

"IT WAS THE BEST OF TIMES, IT WAS THE WORST OF TIMES": BIOTIC CONSEQUENCES OF THE LATE PALEOCENE THERMAL MAXIMUM

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Scientists must look to abrupt ancient global warming events to help predict the possible climatic extent and ecological and oceanographic consequences of modern warming. The Late Paleocene Thermal Maximum (LPTM) event which occurred 55 million years ago, is one of the best examples of an abrupt ancient global warming episode. This event was marked by dramatic high latitude and deep ocean warming, calamitous extinction in the deep sea, a burst of mammalian evolution, and major changes in the nature of global carbon cycling—all of which occurred in a geologic heartbeat. Postulated causes include effusive and/or catastrophic explosive volcanism and dissociation of marine methane hydrate deposits. Recent ODP results help constrain the climatic, oceanographic and biological effects of the LPTM and their complex relationships. We can now estimate the timing and duration of the major changes with precision, and recently-acquired knowledge allows us to better focus on the potential causes of this remarkable global warming event. Dr. Bralower is Professor and Chair of Geological Sciences at the University of North Carolina at Chapel Hill. He is a micropaleontologist by training with an active interest in paleoceanography. Bralower sailed as a paleontologist on Legs 122 (Exmouth Plateau, Indian Ocean), 143 (Atolls and Guyots, Pacific Ocean), and 165 (Caribbean Sea).