Poster

METHANE COLD SEEPS AS LATE CRETACEOUS REFUGIA

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Methane cold seeps are widely documented in the Late Cretaceous Western Interior Seaway (WIS) of North America. Recent studies suggest that these seeps acted as refuges during times of environmental perturbation (e.g., ash falls or bottom water anoxia). Our study tested this hypothesis by examining changes in biodiversity across bentonite beds located near methane seeps. Bulk samples were collected above and below a 10 cm bentonite in the Pierre Shale near a methane seep exposed along a cut-bank of the Cheyenne River in Pennington County, SD. This seep was active during the *Baculites compressus* Zone within the upper Campanian. Simpson's D was used to compare biodiversity below and above this ash fall event. Initial results show that the majority of species declined in abundance across the ash fall event with the exception of the inoceramids. The diversity index ranged from D = 0.18 at the lowest horizon below the bentonite to D = 0.0 at the highest horizon above the bentonite. The total number of species in the study area is 27. The most common species observed were *Inoceramus proximus*, *I. perovalus*, and *Pecten kaufmanensis*. Preliminary results indicate that seep-associated fauna were less negatively impacted by environmental perturbations such as ash falls than taxa far from seep localities under similar circumstances, such as those described by Perrier et al. (2012) and Waśkowska (2011). Thus, our study provides support for the methane seep refugia hypothesis.

References

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