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Continental break-up along strike-slip fault zones; observations from Equatorial Atlantic.

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The study focuses on Equatorial Atlantic margins and draws from seismic, well, gravimetric, and magnetic data combined with thermo-mechanical numerical modeling.
Our data and numerical modeling indicates that early drift along strike-slip-originated margins is frequently characterized by up to 10-20o spreading vector adjustments. In combination with the warm, thinned crust of the continental margin, these adjustments control localized transpression.
Our observations indicate that early-drift margin slopes are too steep to hold sedimentary cover, which results in their inability to develop a moderately steep slope undergoing cycles of gravitational instability resulting in cyclic gravity gliding. These slopes either never develop such conditions or gain them at later development stages.
Our modeling suggests that the continental margin undergoing strike-slip-controlled break-up experiences warming due to thinning along pull-apart basin systems. Pull-apart basins eventually develop sea-floor spreading ridges. Margins bounded by strike-slip faults located among pull-apart basins with these ridges first undergo cooling. However, spreading ridges leaving the break-up trace along its strike eventually pass by these cooling margins, warming them again before the final cooling proceeds. As a result, the structural highs surrounded by several source rock kitchens witness a sequential expulsion onset in different kitchens along the trajectory of spreading ridges.