PLEISTOCENE SEA LEVELS AND SEISMIC STRATIGRAPHY

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ABSTRACT

Close scrutiny of the global oxygen isotope record, depicting climatic changes and correlative fluctuations in sea level over the past million years, reveals a complex yet well-defined cyclic saw-tooth curve. Individual 100 ka (Milankovitch) cycles depict changes in sea level on the order of 100 meters (330 feet). The curve is characterized by slow irregular drops from sea level high stands (regressions) lasting approximately 80 ka; while the low stands are followed by relatively rapid rises (transgressions) of approximately 10 ka in duration. This record.contradicts those published eustatic curves currently used in the interpretation of Pleistocene seismic stratigraphic sequences. Interpretations of high resolution seismic reflection profiles, in terms of measured and oxygen isotope-derived sea level curves, reveal the finer details of the Pleistocene sedimentary depositional record; where individual stratigraphic sequences may be accurately correlated with fluctuations in sea level, where the systems tracts geometrics define the specific sedimentary depositional enviroments. Detailed interpretations based upon available sea level curves and oxygen isotope data should greatly enhance exploration efforts, by providing seismic stratigraphic models tied directly to time-spatial climatic sedimentary distribution systems.