

Altamira, A., Bird, D. E., and Burke, K., 2008, **Role of the northern Caribbean Plate boundary zone in concentrating movement between the Americas during the past 70 million years** (abstract): Geological Society of America, Annual Meeting, p. 154-12.

Relative movements between the North and South American continents (NOAM and SOAM) have for long been estimated from ocean floor magnetic anomalies in the Central Atlantic and South Atlantic Oceans. A limitation of that approach is that it yields no information about where the movements have been concentrated. Here we address that issue by comparing the results of estimates of relative motion based on Atlantic Ocean floor data with contemporary evidence of localized deformation in plate boundary zones (PBZs) on the northern and southern margins of the Caribbean Plate (CARIB). Since it formed at ca.75 Ma CARIB has been introduced into the region between N. and S. America and has grown to occupy an increasingly large area. Within that area relative motion between NOAM and SOAM has been concentrated in the two PBZs. A new sequence of plate rotations for 9 discrete intervals describing NOAM-SOAM relative motion during Late Cretaceous and Cenozoic times (84 Ma-0 Ma) has been compared with evidence of motion in the two CARIB-bounding PBZs over the same nine intervals. Major findings are (1) For specific intervals of time deformation in the PBZs, has generally been consistent with relative motion estimated from magnetic anomalies. (2) Convergence of NOAM with SOAM from ca.69 Ma to ca.38 Ma was accommodated dominantly in the NOAM-CARIB PBZ. (3) Only convergence and divergence secondary to E-W transform motion is discernible in the CARIB-SOAM PBZ, except in the Maracaibo Block, where motion relates to the collision of the Panama Arc within the past approximately 10 Ma.