

THE LINK BETWEEN OCEAN CIRCULATION AND GLOBAL WARMTH OF THE EARLY PLIOCENE

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One approach to understanding the role of ocean circulation in determining climatic patterns during periods of global warmth is to study the sedimentary record of oceanographic changes from critical periods in Earth's history. For this reason, the Ocean Drilling Program has targeted sites where sediments from past periods of global warmth can be recovered. Paleooceanographic records from the Early Pliocene, the most recent period of sustained global warmth, have been generated in enough locations that a global picture of ocean circulation during this warm period is beginning to emerge. There is evidence for stronger than modern ventilation, or density driven circulation in the North Pacific and North Atlantic. In addition, there is some evidence for stronger than modern wind-driven surface ocean circulation within the sub-tropical gyres. Dr. Ravelo will discuss the rationale for studying the paleoceanography of warm periods, the drilling and sampling strategy behind reconstructing global circulation changes, and the deep sea sedimentary evidence for and implications of oceanographic conditions during the Early Pliocene. Dr. Ravelo sailed on ODP Leg 167 (California Margin) as a stratigraphic correlator/logging scientist and on Leg 138 (East Equatorial Pacific) as a sedimentologist.