

MARINE FRONTIERS ABSTRACTS

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Bathymetry, Tectonics, and Stratigraphy of Northeastern Slope of Manihiki Plateau, Pacific Ocean

An area of 1,800 km², about 60 km northwest of Rakahanga (Cook Islands) at the northeastern slope of the Manihiki Plateau, was surveyed with a multibeam echo sounder and a 3.5-kHz subbottom profiler. One of two 300-m deep canyons marks the trace of a northeast-dipping listric fault. The fault results from a rotation of the crustal block between the plateau margin and the canyon. The block tilting has caused the exposure of basaltic basement and a 200-m thick layer of volcanoclastic rocks lying above it. This same layer was cored at DSDP Site 317, 200 km away at the center of the high plateau part of the Manihiki Plateau. The thickness and distribution of this layer indicate a significant explosive volcanic event occurred during the Late Cretaceous in this region.