

# Offshore CO<sub>2</sub> Storage Assessment for the Southeastern U.S.: Regional Setting of Mesozoic Reservoirs

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## Abstract

Evaluation of an extensive 2-D seismic reflection dataset and associated exploration wells on the southeast U.S. Atlantic margin, previously unavailable to the public, formed the basis for the first quantitative assessment of offshore storage potential for CO<sub>2</sub> as part of the Southeast Offshore Storage Resource Assessment (SOSRA) sponsored by the U.S. Department of Energy. Following terminal Late Paleozoic collision of Gondwana and Laurentia, and development of Triassic continental rifting, a thick sequence of Jurassic through Cretaceous strata accumulated on the continental margin. Contrary to earlier interpretations, Triassic extensional grabens are absent on the continental shelf in this region, and the overlying Mesozoic section rests unconformably on strata of the Suwannee basin sequence of Gondwanan affinity. Derivation of seismic velocities from archived seismic reflection stacking velocities allowed for creation of a velocity volume for the upper crust of the continental shelf. Mantle velocities (8.0 km/sec) originally measured in pioneering marine refraction studies occur at mid-crustal depths, suggesting that current models for the tectonic evolution of the margin may not accurately reconstruct the subsidence history of this region.