

RECONSTRUCTION, MAPPING AND MODELING OF NEOGENE OCEANS

Smolka, P., Geological Institute, University Muenster

The Neogene is a key time-slice for the understanding of climates that are, at least partially, characterized by greenhouse conditions. Therefore for several hundred worldwide distributed DSDP and ODP sites fauna-based time-series, that extended in many cases well back into the Miocene, have been established. These show consistently the development of ocean currents through time, including changed intensities of the Pacific gyre, the (nearly) worldwide impact of the closure of the Isthmus of Panama and temperature fluctuations near watermass-boundaries. As also in the Neogene considerable climatic fluctuations exceeding any potential direct man-made impact by far, also for potential greenhouse climates the conclusion not to change anything regarding the present-day natural equilibrium is permitted. Using a worldwide uniform stratigraphic standard (established within IGCP-341) these time-series have been synchronized to maps at an interval of 1 my. This series of maps is used to be coupled with an atmospheric general circulation model to approximate non-reconstructable parameters, such as precipitation. The talk presents time-series, maps and modeling results.