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SPECIAL THEMATIC SECTION

Episodic Sea-Level Change During the Quaternary: Evidence from the Southeastern U.S.

A symposium on the topic of episodic sea-level change during the Quaternary was convened as part of the Southeastern Section meeting of the Geological Society of America on April 1–2, 1993, in Tallahassee, Florida. The symposium was organized for the purpose of examining and comparing some of the recent evidence for episodicity in sea-level change and in the geologic response to such changes. The sessions examined the evidence of Quaternary sea level history which has been gathered in recent years through geologic, paleontologic and geophysical studies in the southeastern United States region. A total of twenty papers was presented. A selection of those papers has been expanded into the collection presented in this special section. The subjects of the papers are diverse, both geographically (Delaware to Alabama and the Bahamas) and temporally (early Pleistocene to late Holocene), but all share a common theme: the development of high-resolution chronologies of sea level and climate change in the west-central Atlantic and Gulf of Mexico basins during the Quaternary.

John and Pizzuto describe a rapid transgression approximately 2,000 yr BP in the Delaware Estuary. Using radiocarbon dates and pollen evidence in a suite of cores, they attribute the pattern and timing of environmental change in the estuary to an acceleration in the rate of sea-level rise at that time. *Oertel and Foyle* discuss the results of a high-resolution seismic study of the inner continental shelf and estuarine areas north of the mouth of the Chesapeake Bay. They conclude that the seismic stratigraphic record of the region is considerably more complex than has been proposed to date. The southern Delmarva Peninsula has evolved through spit progradation during highstands. Stream capture following highstands has constricted the outer part of the Chesapeake basin, resulting in progressively fewer drainage pathways for the lower reaches of the ancestral Susquehanna River with time. *Chen et al.* describe a set of cores and high-resolution seismic data on the inner shelf of Virginia south of the Chesapeake Bay mouth. They delineate three buried channel systems, with channel size increasing with the age of the channel system. The channels were incised during the lowstands of oxygen isotope stages 12, 6 and 2, based on aminostratigraphic analysis.

Scott et al. discuss evidence from South Carolina for an acceleration of sea-level rise during the period 5,500–3,500 yr BP. The 2 m rise, which is not predicted by geophysical models of sea-level change, is a potential analog for a greenhouse-effect sea-level rise projected by some climate models. *Dockal* analyzes the published record of marine samples found at or near modern sea level along the Atlantic coast of the Southeast which are mid-Wisconsinan in age, based on radiocarbon dating. Such samples are considerably out of agreement with oxygen isotope-based sea level curves. He presents an hypothesis and a model to explain the disagreement: increased cosmic-ray activity for a brief period about 60,000 yr BP, increasing C-14 production in the atmosphere at that time. *Guccione* examines the sediments of the Peace River, a karst-influenced coastal plain stream on the southwest coast of Florida. Her study demonstrates the indirect way in which valley incision responded to sea-level fluctuations during the middle and late Holocene.

Donoghue and White present sedimentologic, archaeologic and seismic evidence for sea-level change and delta migration in the northeastern Gulf of Mexico. They compare the middle and late Holocene record of sea-level fluctuations for various sites throughout the Southeast, and dis-

cuss evidence for higher-than-present sea level during the late Holocene. *Schroeder et al.* describe a study of radiocarbon-dated oyster shells from the continental shelf off Alabama. They find little evidence for cross-shelf transport of shells. They sampled estuarine shell lag deposits in mid-shelf areas which gave evidence of a decrease in the rate of sea-level rise during the periods 9,800–9,000 yr BP and 8,200–7,800 yr BP. *Hearty and Kindler* develop a sea-level scenario for the past 1.2 ma. Their data, based on radiometric, stratigraphic and geomorphologic evidence from Bermuda and the Bahamas, include both highstand reef deposits and lowstand paleosols. The record indicates two positive sea levels during the early Pleistocene, at least three highstands during the mid-Pleistocene and two or three highstands during the early Sangamonian. No evidence was found for a higher-than-present Holocene sea level.

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