Bird, D. E., Burke, K., Hall, S. A., and Casey, J. F., 2008, **Triassic – Jurassic kinematics of the Gulf of Mexico, Central Atlantic Ocean, and North America** (abstract): Geological Society of America Annual Meeting, p. 289-2.

Closing ocean basins along geomagnetic isochrons is an objective way of reconstructing continents because, in general, intracontinental extension stops on passive margins once new oceanic lithosphere is created. Holding Africa fixed, we closed the South Atlantic Ocean to Chron M4 (126.6 Ma) and the Central Atlantic Ocean to Chron M40 (165.1 Ma). In this configuration, and with the Gulf of Mexico closed by clockwise rotation of the Yucatan continental block (approximately 42 degrees), the positions of North America and South America indicate that the Gulf of Mexico opened at least 20 My after the opening of the Central Atlantic Ocean (ca. 180 Ma) and the breakup of Pangea. The Gondwanan parts of eastern Mexico, Yucatan, Florida, and the rest of the United States south of the Suwaneee-Marathon Suture, remained attached to Laurasia after the breakup of the supercontinent. The Gulf of Mexico formed in Late Jurassic to earliest Cretaceous times (ca. 160 Ma to 140 Ma) by counterclockwise rotation (approximately 42 degrees) of the Yucatan Block. Two prominent basement structures, defined by seismic refraction and gravity data, are interpreted to be hotspot tracks created by a single mantle plume during this rotation. A third prominent basement structure is interpreted to be a marginal ridge that formed along the ocean-continental boundary as the transform between the Yucatan Block and eastern Mexico developed. The Gulf of Mexico formed by sea-floor spreading associated with the mantle plume eruption (ca. 150 Ma to 140 Ma) after initial rifting and extension of continental crust. Salt deposition on extended continental crust was widespread at a time between ca. 160 Ma and ca.150 Ma.