

Bird, D. E., 2005, **Jurassic to present tectonic plate motions: North America, South America, Africa, and the Caribbean** (abstract): Geophysical Society of Houston, v. 40, n. 3, p. 9.

Quantitative analyses of relative tectonic plate motions is best accomplished by interpreting gravity and magnetic data. Geomagnetic polarity reversals produce narrow, linear magnetic anomaly stripes over ocean basins that are oriented sub-parallel to sea floor spreading centers. Overall, these anomalies can be considered to coincide with great circles (e.g., lines of longitude) intersecting at Euler pole positions used to describe the relative rotation between plates. Satellite-derived free air gravity anomalies reveal fracture zones in ocean basins. The off-axis segments of fracture zones are fossil transform faults. Fracture zones are considered flow-lines that describe the relative motion between plates, and conjugate fracture zone segments generally coincide with small circles (e.g., lines of latitude) that describe rotation about an Euler pole.

New Euler pole positions have been calculated for: North American – African, South American – African, and South American – Caribbean relative plate motions respectively. The time intervals analyzed: North American – African plates is Late Bathonian (M40, 165 Ma) to Early Aptian (M0, 125 Ma), for South American – African plates is Early Barremian (~130 Ma) to Late Maastrichtian (C30, 66 Ma), and South American – Caribbean plates is Late Paleocene (C25, 57 Ma) to present. Reconstruction examples show relative positions of basins and geological features.