

SEA-LEVEL CHANGES: THE PULSES OF SEDIMENTATION ON CARBONATE PLATFORM MARGINS

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In the Ice-House world of the Neogene, waxing and waning of polar ice sheets has caused numerous high-amplitude sea-level changes. These glacio-eustatic changes are well-documented in the stable isotope composition of marine microfossils and can be correlated to orbitally induced climate changes. Lower-amplitude sea-level changes are recorded in the sediments deposited along continental margins as unconformity bounded depositional sequences, which can be imaged seismically. The cause and timing of these sedimentary boundaries are still not well understood. In his talk, Dr. Eberli will discuss the contributions of ODP Leg 166 to the understanding of global sea level changes and the application of the sequence stratigraphic concept. Cores from ODP Leg 166, along a transect from the upper slopes of Great Bahama Bank to the Straits of Florida, provide a unique sedimentary record of Neogene sea level changes in a carbonate environment. In his presentation, Dr. Eberli will show how facies successions within Leg 166 cores indicate sea-level changes of different frequencies. Pulses of progradation that are recognized on seismic data as sequences have been correlated with ODP cores and have been shown to be a result of high-frequency alternations between layers containing more platform-derived material and layers containing more pelagic sediments. Dr. Eberli has sailed as a physical properties specialist on Leg 101 and more recently as co-chief scientist on Leg 166.