



Was the Mid-Continent Rift part of a successful seafloor-spreading episode?

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The ~1.1 Ga Mid-Continent Rift (MCR), the 3000-km long largely-buried feature causing the largest gravity and magnetic anomaly within the North American craton, is traditionally considered a failed rift formed by isolated midplate volcanism and extension. We propose instead that the MCR formed as part of the rifting of Amazonia (Precambrian northeast South America) from Laurentia (Precambrian North America) and became inactive once seafloor spreading was established. A cusp in Laurentia's apparent polar wander path near the onset of MCR volcanism, recorded by the MCR's volcanic rocks, likely reflects the rifting. This scenario is suggested by analogy with younger rifts elsewhere and consistent with the geometry and timing of Precambrian rifting events including the MCR's extension to southwest Alabama along the East Continent Gravity High, southern Appalachian rocks having Amazonian affinities, and recent interpretation of large igneous provinces in Amazonia.