’ has been interpreted as a ventilation of the seafloor, and at sites like Rock Canyon, CO, %TOC is lowest of this event, which may indicate improved seafloor oxygenation at the onset of OAE2 in the WIS [2, 3].

**THIS STUDY**

Here, foraminiferal assemblages, %TOC and carbon isotopes will be used to interpret water mass change throughout the WIS during OAE2. To better understand the paleoceanographic implications of the observed bio-events, comparative stable isotope analysis of carbon and oxygen isotopes will be conducted on well preserved specimens from sites across the seaway to investigate the preferred depth habitat of the specimens [3]. This will inform the paleoceanographic interpretation of the bio-events and contribute towards a broader understanding of water mass change in the seaway during OAE2.

**REFERENCES** [1] Eicher & Worstell, *Micropaleo.* 1970. [2] Elderbak & Leckie, *Cret Res.* 2016. [3] Caron et al., *GeoBios.* 2006. [4] Pearson et al., *Journal Foram Res.* 1993.