DINOFLAGELLATE DIVERSITY AT THE KT BOUNDARY,BASS RIVER SECTION, NJ -SEA LEVEL CHANGE OR METHANE BURP? OR BOTH?

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The Bass River section in New Jersey is well-known for its spherule layer at the Cretaceous-Tertiary boundary (KTb). This layer correlates precisely with the age of the bolide impact in the Yucatan Peninsula at Chicxulub, Mexico and provides further evidence of its linkage to the mass extinctions at the Ktb.
The total number of species and the species/specimens ratio were used to determine dinoflagellate diversity below and across the Ktb at Bass River, in lithologies varying from glauconitic sandy clays to laminated clays, respectively. The number of dinoflagellate species declines rapidly just subjacent the boundary and rises sharply across it . We have used these data to interpret a short-lived (tens of thousands of years?) episode of relative sea level fall immediately before the end of the Cretaceous Period. A recent hypothesis has been proposed to explain this dramatic change, based on data from O16/O18 isotope data; that is, that the episode adjacent the boundary was produced by a substantial rise in global temperatures due to a large scale extrusion of methane from the Earth's interior. These two hypotheses are compared.