Recent identification of M-series marine magnetic anomalies over the Santos and Campos Basins of Brazil (Chrons M4 to M0), and over the Orange and Cape Basins of South Africa (Chrons M11 to M0), indicate that seafloor spreading between South America and Africa initiated in the southernmost part of the ocean basin at ~135 Ma, and progressed northward where Brazil separated from Angola at ~131 Ma. The ~44 mm/a initial spreading rate decreased to ~29 mm/a when the spreading center reached this approximate mid-point between the two plates. Total reconstruction poles, from early break-up to present day, also progressed northward: approximately 39° N to 72° N. Understanding the nature of continental crust deformation, prior to these rigid plate motions, along the conjugate margins is essential to understanding the early evolution of the South Atlantic Ocean Basin. Permo-Triassic basins and foldbelts, which formed along the Panthalassan margin of Gondwana in austral South America and South Africa, may provide key insights for this understanding.