

Bird, D. E., Hall, S. A., Burke, K., Casey, J. F., and Sawyer, D. S., 2004, **Early seafloor ridge jumps in the Central Atlantic Ocean** (abstract): *Eos, Transactions, American Geophysical Union, Fall Meeting Supplement*, v. 85, n. 47, T33B-1384.

Five Mesozoic Chrons from M28 to M40, in the Jurassic Magnetic Quiet Zone (JMQZ), have been mapped between Atlantis and Fifteen-Twenty fracture zones on the North American flank, and between Atlantis and Kane fracture zones on the African flank, of the central Atlantic Ocean. We interpret two seafloor spreading ridge jumps to have occurred during the early evolution of the central Atlantic: one ~170 Ma on the western flank, the other between 164 Ma and 159 Ma on the eastern flank. These jumps may be related to changes in plate motions as North America separated from Gondwana. Chron 40 (167.5 Ma) anomalies are mapped about 65 km outboard of the Blake Spur Magnetic Anomaly (BSMA) of North America, and the conjugate S1 anomaly of Africa. The East Coast Magnetic Anomaly (ECMA), which coincides with seaward-dipping reflectors, is located about 180 km inboard of the BSMA. In contrast, anomaly S3 which is interpreted as the conjugate of ECMA on the African side is located only 30 km inboard of S1. Therefore the long-hypothesized ridge jump to the east between BSMA and ECMA anomalies (~170 Ma), by Vogt in 1971, is supported by this study. The width of the JMQZ between Atlantis and Kane fracture zones is about 70 km greater (i.e., ~22%) on the African side than on the North American side. Inspection of magnetic anomalies in the JMQZ reveals additional correlatable features over Africa that suggest to us a second ridge jump occurred, in this case to the west. Modeling results indicate that this jump occurred between 164 Ma and 159 Ma, approximately the same time that some workers have suggested for the onset of seafloor spreading in the Gulf of Mexico.