

**SKIP AN ABYSSAL PERSPECTIVE ON
THE PALEOCENE-EOCENE BOUNDARY
EVENT: PRELIMINARY RESULTS FROM
ODP LEG 199, CENTRAL TROPICAL
PACIFIC OCEAN**

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Ocean Drilling Program Leg 199 drilled a latitudinal transect across the equatorial Pacific at the time of the Paleocene/Eocene boundary. The recovered boundary sections reveal a new perspective upon the P/E boundary event--one filtered by interactions with the abyssal waters of the Pacific Ocean, the largest abyssal water mass. Four P/E boundary intervals were recovered at 3 separate drillsites spanning paleolatitudes from about 1 degree S to about 11 degrees N. All sites were located near the ancient spreading center to be as shallow as possible yet still remain on normal ocean crust. The P/E boundary interval is marked by a disappearance of carbonate at all sites, indicating that the CCD was shallower than 2.8-3 km water depth during the P/E event, rather than ca. 3.2 km typical for much of the rest of the Eocene. The extinction of benthic foraminifera is coincident with the disappearance of carbonate from the section.

We do not find evidence for abyssal stagnation during the P/E event. The sediments are well-oxidized and redox sensitive elements (e.g. Mn and Fe) are present throughout the Paleocene and lower Eocene section. Organic carbon is extremely low, except in specific layers in the lower Eocene well above the P/E boundary. Sufficient oxygen to prevent sediment anoxia appears to have been carried by deep circulation to the equatorial Pacific region throughout the P/E boundary interval. Manganese may have been remobilized at one point during the P/E excursion near the paleoequator but appears to be near the end of the event rather than the beginning.

Sediments recovered above and below the P/E boundary allow the study of the biotic evolution associated with the P/E boundary . Planktonic foraminiferal “excursion fauna” were found to have been present in the equatorial Pacific in the Paleocene prior to the P/E event but only became abundant elsewhere during the global warming associated with the P/E boundary, while nannofossil extinctions previously associated with the event actually occurred above it. Thoracosphaera cysts, representing a disaster flora found at the K/T boundary, were found in the Leg 199 P/E boundary intervals.

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